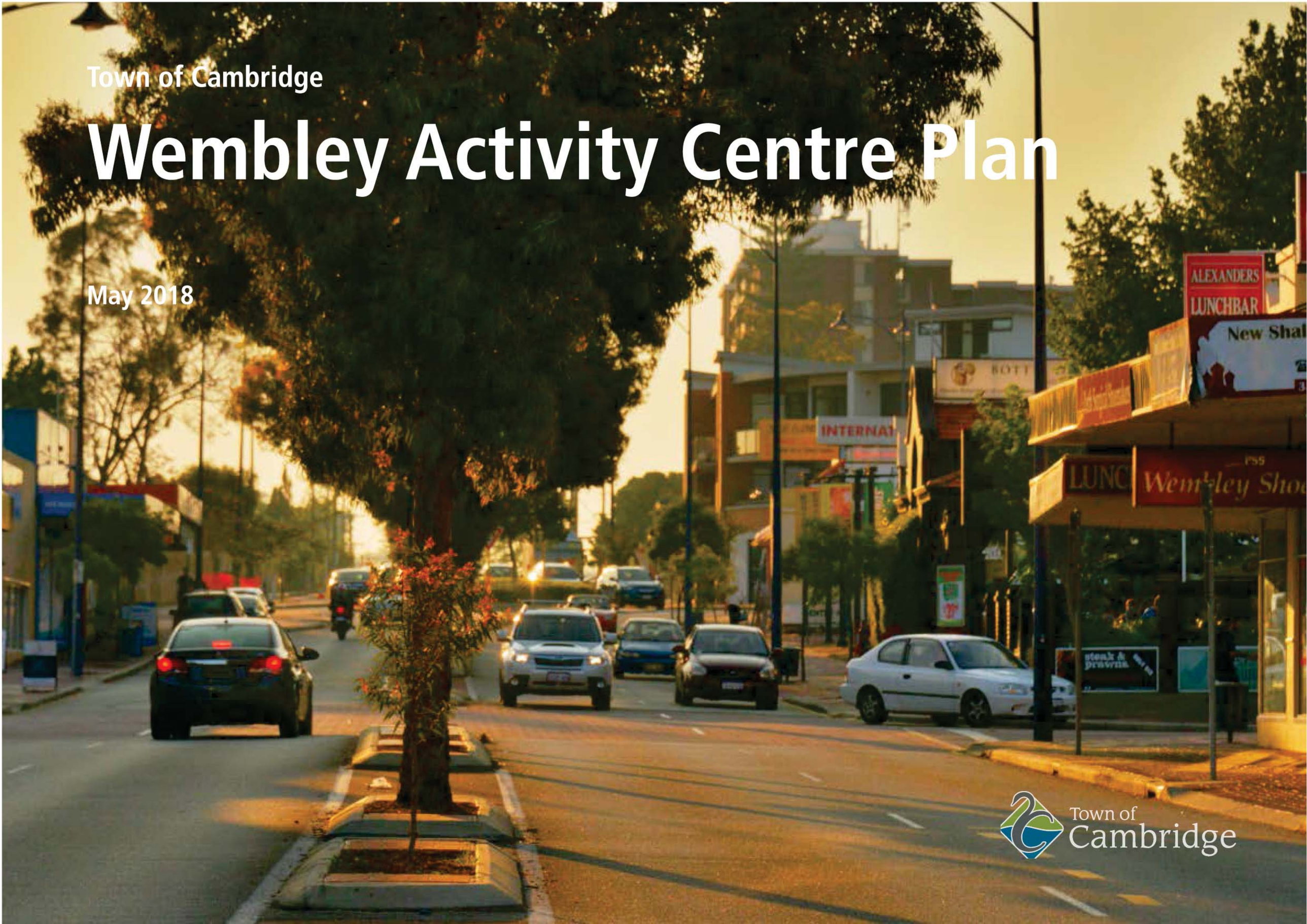
Town of Cambridge

Wembley Activity Centre Plan

May 2018



Town of Cambridge

Record of Endorsement

This structure plan is prepared under the provisions of the Town of Cambridge Town Planning Scheme No. 1

IT IS CERTIFIED THAT THIS STRUCTURE PLAN WAS APPROVED BY RESOLUTION OF THE WESTERN AUSTRALIAN PLANNING COMMISSION ON:

26 June 2018

Signed for and on behalf of the Western Australian Planning Commission:

an officer of the Commission duly authorised by the Commission pursuant to section 16 of the Planning and Development Act 2005 for that purpose, in the presence of:

Witness

__18 July 2018__ Date

__26 June 2028__ Date of Expiry

Table of Amendments

Amendment No.	Summary of the Amendment	Amendment Type	Date approved by WAPC

The Town acknowledges RPS Group and Aurecon for their contributions in preparing the Wembley Activity Centre Plan.

Table of Contents

Executive Summary

The Wembley Activity Centre Plan sets the land use and development framework for the Wembley District Centre which includes those lots either side of Cambridge Street between Marlow and Essex Street and lots on the northern side of Salvado Road from Marlow Street to Bishop Street (as indicated in the Structure Plan Map on the following page).

This document comprises:

Part 1 - Implementation - This section provides the development standards for future development in the centre; and

Part 2 - Explanatory - This section provides background to the development of the Plan.

Land within the Activity Centre Plan area is currently zoned Local Centre and Residential. The Activity Centre Plan proposes lots on both sides of Cambridge Street be zoned District Centre to support mixed use development and that the lots north of Salvado Road be rezoned to Residential R-AC0. An amendment to Town Planning Scheme No.1 is necessary to implement these zonings. Town Planning Scheme No.1 prevails over the extent of any inconsistency in the Wembley Activity Centre Plan.

The Wembley Activity Centre has been split into six precincts, each with specific development requirements.-

- **Precinct 1 - Anchor Site 1** is to become the key focus point of the centre and is to feature a landmark development with a public plaza and mixed use development incorporating the Wembley Hotel building.
- **Precinct 2 - Anchor Site 2 and 3** are to collectively become the second focus point along Cambridge Street. The sites will feature landmark buildings including public open spaces.
- **Precinct 3 - Cambridge Street West** will continue to be the core of the centre connecting the three anchor sites and consisting of mixed use development with small open spaces and pedestrian linkages.
- **Precinct 4 - Cambridge Street East** will form the run up to the core of the centre and incorporates the existing Nanson Street shops. The existing low scale will be respected with retention of pre-war buildings.
- **Precinct 5** - The **Salvado Road** precinct will remain predominantly residential providing a desirable setting for apartments overlooking Henderson Park.
- **Precinct 6 - Henderson Park** will remain as open space and form an attractor with a strong connection to the rest of the centre.

The Activity Centre Plan also consists of principles for topics including Land Use, Built Form, Public Realm and Movement and Access which should also be met.

Summary Table

Item	Data	Structure Plan Ref (section no)
Total Area covered by the Activity Centre Plan (approx)	68Ha	Activity Centre Plan Map
Area of each land use proposed **- Residential (only)** **- Mixed Use** **- Parks and Recreation**	 2.7 Hectares 8.5 Hectares 4.1 Hectares	
Estimated number of dwellings	830	Land Use (2.6)
Estimated residential site density	R30-35	Land Use (2.6)
Number of High Schools	0	n/a
Number of Primary Schools	0	n/a
Estimated commercial floor space	52852m2	Land Use (2.6)

Activity Centre Plan Map

Part 1 - Implementation

1.1 Introduction

1. Activity Centre Plan Area

This structure plan shall apply to the Wembley Activity Centre being the land contained within the inner edge of the line denoting the structure plan boundary on the Activity Centre Plan map on Page 7.

2. Activity Centre Plan Content

This structure plan comprises the following sections:-

Part One -Implementation

This section contains the Activity Centre Plan map and statutory planning provisions and requirements.

Part Two – Explanatory

This section to be used as a reference guide to interpret and justify the implementation of Part One.

Appendices – Technical reports and supporting material

3. Interpretations and Relationship to the Scheme

Unless otherwise specified in this part, the words and expressions used in this structure plan shall have the respective meanings given to them in the Town of Cambridge Planning Scheme No.1.

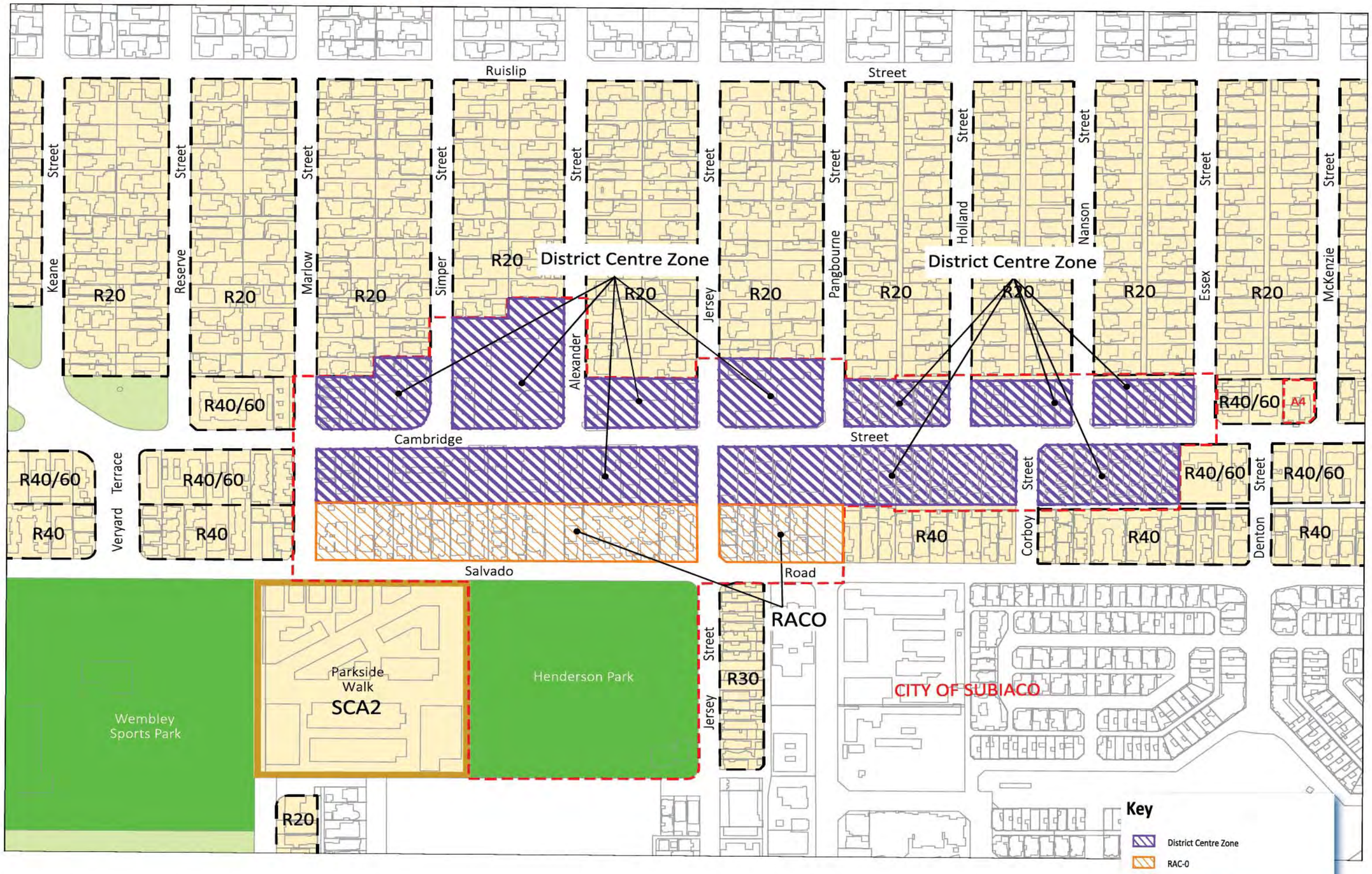
The Activity Centre Plan map outlines zones and reserves applicable within the Activity Centre Plan area. A Scheme Amendment to Town Planning Scheme No.1 is required to implement zoning proposals under the Activity Centre Plan. Currently Town Planning Scheme No.1 prevails over the extent of any inconsistency.

Land Use - The zoning table of TPS 1 is to be used for land use. Where there is discretion in determining land use, the explanatory text in Part 2 - Land Use will be considered.

4. Operation

This structure plan shall come into operation on the day it is endorsed by the Western Australian Planning Commission (WAPC).

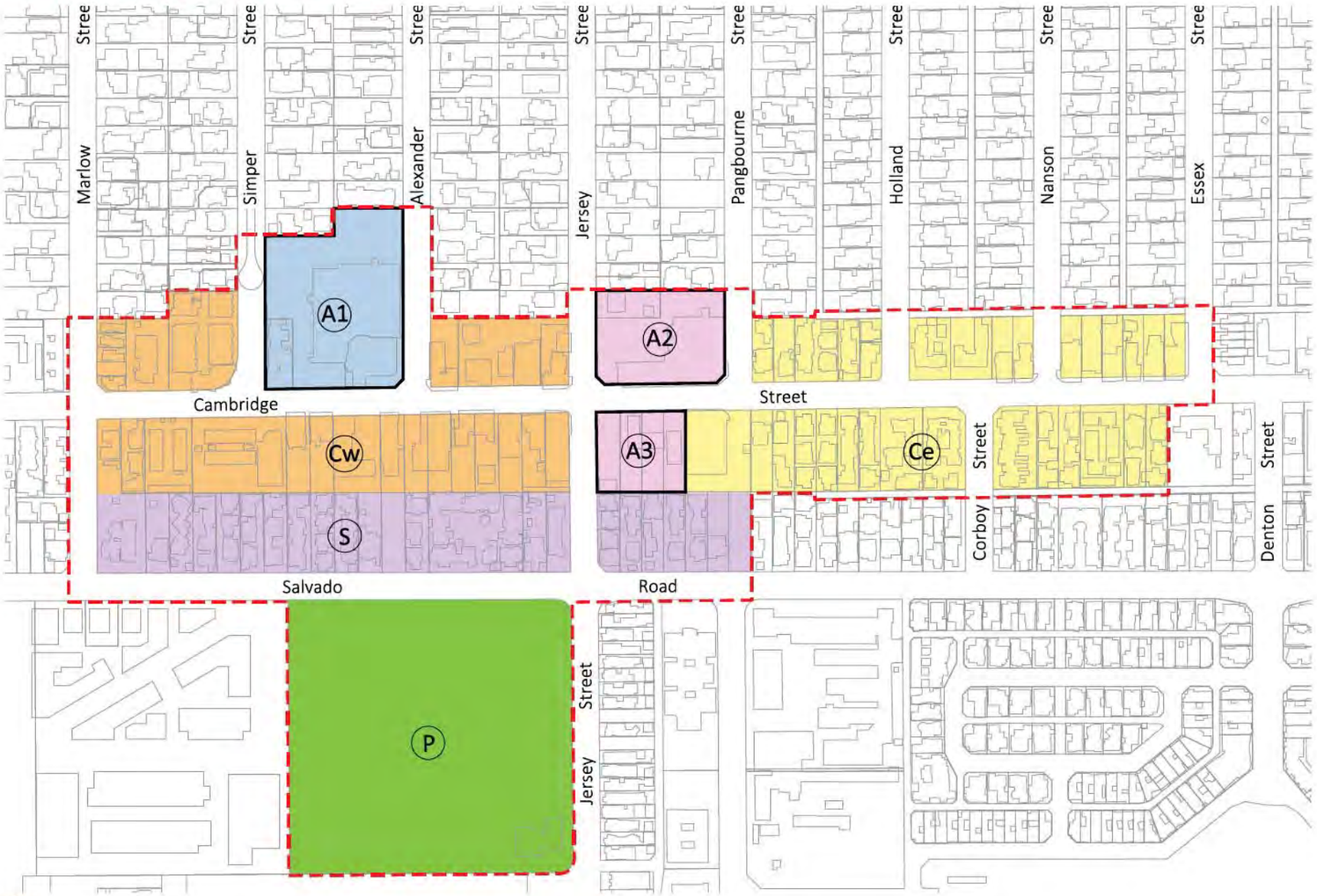
Activity Centre Plan Map



Disclaimer:- A Scheme Amendment to Town Planning Scheme No.1 is required to implement zoning proposals under the Activity Centre Plan. Currently Town Planning Scheme No.1 prevails over the extent of any inconsistency

1.2 Development Precincts

Topic map - Precincts



Key

- A1 — Hotel / Forum anchor
- A2 & A3 — IGA & Service Station anchor
- Cw — Cambridge Street west
- Ce — Cambridge Street east
- S — Salvado Road
- P — Henderson Park
- Centre boundary

The plan works on the basis of introducing development precincts that give an integrated set of regulations for each precinct within the Wembley Activity Centre. There are six precincts in the Centre:

1. Anchor Site A1 - Hotel & Forum Site
2. Anchor Sites A2 & A3 - IGA & Service Station Sites
3. Cambridge Street West - between Marlow Street and Jersey Street
4. Cambridge Street East - between Pangbourne Street and Essex Street
5. Salvado Road - between Marlow Street and Bishop Street
6. Henderson Park

The development standards for the precincts all follow the recommended development angles to prevent overshadowing in the winter, ensure access to light and to maintain a respectful built form scale and transition to existing lower scale buildings. Maximum street front heights are also set for the various precincts. Where lots are wider, opportunities are provided to build higher towards the middle of lots.

The development requirements also include provisions for publicly accessible passageways to enhance the network of pedestrian linkages and laneways to develop the continuous parking lanes at the rear of developments.

A distinct Wembley Activity Centre character will be facilitated through the application of character built form rules based on lot rhythm, active street frontages, vertical coherence, and shaded facades.

1.2.1 Anchor Site 1 - Wembley Hotel and Forum

Primary Development Controls

Statement of Intent	Anchor Site 1 is to become a landmark development with an emphasis on its open space and architectural design and building upon the community's perceived central focus point of the Wembley Activity Centre, that of the Wembley Hotel. Future development of the site will ensure the Wembley Hotel is retained and integrated into a mixed use development comprising of retail, commercial and residential land uses, as well as, a public parking facility. Key to the site's landmark status will be the Wembley Plaza, which is designed to become an attractive focal point and heart of the Centre. The Wembley Plaza will front Cambridge Street, be framed by retail and hospitality uses at the ground level and benefit from passive surveillance from the levels above.	
Site R - Coding	R-AC0	
Plot Ratio Limit	N/A	
Maximum building height limit*	**Lot 78**	**Remainder of Anchor Site 1**
	5 storeys/18 metres	7 storeys/25 metres
Maximum street front height limit*	**Cambridge Street and Simper Street**	**Alexander Street opposite Residential**
	3 storeys/11 metres. Additional height to be set back.	2 storeys/7.5 metres. Additional height to be setback.
Maximum rear height limit*	2 storeys/7.5 metres. Additional height to be set back.	
Maximum boundary wall height	Matter to be addressed through Local Development Plan. Further consideration will need to be given to:- • The interface with the Wembley Hotel (which is to be retained) and whether it is appropriate to have nil setbacks and boundary walls abutting this site; and • How Lot 78 (No. 352) Cambridge Street, relates at the boundaries with the remainder of Anchor Site 1. Boundary walls to the adjoining residential areas are not permitted	
Adaptable ground floor minimum height	3.7 metres. Measured from floor to ceiling (i.e. slab to slab) to accommodate changing commercial tenancies over the life of the building.	
Minimum setback Cambridge Street	Matter to be addressed through Local Development Plan.	
Minimum setback other streets	**Simper Street**	**Alexander Street**
	nil	2.0 metres. Setbacks along Alexander Street to be greater where opposite residential properties compared to towards the Cambridge Street corner
Minimum side setback	Matter to be addressed through Local Development Plan. Of note, the northern boundary of Anchor Site 1 is staggered with two-east-west sections and a north-south section. The setback to this north-south oriented boundary is addressed (as technically it could be construed as a side boundary) is important given the interface to residential.	
Minimum rear setback	6.0 metres	
Public Car Parking	A public parking station to be provided in addition to standard car parking requirements required for the development.	
Public Open Space	A publicly accessible plaza and a square or urban garden to be provided.	

Anchor Site 1 consists of Lot 8 (No. 350) Cambridge Street, Lot 7 (No. 344) Cambridge Street and Lot 78 (No.352) Cambridge Street and covers the Wembley Hotel, the Wembley Forum (Food Court), associated car parking area and adjoining property on the corner of Cambridge and Simper Street..

* **Building height** – Both a limit on storeys and height in metres applies. The storey height limit must be achieved within the height in metres limit.

Design Review

Submission to the Town's Design Review Panel is required for new development in accordance with Council's Design Review Panel Policy.

Local Development Plan

A Local Development Plan is required to be prepared and adopted by Council prior to a development application being considered for a major development on this anchor site. Development provisions to be guided by clear objectives and design principles.

The plan shall be based on the general elements required for the site and give further consideration to appropriate development requirements and management of the space. The plan shall also present a concept plan for the Wembley Plaza and smaller square or urban garden. Matters to be addressed in Local Development Plan are described below.

Note: Minor additions and alterations or changes in use on the site will not require the preparation of a Local Development Plan. The height bonuses or provision of open spaces as specified under this Plan will not apply. The development controls relating to the site under the existing Wembley Precinct Policy will apply in these cases. Any such developments shall not jeopardise future development opportunities under the Centre Plan.

Public Open Spaces

Wembley Plaza

The development is to include a publicly accessible plaza. The plaza is to be open and front onto Cambridge Street, while the other sides, including the common boundary with Lot 78 (No.352) Cambridge Street are surrounded by buildings with active frontages and 3 metre deep awnings.

The plaza is to be an inviting space, which could also be used to host events or spontaneous activities. The plaza should incorporate landscaping, public art and benches or terraces to encourage people to stay. Further consideration as to whether the Plaza should be ceded to and maintained by the Town would need to be given.

Square or Urban Garden

Provision of a smaller publicly accessible square or urban garden inside the development. The square or urban garden may have its own setting, atmosphere and use as considered appropriate for the development.

The initial cost of developing the public spaces to a suitable standard is to be the owner's responsibility. Provision of public amenities including toilets and drinking fountains are desirable. Attention should be given to illumination or artistic lighting to make the plaza and square or urban garden more attractive and inviting. Lighting would also contribute towards safety.

Pedestrian and Vehicular Access

Pedestrian access

Publicly accessible pedestrian passageways with a minimum width of 4 metres are to connect the plaza with the square or urban garden and with Alexander Street and Simper Street and the public and private parking areas.

Vehicular access

A reservation for a continuous laneway is integrated into the building envelope. The access can be realised as an open air laneway, or as a continuous driveway in an undercover parking structure. It is required to provide a direct connection between Alexander Street and Simper Street. The laneway would enter Simper Street on the south side (Cambridge Street side) of the cul-de-sac. No vehicle access is to be taken from Cambridge Street.

Parking

Location of Parking

Parking will be required to be out of view of surrounding streets and basement parking is encouraged. Some at-grade parking directly adjoining shops and businesses may be appropriate for short-term visitor use.

Provision of Public Parking

The development is to provide a public parking station (in addition to standard car parking requirements required for the development). Issues regarding its management, maintenance and whether it is to be transferred to the Town to be clarified.

Retention of Wembley Hotel

The Wembley Hotel is to be preserved and integrated into the development.

Street and Boundary Setbacks

The Local Development Plan is to address the Cambridge Street setback (all storeys) and street and boundary setbacks above two or three storeys where not specified under the primary controls. The setbacks to facilitate a gradual transition in the built form scale and allow access to sunlight.

Residential interface

The Local Development Plan is to address the interface of the development with adjacent residential properties. The development is to preserve a level of visual privacy with adjacent residential properties. Boundary walls to the adjoining residential areas are not being entertained.

Building interface

The building interface to the Wembley Plaza (particularly setbacks for upper storeys) to consider daylight and solar access/amenity requirements. The building interface is to ensure good design outcomes to the rear of the Wembley Hotel which is to be retained.

Lot 78 Cambridge Street:

In addition to the above, the following specific matters to be addressed by Lot 78 Cambridge Street include:-

- Design of carparking in a basement configuration
- Provision of active street frontages to Simper Street and Cambridge Street
- Provision of an active frontage and interface to Wembley Plaza, no blank walls
- Shared access with the remainder of Anchor Site 1, with allowing only one access point from Simper Street being desirable

Local Planning Policy Provisions

The following design elements to be incorporated into policy provisions.

Design Elements

Together both older and new developments contribute towards a unique Wembley identity. New developments are to express specific character built form rules that reflect:

- Historical rhythm of development where each lot has its own, clearly identifiable building from the next lot;
- Building entrances and windows creating an active interaction with the street
- Shaded facades giving depth to frontages; and
- Marking of the main entrance in higher parts of the building's façade and demonstrating vertical unity in the building over the different storeys.

Development rhythm - Each 20 metres of building frontage to the street to be recognisable as its own architectural form.

Active frontages - Buildings are to be street-oriented and built to the street setback line (2 metres). Building frontages are to have an active interaction with the street or publicly accessible plaza and/or square or urban garden. Blank walls along the street, plaza, square or urban garden are not permitted. Street windows covered by shutters, obscure glazing or the like are not allowed. Where blank walls along laneways or pedestrian passageways cannot be avoided, special architectural attention is required.

Ground floor residential - Where the ground floor in the first instance is developed for residential use, the 2 metre setback may be used as private garden or terrace. In this case, the space can be defined by a step, hedge or a low fence.

Awnings - Minimum 3 metre deep awnings to the ground floor along street frontages and the plaza.

Balconies - Minimum 3 metre deep balconies where provided for on upper floors.

Main entrance - Main entrances to separate tenancies and/or the building to be clearly identifiable and marked above in the higher parts of the building façade.

Vertical coherence - Arrangement of doors, windows and support columns for balconies to show a clear vertical coherence between storeys.

Sub-terrain parking - Sub-terrain parking is only permitted to rise a maximum 0.8 metres above an adjoining publicly accessible space and is to be screened from the street. *This will allow a direct visual and functional relationship between the public space and use on top of the parking*.

Independent access

Upper commercial or residential storeys should have their own street access independent from the ground level. *This will allow the ground floor to operate independently and be adaptable for changes of use.*

The above matters could also be explored in more detail as part of the development of the Local Development Plan.

1.2.2 Anchor Site 2 & 3 -IGA and Service Station

Primary Development Controls

Statement of Intent	Anchor Sites Two and Three will become the second focus point along Cambridge Street, working together as the second magnet of the Wembley Activity Centre. The sites will exhibit landmark buildings that stand out in their form and architecture and be complimented by attractive and inviting public open spaces. Development may accommodate a range of land uses that serve the weekly needs of the local residents, including a supermarket, as well as, provide opportunities for living and working.
Site R - Coding	R-AC0
Plot Ratio Limit	N/A
Maximum building height limit*	6 storeys/21.5 metres
Maximum street front height limit*	3 storeys/11 metres. Additional height to be set back.
Maximum rear height limit*	2 storeys/7.5 metres. Additional height to be set back.
Maximum boundary wall height*	6 storeys/21.5 metres. Architectural treatment or design is required where a boundary wall extends above an existing building at the boundary to avoid expansive blank walls.
Adaptable ground floor minimum height	3.7 metres. Measured from floor to ceiling (i.e. slab to slab) to accommodate changing commercial tenancies over the life of the building.
Minimum setback Cambridge Street	2.0 metres
Minimum setback other streets	Nil
Minimum side setback	Nil
Minimum rear setback	7.0 metres to accomodate rear laneway.

* **Building height** – Both a limit on storeys and height in metres applies. The storey height limit must be achieved within the height in metres limit.

This precinct is a combination of two anchor sites positioned on either side of Cambridge Street, Anchor Site 2 (IGA) consists of Lot 1000 (No. 322-326) Cambridge Street and Lot 270 (No. 152) Jersey Street and Anchor Site 3 (Service Station) consists of Lots 51, 52, 53 and 54 (No. 333-337) Cambridge Street.

Design Review

Submission to the Town's Design Review Panel is required for new development in accordance with Council's Design Review Panel Policy.

Local Development Plan

A Local Development Plan is required to be prepared and adopted by Council prior to a development application being considered for this anchor site. Development provisions to be guided by clear objectives and design principles.

The plan shall be based on the general elements required for the site and give further consideration to appropriate development requirements. The plan shall also present a concept plan for the square or urban garden, whichever is to be incorporated. Matters to be addressed in Local Development Plan are as follows:-

Public Open Spaces

Public open space in the form of either square or urban garden
Each anchor site is to provide a public accessible open space with a minimum area of 750 square metres. One anchor site is to provide a square and the other an urban garden.

The two open spaces are to have unique settings and atmospheres and are to be framed by buildings with active frontages and 3 metre deep awnings. Blank walls are not acceptable. The open spaces should incorporate landscaping, public art and benches or terraces to encourage people to stay.

The square is be located on the corner adjacent to the intersection of Cambridge and Jersey Streets and the urban garden is to be developed as a courtyard within the development and with pedestrian connections to both Cambridge and Jersey Streets.

The initial cost of developing the public spaces to a suitable standard is to be the owner's responsibility. Provision of public amenities including toilets and drinking fountains are desirable. Attention should be given to illumination or artistic lighting to make the plaza and square or urban garden more attractive and inviting. Lighting would also contribute towards safety.

Vehicular and Pedestrian Access

Pedestrian access
Publicly accessible pedestrian passageways with a minimum width of 4 metres to provide access through the development connecting public open spaces and parking areas with the street.

Vehicular access
Provision of a 7 metre wide laneway reservation along the rear of the lots to be ceded as a right-of-way to the Town. No vehicular access will be permitted from Cambridge Street.

The requirement for a 7 metre wide laneway, compared to 6 metres (which is generally applied in residential areas) reflects the centre location and that it is expected to become the principle vehicle accessway for developments as driveway access from Cambridge Street is removed over time. Further, the extra width also provides more room for pedestrians and cyclists to share the space and facilitate waste collection.

Parking

Parking should be located to the rear of developments and is to be accessed from the rear laneway. Basement parking is desirable.

Street and Boundary Setbacks

The Local Development Plan is to address street and boundary setbacks above two or three storeys where not specified under the Primary Development Controls. The setbacks to facilitate a gradual transition in the built form scale and allow access to sunlight.

Local Planning Policy Provisions

The following design elements to be incorporated into policy provisions.

Design Elements

Together both older and new developments contribute towards a unique Wembley identity. New developments are to express specific character built form rules that reflect:

- *Historical rhythm of development where each lot has its own, clearly identifiable building from the next lot;*
- *Building entrances and windows creating an active interaction with the street*
- *Shaded facades giving depth to frontages; and*
- *Marking of the main entrance in higher parts of the building's façade and demonstrating vertical unity in the building over the different storeys.*

Development rhythm
Anchor Site 2 - Each 20 metres of building frontage to the street to be recognisable as its own architectural form.

Anchor Site 3 - Each one of the four original allotments to be recognisable as its own architectural form facing Cambridge Street.

Active frontages
Buildings are to be street-oriented and built to the street setback line (2 metres). Building frontages are to have an active interaction with the street or publicly accessible square or urban garden. Blank walls along the street, square or urban garden are not permitted. Street windows covered by shutters, obscure glazing or the like are not allowed. Where blank walls along laneways or pedestrian passageways cannot be avoided, special architectural attention is required.

Ground floor residential
Where the ground floor in the first instance is developed for residential use, the 2 metre setback may be used as private garden or terrace. In this case, the space can be defined by a step, hedge or a low fence.

Awnings
Minimum 3 metre deep awnings to the ground floor along street frontages and the square or urban garden.

Balconies
Minimum 3 metre deep balconies where provided for on upper floors.

Main entrance
Main entrances to separate tenancies and/or the building to be clearly identifiable and marked above in the higher parts of the building façade.

Vertical coherence
Arrangement of doors, windows and support columns for balconies to show a clear vertical coherence between storeys.

Sub-terrain parking
Sub-terrain parking is only permitted to rise a maximum 0.8 metres above an adjoining publicly accessible space and is to be screened from the street. *This will allow a direct visual and functional relationship between the public space and use on top of the parking*.

Independent access
Upper commercial or residential storeys should have their own street access independent from the ground level. *This will allow the ground floor to operate independently and be adaptable for changes of use.*

The above matters could also be explored in more detail as part of the development of the Local Development Plans.

1.2.3 Cambridge Street West

Primary Development Controls

Statement of Intent	This precinct will continue to be developed as the core area of the Centre, connecting the three anchor sites along Cambridge Street with commercial and mixed use development fronting the street. Existing and new developments together will strengthen the interaction between buildings and the street, with inviting shop windows and alfresco activities making the street livelier. The retention of pre-war buildings and incorporation of small squares or urban gardens will contribute towards a unique Wembley character. A fine-grained network of streets, laneways and passageways traversing the area will also add to the experience of the Centre.	
Site R - Coding	R-AC0	
Plot Ratio Limit	N/A	
Maximum building height limit*	Base	Where minimum street frontage is 34.0m and minimum lot area 1800m2 is achieved
	3 storeys/11 metres	5 storeys/18 metres
Maximum street front height limit*	3 storeys/11 metres. Additional height to be set back.	
Maximum rear height limit*	2 storeys/7.5 metres. Additional height to be set back.	
Adaptable ground floor minimum height	3.7 metres. Measured from floor to ceiling (i.e. slab to slab) to accommodate changing commercial tenancies over the life of the building.	
Minimum setback Cambridge Street	2.0 metres. Excludes retention of pre-war buildings.	
Minimum setback other streets	Nil	
Pre-war buildings	Retention of pre-war buildings is required. As a minimum, facade retention is required.	
Public Open Space	Public open space to be provided on development sites achieving a minimum lot area of 1800m2, or with building height greater than 3 storeys.	

* **Building height** – Both a limit on storeys and height in metres applies. The storey height limit must be achieved within the height in metres limit.

This precinct includes the lots centred along Cambridge Street between Marlow Street and Jersey Street, excluding Anchor Site 1.

Design Review

Submission to the Town's Design Review Panel is required for new development in accordance with Council's Design Review Panel Policy.

Local Development Plan

Lot 4 (No. 365) Cambridge Street is an existing tall building at 6 storeys and is recognised to form an orientation point in the area and add rhythm to the street, as well as, providing for in excess of 70 dwellings. This plan does not propose to erode the function of existing tall buildings and as such, redevelopment of this lot should still reflect the existing building height and general landscaped setting of the building to the street.

A Local Development Plan is required to be prepared and adopted by Council prior to a development application being considered for a major development on this site. The plan shall be based on the general principles required for this precinct, a building height of 6 storeys (19m), accommodating a landscaped setting, with particular attention given to the front setback area. The existing residential density should also be maintained, or increased if possible.

Local Planning Policy Provisions

The following elements to be incorporated into policy provisions.

Setbacks

Street setbacks above three storeys and rear and side boundary setbacks to be covered in Policy. Buildings to be setback to facilitate gradual transition in the built form scale and allow access to sunlight.

Public Open Space

Public open space in the form of either a small square or urban garden **is to be provided where development exceeds three storeys. The open space is** to be framed by the building with active frontages and 3 metre deep awnings. Blank walls are not acceptable. The open spaces should incorporate landscaping, public art and seating to encourage people to stay. Open spaces are to have a unique setting, atmosphere and use and can be developed as little squares, small public gardens or informal playgrounds.

Notwithstanding the requirement to be publicly accessible, a commercial venue could occupy space for alfresco dining or similar. Attention should be given to illumination or artistic lighting to make small squares or urban gardens more attractive and inviting. Lighting would also contribute towards safety.

Vehicle and Pedestrian Access

Pedestrian access

Provision of a publicly accessible pedestrian passageway with a minimum width of 3 metres (excluding corner lots) to provide access through the development connecting the rear laneway and parking areas with the street. Until the rear laneway provides continuous access from a side street to the development, this pedestrian passageway will also provide vehicular access for the development from Cambridge Street.

Vehicular access

Provision of a 7 metre wide laneway reservation along the rear of the lots to be ceded as a right-of-way to the Town. Once the rear laneway provides continuous access from a side street to the development, access to Cambridge Street will be closed to vehicles and convert to a pedestrian passageway.

The requirement for a 7 metre wide laneway, compared to 6 metres (which is generally applied in residential areas) reflects the centre location and that it is expected to become the principle vehicle accessway for developments as driveway access from Cambridge Street is removed over time. Further, the extra width also provides more room for pedestrians and cyclists to share the space and facilitate waste collection.

Parking

Parking should be located to the rear of developments and is to be accessed from the rear laneway. Basement parking is desirable.

Design Elements

Together both older and new developments contribute towards a unique Wembley identity. New developments are to express specific character built form rules that reflect:

- *Historical rhythm of development where each lot has its own, clearly identifiable building from the next lot;*
- *Building entrances and windows creating an active interaction with the street*
- *Shaded facades giving depth to frontages; and*
- *Marking of the main entrance in higher parts of the building's façade and demonstrating vertical unity in the building over the different storeys.*

Development rhythm

Each original allotment to be recognisable as its own architectural form facing Cambridge Street.

Active frontages

Buildings are to be street-oriented and built to the street setback line (2 metres). Building frontages are to have an active interaction with the street or publicly accessible square or urban garden. Blank walls along the street, small squares or urban gardens (where provided) are not permitted. Street windows covered by shutters, obscure glazing or the like are not allowed. Where blank walls along laneways or pedestrian passageways cannot be avoided, special architectural attention is required.

Ground floor residential

Where the ground floor in the first instance is developed for residential use, the 2 metre setback may be used as private garden or terrace. In this case, the space can be defined by a step, hedge or a low fence.

Awnings

Minimum 3 metre deep awnings to the ground floor along street frontages and the small square or urban garden (where provided).

Balconies

Minimum 3 metre deep balconies where provided for on upper floors.

Main entrance

Main entrances to separate tenancies and/or the building to be clearly identifiable and marked above in the higher parts of the building façade.

Vertical coherence

Arrangement of doors, windows and support columns for balconies to show a clear vertical coherence between storeys.

Sub-terrain parking

Sub-terrain parking is only permitted to rise a maximum 0.8 metres above an adjoining publicly accessible space and is to be screened from the street. *This will allow a direct visual and functional relationship between the public space and use on top of the parking.*

The above matters could also be explored in more detail as part of the development of Local Development Plans where required.

1.2.4 Cambridge Street East

Primary Development Controls

Statement of Intent	This precinct will over time develop to become an interesting run-up, encouraging people to walk down the street towards the core of the Centre with the introduction of retail and commercial uses facing the street. The existing low scale of development will be respected and the retention of pre-war buildings or facades, particularly those of the Nanson Street Local Centre, will be required to preserve traditional character. The transformation of the precinct will be gradual and new development will need to be attuned with existing buildings and uses.
Site R - Coding	R-AC0
Plot Ratio Limit	N/A
Maximum building height limit*	3 storeys/11 metres
Maximum street front height limit*	3 storeys/11 metres
Maximum rear height limit*	2 storeys/7.5 metres. Additional height to be set back.
Adaptable ground floor minimum height	3.7 metres. Measured from floor to ceiling (i.e. slab to slab) to accommodate changing commercial tenancies over the life of the building.
Minimum setback Cambridge Street	2.0 metres. Excludes retention of pre-war buildings.
Minimum setback other streets	Nil
Pre-war buildings	Retention of pre-war buildings is required. As a minimum, facade retention is required.

This precinct includes the lots east of Anchor Sites 2 and 3 centred along Cambridge Street up to Essex Street. This includes the Nanson Street Local Centre.

* **Building height** – Both a limit on storeys and height in metres applies. The storey height limit must be achieved within the height in metres limit.

Design Review

Submission to the Town's Design Review Panel is required for new development in accordance with Council's Design Review Panel Policy.

Local Planning Policy Provisions

Setbacks

Rear and side boundary setbacks to be addressed via Policy.

Vehicular and Pedestrian Access

Pedestrian access

Provision of a publicly accessible pedestrian passageway with a minimum width of 3 metres (excluding corner lots) to provide access through the development connecting the rear laneway and parking areas with the street. Until the rear laneway provides continuous access from a side street to the development, this pedestrian passageway will also provide vehicular access for the development from Cambridge Street.

Vehicular access

Where there is an existing right of way - Ceding of land of up to 2 metres to sufficiently widen the existing right of way to 7 metres.

Where there is no right of way - Provision of a 7 metre wide laneway reservation along the rear of the lots to be ceded as a right-of-way to the Town. Once the rear laneway provides continuous access from a side street to the development, access to Cambridge Street will be closed to vehicles and convert to a pedestrian passageway.

The requirement for a 7 metre wide laneway, compared to 6 metres (which is generally applied in residential areas) reflects the centre location and that it is expected to become the principle vehicle accessway for developments as driveway access from Cambridge Street is removed over time. Further, the extra width also provides more room for pedestrians and cyclists to share the space and facilitate waste collection.

Parking

Parking should be located to the rear of developments and is to be accessed from the rear laneway. Basement parking is desirable.

Design Elements

Together both older and new developments contribute towards a unique Wembley identity. New developments are to express specific character built form rules that reflect:

- *Historical rhythm of development where each lot has its own, clearly identifiable building from the next lot;*
- *Building entrances and windows creating an active interaction with the street*
- *Shaded facades giving depth to frontages; and*
- *Marking of the main entrance in higher parts of the building's façade and demonstrating vertical unity in the building over the different storeys.*

Development rhythm

Each original allotment to be recognisable as its own architectural form facing Cambridge Street.

Active frontages

Buildings are to be street-oriented and built to the street setback line (2 metres). Building frontages are to have an active interaction with the street or publicly accessible square or urban garden. Blank walls along the street are not permitted. Street windows covered by shutters, obscure glazing or the like are not allowed. Where, blank walls along laneways or pedestrian passageways cannot be avoided, special architectural attention is required.

Ground floor residential

Where the ground floor in the first instance is developed for residential use, the 2 metre setback may be used as private garden or terrace. In this case, the space can be defined by a step, hedge or a low fence.

Awnings

Minimum 3 metre deep awnings to the ground floor along street frontages.

Balconies

Minimum 3 metre deep balconies where provided for on upper floors.

Main entrance

Main entrances to separate tenancies and/or the building to be clearly identifiable and marked above in the higher parts of the building façade.

Vertical coherence

Arrangement of doors, windows and support columns for balconies to show a clear vertical coherence between storeys.

Sub-terrain parking

Sub-terrain parking is only permitted to rise a maximum 0.8 metres above an adjoining publicly accessible space and is to be screened from the street. *This will allow a direct visual and functional relationship between the public space and use on top of the parking.*

Independent access

Upper commercial or residential storeys should have their own street access independent from the ground level. *This will allow the ground floor to operate independently and be adaptable for changes of use.*

1.2.5 Salvado Road

Primary Development Controls

Statement of Intent	This precinct will strengthen the connection between the commercial area along Cambridge Street with that of Henderson Park, the Parkside Walk development (former Nursery Site) and the Wembley Sports Park. The precinct will remain predominantly residential with Henderson Park providing a desirable setting for apartments. In the longer term small commercial venues adjoining publicly accessible open spaces could further activate the area and support the flow of pedestrians between Henderson Park, Parkside Walk, the Wembley Sports Park and Cambridge Street and would be accompanied with improved pedestrian connections along Marlow Street, Jersey Street and via the Council owned lot at No. 164 Salvado Road as part of a redevelopment of this site.		
Site R - Coding	R-AC0		
Plot Ratio Limit	N/A		
Maximum building height limit*	Base	Where minimum street frontage is 30.0m and minimum lot area 1800m2 is achieved	Where minimum street frontage is 45.0m and minimum lot area 2700m2 is achieved
	3 storeys/10 metres	5 storeys/16 metres	6 storeys/19 metres
Maximum street front height limit*	3 storeys/10 metres. Additional height to be set back.		
Maximum rear height limit*	2 storeys/7 metres. Additional height to be set back.		
Minimum setback Salvado Road	5.0 metres		
Minimum setback other streets	2.0 metres		
Open space	An open space area to be provided on development sites achieving a minimum lot area of 1800m2, or with building height greater than 3 storeys.		

* **Building height** – Both a limit on storeys and height in metres applies. The storey height limit must be achieved within the height in metres limit.

This precinct includes the lots on the north side of Salvado Road extending from Marlow Street to the west towards Lot 4 to the east.

Design Review

Submission to the Town's Design Review Panel is required for new development in accordance with Council's Design Review Panel Policy.

Commercial Floorspace

Where a pre-war building or open space has been provided to qualify for building height bonus, the development can also incorporate commercial floorspace. In most cases, the commercial premises should be orientated to passageways, although if it is to be located in a pre-war building this may not be possible. The amount of possible commercial space is in accordance with the following table and is not accumalative.

Development feature	Maximum commercial floorspace allowed per lot.
Pre-war building retained and incorporated into the development	200m2
At least 300m2 of open space provided over site (30m2 to be public open space)	160m2
At least 200m2 of open space provided over site (20m2 to be public open space)	80m2

Lot 100 (No.164) Salvado Road

The lot owned by the Town is to provide a pedestrian connection between Salvado Road and the developments along Cambridge Street. Ideally, the pedestrian passageway would form part of a comprehensive development inconjunction with an adjoining property.

Local Planning Policy Provisions

The following elements to be incorporated into policy provisions.

Setbacks

Street setbacks above three storeys and rear and side boundary setbacks to be covered in Policy. Buildings to be set back to facilitate gradual transition in the built form scale and allow access to sunlight.

Vehicular and Pedestrian Access

Pedestrian access

Provision of a publicly accessible pedestrian passageway with a minimum width of 3 metres (excluding corner lots) to provide access through the development connecting the rear laneway and parking areas with the street. These should be direct and provide a high level of passive surveillance and should ideally be activated by small commercial premises.

This passage can be combined with the parking access for the development, though only if the width and design provides a comfortable and safe pedestrian link. Pedestrians are clearly the primary focus group and cars are only a guest.

Vehicular access

Maximum width 6 metre driveway to be accessed from Salvado Road. In the case of where, a right of way exists to the rear of the development and connects through to a side street, vehicular access for the development is to be taken from the right of way.

Parking

Parking should be located to the rear of developments and is to be accessed from the rear laneway. Basement parking is desirable.

Design Elements

Together both older and new developments contribute towards a unique Wembley identity. New developments are to express specific character built form rules that reflect:

- *Historical rhythm of development where each lot has its own, clearly identifiable building from the next lot;*
- *Building entrances and windows creating an active interaction with the street*
- *Shaded facades giving depth to frontages; and*
- *Marking of the main entrance in higher parts of the building's façade and demonstrating vertical unity in the building over the different storeys.*

Development rhythm

Each original allotment (based on original 17 metre frontage) to be recognisable as its own architectural form facing Salvado Road.

Active frontages

Buildings are to be street-oriented and built to the street setback line (5 metres). Building frontages are to have an active interaction with the street. Blank walls along the street are not permitted. Where the opportunity exists for small scale commercial premises, these are to be orientated to activate the street and passageways. Street windows covered by shutters, obscure glazing or the like are not allowed.

Awnings

Minimum 3 metre deep awnings to the ground floor along street frontages.

Balconies

Minimum 3 metre deep balconies where provided for on upper floors.

Main entrance

Main entrances to separate apartments and/or the building to be clearly identifiable and marked above in the higher parts of the building façade.

Vertical coherence

Arrangement of doors, windows and support columns for balconies to show a clear vertical coherence between storeys.

Sub-terrain parking

Sub-terrain parking is only permitted to rise a maximum 0.8 metres above an adjoining publicly accessible space and is to be screened from the street. This will allow a direct visual and functional relationship between the public space and use on top of the parking.

Independent access

Upper residential storeys should have their own street access independent from the ground level. This will allow the ground floor to operate independently and be adaptable for changes of use.

Public Open Space

Public open space in the form of either a small square or urban garden **is to be provided where development exceeds three storeys. The area is to be in accordance with** the WAPC's Apartment Design Guidelines.

The provision of open space may be privately used open space for the residents. The area is to be landscaped, with consideration given to the planting of suitable species of trees to provide shade, reduce ambient temperatures and contribute to the overall amenity of the precinct. However, in the case where the development comprises a small scale commercial use, a component of the open space is to be made publicly available and be directly accessible from the commercial use. Attention should be given to illumination or artistic lighting to make the open space more attractive and inviting. Lighting would also contribute towards safety.

1.2.6 Henderson Park

This precinct is solely made up of Lot 9000 Jersey Street, commonly known as Henderson Park.

Statement of Intent

The proximity of Henderson Park as an attractor in its own right offers strong potential for the Centre and is to be taken advantage with as the third cornerstone (in conjunction with the anchor sites) of the 'open space triangle'. Henderson Park contributes towards a unique character and with improved pedestrian connections users of the park are encouraged to extend their stay with a visit to other parts of the Centre.

Heritage

This mature and monumental park is an asset to the area and further heritage protection of the park could be considered. It is intended to promote the heritage and historical importance of the park.

Required Elements

- Continuous path - This could help to integrate Henderson Park with Mabel Talbot Park and strengthen their connection with Salvado Road. This would require collaboration with the City of Subiaco

- Playspace for children - Locating the playground on the northern side of thepark is an ideal opportunity to provide a potentially popular attractor in close proximity to the rest of the Centre.

Desired Elements

- The Parkside Walk development will help to activate the western side of Henderson Park and assist with integrating the park with its surroundings.

- Amphithreatre - The northern edge of the park could be activated by utilising the steep slope as an informal amphitheatre from where sports could be watched or for an audience of organised performances.

Public Realm

- Design of Salvado Road will need to integrate the needs of pedestrians and cyclists with that of motorists. Ideally, the park atmosphere could be integrated into the street profile.

- A possible future profile for Salvado Road between Marlow and Jersey Streets could include single carriageways (as they suit the residential nature of the street), the creation of zones for on-street parking and accommodating a continuous shared path on the southern side and a pedestrian path on the northern side. A green median with trees would reflect the park atmosphere.

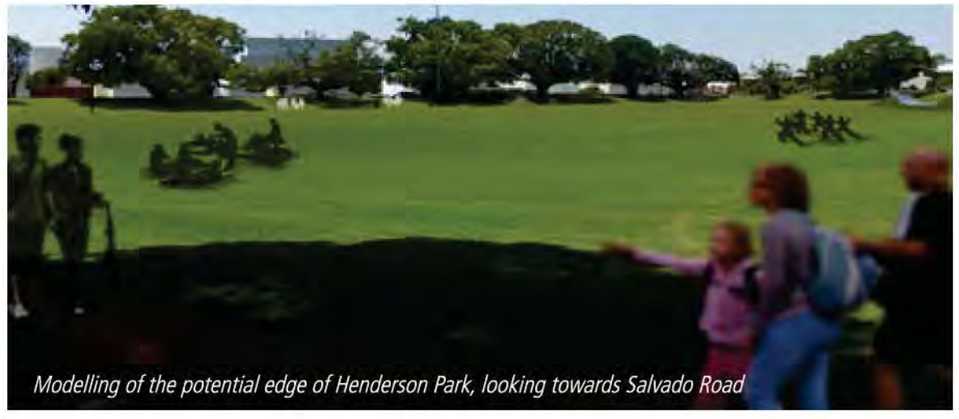
- Preferably pedestrians would be provided with a delineated crossing across Salvado Road, reducing conflict with traffic.

Community Facilities

- Seating, bins
- Drinking fountains
- Barbecue facilities
- Integrated play elements
- Multi-functional skate path or multi-use area
- Kiosk
- Built facilities could be located on the northern side, further strengthening the relationship with Cambridge Street.

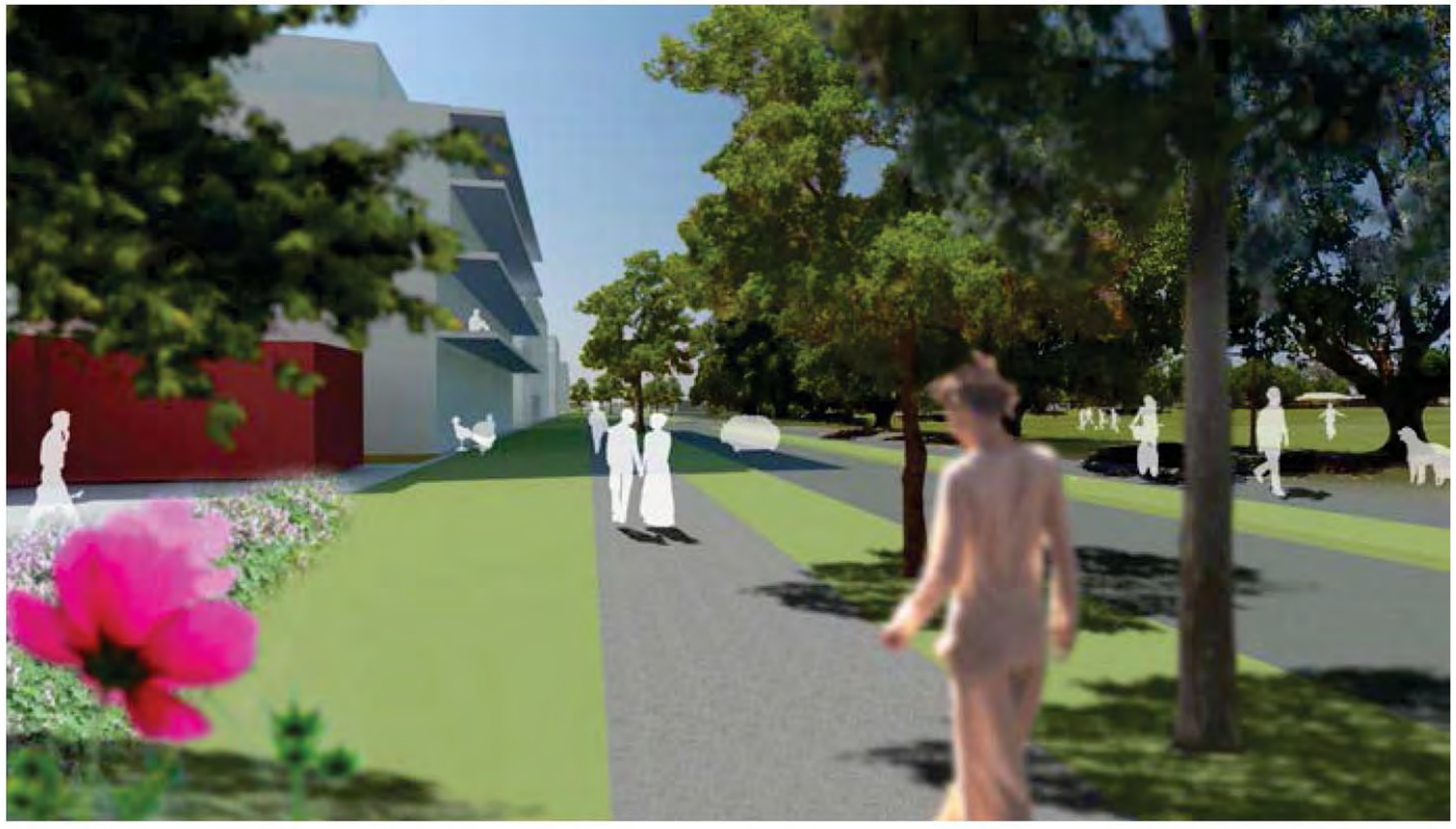
Land use

- Parks and Recreation
- Occasional Uses for example markets, street/food vendors, musicians, street entertainers



Modelling of the potential edge of Henderson Park, looking towards Salvado Road

Monumental, Henderson Park, with unique opportunities for the Wembley Town Centre, if better integrated

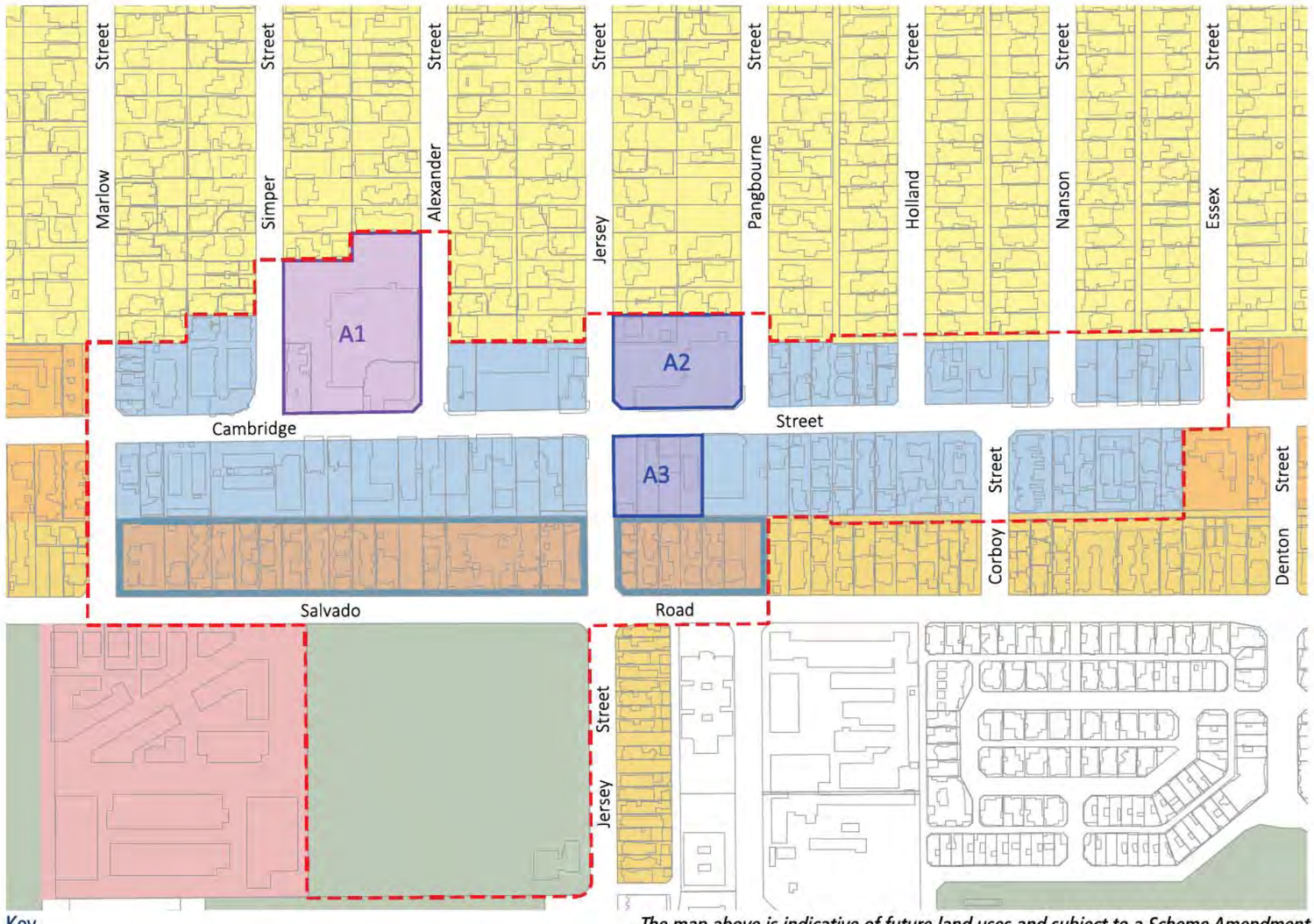


View along Salvado Road with Henderson Oval to the right

Salvado Road street profile

1.3 Land Use

The land use principles and key features as shown in the indicative map below shall be met through new development as part of the implementation of the Activity Centre Plan.



Key

- Commercial, Mixed Use and/or Residential
- A1 — Anchor Site 1 - Mixed Use, Wembley Hotel, Public Open Space (Plaza), Public Parking
- A2 — Anchor Sites 2 & 3 - Commercial and/or Mixed Use, Public Open Space (Square and Urban Garden)
- Medium to High Density Residential with incidental Commercial uses (cafe, office)
- Parks & Recreation
- Residential R40/60
- Residential R40
- Residential R20
- Former Nursery Site / Parkside Walk - Medium to High Density Residential
- Centre Boundary

The map above is indicative of future land uses and subject to a Scheme Amendment

Land Use Key Principles:

- Retain and expand the mix of land uses along Cambridge Street (between Marlow Street and Essex Street), including retail, hospitality, services, commercial and residential to contribute to the Centre's diversity and experience along the street.

- Facilitate medium density detached housing in the form of garden apartments along the north side of Salvado Road to enhance the linkage between the Centre and Henderson Park.

- Encourage retail and hospitality uses (shops, cafes, restaurants, small bars) on the ground floor to assist with the creation of lively, activated streets and open spaces.

- Adaptable ground floor tenancies to adapt for changes in uses over time.

- Encouraging and facilitating occasional uses (e.g. street vendors, markets) to contribute towards the liveliness and attractiveness of the Centre.

- Appointment of a Centre Manager or Place Manager is desired to assist in delivering the right mix of shops and services within the Centre.

- Accommodate an increase in residential and mixed use development within the Centre to allow more people to live an work in the area and to help conserve the well-established lower residential density to the north.

Examples of potential activities and land uses

Commercial	Residential	Mixed Use
Examples include: • Shop • Restaurant or cafe • Take-away food outlet • Offices • Medical Consulting Room • Health Studio / Gym • Small bar • Market • Hair salon/beauty salon • Tavern • Hotel	Examples include: • Multiple dwellings (apartments) • Grouped dwellings (town houses/units)	• Commercial and Residential

This section addresses recommended land uses for the Wembley Centre. This includes proposed zoning changes, to enable the development of the right mix of land uses to develop over time. It also takes into account occasional uses into account that will contribute to the vibrancy of the Centre.

Types of Land Uses

Anchor Site 1

- Mixed Use, Hotel, Tavern, Public Open Space (Plaza, Square), Public Parking
- Incorporation of a Food Court is desirable
- Occasional uses, including a weekly market are encouraged
- Residential as part of a mixed use development is desirable. Residential density to be controlled through the application of the R-AC0 density and would be restricted to the applicable built form controls and associated building envelope.

Anchor Site 2 and 3

- Retail, Commercial, Mixed Use, Public Open Space (Square, Urban Garden)
- Retention of a supermarket is highly desirable.
- Residential as part of a mixed use development is desirable. Residential density to be controlled through the application of the R-AC0 density and would be restricted to the applicable built form controls and associated building envelope.

Cambridge Street West

- Retail, Commercial, Mixed Use, Public Open Space (small squares or urban garden)
- Retention of a supermarket is highly desirable.
- Residential as part of a mixed use development is desirable. Residential density to be controlled through the application of the R-AC0 density and would be restricted to the applicable built form controls and associated building envelope.

Cambridge Street East

- Commercial, Retail, Mixed Use
- Residential as part of a mixed use development is desirable. Residential density to be controlled through the application of the R-AC0 density and would be restricted to the applicable built form controls and associated building envelope.

Salvado Road

- Predominantly Residential. Residential density to be controlled through the application of the R-AC0 density and would be restricted to the applicable built form controls and associated building envelope.

- Small-scale commercial uses, office or café

Henderson Park

- Parks and Recreation
- Small-scale commercial uses, office or café

Proposed change in Land Uses

Zoning of the existing Town Planning Scheme

Proposed Town Planning Scheme Map

Mix of land uses, combining retail, hospitality, services, commercial and residential use, with a focus on facilitating local needs

Mixed Use

The 'Local Centre' zone in the existing Town Planning Scheme, allows for mixed land uses, including retail, hospitality, services, commercial and residential. It is important to keep this full range of uses permitted. The mix of all these uses produces a vibrant centre. Retail and hospitality generate a frequent interaction between the buildings and the footpath, essential for lively streets and squares. Both commercial and residential use will add people to the Centre. This means more eyes on the street, contributing to passive surveillance, more people using the open space and more potential customers for the businesses - in other words a more lively and thriving centre. Workers and residents have their own rhythm in which they use the Centre and are complementary to a certain extent. The combination of both brings the best all-day and all-week around liveliness to the Centre. Also the long-term development of the Centre will need this flexibility, to be able to react to changes in economic and community circumstances which may occur into the future.

The plan proposes the extension of a mix of uses along Cambridge Street. Some of the existing Residential zoned lots along Cambridge Street would be rezoned to accommodate a broader range of uses. The mix of uses along Cambridge Street may take the form of new buildings or retrofitting existing older buildings to accommodate a change of use. The existing "Local Centre" zone would also be likely to be replaced with an alternative commercial type zoning to better represent the Centre's status. This matter would be subject to further consideration when a Scheme Amendment is prepared.

Of note, two lots within the Hotel / Forum anchor site, which were designated as 'Public Purpose Reserve' / 'Car Park' were recently rezoned to 'Local Centre'. This provides better opportunities to develop the site into an anchor with a sizable open space along Cambridge Street. Public parking will need to be provided in addition to the standard requirements for future development on this site. The future zoning to be applied over the broader commercial area would also eventually apply to these sites.

Residential

Enhancing the linkage between the Centre and Henderson Park as a connected part of the Centre is encouraged in future proposed rezoning. The northern side of Salvado Road will stay predominantly residential, though in a higher density than currently allowed. Henderson Park forms a desirable outlook for apartments and will benefit from more eyes on the park and additional users. Small commercial venues, such as small offices or cafes, adjoining publicly accessible open spaces could be allowed in the redevelopment of the lots along Salvado Road. They will support the flow of pedestrian between the park and Cambridge Street. Residential density and design is to be controlled through the application of the R-AC0 density and would be restricted to the applicable built form controls and associated building envelope.

Right Mix

Retail and hospitality on ground floor - shops, cafes and restaurants - are the most effective way to create lively, activated streets and open spaces. However, it is not likely that it will be economically viable to develop all ground floor space in the Centre into retail and hospitality straight away. Consequently the ground floors in the Centre should allow for adaptable commercial and residential uses over time. However, consideration should be given towards specifiying permitted land uses at ground level and prohibiting residential at ground level where facing Cambridge Street or abutting a public plaza, square or urban garden.

Once constructed, the new developments will operate for decades, especially multi-storey buildings with multiple users. Therefore ground floors need to be adaptable to retail and hospitality to future-proof the developments. The specified ground floor heights providing for this adaptability of 3.7m is discussed in Section 1.4 on built form. The ground floor heights are also applicable to the northern side of Salvado Road to accommodate future commercial use. The possibility for future expansion of the Centre towards Henderson Park needs to be incorporated now, so that this will not be blocked off by unadaptable buildings that could not accommodate changing uses over time.

The Wembley Town Centre Study which was prepared in 1999 suggested relocating the Community Centre at Rutter Park to the Wembley Centre, to add community-oriented social services. The idea was that the former primary school site at the corner of Cambridge Street and Simper Street would be a suitable location but the site has since been redeveloped. However, the idea might still be taken on board in another future development in the Wembley Centre. Incorporating community services will strengthen the functionality of the Centre.

Pivotal to the Centre's success is that it will provide for most daily needs of the local residents. In doing so, everybody in the neighbourhood has a reason to come to the Centre and contribute to its liveliness. However, the mix of shops and services are delivered by the private sector. Planning only defines the context within which the market provides. This Plan cannot guarantee the right mix of retail, services and hospitality. Appointing a 'centre manager' - a person who coordinates between shop owners, finds gaps in the services, collaborates with property owners to find the right tenants, and so on - can be an effective way to organise the most suitable mix of retail, services and hospitality, to serve the local community of Wembley. The 'centre manager' can also organise events and markets, coordinate maintenance, and generally contribute to organising the uplift of the Centre.

Occasional Uses

Intermittent activities such as street vendors, musicians and street artists should be allowed, even encouraged in the Centre. These activities can contribute greatly to the liveliness and attractiveness of the Centre. The Town's 'Trading in Public Places' local law should be reviewed to encourage stallholders, traders, street entertainers, outdoor eating facilities and itinerant food vendors within public areas. The licensing criteria and process will need to be checked and where necessary adjusted to encourage these activities in the Wembley Centre.

Small temporary structures and vendor vehicles - a flower kiosk, fish stand, ice cream stall or food van – also need to be incorporated. These small-scale enterprises are effective ways to fill in gaps in the local services, while a leasing a shop may not be economically viable yet. The allowance for these should be included in the planning and zoning of the Centre or perhaps facilitated in Henderson Park.

A weekly farmers market would contribute greatly to the Centre. There are a few logical places where the market could be held. Preferably, the market would have a direct interaction with Cambridge Street as this would be most likely to make the Centre thrive and create synergy benefits with the retail and hospitality in the Centre. The clients of the shops and cafés stay longer in the area when there is a market, while the customers who are attracted by the market will also flow into the street and visit the shops and cafés.

In the meantime, the parking area along Cambridge Street in front of the Food Court, or the parking area at No. 357 Cambridge St across the road, could be suitable locations for a market. Temporarily closing a part of Alexander Street might also be an option. The market could also be organised on the vacant lot owned by the Town at No. 164 Salvado Road or within Henderson Park. However, these locations miss the direct interaction with Cambridge Street. The synergy effect will therefore be limited.

Centre Manager

The shops, cafes, restaurants, services, markets and events in the Centre need each other. The better they collectively cover all local needs, the more users the Centre will attract and the better the businesses will thrive. When gaps fall in the supply, people will go to other centres, with the risk of losing their support for the other facilities in the Centre too. On the other hand, a healthy competition between businesses is good, as long as this does not end in fighting against each other at the cost of the Centre. It is better to work together, to complement each other's services and strengthen the Centre as a whole. At this moment the coordination is ad-hoc and depends on volunteers. But these people already have a business to run or are already volunteering heavily in other ways.

Having an independent Centre Manager or Place Manager is an option the Town could consider to address these issues. She or he will ease the workload of volunteers by taking

over the coordination. The centre manager coordinates and negotiates between the parties, to prevent both gaps and too much overlap in the products and services. The centre manager can actively pursue businesses for shops and services that are missing. Also he/she can instigate innovations to make Wembley unique, such as:

- Organise a farmers market, complementing the existing shops, increasing liveliness in the streets and attracting a different customer group;
- Organise a loyalty card, to stimulate and award local spending;
- Coordinate private improvements of the public space, for instance with planters and umbrellas; and applying for funds or grants and other place-making activities;
- Initiate collaborations between the Centre and various sports and community groups, such as the users of Henderson Park, Wembley Sports Park and persuading them to have a break in the Centre.

Kiosks, street artists and events would increase the attractiveness and liveliness of the Centre.

Example of adaptable ground floor, that started residential and became retail.

Farmers market North Perth relative to Wembley

Plan of the farmers market in Kyilla Park, North Perth, and an impression of the market

The North Perth farmers market superimposed on three different locations in the existing Centre

Farmers market Midland relative to Wembley

Plan of the farmers market on Old Great Northern Highway, Midland, and an impression of the market

The Midland farmers market superimposed on the existing Centre.

PERFORMANCE AGAINST ACTIVITY CENTRE FUNCTIONS, TYPICAL CHARACTERISTICS AND PERFORMANCE TARGETS FOR DISTRICT CENTRES

ASSESSMENT OF WEMBLEY ACTIVITY CENTRE AGAINST TABLE 3 OF SPP 4.2

Typical characteristics	Performance target/typical characteristics	Existing in Wembley Activity Centre	Proposed under Wembley Activity Centre Plan
Main role/function	District centres have a greater focus on servicing the daily and weekly needs of residents. Their relatively smaller scale catchment enables them to have a greater local community focus and provide services, facilities and job opportunities that reflect the particular needs of their catchments.	Focuses mostly on servicing local needs	Still to retain mostly local focus
Transport connectivity and accessibility	Focal point for bus network.	Bus services along Cambridge Street	Bus services along Cambridge Street
Typical retail types	Discount department stores Supermarkets Convenience goods Small scale comparison shopping Personal services Some specialty shops	Supermarket Convenience goods Small scale comparison shopping Personal services Some speciality shops	Supermarket Convenience goods Small scale comparison shopping Personal services Some speciality shops
Typical Office development	District level office development Local professional services	District level office development Local professional services	District level office development Local professional services
Future indicative service population (trade) area	20,000–50,000 persons (Note: Service population or retail trade areas for (residential-associated) centres are indicative only and often overlap	More relevant to new centres and commercial strategy. The WAPC has designated Wembley/Jolimont as a District Centre.	More relevant to new centres and commercial strategy. The WAPC has designated Wembley/Jolimont as a District Centre.
Walkable Catchment for residential density target	400m	400m	400m
Residential density target per gross hectare	Minimum - R20 Desirable - R30	R15 (Refer below for calculations)	R30-35

RESIDENTIAL DENSITY TARGETS

The guidance for the preparation of the Wembley Activity Centre Plan required the following elements to be addressed:

- The centre's interface and connectivity with the surrounding areas;
- Identify appropriate development density and urban design in relation to building height scale and residential density;
- Connectivity with the residential properties to the south, including Parkside Walk (planned for medium to high density residential); and
- Feasible residential density surrounding the Centre and to the north.

The approach to meeting the residential density targets under SPP 4.2 is consistent with the broader principles under the Policy but with consideration of the abovementioned elements allowed due regard to also be given to existing context and character of the local area.

Following the first phase of community engagement that involved the Scenario Games Workshops, the retention of the existing low density residential area to the north of the Centre, which is highly valued by the community, was revealed as a key objective to be met by the Wembley Activity Centre Plan.

This resulted in the rationale to optimise residential growth within the Centre boundaries by increasing existing development potential through the application of appropriately scaled buildings ranging in height from three storeys to seven storeys. This includes extending the Centre boundary to incorporate the north side of Salvado Road and allowing for apartments to be built in this location, taking advantage of views overlooking Henderson Park.

The Plan also acknowledges the residential density that will be realised through the development of Parkside Walk and looks to improve the connection of this site with the Centre, further establishing a sense of community and increasing potential activity around and within the Centre. This approach acknowledges the history of the Wembley Centre as a traditional main street centre that straddles either side of Cambridge Street and is fed, particularly from the north, via grid-pattern streets. It is considered the approach to activity centre plans identifying both a core and a frame, doesn't easily translate to the existing built form and urban design established in Wembley. Nonetheless, to assist with assessment of compliance with residential density targets under SPP 4.2, the information in the table below is provided.

	Area (m2)	Existing Dwellings	Existing net density (approx)	Potential additional dwellings	Total Dwellings (existing and potential)	Resultant density
Core (Wembley Activity Centre)	145623	389	R25	830	1219*	R60-80+
Frame	534911	680	R12.5	426*	1106*	R20
Combined Core and Frame (400m catchment)	680534	1069	R15	1256*	2325*	R35

* Includes Parkside Walk and remaining infill opportunities under existing R20 density

As indicated below he approach taken under the Wembley Activity Centre Plan concentrating residential density within the Centre boundaries meets the density target applicable to district centres of at least Residential R30 in the 400 metre catchment of the centre.

Map illustrating Centre Frame and Core

PROJECTED RETAIL FLOORSPACE

An assessment of existing retail floor space, projected additional retail floor space under full build out of the Wembley Activity Centre Plan, and the projected total floor space has been prepared.

In estimating the shop retail floor space, it was assumed that this would be restricted to the ground floor of developments, while assuming some of the ground floor space would also be other retail uses (such as cafes/restaurants and bars/hospitality) and other commercial uses (generally office and consulting rooms). These proportions were generally based on the existing make up of each of these general uses in each area or projected future distributions.

A total of 10775m2 GLA of 'shop' retail floor space is projected upon full realisation of the Wembley Activity Centre Plan, reflecting an additional 4895m2 GLA of shop retail floor space from the existing shop retail floor space of approximately 5880m2 GLA. The total figure is well below the maximum of 20,000m2 for district centres.
Given the projection for only minimal increase in retail floor space and the local focus of the centre, it is not considered a future retail needs assessment is necessary.

Commercial at Ground Floor (GLA m2) estimated

	Shop retail	Café/ Hospitality	Other Comm. (i.e. office, consulting rooms)	Total
Anchor Site 1	200	2680	320	3200
Anchor Site 2	2550	200	0	2750
Anchor Site 3	0	0	0	0
Cambridge St West	2200	1030	2930	6150
Cambridge St East	930	470	1000	2400
Salvado Road	0	0	0	0
All Precincts	5880	4380	4240	14500

Anchor Site 1	1807	1334	349	3490
Anchor Site 2	690	205	405	1300
Anchor Site 3	897.3	897.3	1196.4	2991
Cambridge St West	302.5	757.5	-60	1000
Cambridge St East	539	999	3407	4945
Salvado Road	660	660	880	2200
All Precincts	4895.8	4852.8	6177.4	15926

Anchor Site 1	2007	4014	669	6690
Anchor Site 2	3240	405	405	4050
Anchor Site 3	897.3	897.3	1196.4	2991
Cambridge St West	2502.5	1787.5	2860	7150
Cambridge St East	1469	1469	4407	7345
Salvado Road	660	660	880	2200
All Precincts	10775.8	9232.8	10417.4	30426

1.4 Built Form

The built form principles and key features as shown in the indicative map below shall be met through new development as part of the implementation of the Activity Centre Plan.

Key

Building Heights

- 3 Storeys (7.5 - 11m)
- 3 - 5 Storeys (11 - 18m)
- 3 - 6 Storeys (7.5 - 19m)
- 6 Storeys (21.5m)
- 7 Storeys (25m)
- Heritage Building
- Pre-war Building
- Tall Building (orientation)
- Potential New Landmark
- Pedestrian / Vehicular Access
- Potential Indicative Building Layout
- Indicative Plaza, Square or Urban Garden
- Indicative Laneway
- Curtilage Area
- Monumental Park (Henderson Park)
- Centre Boundary

The diagram above is indicative of potential height and layout and does not reflect a building footprint or setback requirement.

Built Form Key Principles:

- Maximum three storey building frontages to create streets that are both urban and human in scale.

- Application of development angles ensuring height and bulk of buildings minimise overshadowing in winter, allow access to daylight and facilitate a gradual transition of building height from lower scale to higher scale.

- Controlling overall building height with the application of both maximum floor height and maximum number of storeys provisions.

	Anchor Site 1	Anchor Site 2 & 3	Cambridge Street West	Cambridge Street East	Salvado Road Residential
Maximum height	7 storeys (25m) / 5 storeys for Lot 352 Cambridge St	6 storeys (21.5m)	3 storeys (11 m) up to 5 storeys (18m) if bonuses apply	3 storeys (11m)	3 storeys (10m) up to 6 storeys (18m) if bonuses apply*
Max. Street Front Height	3 storeys (11 m)	3 storeys (11 m)	3 storeys (11 m)	3 storeys (11m)	3 storeys (10m)
Min. Ground Floor Ceiling height	3.7m	3.7m	3.7m	3.7m	3.0m

* If development is to existing R40 standards 2 storey height limit applies

- The Wembley Hotel, Our Lady of Victories Church and pre-war buildings retained as contributing factors towards a unique Wembley character.

- The anchor sites to become future landmark sites with an emphasis on their open space and architectural design.

- Application of character built form rules based on:
  - Rhythm: Every original allotment needs to be recognisable as their own architectural form
  - Street frontage: Active frontages and buildings built to the street (2m setbacks) to allow for more pedestrian space
  - Shaded façade: Three metre awnings and balconies to create a shaded and rain protected footpath and improve the solar passive design of buildings
  - Vertical coherence: In the building façade over the various floors and marking of the main entrance to the building.

- All buildings are street-orientated with frontages that create an active interaction with the footpath and/or a public accessible square or garden.

- Residential interface - Design of new buildings adajcent established residential areas are to provide an attractive facade towards this interface that is of an appropriate scale and proportion, with respect to the existing character and amenity of the area. Consideration to be given to architectural form and detail of the building, achieving reasonable levels of visual privacy and the use of landscaping to minimise adverse impacts

Building Height

A significant aspect of built form is building height. Two building principles have been used for the Wembley Centre:

- **Ensuring the heights of the street fronts are in scale with their surroundings, and**
- **Applying development angles, to safeguard respectful transitions to neighbouring properties and to allow access to sunlight.**

In addition, a selected set of regulations, will also guide built form outcomes and contribute to a typical Wembley character and encourage active street frontages.

Street front height

The Centre sits in the middle of a low-density residential area, in which residential developments up to 2-storeys are allowed. The Centre itself can be higher and denser, but only when it rises gradually from the surrounding area. For Cambridge Street and the side streets within the Centre, a maximum street front height of 3 storeys as viewed from the street is fitting. With the width of Cambridge Street, three storey street fronts will create a scale that is both urban and human. Along Salvado Road, opposite Henderson Park, the street front height is also 3 storeys as viewed from the street.

Examples of three storey street fronts

Development Angles

Interface with existing buildings, especially residential ones, is a crucial principle for new developments. Preventing overshadowing in the winter, allowing daylight access and ensuring scale and rhythm are attuned with existing buildings are key components.

Access to winter sun

To guarantee sunlight access in the winter to adjoining lots south of a proposed development, a 34.2 ° angle is employed to set the building envelope. For the lots on the southern of side Cambridge Street this angle is measured from a height of 2 metres at the boundary. This is because the lots to south side of Cambridge Street mostly have boundary walls or fences.

This angle is also applied to lots on the northern side of Cambridge Street and Salvado Road so as to allow access to winter sun on the southern side of the street. The angle is measured from the lot boundary on the southern side of the street as illustrated in the example below right.

Gradual transition of development

The 34.2° angle is also used along northern boundaries of properties on the north of Cambridge Street, including the Hotel/Forum and the IGA anchor sites, to facilitate a gradual transition from the 1 to 2 storey residential properties to the development along Cambridge Street.

Daylight access to side boundaries

To guarantee daylight access to the building on neighbouring lots, this plan refers to the Stephenson-Hepburn Plan for the Metropolitan Region Perth and Fremantle of 1955. Appendix 3 of the 1955 plan elaborates on daylight control for central areas. The report advises a maximum development angle of 63.3° to the side boundaries to guarantee daylight access into the buildings. The 63.3° angle is used in the Wembley Centre for side boundaries, to guarantee daylight access to buildings on adjoining lots. Several of the existing lots however have boundary fences, blocking out light from the side. Therefore the 63.3° angle is employed from a height of 2 metres at the boundary.

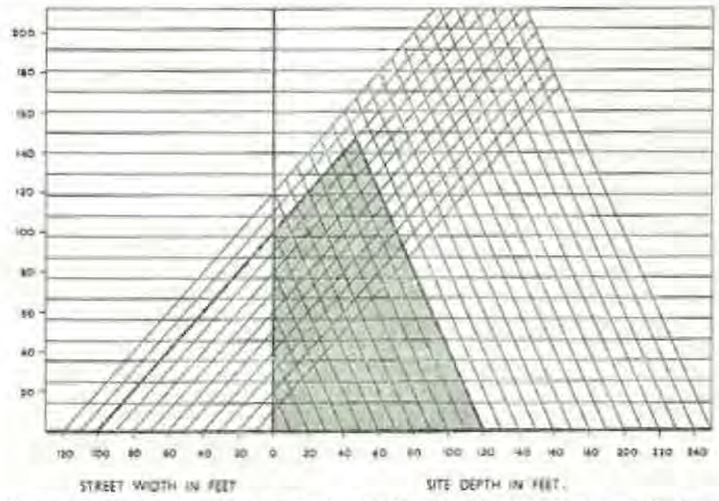
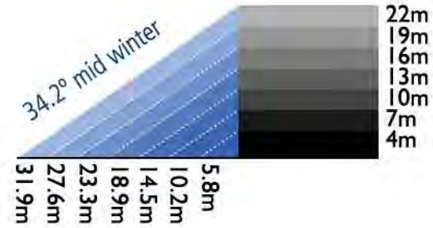


Diagram 59 from the Appendix III on Daylighting Control of the 1955 Stephenson-Hepburn Plan, illustrating 63.3° angles for daylight access which is applied to side boundaries.

Human-scale street frontages

The maximum street front heights of 3 storeys in the Centre, keeps the scale of the Centre streetscapes fitting with the surrounding residential streets A 24.6° development angle has been used for the first three storeys to achieve this, which is measured from the lot boundary on the opposite side of the street. Behind the street front however, more height might be possible, without disturbing the transition. The angle of 34.2° has been used to provide this respectful transition.

Further detailed consideration is given to translating the principles of the development angles into the proposed building setbacks in Section 3.6 Development Precincts. Particular consideration will be given to upper storey setbacks, minimising overshadowing of adjoining buildings, allowing for a respectful transition to residential areas and maintaining the general street profile.



Mid winter sun angle of 34.2° is used to guarantee sunlight access to neighbouring lots to the south

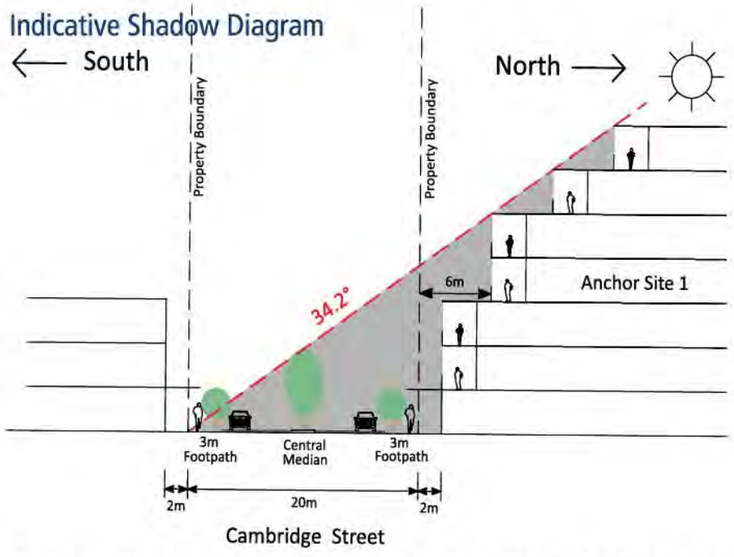


Diagram showing the indicative shadow of the development on Anchor Site 1 (the tallest possible building in the Centre) on June 21 - the winter solstice. The setback is used to limit over-shadowing on the street throughout the year. The 34.2° development angle is drawn from the property boundary on the southern (opposite) side of the street to calculate the setback of the upper levels from the street.

Floor height

Building heights are a combination of number of floors and slab-to-slab floor heights. Ground floors of all new development in the Centre will have to be adaptable to different uses. They may start as residential, but must be adaptable to allow conversion to commercial, retail, hospitality or other suitable uses. A minimum ground floor functional height to be adaptable is 3.7 metres slab-to-slab. This plan allows 4.0 metres for some flexibility. This applies to all development precincts including residential development Salvado Road so that in the long term it can be adapted for commercial use in the long term.

Cambridge Street

Future developments along Cambridge Street can be designed with residential and commercial uses and as such anticipated floor heights need to be adequate for both types of development on each level (an average of 3.5 metres slab-to-slab floor height). The maximum street frontage of 11 metres along most parts of Cambridge Street and the side streets corresponds with a maximum of 3 storeys: 4 metres for the ground floor + 2 x 3.5 metres for the upper floors.

Salvado Road Residential

The upper floors along Salvado Road will all be residential. For these floors, a slab to slab minimum height of 3 metres is required. Within this floor height quality interior spaces of 2.7m high can be produced. The maximum street frontage of 10 metres along Salvado Road (provided the lot size allows for it), corresponds with a maximum of 3 storeys at the street front: 4 metres for the ground floor + 2 x 3 metres for the upper floors. The ground floor is to be adaptable with a minimum ground floor height of 4.0m.

Building heights

There are already a few tall older style buildings along Cambridge Street which form orientation points in the area and add a rhythm to the street. The 'Urban on Cambridge' development will add another tall building. This Plan is very careful with allowing more tall buildings to be added to the streetscape. More of these in the streetscape can easily erode the orientation function of the existing ones. They are also likely to upset the sensitive balance between the higher density of the Centre and the low scale residential of the surrounding environment.

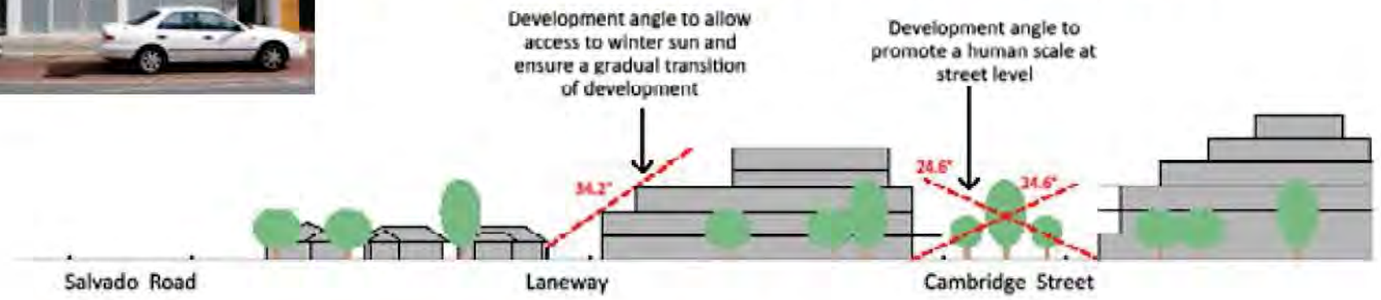
Tall buildings are not the only way to develop density. The emphasis on building up the street front up to three storeys may better suit the Wembley Centre. This keeps in scale with the surroundings, with gradual transitions to the residential zone, and values the orientation function of the older high-rise. The development possibilities also need to be sufficient to ensure investment in quality development is economically viable. Making the rules too restrictive will limit redevelopment and improvements in the Centre. The maximum development angles allow theoretically for more height behind street fronts on larger lots.

When a development contributes considerably to the Centre's open space network or incorporates a pre-war building, more height behind the street front is possible. The maximum height possible for each development precinct is as follows:-

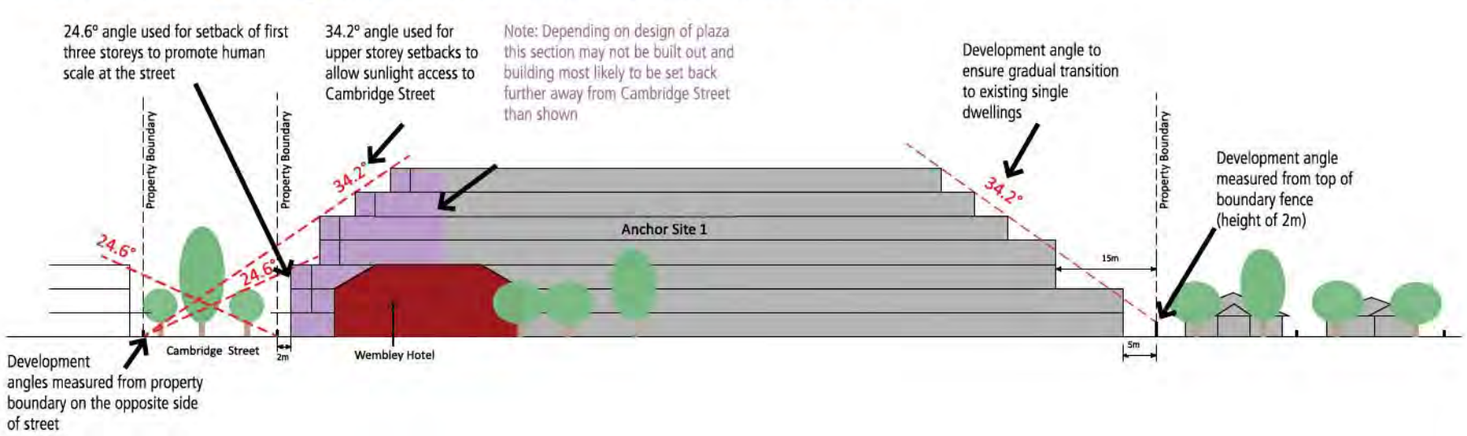
- Hotel / Forum anchor site: maximum 7 storeys / 25 metres;

Example of an adaptable ground floor

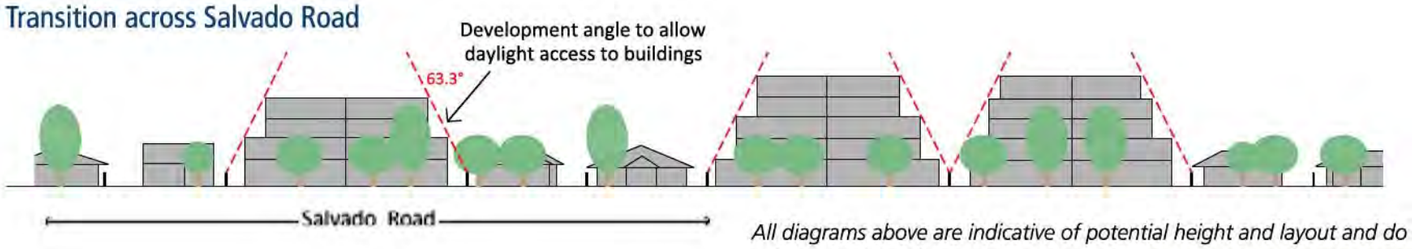
Transition from Cambridge Street to neighbouring lots along Salvado Road



Transition from Cambridge Street into residential side streets to the north



Transition across Salvado Road



All diagrams above are indicative of potential height and layout and do not reflect a building footprint or setback requirement

- IGA / Service Station anchor site: maximum 6 storeys / 21.5 metres;
- Cambridge Street west (Marlow to Jersey Street): maximum 5 storeys / 18 metres;
- Cambridge Street east (Jersey to Essex Street): maximum 3 storeys / 11 metres; and
- Salvado Road: maximum 6 storeys / 19 metres.

These maximum heights are calculated from natural ground level. The development angles are also applicable and therefore maximum achievable heights depend on lot size and buildings step down towards boundaries in most cases.

Sites with existing tall buildings

In the case of lots with existing older buildings such as No. 365 Cambridge Street, it is important that future development on these lots does not reduce the number of dwellings in the Centre. Should these sites be redeveloped, the existing building height is to apply subject to the preparation of a Local Development Plan which would further detail development requirements.

Landmark buildings and heritage

The Wembley Hotel and the Our Lady of Victories Church are the two iconic buildings in the Wembley Centre, due to their heritage and architectural quality. Both are included in the Municipal Heritage Inventory. This Plan proposes to consider further statutory heritage controls for these buildings.

Wembley Hotel

After the Wembley Hotel was constructed in 1932, it became a local landmark on Cambridge Street as the end of the tramline and the departing point for expeditions along the plank road to the beach. Since it is the focal point when people talk or think about the centre of Wembley, it is at the core of the mental map of the suburb. The Hotel is also of aesthetic significance as a landmark in an area of few landmark buildings. The additions of the shopping centre complex and the bottle shop drive-through to the original hotel have however reduced its authenticity and do not need to be preserved.

Our Lady of Victories Church

The Our Lady of Victories Church is the only other architecturally significant building in the area. It is a fine example of post-war ecclesiastical architecture. The church is an aesthetic landmark at the western entrance of the Wembley Centre, located on the top of the hill. It deserves a better presentation to Cambridge Street and integration in the streetscape.

Pre-war and Heritage Buildings

The pre-war buildings that still exist along Cambridge Street refer to the pre-war origins of the Centre. The buildings individually are not necessarily of great architectual or heritage value, but together they carry the historically layered character of the Centre, with buildings of various decades. The layers of history are part of Wembley's identity and charm. Since many pre-war buildings in the Centre have been demolished, it becomes important to integrate the remaining ones in the development, to retain the Wembley character.

Those buildings identified on the built-form map as pre-war buildings are generally of that era, though in some cases may be newer. There may also be other buildings of architectural quality that require further examination and could also be included. The plan provide opportunities for bonus height where a pre-war building is incorporated into a new development.

The State Heritage Office had advised to consider including all places identified as 'heritage' or 'pre-war' in a heritage list, as well as, to generally start referring to all as 'heritage' as this gives a stronger indication that conservation and retention is to be supported in future development. It is also noted that the Wembley Police Station is included in the Heritage Council's assessment program for possible inclusion in the State Register of Heritage Places. These matters will be further addressed in the review of the Local Government Inventory (Municipal Inventory) and Heritage List.

Anchor Sites

The anchor sites are evident sites for new landmark buildings; buildings that stand out in their form and cultural significance. This does not mean they need to be tall buildings. Their location adjacent to significant open space and their architecture are equally important. The Sydney Opera House for instance is not a landmark because of its height, but due to its architecture and location.

Existing tall buildings assist in orientation and way-finding in the town centre.

Above: the pre-war buildings are important for the centre's atmosphere, even though individually they may not be important heritage buildings.

Perth Mint - iconic buildings do not need to be tall

Wembley Hotel, the iconic building of the Wembley Centre and the centre's heart in the collective mind.

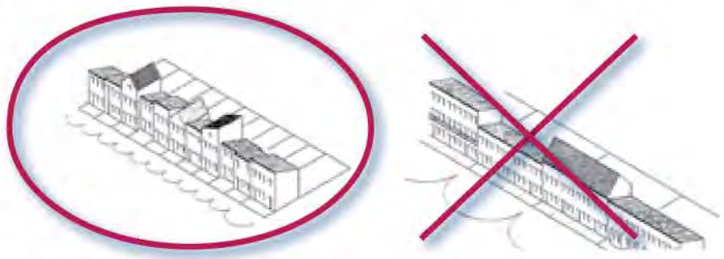
Our Lady of Victories Church - one of few heritage landmark buildings in the Centre.

Built Form Character

The Wembley character is not only influenced by older buildings. The new developments will also have to contribute to a unique Wembley identity. Generic developments might be attractive for quick gain, but will not help the Centre in the long run.

This Plan does not encourage historicising architecture, manufacturing heritage. Every new development is potential heritage for future generations and should express the culture of its time. The characteristics of Wembley do not need to rely on materials and architectural form details. Creating an authentic identity requires more thought.

The form of a characteristic residential dwelling is difficult to translate to the design of multi-storey buildings that will be developed in the Centre. However, upon analysing multiple pre-war buildings and comparing them with later developments, a few other characteristics become evident.



Rhythm of architecture relates to the original allotment

Rhythm

The cadastral pattern is a primary determinant of the built form rhythm that characterises the streets. Each lot has its own, clearly identifiable building, different from the next lot. When buildings cover multiple lots without reflecting the original lot size in the built form, the rhythm is lost. The first rule for new developments is that every original allotment needs to be recognisable as their own architectural form.

Street Frontage

A second characteristic of buildings in the Centre is that they are built on the front boundary of the lot, creating an active interaction with the footpath with entries and shop windows. All new developments will have the same interaction with the footpaths. To create more space for pedestrians and to further activate the footpaths, the new developments have a setback of 2 metres and will be built on that setback line. If a pre-war building built to the lot boundary, is incorporated in the development, the 2 metre setback is obviously not required.

Along Salvado Road a 5 metre setback, including overhangs for verandahs and balconies, will generate a comparable appearance as the increased setback responds to the residential use. The 5 metre setback for the facade relates better to the existing and future residential buildings along the road.

Shaded Facade

Another characteristic of pre-war residential buildings is the wide overhangs of the roofs, with deep verandahs, veiling the front wall in shade and giving depth to the frontage. In the Centre the wide awnings provide this shade and depth. This characteristic is translated into the rules for the frontages of the buildings. Three metre or wider awnings protrude

Wembley's buildings have a variety of materials, forms and details, with architecture from different eras. Together they give Wembley a rich history.

Historicising architecture, based on materials and style would deny this reality and restrain the possibilities to add contemporary cultural expressions,

Traditional roof forms of single storey Wembley homes.....do not necessarily translate when applied to multi-storey buildings

Town centre characteristic: lot sizes define the building rhythm of the street, while building at the lot boundary frames the street profile

Characteristic overhanging roofs with shaded facades, in traditional and modern form

Awnings on different heights emphasize the lot rhythm and the individuality of the buildings

Rhythm relation between storeys, with the main entrance indicated in the upper facade

from the facade, creating a shaded and rain protected footpath and improving the solar passive design of the building. Each lot or building has an individual awning, underpinning the lot rhythm.

Three metre deep balconies on the upper floors add activities and eyes on the street, while similar size overhangs cast shade on the upper façade. The balconies are set back from the ground floor facade, so that the awnings do not need supporting columns and the footpath stays free from obstacles. The horizontal lines of awning, balconies and overhang catch the light and dominate the appearance. The buildings facade is set back and in the shade. This does not only relate to a pre-war characteristic of both residential and centre buildings, but also provides a sustainable and climate specific solution for the hot Perth summers.

Vertical Coherence

In the pre-war buildings, especially centre sites, the location of the main entrance is marked in the higher parts of the facade, creating a vertical unity over the floors. Also the arrangement of doors, windows and support columns for the balconies show a clear vertical coherence between floors. The vertical coherence in the facade over the floors and marking the main entrance is the final character incorporated in the built form rules for the Centre.

The combination of lot rhythm, building on the setback line, shade for facades and vertical coherence provides many opportunities for architectural interpretation, while also effectively producing a built form that is characteristic for the Wembley Centre.

Open space interaction

All buildings are street-orientated, with a frontage that creates an active interaction with the footpath. This also applies for buildings facing a public accessible square or garden. Well-presented, active retail and hospitality frontages encourage pedestrian flows and contribute to a lively and attractive streetscape.

Active frontages

Office uses, doctors' surgeries, banks and the like tend to have passive frontages, without much interaction with the footpath. This does not stimulate the pedestrian flow. These businesses and services are requested to put some effort in their street front presentation. Masked street windows covered by shutters, blinds or dark window glazing or the like are inappropriate in a centre.

When the ground floor is in the first instance developed as residential, the space left by the 2 metres setback can be used as private garden or terrace, to create a privacy buffer between the footpath and the dwelling. The space can be marked with a step, hedge or a low fence, though not by a wall.

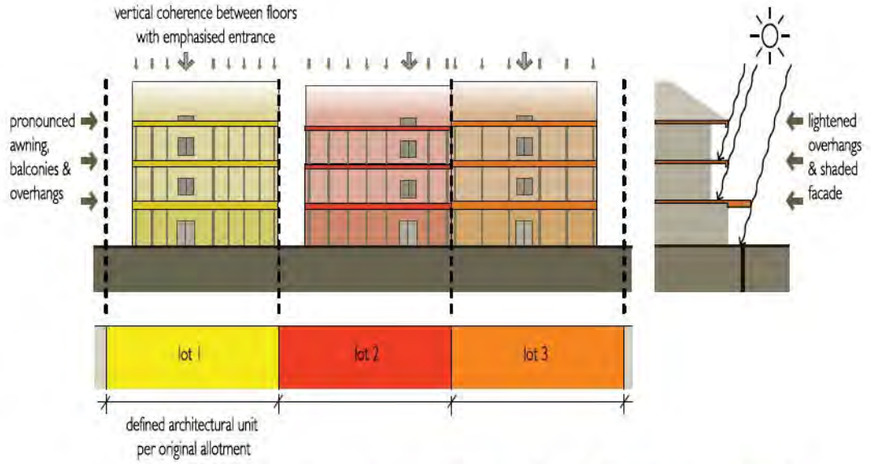
Blank walls along the streets are not acceptable throughout the Centre. This also counts for walls against the new squares and urban gardens. In the laneways and passages, blank walls cannot always be avoided. Where they appear, they need special architectural attention.

Sub-terrain parking

When sub-terrain parking is not fully sunken and borders public accessible space (footpath, laneway, passage, square, garden, and so on), the top of the parking construction may raise maximum 0.8m above the adjoining publicly accessible space, provided that the parking is screened from the street. This will guarantee a direct visual, functional, passive surveillance relation between the open space and the use on top of the parking.

Independent access

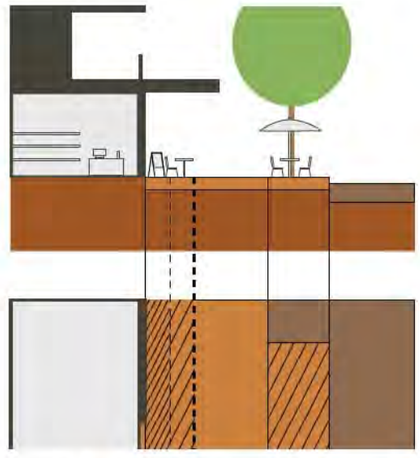
The commercial or residential upper floors will have their own street access that is independent from the ground floor. This way the ground floor use can work independently from the upper floors, which makes it possible to adapt them to future retail or hospitality. The upper floor accesses are secondary to the ground floor shop entrance and shop front. Alternatively they can be located on the side or rear of the development.



Overview of the built form characteristics, used to strengthen the Wembley Centre's identity

Terrace raised 80cm above the side walk still has a direct contact

Transparent, open shop windows and outside display contributes to a lively streetscape.



Zones on the footpath for indoor-outdoor interaction

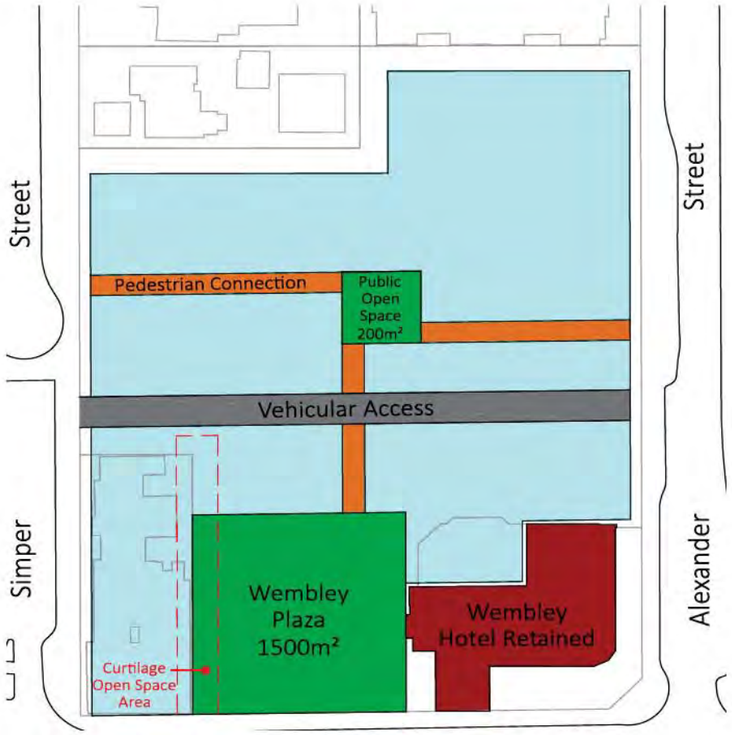
Higher historical buildings also typically have wide overhangs creating shaded facades

Indicative Built Form Profiles

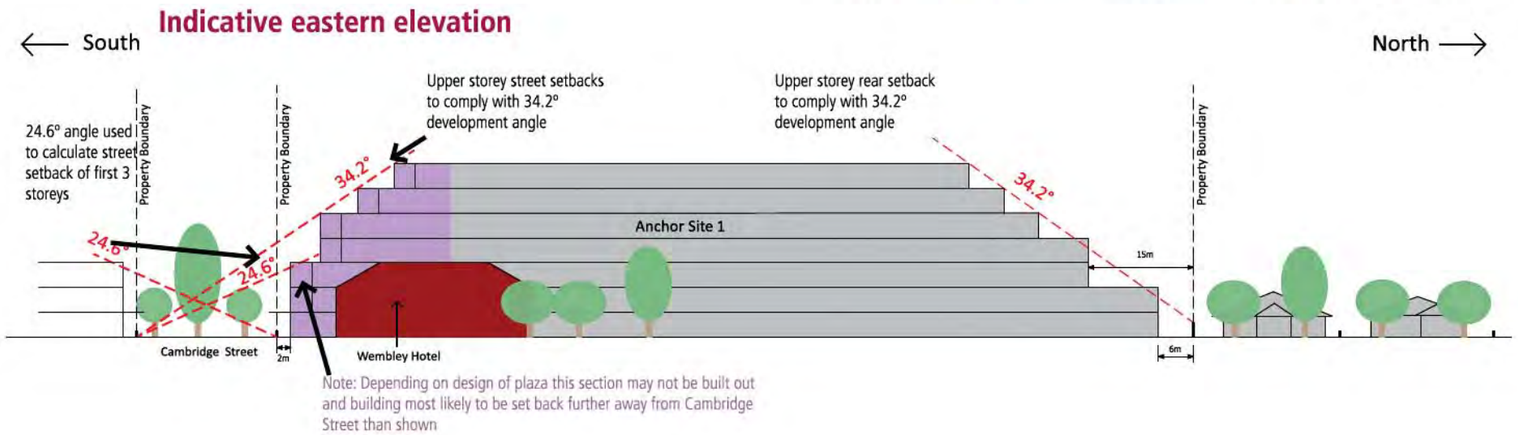
The following set of diagrams illustrate indicative built form profiles for future development in each precinct. **All diagrams are indicative of potential height and layout and do not reflect a building footprint or setback requirement.**

Anchor Site 1

Model of a possible development regime for the Hotel/Forum site



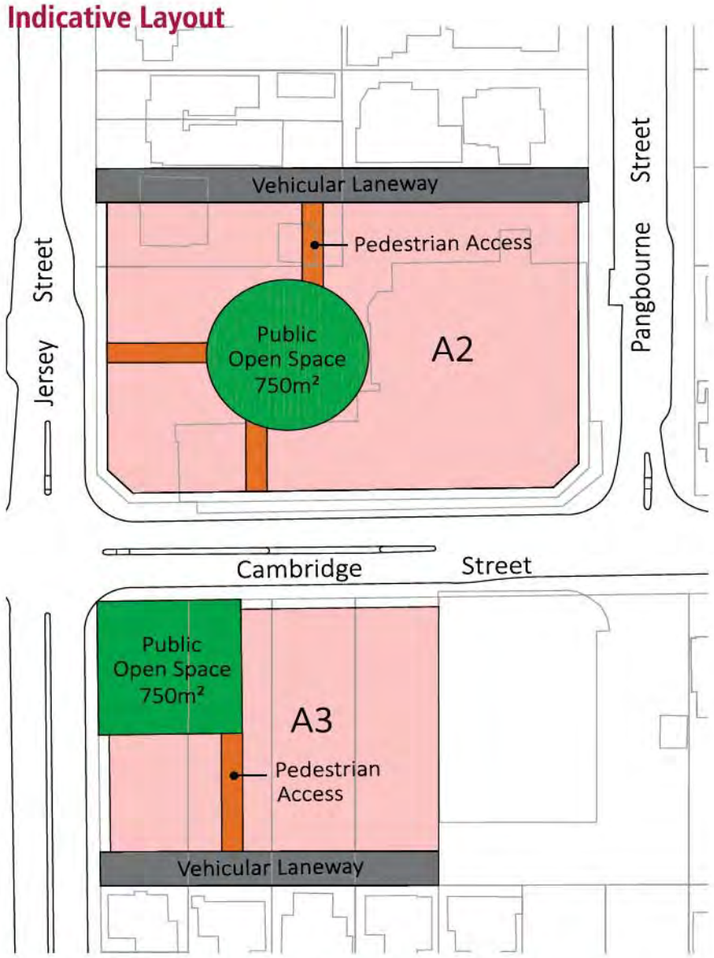
Indicative eastern elevation



Note: Depending on design of plaza this section may not be built out and building most likely to be set back further away from Cambridge Street than shown

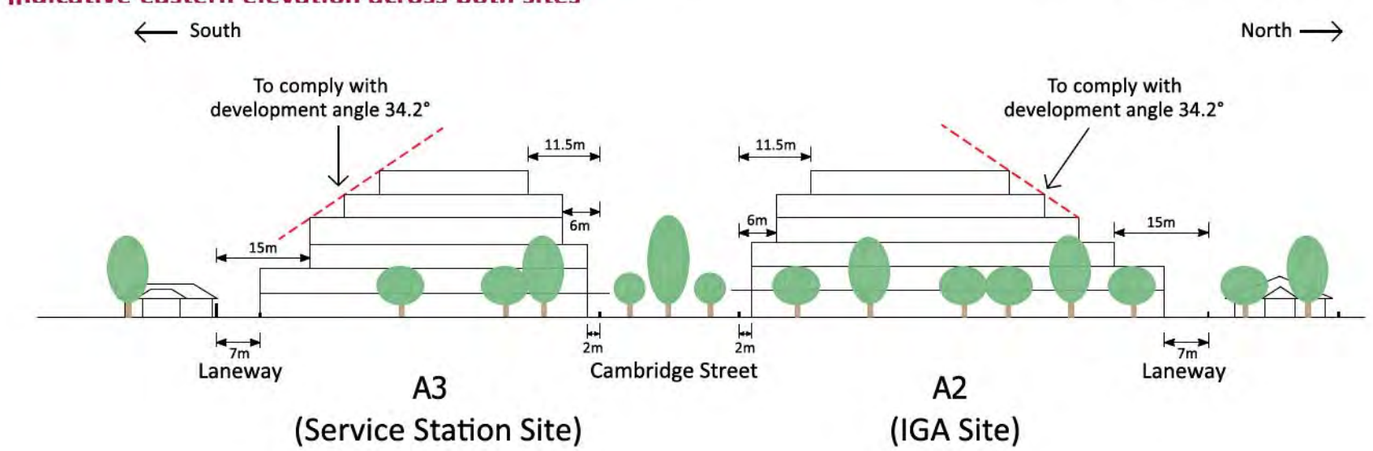
Anchor Site 2

Indicative Layout



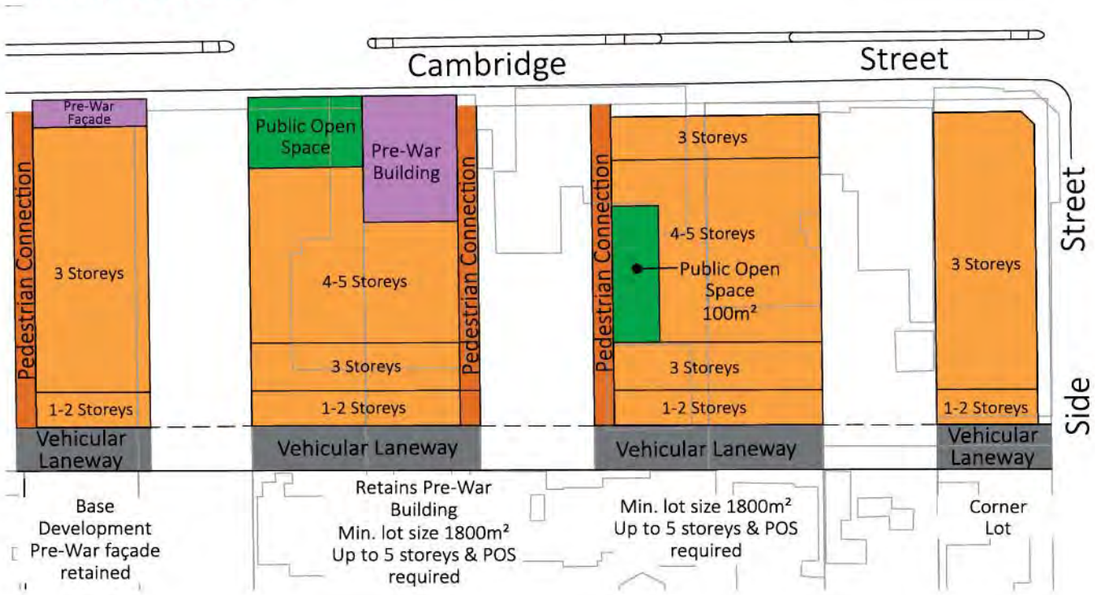
All diagrams are indicative of potential height and layout and do not reflect a building footprint or setback requirement.

Indicative eastern elevation across both sites

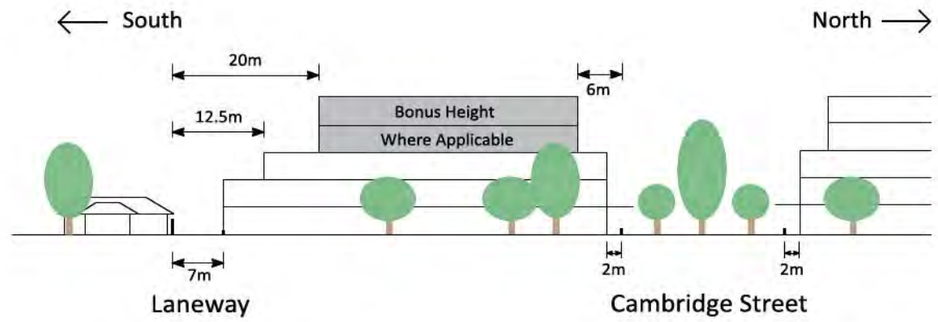


Cambridge Street West

Indicative Layout



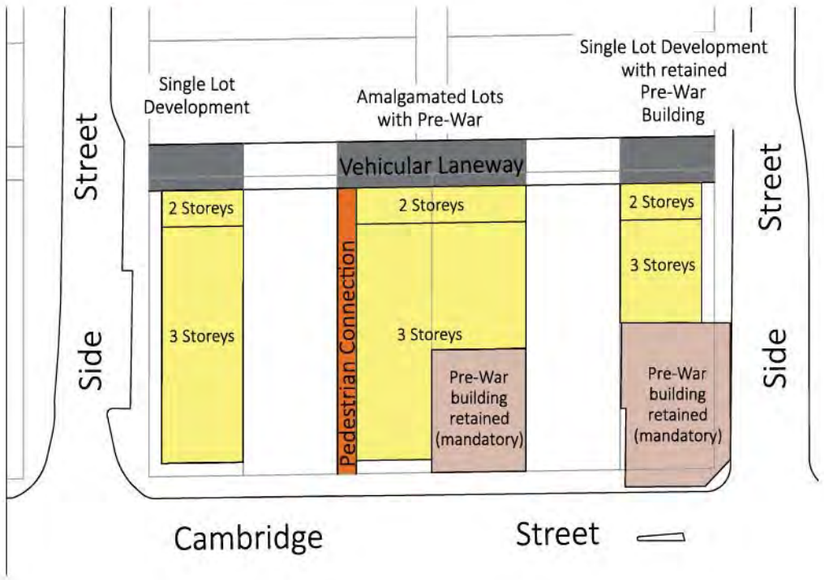
Indicative eastern elevation



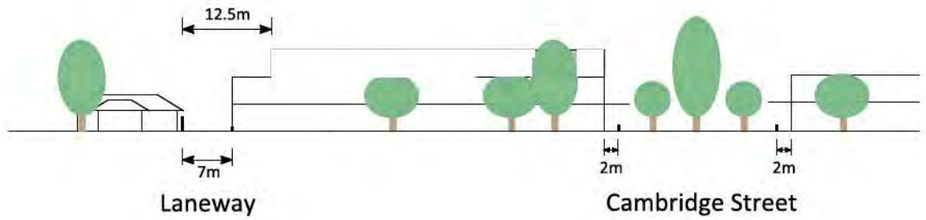
All diagrams are indicative of potential height and layout and do not reflect a building footprint or setback requirement.

Cambridge Street East$_B$

Indicative Layout

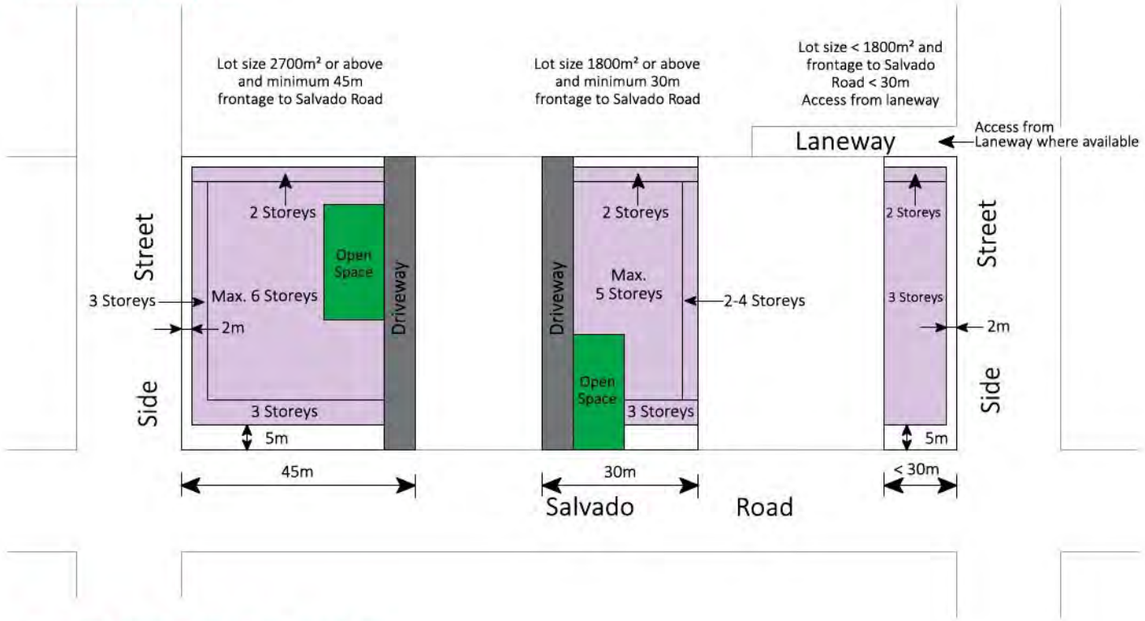


Indicative western elevation

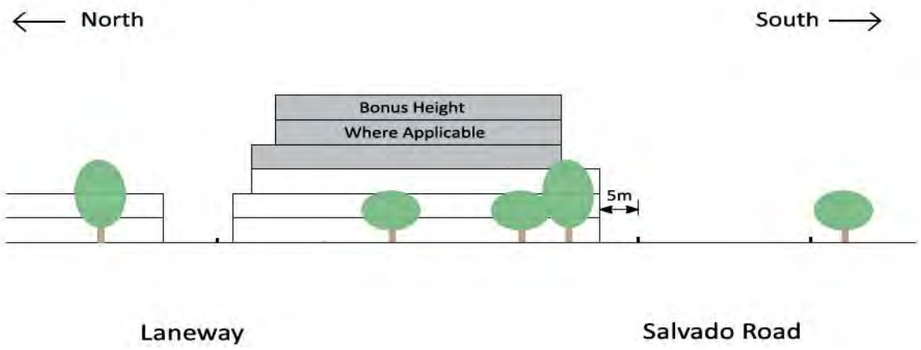


Salvado Road

Indicative Layout



Indicative western elevation



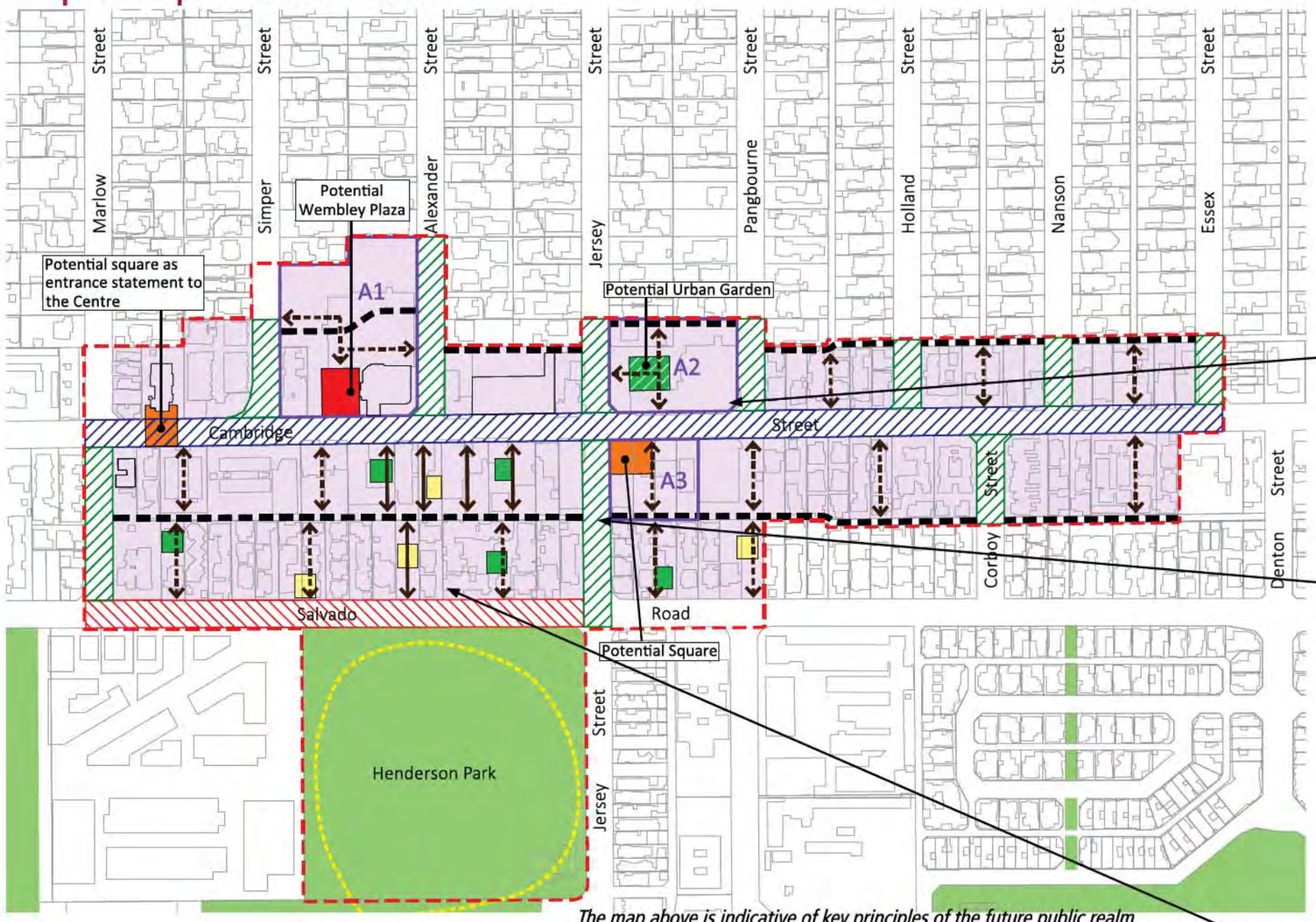
Example of small publicly accessible open space adjoining commercial tenancy on ground floor of apartment building

All diagrams are indicative of potential height and layout and do not reflect a building

1.5 Public Realm

The public realm principles and key features as shown in the indicative map below shall be met through new development as part of the implementation of the Activity Centre Plan.

Topic map - Public Realm



The map above is indicative of key principles of the future public realm

Key

- Plaza
- Square
- Urban Garden
- Park (Public Open Space)
- Cambridge Street Profile
- Side Street Profile
- Salvado Road Profile
- Indicative Small Square
- Indicative Small Urban Garden
- Continuous Laneway
- Preferred Pedestrian Passage
- Indicative Pedestrian Passage
- Indicative Park Circuit
- A1 Anchor Site
- Centre Boundary

Cambridge Street Indicative Profile

Side Street Profile

Salvado Road Indicative Profile

Public Realm Key Principles:

Sequence of Open Spaces

The Wembley Plaza on the Hotel/Forum anchor site, the square and urban garden on the IGA and Service Station anchor sites and Henderson Park are to become the three cornerstones of an 'open space triangle' within the centre. This is to be complemented by a series of smaller open spaces encouraged upon redevelopment of properties within the centre.

- **Wembley Plaza** to be the focal point and heart of the Centre with a strong connection to Cambridge Street, surrounded by retail and hospitality uses, provided with appropriate landscaping and shading trees and created as an inviting place to stay or hold events.
- The **Square and Urban Garden** of the second and third anchor sites (IGA / Service Station) are to become the second focal points in the Centre and to be created with two unique settings and atmospheres with appropriate landscaping and trees to create green relief within an urban setting
- **Henderson Park** contributes towards a unique character and with improved connections users of the park could be encouraged to extend their stay with a visit to other parts of the centre.

Additional squares and urban gardens are to be encouraged as an integral part of development to further enhance the centre's attractiveness and offer small pockets of green relief. Each could have their own setting, atmosphere and use - being small public gardens, informal playgrounds, alfresco areas or a shady place to sit.

Creation of an entry statement into the centre from the west with a square extending over Cambridge Street connecting with Our Lady of Victories Church. This would convey to drivers they are entering a different environment.

Network of Connections

The improvement of the **Cambridge Street streetscape** is central to making Wembley Centre more pedestrian friendly.

Key elements that will enhance pedestrian amenity include:-

- Creating opportunities for outdoor dining, street trees/plantings and seating;
- Reducing the carriageways to one lane in each direction and having wider central medians to make crossing the road easier;
- Wider footpaths with awnings overhanging to provide shelter from the sun or rain.

Side Streets to follow a similar principle to Cambridge Street in enhancing pedestrian amenity before continuing into the existing profiles of the residential streets.

Key elements may include:-

- Single lane carriageways separated by a central median to assist with pedestrian crossings;
- Awnings providing weather protection over adjacent footpaths;
- Tree planting increased to reinforce lush and green appearance of Wembley and to provide additional shade along footpaths;
- Formalising on-street parking.

Salvado Road (between Marlow and Jersey Streets) - The park atmosphere could be integrated into the street profile to better connect residents with the park and pedestrian friendly improvements made to allow an easier connection to the centre.

Key elements may include:

- Single lane carriageways
- Formalising on-street parking
- Central median with street trees
- Shared path on the southern side
- Pedestrian footpath on the northern side
- Provision of a delineated crossing

Laneways parallel to Cambridge Street, both north and south to become continuous connecting the rear off-street parking areas.

Pedestrian passageways to provide connections between Salvado Road, the rear laneway and Cambridge Street increasing the path network and pedestrian permeability.

164 Salvado Road which is owned by the Town of Cambridge has potential to be transformed into a permanent pedestrian connection from Henderson Park to Cambridge Street as part of a new development on this site.

The public realm principles are based on two key elements:- creating a sequence of open spaces and improving the network of connections (streetscapes being laneways and pedestrian passages). Creating a plaza on the Hotel / Forum anchor site is core to the Activity Centre Plan. The proposed square and urban garden in the IGA / Service Station anchor sites will form the counterpart of the plaza, functioning as part of the second magnet. Henderson Park is the third element of the open space structure. This open space triangle will be completed with a series of smaller squares and urban gardens within different pockets of the centre. Upgrades to Cambridge Street will also be important in creating a network of attractive connections. The profiles of side streets and that of Salvado Road through the centre will also need to be reviewed. The street network is to be further intensified through a series of laneways and passages.

Sequence of Open Spaces

Anchor Spaces

Squares and urban places are crucial spaces for the community to gather or to informally meet, to organise events or spontaneously initiate new activities. Streets can fulfil this function, but not as effectively as plazas or squares. Streets are foremost for moving, while plazas or squares are places to pause and stay. The Wembley Centre does not have an adequate open space to fulfill this function. Apart from the small corner on Jersey Street and Cambridge Street near IGA, all open spaces are parking lots.

Plazas and squares of different sizes have different functions in the urban fabric. The illustration to the right shows a series of different sized plazas and squares (all to scale). Wembley does not need a central plaza or square of the size as Forrest Place as that would be out of place in this location. A plaza or square of a size like Northbridge Piazza would be more suitable. The Hotel / Forum anchor site would be the best location to incorporate a square of this size. This Wembley Plaza will be the focal point and heart of the centre, the space where everybody gravitates to and where people can interact. People could sit on a terrace, meet other people, greet an acquaintance or relax. Therefore, the purpose is to provide a plaza that makes people come more often and stay longer.

The **Wembley Plaza** will be a place in its own right, with a strong connection to Cambridge Street. The square is surrounded with retail and hospitality, with various users on the floors above adding passive surveillance. Awnings and a few trees, possibly a water feature, will create a pleasant micro climate. Benches and terraces will encourage people to stay. But most of all, the plaza is an inviting space, for everybody to use, for events, for spontaneous activities, to look at, muse on and enjoy watching other people.

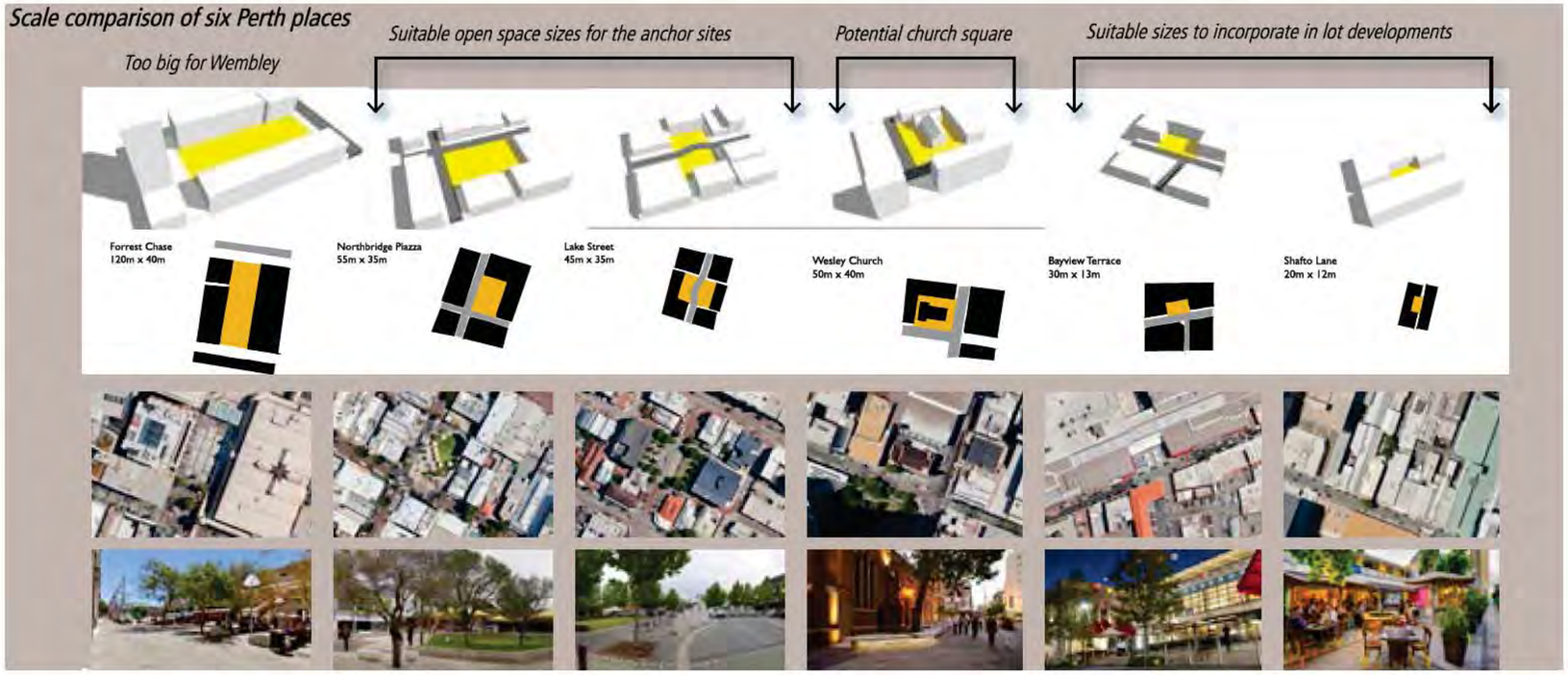
The square and urban garden of the second and third anchors, at the IGA and Service Station sites, will become the next focal point. They are smaller in size and as a guide can be a bit smaller than the Lake Street square in Northbridge. The two places have unique settings and atmospheres, allowing people to have different experiences and giving incentives to walk around more. One is to be a **urban garden**, well connected to Cambridge Street and Jersey Street and the other is a square on the corner of Cambridge Street and Jersey Street. Whether the IGA site or service station site has the urban garden or the square is not important, so long there is one of each and one

Modelling of the potential form of Wembley Plaza, the core place for the centre

The existing situation

Right - Good public places need benches and trees to function well. Water features and atmospheric lighting further contribute to a pleasant and attractive atmosphere

Below- Potential atmosphere of the corner square and urban garden in the IGA/Service Station anchor sites



space on each site. Attention for illumination or artistic lighting in the evening will make of all three places more attractive and inviting. Lighting will also contribute to safety. The provision of facilities like public toilets and drinking fountains will also contribute to their success.

Each of the spaces are proposed to remain in private ownership and maintained by owners with some form of legal arrangement to ensure public access rights.

Henderson Park

This mature and monumental park is a pearl in the neighbourhood and further heritage protection of the park could be considered.

The park is the third cornerstone in the open space structure of the centre. It contributes a unique character and opportunities for its use with the centre, which no other space can provide. With good connections, the existing users of the park can extend their stay with a visit to the other parts of the centre.

Currently the park is well used at times, but rather empty at others. The development of Parkside Walk will turn the inactive western side of Henderson Park into a new frontage. This will help to integrate the park with the surroundings. The northern side can also become activated more. Informal seating opportunities on the steep slope can act as an amphitheatre from where sports can be followed or for the audience of organised performances.

A continuous path can help to integrate Henderson Park - the sport field and the Mabel Talbot Lake site and strengthen their connection with Salvado Road would be beneficial. This would require collaboration with the City of Subiaco. The path can introduce an attractive circuit, with benches and bins, connecting a series of facilities, such as public toilets, drinking fountains, barbecue places, integrated play elements, exercise equipment, a multi-functional skate path or multi-use area and/or kiosk. The built facilities could also be located at the north side of Salvado Road, further strengthening the relationship with Cambridge Street.

Modelling of the potential edge of Henderson Park, looking towards Salvado Road

The existing situation

Artist impression of the upgrated western park edge to the Jolimont development on Parkside Walk

Monumental, Henderson Park, with unique opportunities for the Wembley Town Centre, if better integrated

Additional Squares and Urban Gardens

A series of smaller public accessible open spaces in various developments in the Centre will further add to the attractiveness of the area. These places provide more choice, a broader range of experiences and increase the incentive to wander around. They will all have their own setting, atmosphere and use. Some are little squares; others are small public gardens or informal playgrounds. They may provide shaded seating, flower fragrances, public art, heritage references, Wembley narratives, and so on. Some have the surrounding residents as their primary users; others have a commercial or community venue that use the space. Most of these spaces have the size of Shafto Lane, in Perth CBD or double that. A few bigger ones might be the size of Bayview Terrace, Claremont.

The Our Lady of Victories Church could also have a square in front that connects the church over Cambridge Street with the buildings on the other side. This is less likely to be a very active square, although it could become that in the future, depending on the developments on the south side and the activities organised by the church. This square will mark the centre from the western side, as an entry statement on top of the hill. It introduces a different experience where car drivers are expected to coexist with pedestrians.

Small spaces with unique atmospheres create a reason to explore, discover, wander around and stay longer in the Centre

Additional open space: informal play

Additional open space: public garden

Additional open space: paved square

Network of Connections

Street Profiles

The functioning and success of the places in the Centre is affected by the quality of the connections. The more attractive the streets, laneways and pedestrian passages are, the better the places will be used and the livelier the Centre becomes. The street profiles shown and described in this section are conceptual ideas and subject to detailed engineering design.

Cambridge Street

The improvement of the Cambridge Street streetscape is paramount to make the Wembley Centre more pedestrian friendly.

Footpaths

The existing 3 metres wide footpaths will gradually be widened to 5 metres when the adjoining lots are redeveloped with the building to be set back a further 2 metres. However, some buildings will stay, such as the pre-war buildings, at which point the footpath will not be widened. The two metre setbacks of the new developments can be used for footpath terraces and alfresco dining. In the first metre from the building, shops can also display their products, while cafes and restaurants could put their menus here. The buildings without the extra two metres setback forego this option as the footpaths would become too cluttered and narrow.

The mix of old and new buildings, with two different setbacks, combined with the terraces and footpath displays will create more space for pedestrians, and at the same time a dynamic streetscape, that relates to the human scale. Three metre wide awnings of the new developments will contribute to a better microclimate, providing shelter from rain and shade in summer.

Carriageways

The carriageways need to be reduced to one lane each direction. Combined with a reduced speed limit and fewer driveways and auxiliary lanes, this will not reduce traffic capacity. It will likely improve the traffic flow, diminish congestion and increase traffic capacity.

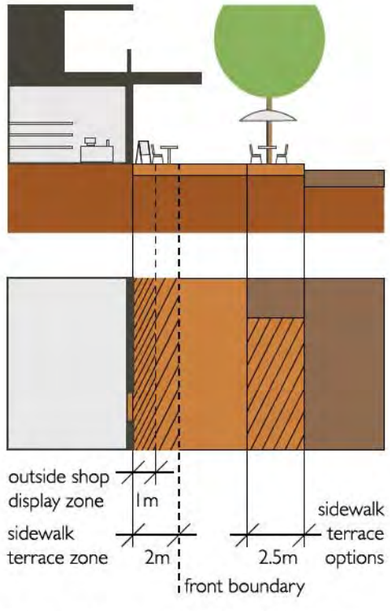
The profile rearrangement creates space for street trees, street furniture (benches, rubbish bins, street lights, bicycle parking), footpath terraces, on-street parking and bus stops. These elements will improve the pedestrian experience adding to the use and activity of Cambridge Street and will help to clearly delineate the footpath from the carriageway. Street trees contribute to shading and improving the micro-climate, creating a more attractive visual appeal.

The driveways to the parking on the back of the lots will each be closed down for cars as soon as the continuous parking lane at the rear of properties is connected which would occur over the longer term. The reduction of Cambridge Street to one lane each direction, instead of two lanes merging within the centre, will improve the traffic flow. The zone with parking, bus stops, street trees, etc, will be visually part of the footpath, thus reducing the visual width of the carriageway. This is a proven method to naturally reduce speed as drivers must pay more attention and improve flows in congested areas.

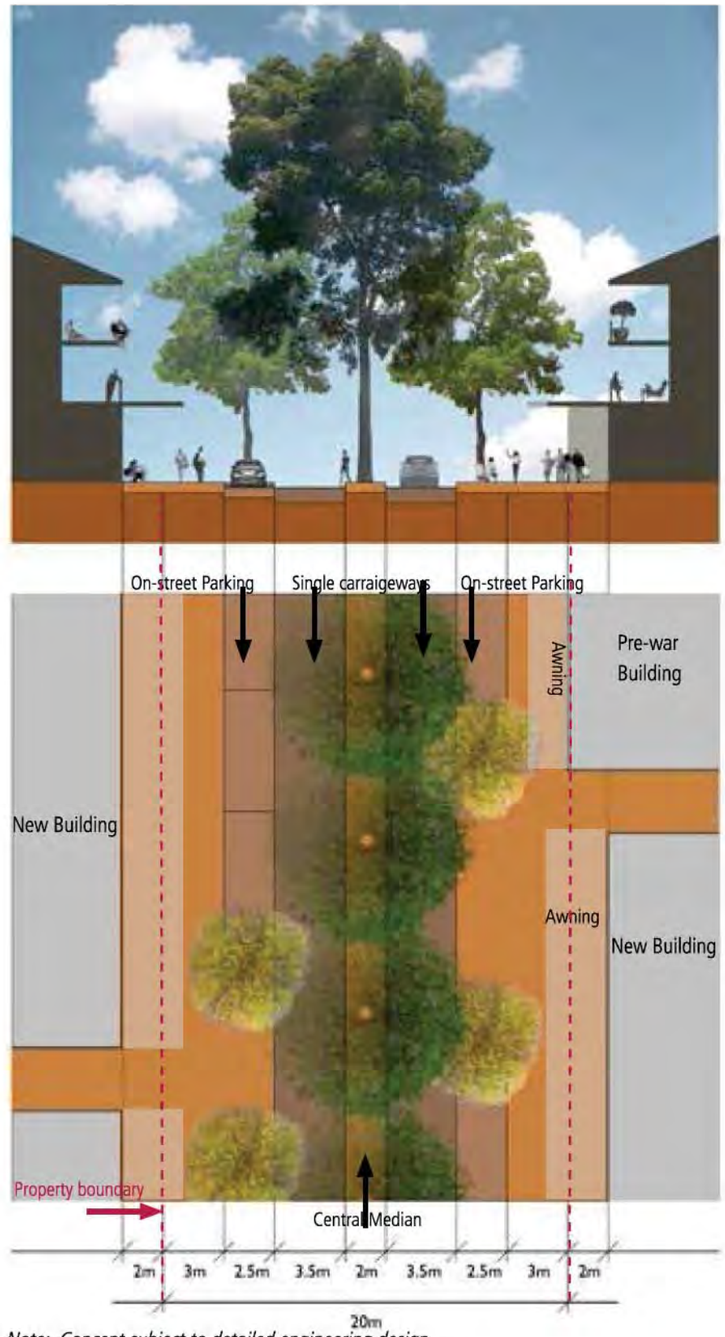
Some of the gain of reducing the existing 4 lanes to 2 will be used to widen the median to 2 metres. This will assist pedestrians crossing the road by giving adequate waiting space within the median to cross one direction of traffic at the time. A wider median will also help to improve growing conditions for trees. The trees in the current situation are under stress, with little root space. When upgrading the street, enough attention and funding needs to be spent on the growing conditions, with sufficient fertile soil, storm water and grey water harvesting and aeration of the soil and opportunities for tree cells under pavement to improve the root system of existing trees. A longer and more continuous line of trees will provide shade, cooling and further enhance the visual appeal of Cambridge Street.

Since 2000 a good start has been made with putting the overhead powerlines underground in the Wembley Centre. This effort should be continued to bring the powerlines underground along the remaining parts of Cambridge Street within the centre.

Large street trees provide a comfortable microclimate for pedestrians



Side profile of zones on the footpath for indoor-outdoor interaction



Note: Concept subject to detailed engineering design

Modelling of the potential development along Cambridge Street

Existing situation

Intermedian between walking zone and carriage way, with benches, parking and street trees

Outside display contributes to a lively streetscape, but should not obstruct pedestrian movement

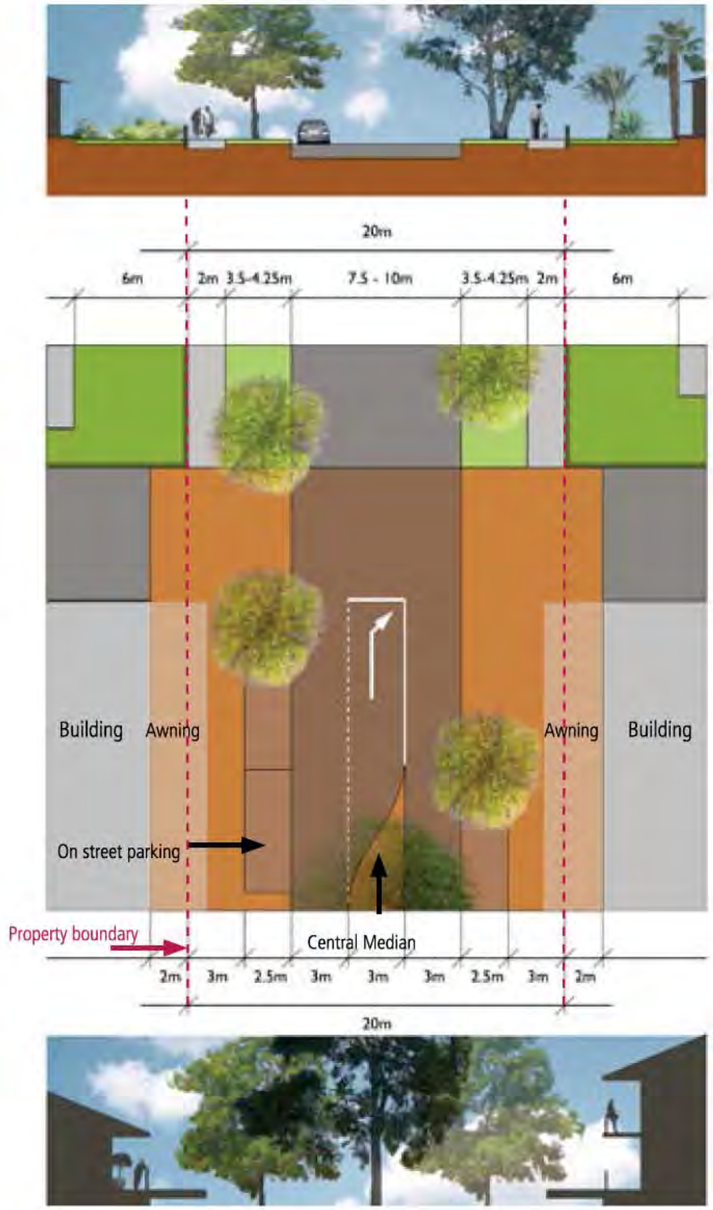
With a little bit of effort and creativity services can have an open and inviting shop front

The lush, tree-lined residential streets are a dominant feature of the character of Wembley. However, some of the residential streets leading up to the centre could use a few extra street trees to fill up the gaps and safeguard the character for the future.

Side Streets

The profiles of the side streets within the Centre follow the same principle as for Cambridge Street, before continuing into the existing profiles of the residential streets. The carriageways will be separated with a kerbed median, which will assist pedestrians crossing and creating a more pedestrian friendly street. Further down the streets, the median strip can act as a part of a right turn into the laneway to access the off-street parking areas. The one way street profile might not be achievable on Jersey Street between Cambridge Street and Salvado Road, due to specific Main Roads requirements and the two traffic light intersections being so close to each other.

In the residential sections of the side streets, tree planting needs to be increased to reinforce the lush and green appearance of Wembley. This will strengthen the identity of Wembley as a relaxed and green suburb and provide continuous shade on the footpaths to the centre.



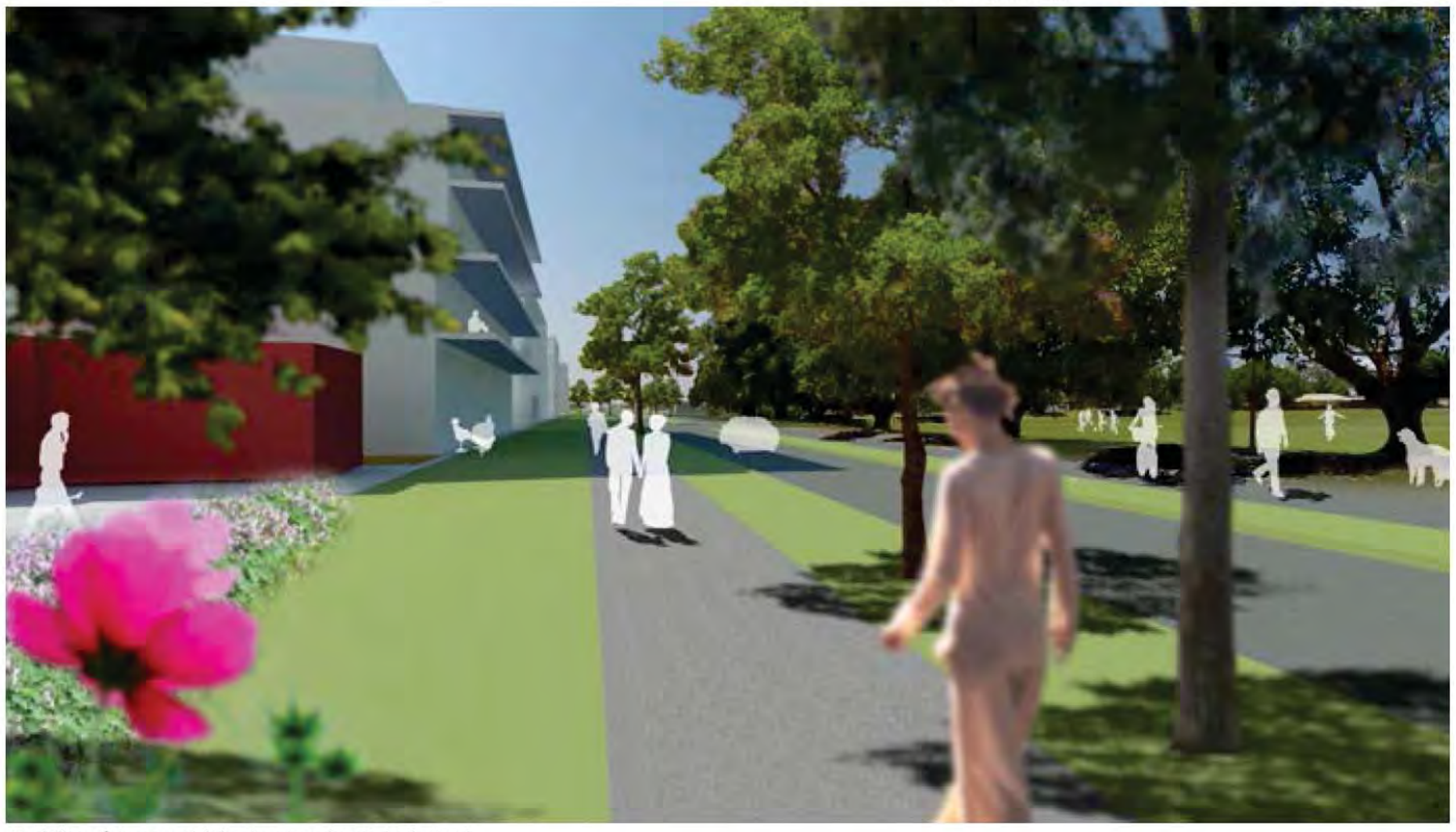
Note: Concept subject to detailed engineering design

Salvado Road

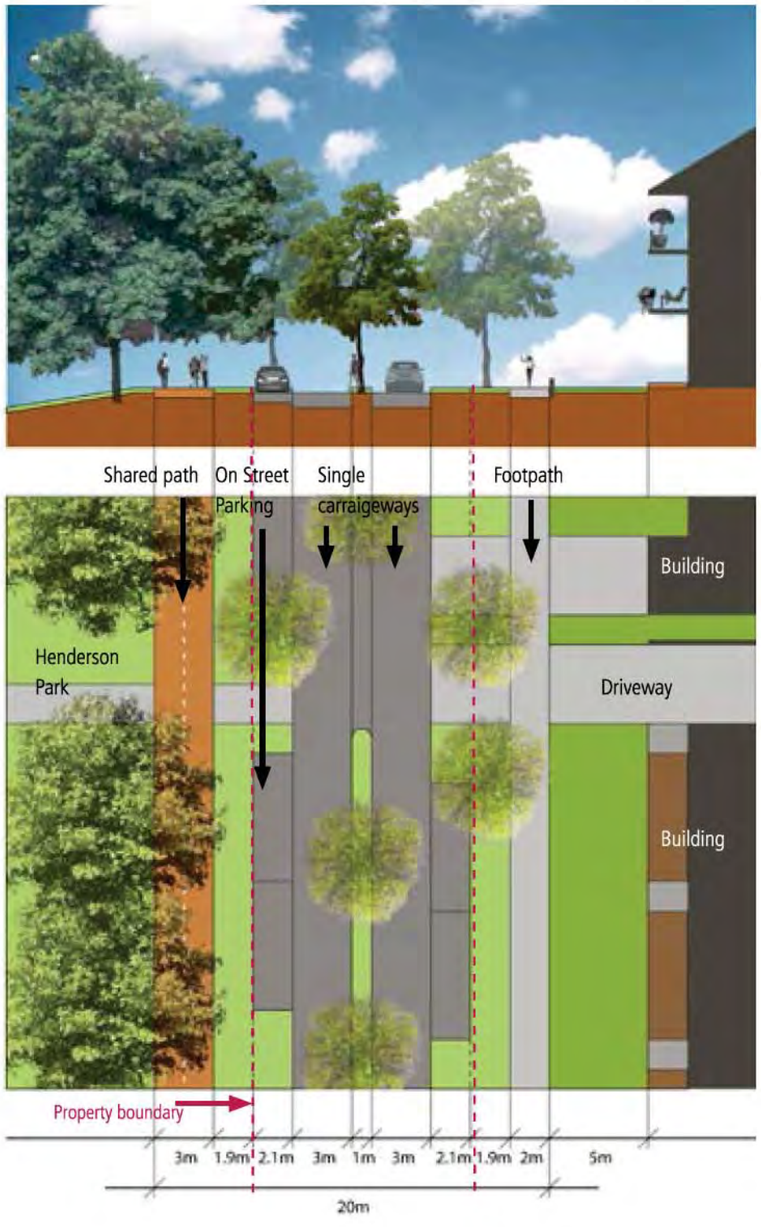
To enhance the connection between Cambridge Street and Henderson Park, Parkside Walk and the Wembley Sports Park, pedestrians need to be able to easily cross Salvado Road. The existing wide carriageway is not pedestrian or cyclist friendly. The design of Salvado Road will need to integrate the needs of pedestrians and cyclists as well as motor vehicles. Ideally, the park atmosphere could be integrated into the street profile. This way the residents living on the north side of Salvado Road would be better connected with the park. Pedestrians coming from Cambridge Street would preferably be provided with a crossing that reduces conflict with traffic. In doing so, Salvado Road will achieve greater integration with the park and the experience of the park could become a part of the centre. The redesign of Salvado Road would also strengthen the atmosphere and liveliness of the carraigeway and naturally reduce speed, creating a safer environment.

A possible future profile for the section of Salvado Road between Marlow Street and Jersey Street is a variation of the Cambridge Street profile, however with more green detailing. Single carriageways suit the residential nature of the road and creating zones with on-street parking, driveway connections and street trees would make the transition to the continuous footpath at the north and shared path along the south side. A green median with trees would continue the park atmosphere.

Existing situation



Modelling of the potential development along Salvado Road



Note: Concept subject to detailed engineering design

Laneways and Passages

The laneways parallel to Cambridge Street, both to the north and south, will become continuous and connect all the off-street parking at the rear of the lots. Further consideration is to be given to implementing new laneways to target location and need and responsibilities for construction and maintenance. East of Pangbourne Street there are already back lanes, both on the north and the south side of Cambridge Street. However, these lanes are too narrow to provide access for the off-street parking and would need to be widened for access, parking and circulation.

As part of the redevelopment guidelines for the lots in the Centre there will be a requirement for a publicly accessible pedestrian passageways. The passages connect Cambridge Street and Salvado Road with the future continuous laneways. The anchor sites will also contribute to the network of connections with 4 metre wide pedestrian passages. Together these passages will increase the path network in the centre and improve pedestrian permeability through the Centre.

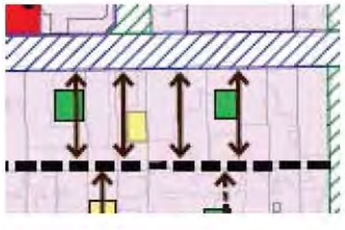
Until such time the laneways are continuous, passages may also be needed for vehicle access to rear parking. Once the rear parking can be accessed by the laneway which provides access to the street, the passage will be closed for car traffic. The width of the passageway will be 3.0m for one-way traffic and will not be designed to be wider as the use of passageways for vehicles is intended to be a short term measure and cars will need to drive no faster than walking pace.

The connections through the lots along Salvado Road can also be used for parking access; in this case on a permanent basis. The width and design however needs to be sufficient to provide a comfortable and safe pedestrian link.

The Town of Cambridge owns a vacant lot on Salvado Road (No. 164). This could be transformed into a permanent pedestrian connection from Henderson Park towards Cambridge Street. Amalgamation of the lot with one or more of the adjoining lots will make development of the lot possible, while incorporating the permanent connection. This will, however, depend upon connection of the abutting Cambridge Street lot.

Passage through a building, providing connection and liveliness, especially an opportunity for the anchor sites

The passages do not need to be blind-walled alleys; they can incorporate shop windows and entrances to the upper floors



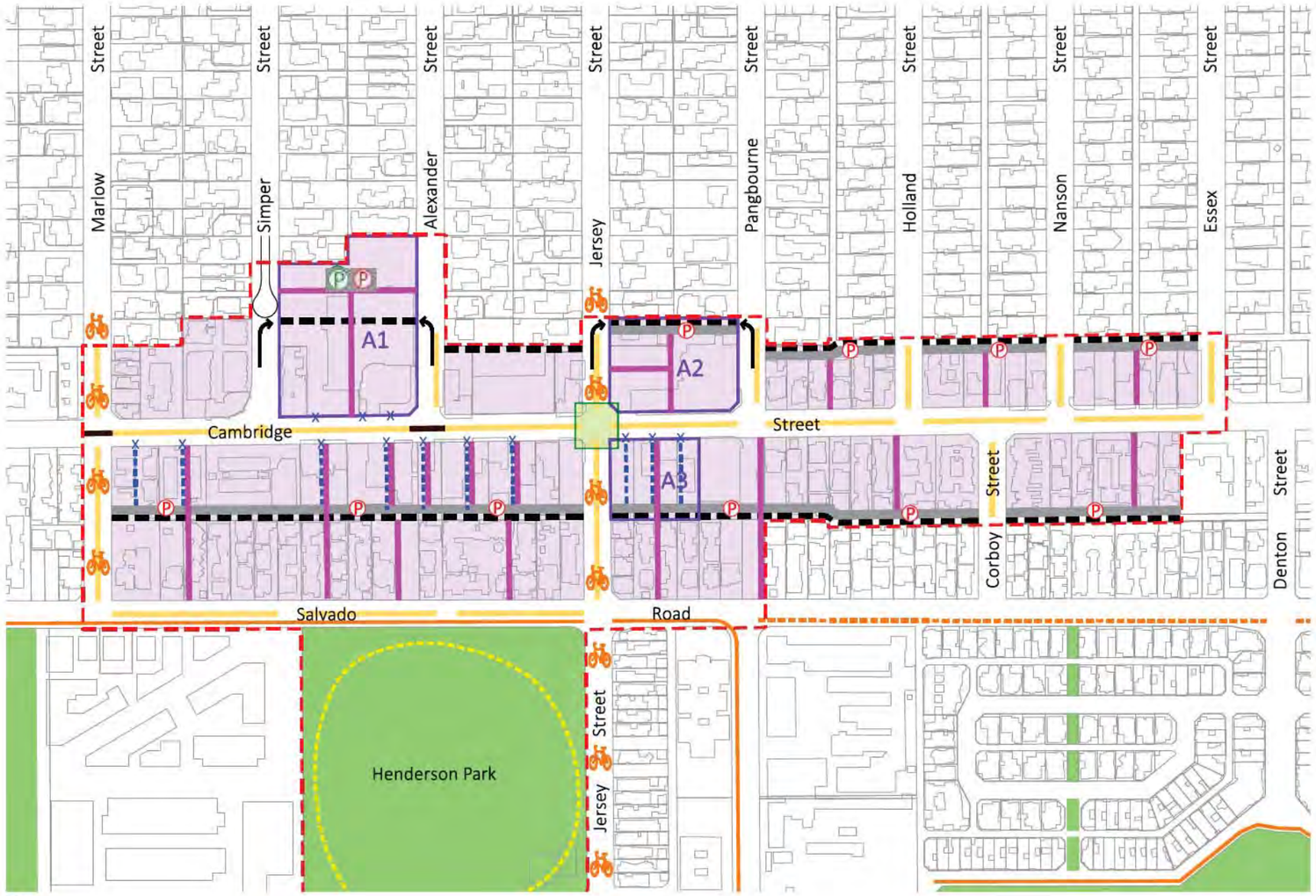
Section of the Public Realm theme map, with one of the continuous parking lanes in light blue. The perpendicular passages connect the streets,laneways and smaller squares and public gardens, creating a fine-grained network of connections.

Public art or exhibition to enlive a passage

Green Walls, seating and attention for night time

1.6 Movement and Access

The movement and access principles and key features as shown in the indicative map below shall be met through new development as part of the implementation of the Activity Centre Plan.



The map above is indicative of key principles of the future movement network

Movement and Access Principles:

- Introducing traffic calming measures which balance both vehicle and pedestrian traffic needs through:
  - Reducing disruptions to traffic flow such as crossovers;
  - Redesigning Cambridge Street to convey a change to an environment that prioritises pedestrian amenity; and
  - Activating pedestrian areas - taking drivers away from the thoroughfare mindset.

- Reducing the maximum speed from 60km/h to 40 km/h.

- Re-design Cambridge Street profile to assist in conveying a reduced speed and pedestrian friendly environment including:-
  - Dual carraigeway road with one lane in each direction
  - Widening the median to 2 metres
  - Formalising on-street parking; and
  - Change of carriageway surface material or colour to communicate a change in environment.

- Establishment of continuous 7m wide laneways parallel to Cambridge Street to allow alternative access to off-street parking areas.

- Establishment of north-south orientated passageways for pedestrians connecting the street and laneways. Until laneways are connected these may be used for vehicle access.

- Improvements to the Cambridge Street and Jersey Street Intersection to reduce pedestrian waiting times, improve pedestrian amenity and provide right hand turning lanes.

- Most side streets to incorporate right hand turning lanes. Simper Street cul-de-sac to be retained.

- Reduce the width of the carriageway and formalise on-street parking along Salvado Road (between Marlow and Jersey Street) to assist pedestrians crossing.

- Parking to the rear of lots and provision of public parking station at Anchor Site 1 (Wembley Hotel)

- Facilitate east-west cycling with a southern corridor along Salvado Road and a northern corridor along Ruislip Street with improvements to north-south cycling connections along Jersey Street and Marlow Street.

- Vehicle access and egress is designed and managed to minimise negative impacts on the side streets.

- Encourage and facilitate a shift towards more walking, cycling and public transport to reduce car dependency

- Manage traffic within the Centre by moving towards the use of parking as a key travel demand management tool.

This section deals with the movement and parking of vehicles and access for cyclists and pedestrians through the Centre which is an important consideration in centres where additional development is to be expected. Two important aspects are covered in this section, the first of which is traffic calming which aims to improve the safety of roads for vehicles and pedestrians and measures to improve traffic flow through the centre. Secondly, this section focuses on parking with the aim to provide easy and convenient access to parking through the use of parking spaces more effectively.

Traffic Calming

Traffic calming can be achieved in multiple ways. There can be regulation of speed limits as well as physical measures, such as speed humps, lateral carriageway shifts and roundabouts, to make drivers slow down. There are other measures that work on the basis of changing driver perception, such as 'visual narrowing' of the carriageway or human activities that raise driver curiosity, causing vehicles to slow down. Pedestrians and events, for example, are a very effective way to calm traffic. In environments such as shared spaces, everyone must pay close attention to their surrounds and negotiate with other road users.

The most effective measures are the ones that are unforced. When over-designed measures are imposed, they can raise drivers' agitation, increasing reckless behaviour and intolerance towards other traffic participants. In such circumstances, the measures themselves can become a source of unsafety. Instead, in the Wembley Centre, a combination of measures are suggested to calm motorised traffic and make the centre more pedestrian and cyclist friendly.

The traffic issue of Cambridge Street in the centre has two viewpoints: the perception of the drivers and that of pedestrians. An effective solution needs to take both into account. On one hand the drivers experience congestion and are forced to slow down on a stretch of road that looks like a cars should be able to travel at 60k/h. Reduction of the carriageways from two to one half way a block, buses stopping, turning traffic and parked cars on the carriageway lead to a high occurance of accelerating and breaking, causing congestion and frustration. In this situation car drivers often get agitated and have limited patience and tolerance for pedestrians. Giving more space to cars, will not solve these issues.

For pedestrians, the restless traffic causes discomfort and an unsafe feeling. They have already limited space in the street profile, since over two-thirds of the width of the road reserve is dedicated to cars. Cars are even often crossing over the footpath driving in and out of the off-street parking via driveways onto Cambridge Street. Meanwhile, traffic lights do not give sufficient time for less mobile people to cross in one go. Vehicles are clearly prioritised on Cambridge Street at the expense of pedestrian amenity.

Based on this two-sided concept, the proposed solution for Wembley Centre is to:

1. Reduce the elements that cause the chaotic traffic flow such as vehicle crossovers,
2. Redesign the street so that the streetscape presents the change of driving conditions and creates a environment that prioritises the pedestrian experience to slow traffic down, and
3. Activate the pedestrian areas, which will reduce driver's thoroughfare mindset

Reduce Maximum Speed

Reducing the maximum speed will reduce speed will set the regulatory framework for improving traffic conditions. This Plan advises to reduce the maximum speed from 60km/h to 40km/h. This is a more appropriate speed for a centre and is already practiced in various other main streets across the Perth suburbs. The logical section to start, would be Cambridge Street between Jersey Street and Marlow Street. In the future the 40km/h should be extended to Essex Street and also implemented on Salvado Road and all the side streets within the centre.

Re-design the Profile

The second step is to re-profile Cambridge Street, letting the streetscape itself reflect a reduced speed and pedestrian friendly environment. In effect, Cambridge Street between Jersey Street and Marlow Street is already a dual carriageway road with one lane in each direction, due to the on-street parking and the lane reduction at the Simper Road roundabout. However, in its appearance, with wide bitumen surfaces which are six metres in width or greater, it suggests a speedy thoroughfare.

Widening the median and formalising on-street parking will visually reduce the carriageway width. Parking should be alternated with kerb protuberances that effectively widen the footpath to provide outdoor dining, street trees and furniture and reduce the crossing distance for pedestrians. To work effectively, it is important that there are not more than four parking bays in a row, preferably less. The kerb protuberances in between should be almost the same length as the parking areas. The two metre wide median, combined with the kerb protuberances will provide numerous crossing locations and make it easier for pedestrians to cross the road. Additionally, the surface of the carriageways can be changed from bitumen to pavers. This creates a different, more pedestrian orientated and less car-dominated atmosphere.

A continuous laneway at the rear of the Cambridge Street lots will provide access for off-street parking bays overtime. As soon as the off-street parking areas are accessible by a parking lane, individual driveways onto Cambridge Street can be redesigned so that only pedestrians use these. This will remove another interruption to traffic flow on Cambridge Street and improve the pedestrian environment as well. **This concept is described in more detail under the Street Profile headings under the previous "Public Realm" section of this document.**

Continuing the median on Cambridge Street across Alexander Street and removing the right turn in and out, should be considered. This will reduce traffic conflict and improve traffic flow, therefore increasing the traffic capacity of Cambridge Street, without increasing the speed. It will also make Cambridge Street easier to cross for pedestrians and continue their walk to Henderson Park.

Shared pedestrian and vehicle spaces

Activating the street and adjoining spaces will also help to improve the perception of safety for pedestrians. When there is lacking liveliness, drivers will not need to slow down. On the other hand, inducing drivers' curiosity will not only further calm the traffic, but also invite the drivers to stop and become a regular visitor of the centre.

Fully shared spaces, however, in the centre would be not be suitable on the main streets i.e. Cambridge Street, Salvado Road and Jersey Street due to the existing and future traffic. Rather, these it should be located in the laneways, the off-street parking areas and driveways connecting the parking areas to Cambridge Street.

Reduce maximum speed from 60k/h to 40k/h

Parking on the bitumen carriage way versus formalised parking in a zone that is visually part of the side walk: the difference between car-dominated and pedestrian focused design.

Change of carriage way pavement creates a pedestrian orientated environment, where drivers naturally slow down; Angove Street., North Perth

An active street will naturally slow down car drivers, while an empty street gives no incentives to reduce speed

Traffic signals with a pedestrian timer

A right turn-off lane with through lane moving back to the middle after the intersection

Road and laneway improvements and modifications

Cambridge Street and Jersey Street Intersection

An important obstacle, to car traffic and pedestrians alike, is the intersection of Cambridge Street and Jersey Street. The waiting times for pedestrians are long and there is limited shade or shelter. Those pedestrians with less mobility have limited time to cross in one go. Cars get delayed behind right turners, while the left lane across the intersection can be obstructed by parked cars. The intersection could easily be improved with a set of measures.

Reducing the overall interval cycle time of the traffic lights (the time for all movements to get a green light) will reduce waiting times for pedestrians. Also, each queue of cars for the traffic light will move more often, increasing the flow. A seconds' countdown indicator for pedestrians, which have recently installed in Perth, should also be considered to improve ease of crossing. Changing traffic lights from fixed phasing to a flexible phasing that responds to changing traffic flows and pushes of the pedestrian button, will reduce excess green time when no cars are crossing the intersection and improve pedestrian movement. Considerations should also be given to the use of pedestrian radar detectors, that keep the green light if a pedestrian is on the crossing. These changes will be subject to the agreement of Main Roads Western Australia.

A wider median on all sides of the intersection will provide an area for pedestrians to stand clear of traffic if required. It will also improve pedestrian comfort, especially if there are street trees as well. Street trees along the footpath, to provide shade when waiting, are a necessity.

At the intersection, the section of the road which would otherwise be space for benches, terraces, street trees and on-street parking would be carriageway instead. Leading up to the intersection, the right lane can be used to introduce a separate right-turn, like at the intersection of Scarborough Beach Road with Flinders Street in Mt Hawthorn, which will remove a major traffic disruption. Once across the intersection, the left traffic lane can move back to the regular carriageway. Having separate lanes for right turn and for traffic going straight through, as well as left turns, makes it possible to improve the traffic flow.

Salvado Road

The part of Salvado Road between Jersey Street and Selby Street is a local access road in the road hierarchy, but has the appearance that suggests it is a distributor road, with over 10m wide bitumen between the kerbs. This part of Salvado Road should be easy to cross for pedestrians and to enhance connections between the Centre and Henderson Park, Parkside Walk and the Wembley Sports Park.

This Plan proposes to reduce the width of the bitumen, formalise the on-street parking and create a park-like atmosphere along the street. This will help to naturally reduce traffic speeds. In addition, it would be beneficial to reduce the maximum speed to 40km/h, similar to what is proposed for the rest of the Centre. The profile shown in section 3.4 is one of the possible solutions for a more pedestrian and resident-friendly street. The eastern part of Salvado Road, across Jersey Street, is a District Distributor B which is higher category road in the hierarchy and therefore is likely to need a different profile.

Parking laneways

The most recent parking survey of the Wembley Centre completed in 2014 concluded that overall there is not a shortage of parking, although the use of off-street parking could be improved. The occupation rate of several parking areas is low, especially on the south side of Cambridge Street that are accessed through individual driveways.

Along the rear of lots along Cambridge Street, both to the north and south, continuous laneways will be developed, connecting all the off-street parking. The laneways together will form a continuous parking access network running parallel to Cambridge Street. Linking up the separate parking areas will improve the effective use and occupancy. This will make it possible to remove the car movements through the driveways to Cambridge Street and take out the driveway entrances. As soon as the off-street parking can be accessed by the laneway, the driveway will be closed for cars and become solely for pedestrians.

The continuous parking laneways will be possible through the provision of a 7 metre setback zone, with a publicly accessible right of way at the back of each lot on Cambridge Street. Further consideration is to be given to implementing new laneways to target location and need and responsibilities for construction and maintenance. East of Pangbourne Street, rear lanes already exist. However, these lanes are only 4.5 metres wide, which is too narrow to function as parking lanes. Lots along Cambridge Street that adjoin these existing lanes will have a 2.5 metres reservation at the back, to achieve the required 7 metres total width. At the Hotel / Forum and the IGA anchor sites, the laneways will be located a sufficient distance away from the intersections with Cambridge Street, to reduce the potential for the traffic conflicts and impacting the traffic flow on Cambridge Street.

Side streets and parking access

The laneways are accessed through the side streets of Cambridge Street. These streets need to provide enough space for cars to line up for turning off into the laneways, without blocking traffic that wants to continue along the residential streets or clogging up the connection with Cambridge Street. Where necessary, an extra lane can be incorporated into the upgraded street profiles. Using the Side Street profile principle, as described in Section 1.4, in the centre, sections of the side streets will provide the space to do this. This profile provides a dual carriageway. The median can be used to provide space for a right turn lane into the parking lane. Where these right turn lanes are needed, there will be no on-street parking, to provide the additional space necessary for the lane that continues into the residential area.

The Simper Street cul-de-sac is to be retained as it plays an important role in the management of local traffic. The road profile may be reviewed in the future if general traffic monitoring identifies a need.

Traffic volumes

The Plan incorporates a number of new development opportunities, adding commercial floor space and dwellings to the centre. This will have consequences for access, traffic and parking. The Town commissioned a Transport Impact Assessment Report to review the traffic impacts of the Activity Centre Plan (refer to Appendix 1). Traffic growth was estimated to be 2% annually; however with the adoption of traffic management strategies and moving towards an increasing share of alternative transport modes, this increased traffic growth can be adequately managed.

To support the vision of the Wembley Activity Centre Plan and envisaged long term development potential, an integrated network of transport modes balancing private vehicles, public transport, cycling and walking is proposed. Constraining the supply of parking longer term is the key mechanism proposed to facilitate this change in transport mode away from private car use. It is considered a reduction in parking supply from full development provision in the order of 32% will be necessary to ensure traffic demands do not jeopardise the function of the street network. Essentially, the approach to statutory parking requirements will have to shift away from specifying minimum parking to a maximum parking standard to bring it into line with the strategic vision of urban consolidation and alternative modes of transport that is encapsulated within the draft Plan for the Wembley Centre. These findings are also consistent with the direction of the Town's Access and Parking Strategy and requirements to set maximum parking limits under State Policy 4.2.

The Transport Impact Assessment highlights the challenges faced in regards to managing traffic levels when meeting the needs for urban consolidation and higher densities. This is not an isolated issue for Wembley, as the traffic projections show for Selby Street, it is an issue on a metropolitan regional scale. However, there are a number of mitigation strategies that can be considered and implemented to still allow for the incremental redevelopment of the Wembley Centre and adequately manage traffic demands.

Although the road network itself can hardly be extended, the capacity can be improved by reducing the number of accesses to car park areas, through the continuous laneways. These entrances will need to be well delineated and intersection treatment considered, to ensure traffic can exit the parking access points. Changing the car park accesses to left turn in and out where possible, removes traffic conflicts and delays. Also the car park access will generally be relocated to lower volume roads allowing vehicles to exit. As Wembley is a classic grid system, both measurements will cause minimal delay to drivers whilst improving traffic flow.

When the parking laneway is continuous, the driveways can be closed down for cars and become solely pedestrian passages.

Reducing car dependency

The existing Cambridge Street and surrounding network has the capacity to cope with an increase in traffic. Though for a lively and well functioning centre, a shift towards more walking, cycling and public transport use is preferable. A goal of this Plan is to achieve a more balanced level access for the various transport modes. The target should be to reduce the 85% of all trips by car and significantly increase the share of public transport, cycling and walking. The more people can be convinced to use alternative ways for their trips in and through the centre, the more the traffic pressure will be reduced. This will be achieved by firstly the residential infill development in the Wembley Centre, which will allow people to walk to the shops and work.

Public Transport

To increase the share of public transport, the plan strongly advises to upgrade the frequency and coverage of the link to the Subiaco Train Station and realignment of the Circle Route to pass through the Centre or provide better connections to the Circle Route.

Changes to the bus network are at the determination of the Public Transport Authority, however, the Town can seek to encourage improvements be made. Comment on the draft Plan was received from the Public Transport Authority (PTA) and it is advised that there are no plans to alter the route of the CircleRoute bus service given it is an important regional connector and any deviation of the route would be detrimental to the efficiency and cost of this service. However, extending the Centre west along Cambridge Street and improving the pedestrian connections and environment towards Selby Street is supported.

In regards to a bus service connecting with Subiaco, this is seen as a logical progression but at this present point of time such a service is not supported. There are seen to be other more strategically significant service improvements across the metropolitan region awaiting funding that would be prioritised ahead of this connection. However, consideration could be given to alternative funding mechanisms, such as parking levies, to bring forward service improvements that the PTA may presently view as non-essential. The PTA would support and collaborate with the Town if such possibilities are to be explored.

The most pressing issue the PTA identifies in regards to provision of bus services in the area, is the lack of bus priority infrastructure along Cambridge Street. Provision of bus priority infrastructure would help to improve journey times, providing an incentive to switch to public transport. However, any bus priority infrastructure would need to be balanced with the needs of the Centre, recognising Wembley Centre is also a key destination along Cambridge Street. Balancing the two needs does present challenges on how bus priority infrastructure could be provided along Cambridge Street.

It is vital however that existing services are well patronised to ensure that the Public Transport Authority continues the current level of service and considers improvements in the area. Therefore steps to encourage the use of existing services play an important role. There have been recent improvements made to bus shelters across the Town, including the Wembley Centre. It should be ensured all bus stops have adequate provision shade and shelter. Enhancing the experience of pedestrian experience will also help to make it easier for commuters to access public transport.

Cycling

The shared path along Salvado Road is an important facility for cyclists. The path should be continued to the east along Salvado Road towards Subiaco. Cycling connections from Salvado Road to the north, over Marlow Street and along Jersey Street towards the Centre and the Wembley Primary School, also require attention.

Marlow Street to the north of Cambridge Street is an attractive cycle road. However, the connection between Cambridge Street and Salvado Road lacks shade-providing street trees and is often busy with cars. Using the side street profile (Section 1.4) for Marlow Street will improve the micro-climate in the street. This is beneficial for both cyclists and pedestrians and will improve the connection between the Wembley Sports Park and the centre.

Jersey Street to the north of Cambridge Street is earmarked as a Local Distributor for cars and south of Cambridge Street as a District Distributor B. It does not provide any facilities for cyclists, even though it is also an important route to both the Centre and the Wembley Primary School. The removal of the second lane on the section between Salvado Road and Cambridge Street, as indicated in the side street profile in Section 1.4, allows for the inclusion of a shared path. This would connect the Salvado Road shared path into the Centre. Cycling could also be encouraged on Jersey Street north of Cambridge by widening one or both of the footpaths to a shared path width and connecting to the Primary School.

Cambridge Street is not part of any major cycle route in Perth. However, this does not mean that cyclists should not be accounted for in the centre. The centre itself will be a destination for cyclists. Particularly locals should be encouraged to come to the centre by bicycle. This contributes to the activation of Cambridge Street, reduces the pressure on the traffic and parking system and supports a healthy, active lifestyle.

Reducing the maximum speed to 40k/h will make Cambridge Street safer for cyclists. Visually reducing the carriageway, for instance with a coloured zone adjoining the on-street parking and kerb protuberances, can create a place for bicycles. More examples of this are seen in the streets of Perth. Furthermore, the laneways to connect the carparks will also provide a low speed environment that cyclists can use, as alternative for Cambridge Street which would be further facilitated through the width of the laneway. Bicycle racks can be provided in the town centre within the kerb protuberances.

The Town is undertaking a review of its Bicycle Plan and the above proposals are consistent with the recommended routes in the draft which has been prepared to date.

Pedestrians

A number of elements included in the plan including the proposed street profiles, laneways and passages will improve pedestrian amenity and connectivity through the centre which will encourage people to walk to and throughout the centre. The streets surrounding the centre are generally good pedestrian environments with footpaths and street trees and these also follow a grid network which flow into the centre, so once the pedestrian experience in the centre is improved, there will be good opportunities to walk both to and then around the centre.

Parking

The parking standards for different are set through the Town's existing Parking Policy. All new development will need to provide for the amount of parking that is required for that specific development.

The provision of a public car park in the centre, would be most logically located on the Wembley Hotel anchor site. For a public parking station, the Council's Parking and Access Study mentions 100 parking bays on top of the normal parking requirements for private developments. that for the land uses in the development. The promotion of walking, cycling and the use of public transport, as mentioned earlier to manage the growth of car traffic, will also impact the number of parking bays that actually will be needed.

Furthermore, strategies such as time restrictions and paid parking are highly effective in increasing the turnover of bays. They ensure that the parking places are used efficiently and reduce the number of parking bays that will need to be provided, Parking time restrictions are promoted in the Council's Access and Parking Strategy. There are already time restrictions on parking in the Wembley Centre in place. Though there are still opportunities to extend this. A further review of the time restrictions could continue to improve the usage of existing parking.

Paid parking can also help manage parking demand. Locally it helps to reduce car traffic and encourages walking and cycling. It also helps to prevent parking bays being used all day for 'park in ride' by bus to the City. Paid parking was only recently introduced in the centre along the west side of Alexander Street near the Wembley Hotel and along Cambridge Street between Simper and Jersey Street. There will be future opportunities to extend these areas, including a minimum 100 bay public parking station on the Wembley Hotel anchor site.

In the long term, constraining the supply of parking is the key mechanism proposed to facilitate this change in transport mode away from private car use. It is considered a reduction in parking supply from full development provision in the order of 32% will be necessary to ensure traffic demands do not jeopardise the function of the street network. Essentially, the approach to statutory parking requirements will have to shift away from specifying minimum parking to a maximum parking standard to bring it into line with the strategic vision of urban consolidation and alternative modes of transport that is encapsulated within the draft Plan for the Wembley Centre. These findings are also consistent with the direction of the Town's Access and Parking Strategy and requirements to set maximum parking limits under State Policy 4.2.

Of the survey respondents that identified with having a disability, the most frequent response, to either the question on what currently makes it easy for you to access the Centre or what improvements you would like to see in the Centre to improve accessibility, is provision of ACROD parking bays. This may suggest that the provision of ACROD bays within the Centre are either insufficient in number or not adequately distributed throughout the Centre to be in close proximity to required destinations. The current provision and distribution of ACROD parking in the Centre should be further investigated to see if there are opportunities to improve access for people who associate with having a disability.

1.7 Development Strategy and Implementation

The improvement of Wembley Centre will happen gradually, over years and decades to come. Developing this plan is only one step in the process. Realising the proposed vision requires a wide range of actions, interventions and developments . Council will be responsible for reviewing the Wembley Precinct Planning Policy and preparing an amendment to Town Planning Scheme No.1 to implement new zonings. It will then depend on the commercial sector taking up the opportunities under the plan as well as Council led public works and projects to realise the full extent of the plan. While the plan establishes the long term vision for the future of the centre, some of the steps are shorter term priorities while others are longer term actions and depend on future budgeting and resourcing decisions.

This section starts with the development capacity and how much development will the Activity Centre Plan realistically deliver. Secondly this section elaborates on the strategy that the plan proposes for the transformation of the centre. A combination of quick wins and engines for transformation will stimulate multiple parties to become involved and take action and contribute to the revitalisation of Wembley Town Centre. The section concludes with a note on lot amalgamation and Planning Scheme recommendations.

The Wembley Town Centre will only gradually transform.
Above: impression of the possible outcome of the Wembley Town Centre after 20 years.
Right: the situation in 2014, followed by possible situations after indicatively 5 years, 10 years and 20 years

Development Capacity

From the development regimes in Section 1.2, a theoretic maximum development capacity per precinct can be calculated as illustrated in the table below.

However, the maximum development capacity is unlikely to occur, especially given there are strata-title lots will diminish the developments. Experience shows that in situations such as Wembley Town Centre, it is more realistic to expect a 10% development of the strata lots in the next 10 years.

Also the development of the anchor sites is not certain. For the calculation of the realistic development potential, the chance that the Hotel / Forum site will be developed in the next 10 years is set on 80%, while for the IGA and Service Station sited a 50% chance is calculated. The table below outlined the resulting development capacity in the activity centre.

Development Capacity

(Based on maximum development potential - Mixed Use Scenario)

Precinct	Additional Floorspace (sqm)				Additional Dwellings (90sqm/ unit)
	Retail - shop	Other Retail	Other Comm. (office/ comm)	Total	
Anchor Site 1	1807	1334	4885	8026	155
Anchor Site 2	690	205	3844	4118	81
Anchor Site 3	897	897	1658	3452	34
Cambridge Street West	303	757	18244	19304	108
Cambridge Street East	539	999	16414	17952	101
Salvado Road	-	-	-	-	352
Theoretical Total	4236	4192	45045	52852	830

Servicing and Infrastructure

Service and utility agencies have been contacted and the Town has not been made aware of any major servicing and infrastucture issues which would impact the ability for the centre plan to be implemented (i.e. water, electricity,sewerage).

The amount of development which occurs over time will impact whether service upgrades and infrastructure improvements are required and more detailed consideration will be given to this matter as developments are proposed. It is likely that change will be gradual with sufficient lead in time until such point that infrastructure or service upgrades would be needed if at all. The plan will be sent to infrastructure agencies to enable them to undertake long-term infrastructure planning for the area.

Comment received from Water Corporation and Western Power recently indicate both have a principle of user pays and any upgrade or new works to support future development would be at the cost of the developer. Also, any review of infrastructure requirements are undertaken as development and building occurs.

Western Power supports the draft Activity Centre Plan and advise 'works associated with new distribution lines and the upgrading of exiting lines (including increasing capacity and undergrounding) will be at the developer's cost'.

Water Corporation advises the developer is expected to provide all water and sewerage reticulation where required to support their development. Contributions towards Water, Sewerage and Drainage headworks may also be required. In addition, developers may be required to fund new works or the upgrading of existing works. Water Corporation also advise due to increase in development density upgrading of current water system may be required and they can undertake to review proposed demands on the overall system as development and building occurs and more detailed information is available.

Also, due to increase in development density upgrading of reticulation sized sewers may be required as future demands become more apparent.

Quick wins

Many things can boost the improvement of the town centre. Large investments and developments have a great impact yet not everything needs to involve significant outlays. Quick wins which concentrate on activities, small investments and organisational efforts can often occur in the short term. These require little investment, but can have a substantial impact on the functioning and perception of the Centre.

Place-making and events

Place-making activities and events will activate the Centre. A Latin dance, summer cinema of communal garage sale can be organised on one of the off-street parking areas or temporarily closed street. These events can also be organised in Henderson Park. However, in those cases making the connection with the Centre will need extra attention. If they are organised on the vacant lot of No. 164 Salvado Road, the connection could be made both ways. A street art festival, with musicians and sidewalk chalk drawings, could enliven Cambridge Street. Heritage walks and story telling events will enhance the narrative of the town centre.

Although these events are temporary, they can change the perception of the Centre. They build the realisation that Wembley Town Centre can be a vibrant and a people's place. Some might even be so successful that they are repeated and become a new tradition.

Localised improvements

Small additions to the public realm can have a big influence. For instance, adding some benches to the footpath can have a big impact. Building a wooden deck edged with plant boxes on an on-street parking bay, such has been done on Oxford Street Leederville (the parklet concept) will create a terrace that adds to the liveliness and helps shift the role of the street to pedestrians. A parking bay can also be marked as a spot for a roving fish or flower vendor. Painting the current on-street parking zone, preferably slightly wided than it is to visually narrowing the carriageway, will also contribute to traffic calming.

Placing benches can be continued on No. 164 Salvado Road and in Henderson Park. Small elements that stimulate children's imagination to play or tell a Wembley story, can be added, creating a new route connecting Henderson Park and Cambridge Street.

Property owners and business owners should be encouraged to improve the appearance of buildings and shops. The existing awnings and facades can be upgraded. Blank walls in the passages could be artistically painted. The business owners should improve shop windows, to be more transparent and interacting with people outside.

Improving the look and feel of Cambridge Street is also a opportunity for a quick win. This could include creating opportunities for outdoor dining, street trees/planting and seating.

Traffic changes

Reducing the maximum speed on Cambridge Street from 60k/h to 40k/h could be a quick win. Although it could also cost a lot of time and convincing to get this approved by the associated authorities. Negotiating with the owners of the Cambridge Street No. 341 to 363, to establish a continuous laneway access for the off-street parkings, could be another influential quick win. There are no physical obstacles that obstruct the laneway, only a few fences and curbs that would need to be relocated.

Farmers Markets

Setting up a weekly farmers market in the Centre could be a significant invigorator of the vibrancy. The market does not need to start big or at its final location. It can develop over time and move from site to site, as it comprises more stalls. The market could for instance start on the parking area in front of the Wembley Forum (Food Court) or on Alexander Street. It would be most logical to locate the market on or near one of the anchor sites. Henderson Park, whilst big enough for a market, is not yet strongly enough connected to Cambridge Street. The synergy with the existing retail in the town centre is important and the market should complement the shop's services so that both benefit from each other's clientele.

Centre Manager/Place-Maker

Employing a Centre Manager could also be a significant quick win. Section 3.2 describes the advantages of a Town Centre Manager. Whether this can be realised quickly or not,

depends on the initiative, collaboration and funding of the Council and the businesses in the Centre

Engines for Transformation

The transformation of the Centre is a lengthy project and an accumulation of many interventions. Some significant decisions and developments will accelerate the process and encourage other parties to get involved.

Planning and legislation

The adoption of the Activity Centre Plan and translating it into a Local Planning Scheme Amendment and updated planning policies, will be important milestones. It will give clarity to the market about what can be developed.

Many of the lots with development potential in the Centre are existing strata titles. In addition, many of the new developments will need to be strata titled. The existing Strata Title Act includes substantial barriers for managing, improving and redeveloping strata title properties. The Western Australian Government is currently reviewing the Act. Once adopted, the new Strata Titles Act will simplify the development and redevelopment of strata properties in the Centre and increase flexibility.

Development projects

Anchor sites

The completion of the Wembley Sports Park and the construction of the planned projects 'Urban on Cambridge' and Parkside Walk will bring more people into the Centre. They can create the extra customers for shops and services to upgrade their business and contribute to the improvement of the town centre.

However, the most significant transformation engines will be the redevelopment of anchor sites. Each of these will play a large role in the revitalisation of the Centre. They will deliver a mix of new users, activated streetscapes, a sizable square or public garden and a concentration of public parking, right in the middle of the Centre. This will create lively hubs that will be a boost for the Centre and stimulate further improvements and transformation.

No.164 Salvado Road

The amalgamation and development of the Council owned vacant lot of No. 164 Salvado Road with one or more of the adjoining lots, could play a large role in encouraging other properties on Salvado Road following suit. If executed well, it will contribute to the creation of an inviting pedestrian connection between Cambridge Street and Henderson Park and contribute to liveliness between the two. This engine project could be initiated by the Council, being the owner of No. 164, or developed as a joint venture with a private party.

Public investments

Investing in the upgrading of public space is a proven strategy to start up or accelerate transformation. A government that shows leadership and invests in the quality of the Centre, is a very strong motivation for private parties to also invest.

Street improvements

The redesign of Cambridge Street will be the most significant public investment in the Wembley Centre. Eventually, the whole stretch from Essex Street to Marlow Street will need to be upgraded. However, this does not need to be done all at once and staging makes sense, starting with the section between Simper Street and Jersey Street. This will improve the central connector between the anchor sites, the core of Cambridge. It will also compliment the development of the Hotel / Forum anchor site.

The second logical stage is the redesign of the Cambridge Street and Jersey Street intersection, followed by Cambridge Street up to Pangbourne Street, so that the IGA / Service Station anchor is fully embedded in the upgraded main street. Redesigning the eastern stretch of Cambridge Street, between Pangbourne Street and Essex Street, and the western part, up to Marlow Street, will complete the enhancement of the central connector in the Centre.

The upgrades to side streets and the section of Salvado Road in the Centre can follow the first stage of Cambridge Street. Upgrading a part of Salvado Road in conjunction with the development of the Parkside Walk should be considered.

Underground Power

Underground power in all these street sections will be a requirement to improve the Centre precinct. This could be done in conjunction with the upgrade of the street or beforehand, as preparation.

Henderson Park

The upgrade of Henderson Park is another essential public investment. This could be realised as one project, though could also be staged like Cambridge Street. The way of staging should be decided based on an integrated design for the park, to prevent ad-hoc interventions and inefficient investments. A design for the facelift of the park would give a better appreciation of an efficient staging.

Co-funding of these investments by private parties could be considered, for instance through a fund. Especially where private parties directly benefit from the public investment, a financial contribution could be examined.

Lot amalgamation

The lots in the Centre are large enough for low-density development. However, for higher density developments that incorporate respectful transitions to low-rise neighbouring lots, they tend to be too small. Those transitions are not so much an issue in the middle of the Centre, along Cambridge Street. However, along Salvado Road and along Cambridge Street east of Pangbourne Street, the transitions are crucial. The amalgamation of lots in these areas is encouraged through the plan, in most areas, to create the necessary space for gradual transitions. The development precincts provide considerably more development opportunities for amalgamated lots then for single lots in these areas.

Planning Scheme and Policy Recommendations

Town Planning Scheme

The Activity Centre Plan advises to initiate an amendment to the Scheme to:

- Rezone 'Local Centre' & 'Residential' zone to District Centre zone. This will also supersede the recent extention of the Local Centre Zone over the parking area for the Wembley Hotel/Cambridge Forum (Anchor Site 1) (refer to Amendment 33 to TPS1)
- Implement provisions and zoning for new residential and minor commercial development along Salvado Road between Marlow Street and Bishop Street. Greater development will be possible on those lots which are amalgamated, whilst development on single lots remains at an R40 standard.

Further consideration will need to be given to the exact format of a future Scheme Amendment which will be required to implement the preferred land uses under the Centre Plan. The Wembley Activity Centre Plan will need to be endorsed by the Western Australian Planning Commission prior to it giving consideration to future Scheme Amendments.

There is also an option to take a two stage approach to the amendments to the Town Planning Scheme. A first stage Scheme amendment would involve converting the Local Centre Zone to a District Centre Zone for the existing Wembley Centre generally between Simper Street and Pangbourne Street and also incorporating the Primary Controls identified for each of the development precincts. This could help alleviate concerns raised from community engagement regarding the impact of Centre expansion and also would allow redevelopment opportunities to be concentrated in the short term to the core of the Centre.

Re-coding Salvado Road Precinct to R-AC0 could also occur as part of this stage one Scheme amendment. For the meantime, the residential portion of the Cambridge Street East precinct could also be recoded to R-AC0.

A second stage Scheme amendment could then follow in the medium term (guided by the extent of redevelopment occurring in the Centre) to extend the District Centre Zone along Cambridge Street west to Marlow Street and east to Essex Street and also allow small-scale commercial opportunities for the Salvado Road Precinct.

Further consideration could also be given to preparing a Development Contribution Plan, if this approach is warranted to enable the provision of public facilities and infrastructure within the Centre. A Development Contribution Area would need to be identified through a Scheme amendment and would set out who is to contribute to the cost of providing desired facilities or infrastructure.

Local Development Plans

Local Development Plans will be required to be prepared by landowners for anchor sites prior to major development. Further detailed planning is important for these sites given their strategic significance in the centre and the need to give detailed consideration to how elements such as plazas and open spaces, pedestrian connections, vehicle access ways and buildings interrelate. The plans will ensure the appropriate measures are in place to guide developers in achieving the optimum development outcome.

Wembley Precinct Planning Policy

Following Council's adoption of the Plan the first major step will be to review the Wembley Precinct Policy as the planning policy is outdated and needs updating to ensure that future development is in keeping with the vision which has been established for the Centre. The policy would cover matters such as:-

- Building design and character: historical lot boundaries, street frontage, shaded facades and vertical coherence;
- Street setbacks and street frontage heights (where not specifically covered by primary controls);
- Side and rear setbacks (where not specifically covered by primary controls);
- Streetscape and active frontages;
- Separate access for commercial and residential upper floors and
- Public rights of access – pedestrian and vehicular.

A review of the Wembley Precinct Policy for the area which is currently "Local Centre" zone (the existing commercial area) can occur to review development standards without the Scheme Amendment covering the whole Centre having been gazetted. However, the implementation of new development requirements for the Salvado Road residential strip would depend on a Scheme Amendment being finalised.

Matters for further consideration

1. Heritage controls
Investigate the heritage attributes and associated values with a view to elevate the heritage status / protection of the Wembley Hotel and the Our Lady of Victories Church. Explore the possibility of preparing a Heritage List to retain both heritage and pre-war buildings, where appropriate. This would be considered further as part of the review of the Municipal Inventory.

Advice received from the State Heritage Office is to consider including all places identified as 'heritage' or 'pre-war' in a heritage list

2. Trading in Public Places
Review 'Trading in Public Places' Local Law to encourage different activities in the Centre. Suitable locations within the Wembley centre could be identified for stall holders, traders, street entertainers, outdoor eating facilities and pop-up food vendors to streamline the licensing process.

3. Sustainable design
Develop a policy to encourage sustainable building design, covering elements such as passive solar design, natural ventilation, temperature, sound attenuation and waste management. Promoting these aspects will contribute to the liveability of the town centre, which is essential for a long-term success.

4.No. 164 Salvado Road
The feasibility of development options for 164 Salvado Street should be investigated further.

5. Mechanism for laneway creation
Further consideration to be given to allow for a more strategic approach to be adopted for the creation of rear laneways.

6. Bus priority infrastructure
Further consideration in regard to improving bus access to and through the Centre.

7. Bus connection to Subaico
To investigate the potential for a bus service to connect with Subiaco and associated alternative funding mechanisms such as a parking levy.

Implementation Table

The following table outlines the key projects and tasks which will be required in order to implement the Centre Plan. While the plan establishes the long term vision for the future of the centre, some of the steps are shorter term priorities while others are longer term actions and depend on future budgeting and resourcing decisions.

Project/Tasks	Principle Responsibility	Resources	Priority
Endorsement of Activity Centre Plan	Town of Cambridge/ WAPC		1
Wembley Precinct Policy Review for existing Commercial Areas	Town of Cambridge	ToC Operating budget	1
Initiate Town Planning Scheme No.1 Scheme Amendment	Town of Cambridge	ToC Operating budget	2
Explore heritage controls (Wembley Hotel/ Henderson Park)	Town of Cambridge	Specialist heritage advice	2
Local Development Plans for anchor sites	Landowners		2 (prior to major redevelopment)
Investigate development options for No.164 Salvado Road with possible pedestrian link	Town of Cambridge	ToC Operating budget	2
Explore opportunity for Place Manager or Town Centre Manager	Town of Cambridge/ Local Business	ToC Operating budget/ Funding of position	2
Explore opportunity for Local Market	Town of Cambridge	ToC Operating budget	2
Henderson Park Improvements	Town of Cambridge	Future Capital Works	3
Wembley Precinct Policy Review (Stage 2)	Town of Cambridge	ToC Operating budget	3 (Following Scheme Amendment)
Street upgrade - Cambridge Street	Town of Cambridge	Future Capital Works	3
Street upgrade - Salvado Road	Town of Cambridge	Future Capital Works	4
Street upgrade - Side Streets	Town of Cambridge	Future Capital Works	5

Part 2 - Explanatory

2.1 Study Area

Aerial view of the Wembley Centre, with the study area marked in red

Centre Boundary Definition

BACKGROUND TO DISTRICT CENTRE CLASSIFICATION

It was on the gazettal of State Planning Policy 4.2 Activity Centres (SPP 4.2) on 31 August 2010 that Wembley Centre was designated a District Centre with Jolimont. Prior to this gazettal, due to the absence of Wembley being listed in the draft Policy, the Town had ceded its classification to that of a Neighbourhood Centre.

The Town's view at the time was the Wembley Centre was an example of a centre that didn't quite fit neatly into the centre hierarchy. Wembley has some characteristics of a neighbourhood centre, but on a larger scale. The main concern raised by the Town when SPP 4.2 was being reviewed was that under the proposed policy provisions for neighbourhood centres the mixed-use threshold did not apply, removing any potential to expand retail floorspace beyond 5,000sqm within the Centre, particularly if the population catchment of the Centre was to increase. This could stifle the growth of the Wembley Centre, particularly since there was still potential under the current zoning of Local Centre for further expansion. Any expansion was considered largely driven by market forces.

The Town requested consideration be given to another classification, for example 'main street centre' that could adequately describe these traditional commercial centres historically developed on main street principles. However, after due consideration of the Town's comments on the draft SPP 4.2, a determination was made by the WAPC to reclassify Wembley/Jolimont as a District Centre together.

Whilst the Wembley Centre and Jolimont Centre are close geographically, historically the two centres have had little relation to each other, therefore no strategic consideration had been given to how to better connect or combine the two Centres. Wembley Centre is more of a traditional main street centre focused strongly along Cambridge Street, while Jolimont has developed in more recent times, relatively speaking, and is bounded by several streets.

RATIONALE TO CENTRE BOUNDARY

The above Wembley Centre Boundary (shown by the yellow line) was resolved as part of the three-stage process undertaken to prepare the Wembley Activity Centre Plan.

The overall process was driven by four key objectives:

- Foster the creation of a Centre that provides an attractive amenity;
- Improve housing choice;
- Improve design and function; and
- Provide for a logical transition to the surrounding area with recognition of established development.

The first stage comprised of a background analysis that considered Wembley's context with other Centres in the region and concluded, amongst other matters, the strength and difference for the Wembley Centre is the neighbourhood community and its focus on the direct surrounding area. Most centres in the surrounding area are also of a main street type, making it difficult to attract people from outside its immediate area. Wembley and Jolimont are declared one district centre in State Planning Policy but do not function as one Centre.

The second stage involved the Scenario Games, a community engagement tool to help guide the review of the Centre boundary. From the results of this exercise the following elements were identified in relation to the Centre boundary:

- Two main development directions being mixed use development along Cambridge Street between Marlow Street and Essex/ Denton Streets, and southern pedestrian connections to Henderson Park, Parkside Walk and Wembley Sports Park facilitated by multi-storey residential development along Salvado Road;
- Anchor points (landmark sites) being the Wembley Hotel/Cambridge Forum site and, the IGA site/Shell Service Station site on the corners of Jersey and Cambridge Streets; and
- Improved pedestrian connections and public spaces including an attractive pedestrian network along Cambridge Street and new pedestrian connections between Cambridge Street and Salvado Road.

This then led to the endorsement of a preferred scenario, capturing the key elements above to guide the detailed planning of the Activity Centre Plan, stage three.

From the analysis, consultation and design work undertaken it was determined the most appropriate boundary for the Wembley Centre was to generally continue along Cambridge Street but also strengthen the connections south to key community assets and future residential development. This Centre Boundary also seeks to preserve the low density residential development to the north, adopting transitioning methods within the centre boundary through stepped building height and rear setbacks.

It is also considered whilst there was no clear strategic reason identified through the preparation of the Wembley Activity Centre Plan to extend the boundary further south along Jersey Street towards the Jolimont Centre, the proposed planning for the Wembley Centre is not considered to hinder any future opportunity for the two Centres to be better connected.

2.2 Planning Framework

State Planning Framework

Activity Centres Policy 4.2

State Planning Policies (SPPs) are prepared and adopted by the Western Australian Planning Commission (WAPC) under statutory procedures set out in Part 3 of the Planning and Development Act 2005. The WAPC and local governments must have 'due regard' to the provisions of SPPs when preparing or amending local planning schemes and when making decisions on planning matters.

SPP4.2 *Activity Centres for Perth and Peel* is an SPP for the planning and development of activity centres throughout Perth and Peel. It specifies broad planning requirements for the planning and development of new activity centres and the redevelopment and renewal of existing centres in Perth and Peel. It is mainly concerned with the distribution, function, broad land use and urban design criteria of activity centres, and the coordination of their land use and infrastructure planning.

The following hierarchy of centre types is provided by SPP4.2, ordered from highest to lowest in terms of their relative regional function and catchment:

- Capital City (e.g. Perth CBD);
- Primary Centres (none identified in Perth and Peel);
- Strategic Metropolitan Centres (e.g. Fremantle, Stirling, Joondalup);
- Secondary Centres (e.g. Claremont, Leederville, Subiaco, Karrinyup);
- District Centres (e.g. Floreat, Wembley/Jolimont);
- Neighbourhood Centres; and
- Local Centres.

Importantly, Wembley and Jolimont (which is combined with Wembley in the Activity Centres Policy) are identified as a 'District Centre' within the Central sub-region of Perth. This plan focuses only on the Wembley portion of the combined centre given the gap between these two centres and their different role and function.

The policy sets out the functions, typical characteristics and performance targets associated with the difference centre types, with the following applicable for 'District Centres':

- Main role / function - District centres have a greater focus on servicing the daily and weekly needs of residents. Their relatively smaller scale catchment enables them to have a greater local community focus and provide services, facilities and job opportunities that reflect the particular needs of their catchments.
- Transport connectivity and accessibility – Focal point for bus network.
- Typical retail types – Discount department stores, supermarkets, convenience goods, small scale comparison shopping, personal services, some specialty shops.
- Typical office development – District level office development, local professional services.
- Future indicative service population (trade) area – 20,000 to 50,000 persons.
- Walkable catchment for residential density target – 400m.
- Residential density target – Minimum 20 dwellings per gross hectare, but 30 dwellings per gross hectare is desirable. (Typically, the average R-Code or net density equivalent is two to three times the number of dwellings per gross hectare).
- Diversity performance target – A proportion of the centre's total floor space to comprise a mix of land uses that are not shop-retail (e.g. office, civic, business, health, community, entertainment etc), with this proportion increasing in line with the amount of shop-retail floorspace provided. For example, a district centre with between 10,000m2 and 20,000m2 of shop-retail floorspace should provide 20% of the total floorspace for a mix of non-shop/retail uses.

The Policy states that the Responsible Authority (i.e. the Town of Cambridge) should not support activity centre or other structure plans, scheme amendments or development proposals that are likely to undermine the centre hierarchy or policy objectives, result in the deterioration in service levels, or unreasonably affect the amenity of the locality through traffic or other impacts.

Activity centre plans are required to be prepared for all centre types, except neighbourhood and local centres, and should be endorsed prior to a major development being approved to ensure integrated, cohesive and accessible development. . Under the Planning and Development (Local Planning Scheme) Regulations 2015, all Activity Centre Plans for District level centres are to be approved by the Western Australian Planning Commission. Other WAPC policies (e.g. Liveable Neighbourhoods) identify district centres as typically having a retail floorspace of between 15,000m2 and 25,000m2.

Directions 2031and Beyond

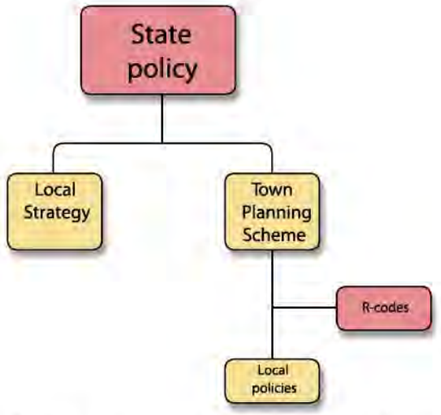
Directions 2031 and Beyond is the strategic metropolitan plan for the Perth and Peel Metropolitan Region, providing a spatial framework for urban growth over the next 20 years. The study area is located within the 'Central Sub-Region' of Perth as identified by *Directions 2031 and Beyond*, with Wembley/Jolimont recognised as a 'District Centres' (consistent with SPP4.2), intended to generally serve the main weekly household shopping, service and community needs of the district.

Draft Perth and Peel @ 3.5Million

Draft Perth and Peel @ 3.5 Million has been released by the Western Australian Planning Commission to update *Directions 2031 and Beyond*. There is no change to the status of the Wembley Centre in this draft Plan and it remains a District level centre.

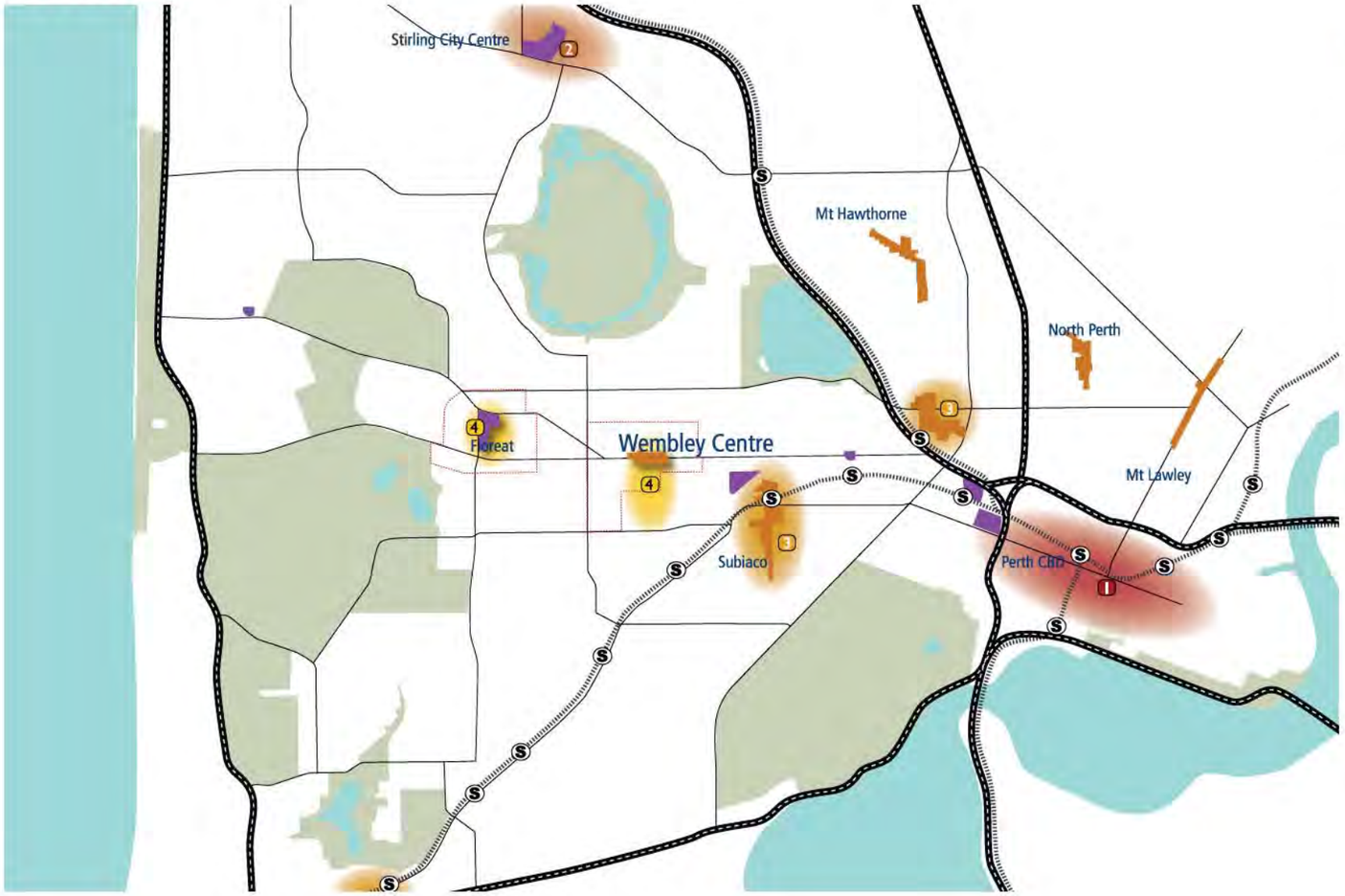
Metropolitan Region Scheme

The *Metropolitan Region Scheme* (MRS) is the principal statutory zoning plan for the Perth metropolitan region, allocating broad zoning and reservation classes to regulate land use and development (and guide the preparation of local town planning schemes). The Wembley Centre is zoned 'Urban' under the MRS, while the Wembley Sports Park and Henderson Park are both reserved for 'Parks and Recreation'.



The State policies govern the overall planning of activity centres at the metropolitan level. These policies are translated at a local level through the Local Planning Strategy in conjunction with the Town Planning Scheme (TPS). The Local Planning Strategy outlines the vision for the local area, while the TPS provides the zoning map and the rules and restrictions for development. In the case of residential development, the TPS refers the zoning to the R-Codes, a State document that defines the uniform zoning codes used in Western Australia. Local policies are a further elaboration of the TPS, which need to be taken into account for the land use and development plans. The diagram above shows how these elements are related.

Centres

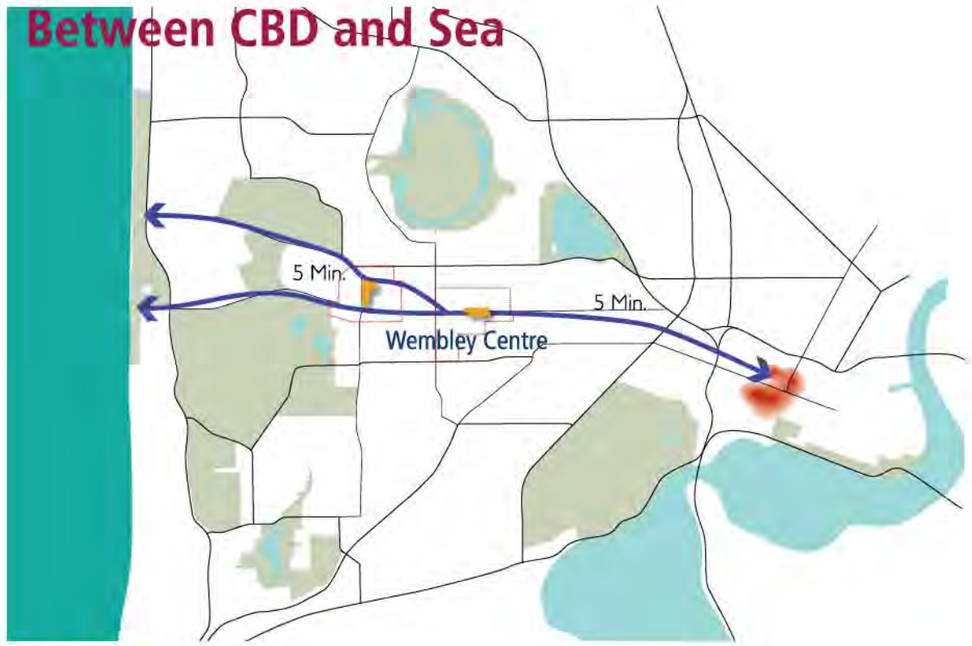


Analysis observations

- The Wembley Centre is surrounded by higher level activity centres such as Subiaco Town Centre, Leederville and Stirling City Centre.
- Wembley Activity Centre is very close to Subiaco. Its strength and difference is the neighbourhood community and its focus on the direct surrounding area.
- Most centres in the surrounding area are of the Main Street type. In this regard, Wembley Centre has a lot of competition, which makes it difficult for Wembley to attract people from outside its immediate area.

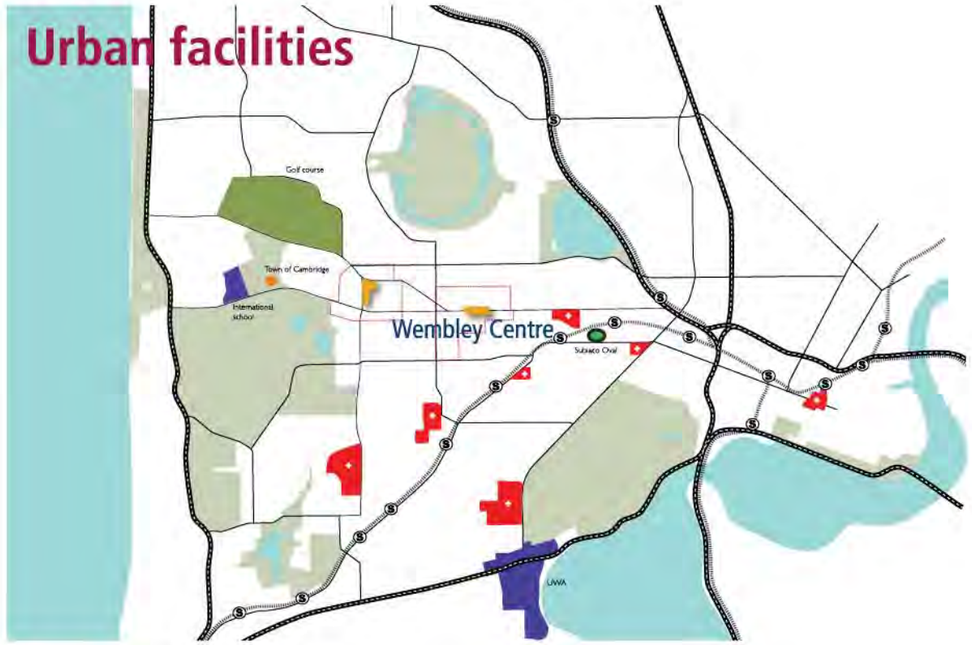
Key

- Capital City
- Strategic Metropolitan Centre
- Secondary Centre
- District Centre
- Mainstreet type centre
- Shopping Mall type centre
- Highway
- Railway
- Train Station



Analysis observations

- Wembley is uniquely positioned between the CBD and the beach.
- The surrounding residential area is a green, lush suburb. This quality is enhanced further by the location between CBD and sea.



Analysis observations

- There are many hospitals and medical facilities close to the Centre. Together with the University of WA, they provide work for a lot of highly educated people in the general area.

Key

- Hospitals
- Education
- Subiaco Oval

Local Planning Framework

Local Planning Strategy

Council endorsed a *Local Planning Strategy - Working Document* (LPS) in May 2010. This working document provides broad strategic directions to guide future planning, with the following strategy recommendations and aspirations being particularly relevant to the Wembley Activity Centre:

- Consider opportunities for increasing residential development around centres (local and district) and along activity/public transport corridors (particularly Cambridge Street) as part of planning exercises/centre planning.
- Develop additional local housing whilst retaining and enhancing the following characteristics of Wembley:
  - » *"Wembley has an urban feel with an orderly aspect to its streetscapes, built-form and housing stock"*.
- Enhance the appearance and functionality of the Town's existing centres through centre plans as appropriate, with an emphasis on sustainable urban design and main street development principles
- Ensure that centre development provides for a mix of land uses and activities so as to provide diverse employment opportunities and services (possibly review planning provisions to encourage mixed use development).
- Ensure that traditional economic activities in existing centres (i.e. service commercial activities) are not all lost so as to protect existing employment choice.
- Promote activity towards major public transport routes (e.g. along Cambridge Street).
- Identify and support proposals to upgrade public transport infrastructure in the Town (specifically along Cambridge Street and to connect Floreat with Claremont and Stirling).
- Provide better connections and amenity at bus stops at key transfer points and around key centres and destinations
- Enhance pedestrian and cyclist environments as part of centre planning exercises and street upgrades.
- Address any parking issues that are generated as part of centre planning exercises through parking management approaches.
- Introduce high-quality public places into new development areas including centre upgrades and as part of significant development applications.

Town Planning Scheme No.1

Town Planning Scheme No.1 (TPS1) comprises the Scheme Text and Scheme Maps and was adopted in 1998. It is the primary statutory document administered by the Town of Cambridge in the regulation and control of land use and development throughout the local authority area. The scheme map classifies land according to a range of reserves and zones, while the scheme text prescribes the specific land uses which may or may not be permitted in the various zones via the Zoning Table. The scheme text also establishes the requirements for the use and development of land throughout the Town, and provides for planning policies to be adopted by the Council on issues such as development control.

TPS1 is being reviewed to ensure scheme provisions and policies remain relevant and valid. A staged approach to the review will allow changes to the scheme to occur over time and in a timely manner following completion of studies and strategies including the West Leederville Planning and Urban Design Study and Wembley Activity Centre Plan.

TPS1 Zones and Reserves

The Town Planning Scheme Maps include a number of zones that support commercial activity including 'Local Centre', 'District Centre' and 'Commercial' zones. The zoning framework is generally consistent with the Activity Centres Policy which indicates that centres should be zoned to be consistent with the activity centre hierarchy, including Local Centre and District Centre zones. The Wembley Centre area is predominantly zoned 'Local Centre' under the TPS1, and is surrounded by low and medium density 'Residential' zoned land which is predominantly 'Residential R20'.

Proposed Amendments to TPS1

A number of amendments to TPS1 have either been recently gazetted or are pending final approval and gazettal. These are summarised as follows:

- **Amendment 25** – Jersey Street / Cambridge Street (IGA Carpark) Rezoning of Lot 270 (No.152) Jersey Street and Part Lot 1000 (No.322-326) Cambridge St to 'Local Centre'. (Gazetted on 6 June 2014).
- **Amendment 26** – Former Nursery Site, Salvado Road. Introduce new zoning and Special Control Area provisions to establish a framework to guide redevelopment of the former Nursery Site. This amendment was gazetted on 1 August 2014).
- **Amendment 27** – Omnibus Amendment. Introduces new controls for the West Leederville Activity Centre, new cash-in-lieu of parking provisions and makes a number of administrative changes (including changes to the Zoning Table). This amendment was adopted by Council in April 2014 and gazetted on 24 June 2016.
- **Amendment 33** – Wembley Hotel Site - Lot 8 (No. 350) Cambridge Street, Wembley - proposed rezoning from 'Public Purpose' and 'Residential R20' to 'Local Centres' so as to accomodate future redevelopment of the site. Amendment 33 was adopted by Council on 22 August 2017.

TPS1 Development Requirements

The following clauses of TPS1 provide guidance on local development requirements:

- Clause 18: Source of Development Requirements – Development of land to be in accordance with standards and requirements set by the Scheme Text, Planning Policies and the R-Codes.
- Clause 19: Residential Planning Codes – Unless otherwise provided in the Scheme, residential development is to conform to the provisions of the R-Codes, in accordance with the density coding referenced on the Scheme Map.
- Clause 20: Special Application of Residential Design Codes - In relation to Wembley, Clause 20 allows for corner lots in R20 coded areas to be redeveloped up to a density of Residential R30 subject to meeting development controls.
- Clause 21: Dwelling Densities – An increase in the permitted density by up to 50% may be granted by Council if:
  - » *The proposed development effects the discontinuance of a non-conforming use;*
  - » *The proposed development conserves or enhances an existing building, buildings or place declared as a conservation area/place, listed on the Municipal Heritage Inventory or included on State/National heritage registers.*

It is clear that TPS1 is structured such that the vast majority of local development standards and requirements are to be provided via adopted Local Planning Policies and SPP3.1 Residential Design Codes.

Local Planning Policies

The Town of Cambridge has adopted planning policies designed to guide the development within the local authority area and encourage high quality development through consistent decision-making.

Importantly, the Town has adopted a precinct-based approach to development standards through the adoption of individual planning policies for each of the Town's six different precincts. Development standards for the Wembley centre (Local Centre and Residential zones) are specified under Policy 6.4: Precinct P4: Wembley. The development standards for the Wembley Centre are, however, mostly outdated and require review given they no longer reflect current development trends nor more recent development applications received by the Town. The current requirements of these precinct policies, along with other relevant planning policies, are summarised below.

Planning Policy 6.4 – Precinct P4: Wembley

- **Residential Zone** – Predominantly single houses at R20 density, although grouped and multiple dwellings at medium density will be permitted along Salvado Road and Cambridge Street. In addition to the R-Codes, TPS1 and other policies, the following standards apply:
  - » *R20 corner lots (excluding those on Grantham Street) – two grouped dwellings can be constructed at R30 density, subject to one dwelling fronting each street, and lot configuration coinciding with original subdivision pattern. (Note: Amendment 27 seeks to amend Clause 20 of the Scheme to reinforce this provision).*
  - » *R40/R60 lots – Development at the R60 density only permitted if the development involves amalgamation of two or more lots resulting in a minimum area of 1200m2, or if the lot is already large enough (i.e. over 1200m2) to enable integrated development.*
- **Local Centre Zone** – In addition to planning policy requirements, the following standards apply:
  - » *Max plot ratio of 0.5:1, except buildings on Cambridge Street between Pangbourne and Simper Streets which shall have a maximum plot ratio of 1:1.*
  - » *Nil street and side setbacks, with buildings facing the street. Blank walls are not acceptable.*
  - » *Buildings shall be provided with awnings/verandas over the footpath.*
  - » *Where Council considers necessary, pedestrian access for the public shall be provided from the street to car parking at the rear of properties, and adequately sign posted.*
  - » *Residential density to comply with the site area requirements for R40 in areas adjoining Cambridge Street, and R20 elsewhere.*
- **Reserves** – Sports grounds (Henderson Park, Matthews Netball Centre and Pat Goodridge Oval) will continue their primary role as active recreation facilities, while remaining available for passive recreation purposes.

Other Planning Policies

Residential Zone: Use and Development Policies

Twelve (12) planning policies have been prepared and adopted by the Town of Cambridge setting out Residential zone development requirements covering issues such as streetscape, buildings on the boundary, building height and non-residential development in a residential zone. There are also policies which relate to specific areas including Jersey Street south of Wembley Sports Park and Parkside Walk, Jolimont. The Residential Zone policies mostly cover detailed residential design matters not considered central to this study, however, the following key issues are noted:

- Building height limits effectively cap development to the following:
  - » *2 storeys (6m external wall height with hipped or gabled roof above to 9m, or 7m to top of skillion/flat roof) for single and grouped dwelling development, along with R40 multiple dwelling development;*
  - » *3 storeys (9m external wall height with hipped or gabled roof above, or 10m to top of skillion/flat roof) for R60 multiple dwelling development).*
- Detailed design guidelines (e.g. setbacks, building heights) apply to those dwellings located in the Residential R30 zone along Jersey Street, Jolimont and the Parkside Walk Special Control Area.
- The Town's Streetscape Policy encourages more open streetscapes and passive surveillance. Acceptable crossover widths have been reduced tto 4.5m in the Wembley Precinct. The policy also covers matters such as front fences, landscaping and front setbacks.

Non-Residential Zone: Use and Development Policies

Policies have been developed to guide both non-residential and residential development in non-residential zones. The key requirements of these policies are summarised as follows:

- **Non-residential development** – Safe vehicle movement, amenity (e.g. setbacks, building height etc), convenience and economy are all identified as relevant considerations in the assessment of non-residential development. Development needs to present sympathetically to the streetscape, and a traffic management plan may be required where proposed facilities are likely to have a significant impact on the surrounding street system and/or amenity of adjacent areas.
- **Residential development** – Residential development is encouraged as a means to achieve a greater density of uses close to services and attractions, and generate after hours activity. Council shall have regard to the character of the area, potential land use conflicts and the relevant R-Codes provisions when considering residential development applications. Where mixed use development is proposed, particular attention will be given to vehicle and pedestrian access arrangements, separation of common facilities, parking, open space and so on.

Parking Policy

This Policy sets out requirements for access and parking provisions for non-residential development across the local authority area, including parking ratios. The policy also provides for shared parking arrangements for certain mixed use developments, reciprocal parking arrangements and cash-in-lieu payments where a shortfall in parking is proposed, to up to 20% of the parking requirement. In addition cash-in-lieu can be paid to the Council in place of providing parking on site. The cash in lieu rate for Wembley Activity Centre is $30,000 per bay.

The following special provisions also apply to certain development types:

- Traditional strip centres – These centres generally have limited on-site parking available and little opportunity to provide parking bays. Where a change of use or additions are proposed, which result in an increased parking requirement (in accordance with Table 1), Council may determine the parking requirement in isolation. That is, the parking requirement will only be based on the additional number of bays the proposed use will generate compared to the originally approved use. The shortfall is to be paid by cash-in-lieu with no further parking concessions applicable.

Town Planning Scheme (January 2016) of the Wembley Activity Centre,

- Retail in mixed use development – To encourage active ground floor uses (e.g. retail, café or restaurant) in a predominantly office or residential development and where these are ancillary to the main use, parking requirements to be based on the ratio for office uses (1 bay / 30 m2). The retail use shall be small-scale and not a large format retail shop and the majority of development shall be non-retail.
- Shopping centres – For shopping centres with a minimum floor space of 1500m2 in which all tenancies or occupants have assured access to, and use of common car parking area or areas, parking requirements for the overall centre shall be based on the standard applicable to 'shops', irrespective of the use of the particular tenancies or individual occupancies which make up the centre.

Municipal Heritage Inventory

The Municipal Heritage Inventory for the Town of Cambridge has been prepared in accordance with the Heritage of Western Australia Act 1990. The Town is required to compile and maintain a list of buildings which are or could become of cultural heritage value. The Town's Municipal Heritage Inventory not only includes buildings but also landscapes of cultural heritage significance. It is of note that the Municipal Heritage Inventory serves as a reference source and does not hold statutory power.

Six sites across the Town have been included in the State Registrar which means that their protection is afforded under the Heritage of Western Australia Act 1990. None of these are located in the Wembley Centre.

Other studies, strategies and projects

Access and Parking Strategy

Council endorsed the Access and Parking Strategy in November 2012 as a guiding document for the future control and management of parking and access in the Town. The Strategy was undertaken in two parts, being:

- Part 1 - Issues, Options and Long Term Strategic Directions;
- Part 2 - Precinct Parking Management Plans.

A survey undertaken in July 2011 noted 34 on-street and 797 off-street bays, with a total of 831 bays in the Wembley Activity Centre precinct. Virtually all of these bays (732) are available as public parking, with parking restrictions varying between ¼P, ½P and 1P. Limited on-street paid parking in the Wembley Town Centre was installed late June 2014.

A Precinct Parking Management Plan was prepared for the Wembley Activity Centre to guide parking management through the short (2015) to medium (2020) and long term (2020+) with the following key findings and recommendations being of relevance to this Activity Centre planning exercise:

- The short term focus should be on making more efficient and effective use of all available parking, with specific measures including:
  - » *All on-street bays to provide up to 2 hours parking Monday–Friday, 0830–1730 hours. This will allow drivers to park and shop and browse or attend a 1 hour appointment.*
  - » *All future parking facilities are to encourage shared public parking, especially outside of business hours.*
  - » *Continue to undertake surveys, and when parking demand regularly exceeds 80%, consideration is to be given to implementing pay parking.*
  - » *Secure the right for the Town to construct public multi-level parking together with suitable access on the preferred site, being the rear carpark of the Wembley Hotel site.*
  - » *Replace some of the parallel parking bays in Alexander Street with angle parking if shown to increase capacity.*
  - » *Encourage all new developments to incorporate secure and convenient end of trip facilities for cyclists.*

- The medium-term focus should be on continuing to provide efficient and cost effective parking whilst starting to make explicit use of parking as a travel demand management (TDM) tool, with specific measures including:
  - » *Implement revised minimum parking ratios, and introduce maximum parking ratios for new office and commercial developments based on 1 bay per 40 m2 GLFA (2.5 per 100 m2).*
  - » *Upgrade the pedestrian access from Salvado Road along Jersey Street to Cambridge Street to encourage use of Salvado Road for long-term parking Monday–Friday.*
  - » *Encourage practical shared parking initiatives for property developments with > 10 parking bays.*
  - » *Provide wayfinding signage on Cambridge Street either side of Jersey Street indicating the availability of parking bays in Jersey Street and Salvado Road.*
  - » *Commission an initial design and feasibility study for a deck car park on the preferred site (rear of Wembley Hotel site) with the prime purpose of providing additional short stay public parking.*

- In the longer term (i.e. 2021+), the focus should be encouraging higher use of public transport, walking and cycling, particularly for the trip to work but increasingly for other trip purposes. Parking should be used as a key travel demand management tool, with specific measures including:
  - » *Where parking demand is regularly exceeding 80%, implement pay parking or increase the fee if it already exists.*
  - » *On the streets in the centre core area where the emphasis will increasingly be on pedestrian movement and public transport, it will be necessary to carefully manage parking to prioritise activities supporting economic activity while providing additional space for pedestrian amenity and, potentially, for public transport.*
  - » *Introduce and enforce 2P parking restrictions on residential streets.*
  - » *Consider further residential priority parking outcomes.*
  - » *Further review the maximum parking standards to take account of changes in the use of alternatives to the car, vehicle occupancies and mode share.*

Since the completion of the Access and Parking Study the Town's Parking Policy was reviewed (see comment on Parking Policy under 1.1.2 Local Planning Framework)

Development of Parkside Walk (Jolimont Former Nursery Site)

LandCorp in collaboration with the Town of Cambridge have developed an Outline Development Plan and Design Guidelines for future development for Parkside Walk (the Former City of Perth Nursery Site on Salvado Road, Jolimony). It is proposed that the 4 hectare site will be developed for residential use, with 350 dwellings planned for the area in a range of housing types including multiple dwellings and grouped terrace style housing.

There will be multiple dwellings towards Salvado Road up to six storeys, though upper storeys will be set back from Salvado Street and a landscaping strip will be provided along Salvado Road.

Parkside Walk site and Artist Impression of proposed development at Parkside Walk, Jolimont

Wembley Sports Park Master Plan

Wembley Sports Park, bounded by Salvado Road, Selby Street, Hay Street and Halesworth Road is a popular sporting centre catering for a variety of sports, including netball, cricket, baseball and Australian rules football. The Wembley Sports Park Redevelopment is a $13 million town-led project that involves major improvements to the following facilities:

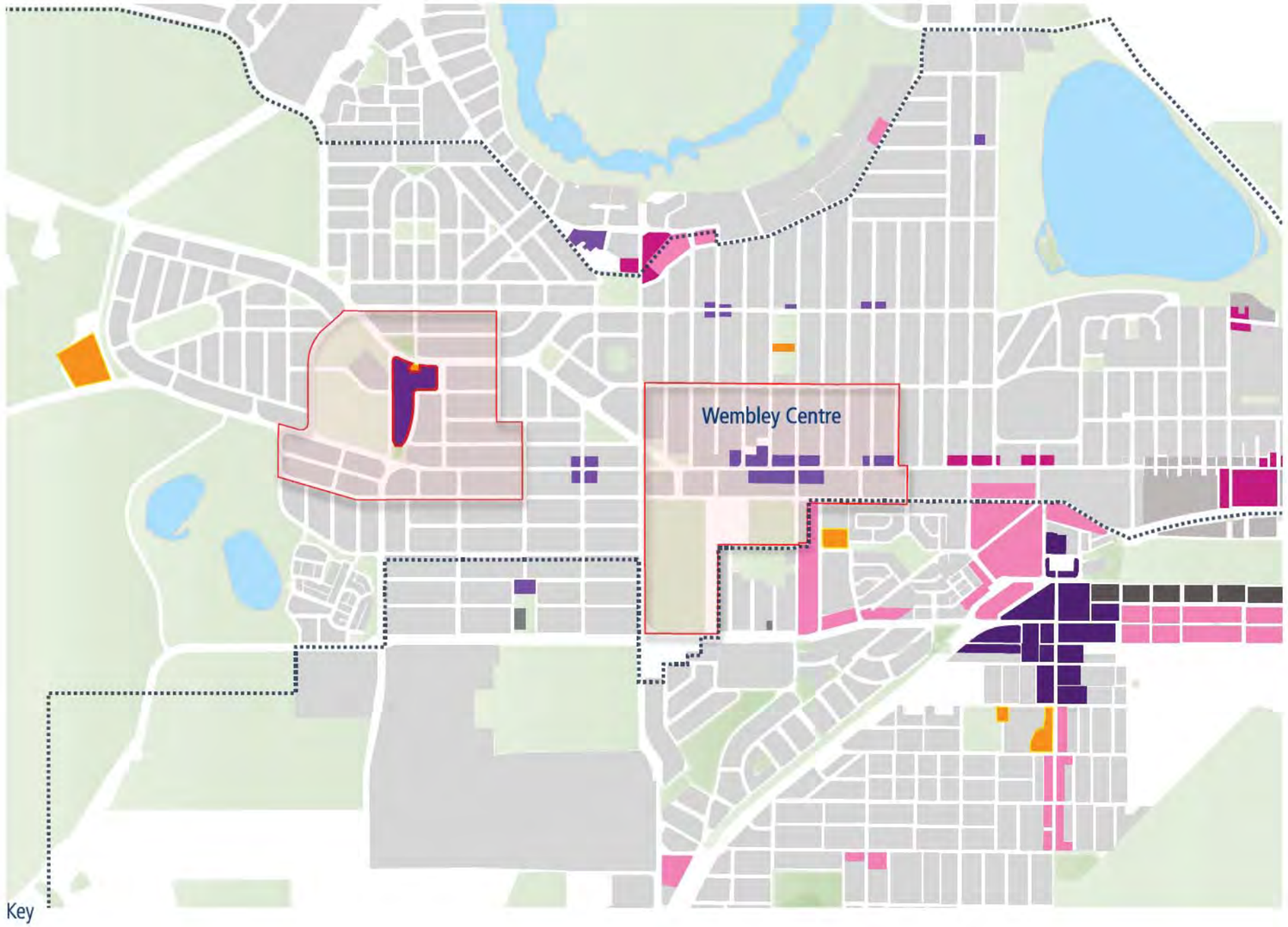
- Matthews Netball Centre – the construction of 48 outdoor netball courts (37 hard and 11 grass courts) and a new purpose built Perth Netball Association building.

- Wembley Athletics Club – two new football ovals, two new baseball diamonds, and relocated cricket wickets.

- State Netball Centre – A joint project with the WA Government involving development of a State Netball Centre, along with new internal roads, car parks, signalised intersection (Selby and Alderbury Streets) and extensive landscaping.

Master Plan for the Wembley Sports Park and Artist Impression of the new sports building in the complex

Commercial areas



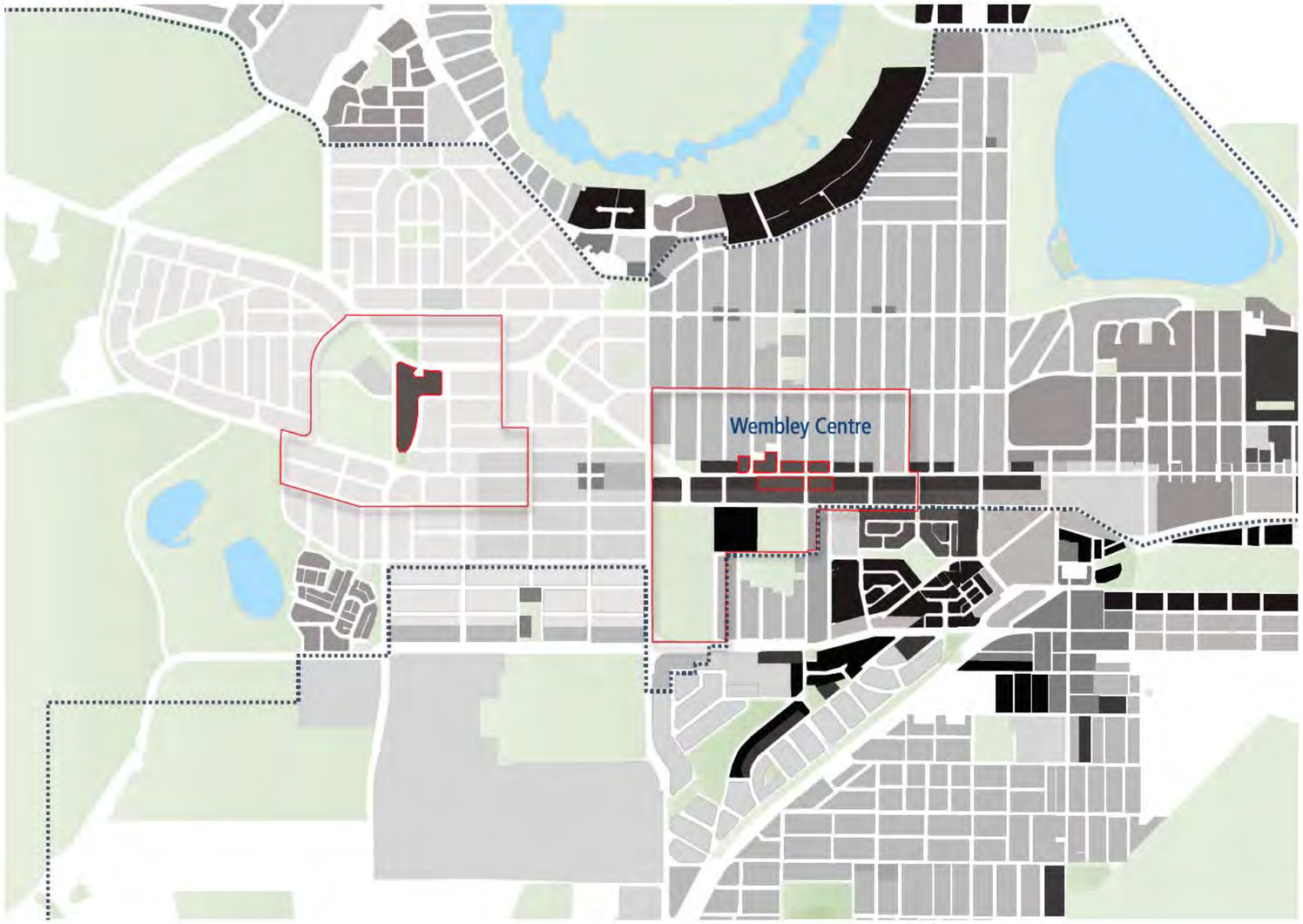
Key

- Town Centre
- District Centre
- Local Centre
- Commercial
- Mixed Use
- Civil & Cultural centres
- Study Area - Activity Centre
- Town of Cambridge boundary

Analysis observations

- Cambridge Street is akin to a "beaded necklace" of shops, though most shopping areas are too far apart to comfortably walk between or to function as a whole.
- The regional shopping area of Subiaco is close to Wembley Centre. The Wembley Centre will need to find its own point of difference and strength to continue to grow.
- Wembley and Jolimont are declared one district centre in the State policy, but do not function as one centre.

Densities



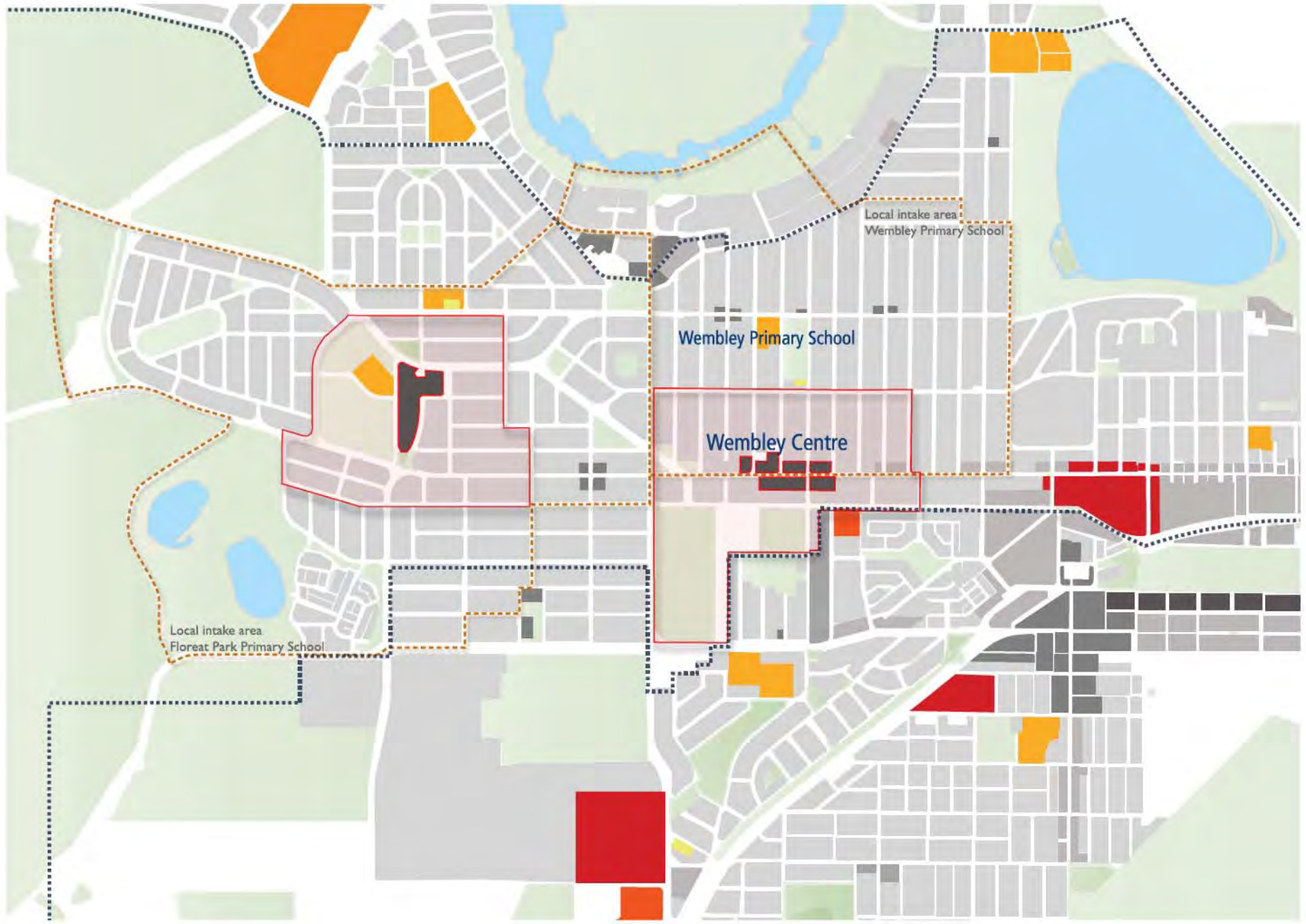
Key

- R 12.5
- R 15
- R 20
- R 30
- R 40
- R 40 - 60
- R 80 and higher
- Study Area - Activity Centre
- Town of Cambridge boundary

Analysis observations

- The north of Wembley Centre is characterised by low density Residential R20 development.
- Wembley Centre is part of a more densely developed area, adjoining the Subiaco area and along Cambridge Street. The newly developed (Subi Centro) which is close by, is not very well connected with the Wembley Activity Centre.
- The apartments around Herdsman Lake and on Cambridge Street provide an interesting amount of potential users for Wembley Activity Centre.

Education



Key

- Preschool
- Primary School
- High School
- Tafe / College
- Hospitals
- Study Area - Activity Centre
- Town of Cambridge boundary

Analysis observations

- Local primary schools can be an important reason to settle in the area. Wembley has an excellent primary school, with designated intake-areas.
- Wembley Primary School is just beyond a convenient walking distance from Wembley Town Centre. There is no strong pedestrian connection between the two.

Recreation

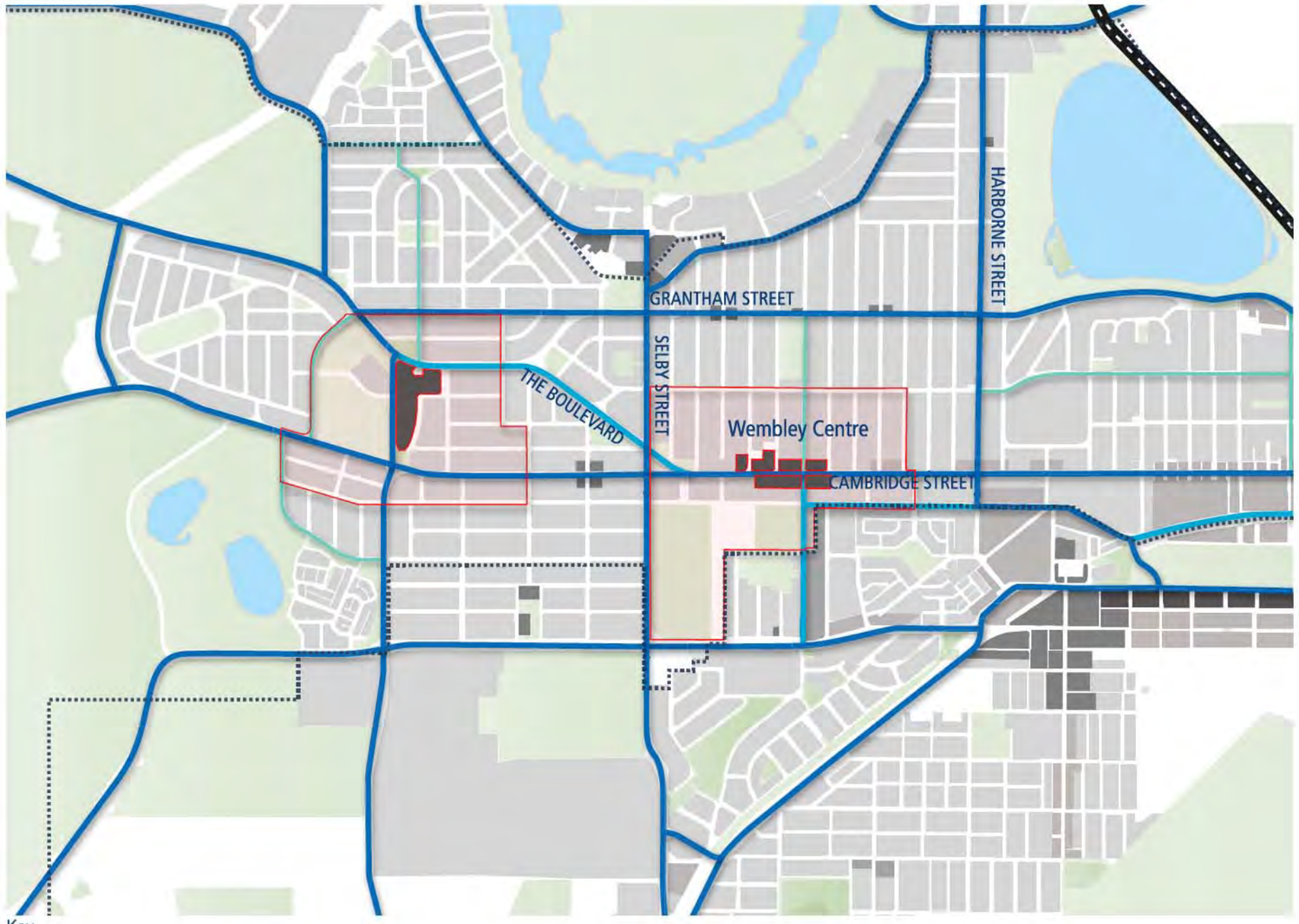
Key

- Passive Open Space
- Active Open Space
- Sports Facilities
- Playgrounds / 400m peds
- Study Area - Activity Centre
- Town of Cambridge boundary

Analysis observations

- The Centre has limited connections with parks and recreational areas, even though Wembley Sports Park and Henderson Park are close by.
- There are limited small pocket parks or open spaces in Wembley itself though many large space in nearby suburbs including Floreat.
- The Centre lacks playgrounds. This limits the attraction for families, both for shopping and for residential development.

Road hierarchy



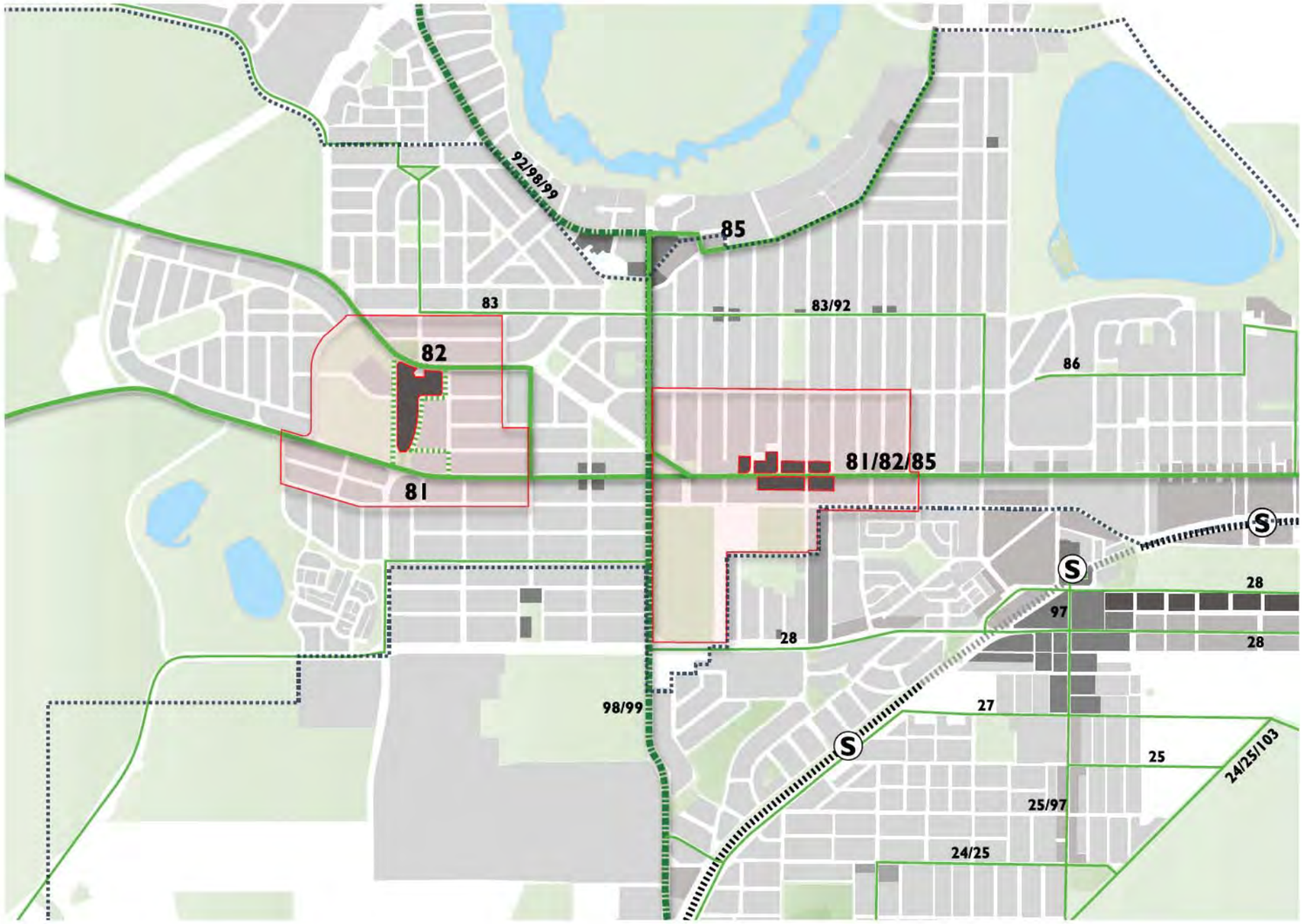
Key

- Primary Distributor
- District Distributor A
- District Distributor B
- Local Distributor
- Study Area - Activity Centre
- Town of Cambridge boundary

Analysis observations

- The The Boulevard/Selby Street/Cambridge Street intersection takes up a lot of space and leaves an underused green space in the middle.
- The main road structure tends to be a grid of three east-west and three north-south roads.
- Many cars, especially in rush hour, use The Boulevard / Cambridge Street – Veryard Terrace – Salvado Road, to avoid the cross sections of Cambridge Street with Jersey and Harborne Streets.
- Grantham Street is classified as a District Distributor Road and forms the main east-west artery.

Public transport



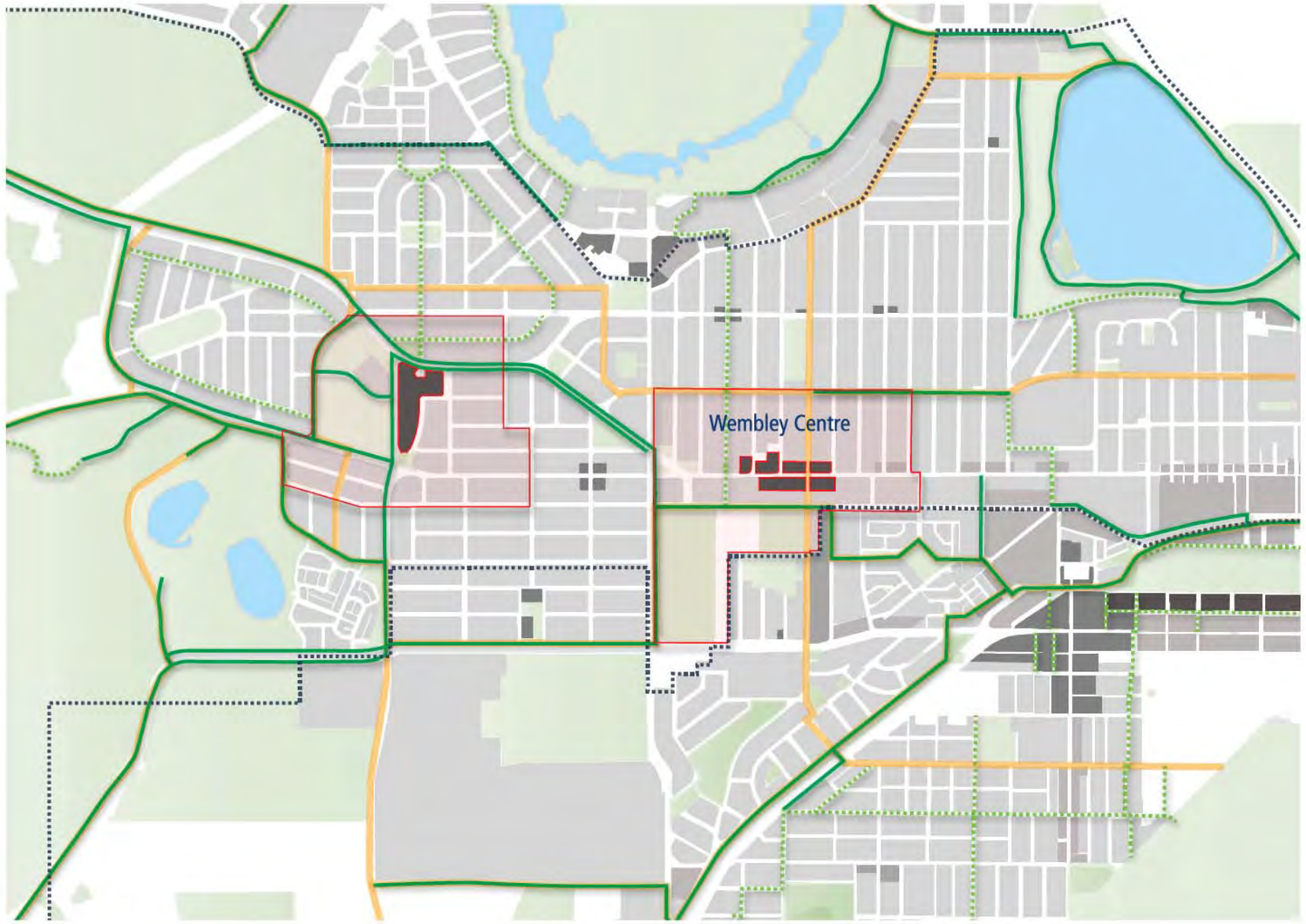
Key

- Circular Bus Route
- Bus Route to Wembley and Floreat Centre
- Other Bus Route
- Fremantle train line
- Train station
- Study Area - Activity Centre
- Town of Cambridge boundary

Analysis observations

- There are only three buses through Wembley Activity Centre, and they only run east-west.
- The well-used 98/99 Circle Route line does not travel through the centre.
- The Centre does not have a direct connection to a train station on the Fremantle Line.
- Subiaco is well accessed by buses, but these do not connect through to Wembley Activity Centre.

Bicycles



Key

- Bicycle Friendly Street
- Shared Path
- Bicycle Route
- Study Area - Activity Centre
- Town of Cambridge boundary

Analysis observations

- There are no separate bicycle lanes in the area, only shared paths with pedestrians.
- Wembley Activity Centre is not connected to the bicycle network. The shared path on Salvado Road does not connect to the Centre. There is only a 'route', a line on the map without physical facilities. This limits the potential to promote active transport (foot and bicycle) in Wembley.

2.3 Centre Analysis

Field Analysis

The following section provides an overview of the field analysis of the Wembley Centre. Maps show various relevant themes. They are accompanied by analysis observations and illustrated with photos of the area.

Stakeholder interviews

Part of the analysis was a series of interviews with several stakeholders in the Centre. People experience the Wembley Centre in different ways, appreciate different aspects and encounter varying challenges. Different stakeholders with various backgrounds were asked for their opinion: residents, retailers, hospitality, property owners and developers. The interviews were confidential, with stakeholders individually or with two, so that the interviewees felt they could speak freely about everything. Together the interviews give a picture of what local users value in the Wembley Centre, what they think is missing and what the challenges and opportunities are. The text to the right provides an overview of the results of what those interviewed had to say.

The opinions expressed here do not necessarily represent those of the Town of Cambridge.

Shops, cafes and restaurants

A few of those interviewed expressed that Cambridge Street works well as a small shopping centre, with the supermarket, chemist and bakery as the core services. On Saturday and Sunday there is a steady stream of pedestrians, at least in the around Jersey Street. People from the neighbourhood are walking to Cambridge Street to get coffee and bread. It has a friendly atmosphere. Some like the amount of restaurants on Cambridge Street, especially when the Food Court is taken into account.

Some note though that more diverse retail would be beneficial. Others emphasise that all services are in the Centre and it is mostly the quality of the shops and the standard of the food that should be improved. On the other hand, one interviewed mentioned a second hand shop, with quirky furniture. It was not attractive, but was very active, attracting lots of people. (The site has since been redeveloped.)

Most interviewed think that Cambridge Street is underdeveloped. They say shops are underutilised. There are not enough licences, not enough variety and choice of quality in restaurants and not enough diversity of shops. Cambridge Street could use a higher density of shops. Wembley Centre should be a day-long experience.

The empty shops are part of the problem. Some mention the shop rents tend to be expensive. This causes shops to change fast and not invest. For coffee and food, the risk is lower, so they tend to take over.

The ideas around a farmers market are mixed. It might be interesting, but there are also lots of questions such as would it compete with shops. When people who sell on the market are not professional, they might undercut the shops. Delivering lesser quality products could even undermine the reputation of the Town Centre.

The strip of shops is not continuous. This does not help either. But the ability to make it continuous is lost, with the strata developments along Cambridge. Some mention that a stronger connection with the commercial strip along Jersey Street, to the south of Henderson Park, and with the aged care complex on Salvado Road could be useful.

The closeness of the Matthews Netball Centre is an advantage. The Food Court for instance receives hundreds of extra visitors on competition weekends, with groups from country high schools such as Denmark Senior High School and Albany High School playing at the Centre and using the food court.

Character

About everybody agrees the shops should be a mix, not all retail and also not all food and beverage, like in Northbridge. A great number of interviewed refer to Beaufort Street as a good shopping street. They like its vibrancy, shop diversity and events. Some refer to Fitzgerald Street in North Perth as a good example, except for the speed bumps there.

In comparison, most interviewed state that Cambridge Street lacks identity. Although some feel Cambridge Street still has the relaxed feel of a country town and only the traffic is awful. Some mention Wembley is sporty and really close to the beach. This should be used more to attract people to the Town Centre. Cambridge Street should try to capture more people from the beach. Originally the Hotel was the end of the tramline. From here people continued on a wooden road to the beach. Maybe this connection can be revived with a bus shuttle, connecting the beach with Wembley Activity Centre and a train station. This could start small, like the Perth Cat started small.

People on the street

Most interviewees are convinced there are not enough people on Cambridge Street to use the shops to encourage more diversity or to make better quality shops viable. Having more people in Wembley would be good, but developments should not be too high.

The summers are hot, which can make it difficult to have people walking the street. But Cambridge Street seems to be extra hot.

The streetscape is generally seen as disappointing. Cambridge Street should be more pedestrian friendly, with seats, better lighting and places for bicycles. The Centre also needs more places that attract people. There are no community spaces to informally gather and meet - children's playgrounds for instance or places where people can play chess - anything that attracts people. The rose garden is nice, but mostly for the neighbourhood and is not connected to the Centre. The green space around Selby Street looks nice, but is it functional?

There are lacking community facilities to bind people, like the library and The Boulevard Centre in Floreat. Those are fantastic. More activities should be organised, a market or festival, and on a more regular basis.

Access

Slowing car traffic on Cambridge Street would have much benefit, creating a more relaxed street. Some suggest Grantham Street could be an alternative. There are hardly any pedestrian users along Grantham Street. Others, however, are convinced Cambridge Street receives customers because it is on the route from City Beach to the CBD and parking convenience, in contrast with Floreat and Subiaco.

A few people think the buses in Wembley are good to have. Others think they are ineffective. The 98/99 Circle Bus, however, is much liked especially because it runs regularly, every 15 minutes. One person suggested introducing smaller buses, that run more frequently, which would be a big improvement.

Parking

Although parking might be relatively convenient in Wembley, there are many things to improve. Free, unpaid parking is important to keep, at least in several areas of the Centre.

The use and availability of parking should be better coordinated. Parking, especially on the south side of Cambridge Street, is scattered and not so easy to access. Connecting the separated parking spaces, however, is hold back by a few individuals. Another issue is that several carparks are locked off with chains after business hours. This reduces the availability of visitor parking in the evening. Furthermore, parking requirements are differ throughout the Centre. Some sites are measured by older standards than others, causing friction between different owners. It would help a lot if these issues could be solved.

The parking pressure in the residential streets is increasing,especially around the Wembley Primary School. A lot of children still walk to school, but with cars parked on the verges, this becomes more dangerous.

Residents

Those interviewed said that over the last 10 years there has been a massive influx of younger people in Wembley. The area is well sought after by young families, especially because of the Wembley Primary School, which has a very good reputation. Young families like to live within the designated area to get their children into the school. Also the lots are smaller than, for instance, in Floreat. This makes Wembley relatively more affordable compared with Floreat.

To what extent these new residents contribute to the liveliness of the Centre is questioned. Some believe local residents tend to leave Wembley for their shopping and entertainment.

At the same time, many people in Wembley who are in their late 60's want to downsize, but keep living independently, preferably in a mixed environment. They tend to look for duplexes or easy lots to redevelop with a square house. The corner blocks are ideal to subdivide for them. The subdivisions in long narrow lots with double storey townhouses seem not to suit most elderly.

Development

According to several people in the development industry, the corridors in the metropolitan area have the best potential for development. They have amenities, are transport nodes and have good connections to work centres. Cambridge Street falls into this category. The biggest advantage of Wembley is the access to the beach and to the CBD, both in close proximity of only 5 minutes by car. There are good possibilities for the development of a mix of apartments and retail in Wembley. The lack of clarity in Council policies and strategy on the future of Wembley however is the biggest issue at the moment and holds developments back.

The idea for the Former Nursery Site is to develop it with a pedestrian diagonal above the WaterCorp pipeline, making a connection between the Netball Centre and the Wembley Centre, through the vacant lot along Salvado Road (owner by the Town of Cambridge).

There is a market for offices in the area, although they are harder to establish. Osborne Park is better developed for offices. For major retailers, Wembley is too close to Subiaco and Floreat.

Not everybody is convinced a higher density in Wembley is such a good idea. Some express that a little bit more density is fine, with triplexes along Cambridge Street for instance and Salvado Road, but these developments should not go into the side streets.

Opinions expressed here do not necessarily represent those of the Town of Cambridge.

Building height & Residential density

Analysis observations

- Regardless of the R-code density, the majority of the buildings are 1 or 2 storeys high.
- Except for one, all buildings higher than 2 storeys are located along Cambridge Street.
- There are some larger 6 storey or higher developments along Cambridge Street.
- There are no buildings of 4 or 5 storeys in the area. There is a lack of transition from 1-2 storey buildings to 6-storey buildings and higher.
- Most of all the 3 storey buildings are recent developments.
- The R-Code R40-60 along Cambridge Street has only resulted in higher buildings in some cases. Most developments in this zone are still 1 or 2 storeys high.
- Interestingly, the strip along Salvado Road bordering Cambridge Street is coded R-40, while on the north side the R-codes drop straight away to R-20. Although many lots along Salvado Road have multiple dwellings, the building height is still 1-2 storeys.
- The 'Urban on Cambridge' development is not built yet, but has been included in this map as the development is underway.

Key

- 1 - 2 Storeys
- 3 - 4 Storeys
- 5 - 7 Storeys
- 8+ Storeys
- ③ Number of storeys
- R 20
- R 40
- R 40 - 60
- R 80 and higher
- Study Area - Activity Centre
- Town of Cambridge boundary

Most older homes on individual lots are single dwellings and one storey high.

Older apartment blocks tend to disconnect from the street and arise suddenly among the 1 and 2 storey buildings.

The 3 storey buildings are mostly newer developments and orientated to the street.

Newer development along Jersey Street, with 2 storey town houses. (Specific guidelines apply along Jersey Street south of Salvado Road.)

Land Ownership

Analysis observations

- Ownership is generally small scale, with single lots with individual owners or strata ownership for almost all lots, which limits development opportunities.
- In the Centre there are several larger lots and adjoining lots owned by one owner. This provides development opportunities.
- Immediately around the Centre, the majority of lots are strata titles. To the north of the Cambridge strip, these lots tend to have 2 dwellings. The strata lots on Salvado Road and both sides of Cambridge Street have more dwellings, making them hard to redevelop.
- The Town owns one lot in the Centre - No.164 Salvado Road.

Older house with a new dwelling on the back of the lot; on a lot north of Cambridge Street.

Strata title lots along Cambridge Street and Salvado Road with grouped dwellings on one lot.

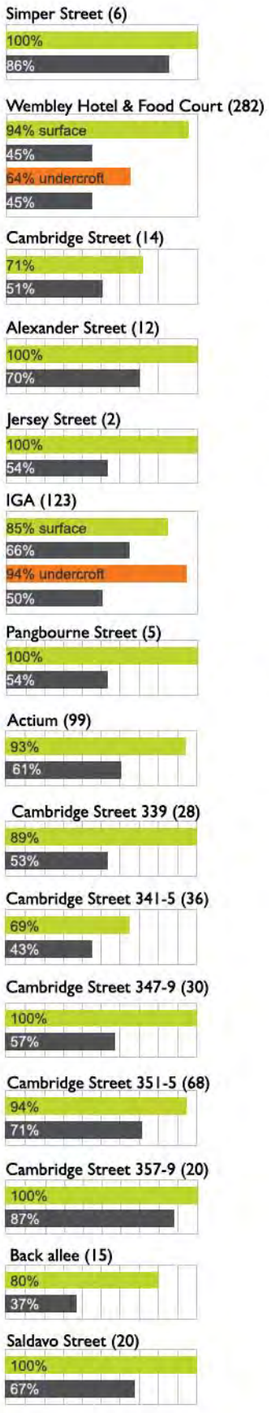
Key

- Single lots
- Strata lots
- Adjoining lots under same ownership
- Crown land
- Local Government
- Local & State Government (Landcorp development)
- Study Area - Activity Centre
- Town of Cambridge boundary

Parking

Key

- On-Street Parking
- Off-Street Parking
- Undercroft Parking
- Preferred Location Multi Story Car Park
- (18) Number of Bays
- Study Area - Activity Centre
- Town of Cambridge boundary



Inset right: Occupancy per parking. The top bar showing the maximum occupancy, the lower one the average occupancy.

Analysis observations

- There are only a few on-street parking bays along Cambridge Street. According to the Access and Parking Strategy, they could be used more efficiently.
- Most parking is on private sites, behind retail and commercial buildings. These bays are not necessarily open to the public or available at all times or connected
- Off-street parking on private land south of Cambridge Street tends to be less well occupied than on the north side.
- Looking at the occupancy rates, the undercroft parking beneath IGA and Wembley Hotel seems to be less preferred.
- The preferred location for a multi-storey car park in the Town's Access and Parking Strategy is on the private lot with the biggest amount of existing parking bays - the Wembley Hotel/Cambridge Forum.
- There are many more parking spaces at the Wembley Sports Centre (1142) then in the whole of Wembley Centre (740).
- In June 2014 on-street paid parking was introduced on parts of Cambridge Street and Alexander Street.

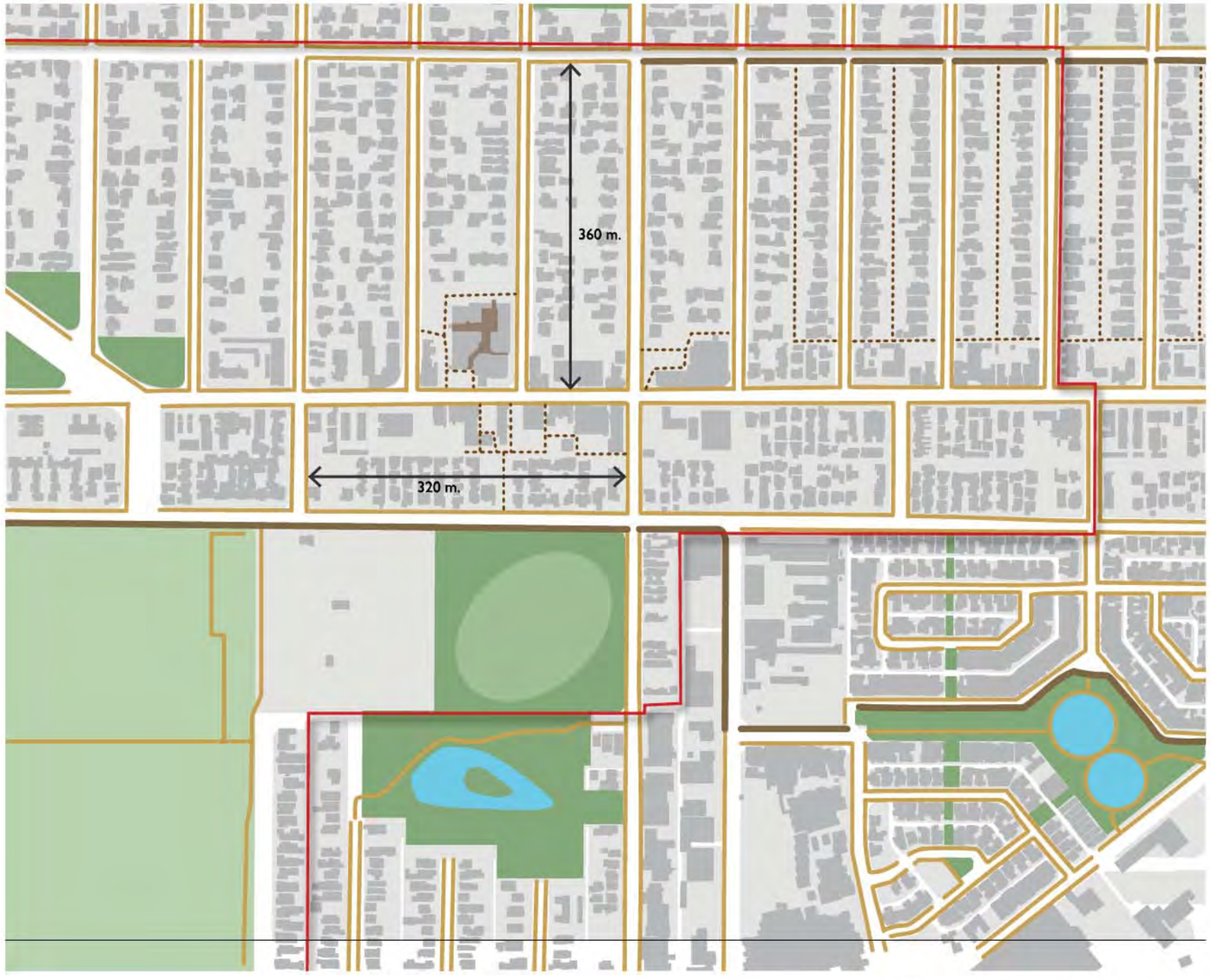
Narrow lane-access to the parking on the south side of Cambridge Street, making them difficult to access.

Parked cars disconnecting the Cambridge Forum shops from Cambridge Street.

Start of a potential continuous lane connecting parking south of Cambridge Street is currently blocked off by fencing.

Uninviting undercroft parking.

Pedestrian and cycling network



Key

- Study Area - Activity Centre
- Town of Cambridge boundary
- Linkages
- Sidewalk
- Shared Path
- Indoor mall
- Park

Analysis observations

- Most streets have pedestrian paths. The pedestrian network is coarsley-woven; the blocks are long (320 to 360m) and connections between parallel streets are limited. This diminishes walkability.
- Lanes to the east of the Centre provide possibilities to improve the pedestrian network.
- The Centre is not connected well with Henderson Park and the Matthew's Netball Centre.
- There are no bicycle lanes. Shared bicycle paths go along Henderson Park and Ruislip Street but do not connect with the Centre.
- The only designated cycle route (no lanes or shared paths) is over Jersey Street, crossing the Centre at the busiest point, which is not very comfortable for cyclists.

Most side streets have good footpaths, though not wide

Parking areas are an important part of the pedestrian network.

Shared path along Salvado Road.

Indoor space of the Cambridge Forum is not well connected to the pedestrian network.

Vacant lot on Salvado Road is used as informal connection to the Town Centre.

Long waiting times at the Cambridge and Jersey Street intersection annoys many pedestrians, reducing the experience of a walkable, inviting centre.

Cluttered sidewalks along Cambridge Street.

Cambridge Street is not easy for everybody to cross.

Spatial character

Key

- Memoriable bulding
- Residential tower
- Screening tree
- Unattractive view
- Memorable view
- Power line
- Monumental park
- Study Area - Activity Centre
- Town of Cambridge boundary

Analysis observations

- Older high-rise apartment buildings along Cambridge Street tend to be the only focal points. They do not particularly enhance the Centre's beauty.
- The only monumental building directly in the Centre, the Wembley Hotel, has only limited visual impact on the street.
- The recognisable rose garden, beyond the roundabout and other side of the hill, is not connected well to the Centre.
- There are several monumental churches and parks close to the Centre, however, none of these contribute significantly to the attraction and identity of the Centre.
- The approach along Cambridge Street to the Centre is not very attractive from either direction. Power lines, solid fences clutter the streetscape and do not provide a very inviting introduction to the Centre.

Entrance to the Centre from the west: powerlines, asphalt and unattractive high-rise on top of the hill.

Entrance to the Centre from the east: powerlines, asphalt and solid garden walls.

The Wembley Hotel, one of few historical buildings in the Wembley Centre.

Marlow Street, one of the lush green side streets to the north of Cambridge Street.

Henderson Park, one of the monumental green spaces is very close to the Centre, but not well connected to it.

The memorable Rose Garden is not well connected to the Centre, nor well integrated iwith Cambridge Street.

The Our Lady of Victories Church has limited impact on Cambridge Street.

Retail diversity

Key

- Supermarket
- Everyday Food Stores
- Fashion / Retail
- Services (bank,real estate, fitness)
- Cafe
- Restaurant
- Office
- Sports club
- Study Area - Activity Centre

Analysis observations

- Services (yellow on the map) take up a big share of the businesses in the centre.
- Besides one, the cafes and restaurants are all located around the hotel.
- The IGA Supermarket is at one end of the shopping strip, separated by a busy cross section, making it less attractive to walk from the supermarket to the other shops on Cambridge Street.

Restaurants and cafes on the west side of Cambridge Street.

Services such as professional offices are a dominant land use on Cambridge Street.

The IGA Supermarket is an important anchor in the centre

One of the few shops on the side streets north of Cambridge Street.

Sheltered streetscape

Key

- Shop Awning
- Indoor Mall
- Tree Canopies
- Study Area - Activity Centre
- Town of Cambridge boundary

Analysis observations

- There is not much shelter against rain or hot summer sun available along Cambridge Street, diminishing pedestrian comfort.
- The street stretches that provide shelter are not the most attractive ones to walk such as behind IGA on Cambridge Street.
- The busiest vehicle intersection (Cambridge and Jersey Street) has the longest waiting times for pedestrians and limited shelter for sun or rain.
- Most attractive micro climate is indoor (food court) and along the parks (Henderson and Rutter).

The blank wall makes this part of Cambridge Street unattractive, even though it is also the most sheltered

Awnings on the south side tend not to give much shelter against the hot sun in summer.

Wide, open cross section with limited pedestrian shelter .

Parking areas on the south side provide minimal to no shelter.

Active streetscape

Key

- Active Fontage
- Potential Active Frontage
- Blind wall
- Terrace
- Free seating
- Bus stop
- Study Area - Activity Centre
- Town of Cambridge boundary

Analysis observations

- There are a lot of blank walls and inactive facades. Active streetscape and interaction between shops and sidewalks, are mostly limited to half a block on the (hottest) south side of the street.
- Terraces are limited. Public seating is even less available.
- The food court is often very busy and lively. However, this liveliness remains inside the building with limited connection to Cambridge Street. Passers-by do not experience the liveliness inside.

Small sidewalk along Cambridge Street with limited space for terraces.

Limited public seating in the Town Centre.

The indoor food court is one of the busiest parts of the Town Centre, but not connected with the street.

The liveliness of the Hotel terrace is mostly hidden from Cambridge Street.

Lots of activity in Henderson Park, but not connected to the Town Centre.

Many blank facades in the centre

Approved mixed use development on Cambridge Street, - with 6 storeys of residential apartments on top of retail at street level - has a 2 metre set-back at street level to provide a wider footpath

Blank walls along Cambridge Street discourage people to walk further.

Demographic Profile

Key summary statistics are provided below

Population

Wembley - Jolimont - Total persons	2011			2006			Change
Population	Number	%	Greater Perth %	Number	%	Greater Perth %	2006 to 2011
Estimated Resident Population	9,025	--	--	--	--	--	--
Usual Resident Population	8,256	--	--	7,553	--	--	+703
Enumerated Population	8,153	--	--	7,364	--	--	+789

Source: Australian Bureau of Statistics, **Census of Population and Housing** 2006 and 2011. Compiled and presented in profile.id by .id, the population experts.

Selected sub-population categories

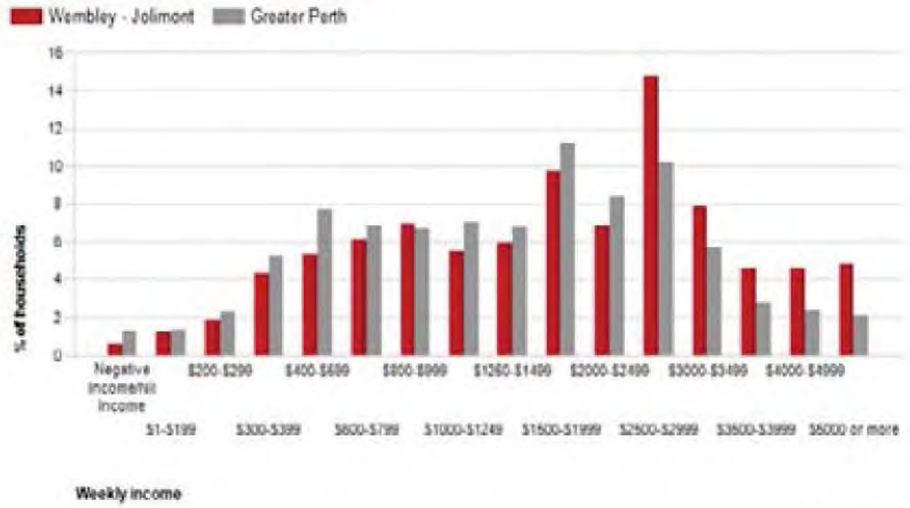
Wembley - Jolimont - Total persons (Usual resident)	2011			2006			Change
Population group	Number	%	Greater Perth %	Number	%	Greater Perth %	2006 to 2011
Males	3,984	47.4	49.0	3,600	47.7	49.4	+384
Females	4,271	50.9	50.4	3,953	52.3	50.6	+319
Aboriginal and Torres Strait Islander population	17	0.2	1.6	10	0.1	1.5	+7
Australian citizens	6,976	83.1	80.0	6,423	85.0	82.8	+553
Eligible voters (citizens aged 18+)	5,222	62.2	60.6	4,925	65.2	62.3	+297
Population over 15	6,537	77.8	80.8	6,114	80.9	80.5	+423
Employed population	4,447	97.9	95.2	3,839	97.5	96.3	+608
Overseas visitors (enumerated)	91	--	--	93	--	--	-1

Source: Australian Bureau of Statistics, **Census of Population and Housing** 2006 and 2011 (Usual residence). Compiled and presented in profile.id by .id, the population experts.

Dwellings

Wembley - Jolimont	2011			2006			Change
Dwellings	Number	%	Greater Perth %	Number	%	Greater Perth %	2006 to 2011
Total dwellings	3,713	100.0	100.0	3,427	100.0	100.0	+286
Occupied private dwellings	3,292	88.7	90.8	3,135	91.5	91.3	+157
Population in non-private dwellings	310	--	--	186	--	--	+124
Average household size (persons per dwelling)	2.41	--	2.55	2.32	--	2.50	+0.09

Weekly household income, 2011



Source: Australian Bureau of Statistics, Census of Population and Housing, 2011 (Enumerated data)
Compiled and presented in profile.id by .id, the population experts.

Dominant groups

Analysis of household income levels in Wembley - Jolimont in 2011 compared to Greater Perth shows that there was a larger proportion of high income households (those earning $2,500 per week or more) and a lower proportion of low income households (those earning less than $600 per week).

Overall, 36.7% of the households earned a high income and 13.2% were low income households, compared with 23.1% and 17.9% respectively for Greater Perth.

The major differences between the household incomes of Wembley - Jolimont and Greater Perth were:

- A *larger* percentage of households who earned $2500-$2999 (14.8% compared to 10.2%)
- A *larger* percentage of households who earned $3000-$3499 (7.9% compared to 5.7%)
- A *larger* percentage of households who earned $3500-$3999 (4.6% compared to 2.8%)
- A *smaller* percentage of households who earned $400-$599 (5.3% compared to 7.7%)

2.4 Scenario Development

Aim of the Scenarios

After analysis of the centre, scenarios were explored to identify how the Wembley Centre could accommodate future change and development. The overarching aim of the scenarios were to:

1. Identify a commercial / mixed use centre boundary (including possibilities for expansion);
2. Explore appropriate development density (building height and scale, residential density);
3. Identify a desirable land use mix; and
4. Address the centre's interface with its surrounding area.

More specifically, the scenarios explored the following topics for the Wembley Centre:

- Connectivity with the residential properties to the south, including Parkside Walk (the former Jolimont Nursery Site);
- Mix of retail stores and commercial activities - attracting people to the centre for multiple purposes;
- Development of a central meeting space (i.e. piazza);
- The opportunity to expand the mixed use/commercial zone of the centre;
- Examine the edges of the centre. What residential density is feasible surrounding the centre?;
- Location of public parking, building upon the Access and Parking Strategy.

Scenario Games

Instead of developing three scenarios as to how the above could be achieved, and then invite the community to comment on these after they have been prepared, the community were invited to develop and research scenarios through scenario games. Two scenario game workshop sessions were held on 1 July 2014 at the Boulevard Centre in Floreat. The scenario games were played in multiple mixed groups of stakeholders and community members. In total 65 people played the scenario game in 12 groups, divided over two sessions. The participants had various backgrounds including residents, retailers, site owners, developers and Councillors

The scenario games were played in two rounds. In the first round each group discussed the desired identity they would like the Centre Plan to focus on. In the second round the desired identity was worked out in relation to actual developments within and around the centre. In this round, the groups were provided a'board' with a map of the Centre itself to scale, and 'pieces', representing development elements on the same scale. Three ambition levels were set and groups researched the possibilities, trade-offs and consequences. Facilitators helped the groups with their discussions and made notes of the arguments that were used by the group. Each group presented the outcomes of each round to the other participants, who then had the chance to discuss and comment on the scenario.

The scenario games were developed around key outcomes of the analysis and the stakeholder interviews from Part 1 were taken into account. They indicated what issues are at the forefront of the mind of the community. The key points included:-

- Enhance liveliness and vibrancy in the centre, through more people on the street;
- Encourage the quality of shops, hospitality and public spaces; and
- Improve the connections within the centre and with the surrounding area.

To achieve these outcomes, the game focused on people; because people are the best way to attract more people to the centre. Increasing patronage through attracting more people, keeping people in the centre (i.e. encouraging them to stay longer) means having more people live and work in the centre.

Three points of difference to develop the scenario game

Enhance liveliness and vibrancy in the existing streetscape, through more people on the street.

Improve the quality of the existing facades, public space, shops, cafes and restaurants.

Strengthen the connections of the centre with the surrounding area, like the Matthews Netball Centre.

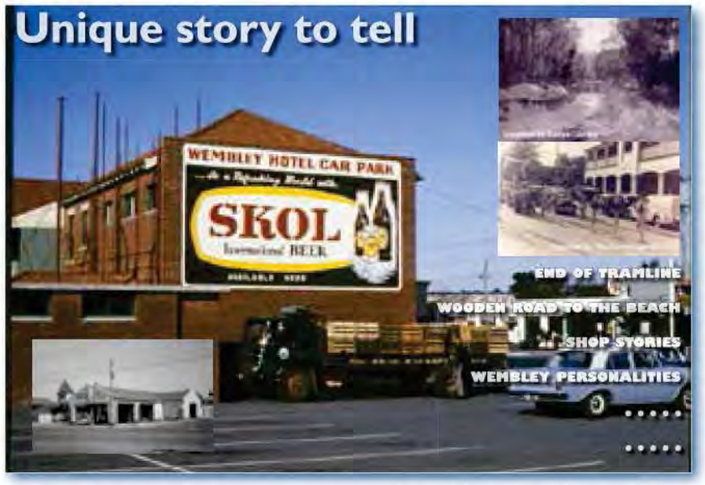
Question 1 – How to make the Wembley Centre a unique destination?

The first part of the game concentrated on the question of how to attract people. How can the Wembley Centre be unique and different from other centres, so that people decide to come to Wembley instead of another centre? Four different themes were presented to achieve this:

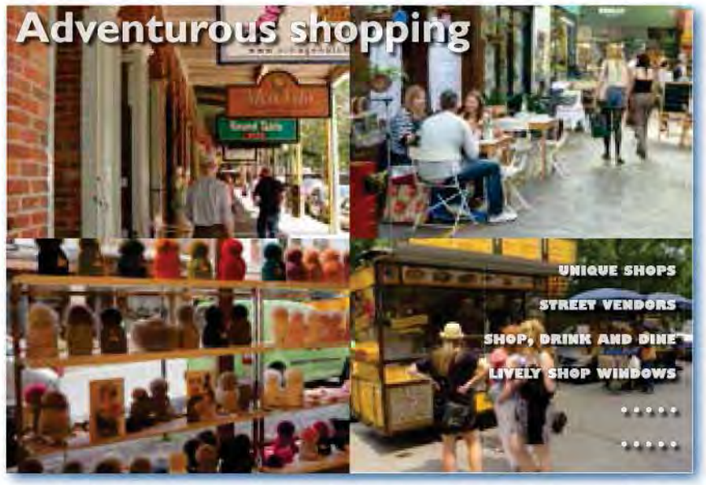
1. Telling unique stories;
2. Adventurous shopping;
3. Activities and events; and
4. Beautiful public spaces.

Ideally, all of the four themes would be desirable to implement. However, the reality is that there are limitations to the amount of time, effort, funds and investments available to develop each area If everything is to be attempted all at once it is unlikely to be very effective. Each group was therefore asked to prioritise the themes and asked which one would you want to focus on first, which theme comes second and so forth. The groups were also asked to discuss the themes, add ideas, maybe even add new themes, and think about who could do what to develop each theme. At the end of the round, all the groups presented their outcomes and discussed with other participants.

The Four Themes



The Wembley Centre and direct surrounding area has a rich history, with several intriguing stories that could be told. Opportunities to experience the stories could be a real draw-card for Wembley, attracting people with a rich narrative about the place. Stories could be played out in streetscape design, through story boards or playgrounds, with guides or story tellers, and so on.



Wembley Centre could promote itself by having those special shops that you do not find elsewhere in the city such as little shops that people will travel to because of their uniqueness. Shops that you wander into to discover what they have. Finding that other surprising little shop around the corner, that makes you feel like an explorer in your own city. Stalls and street vendors can complete the picture.

Activities and events can draw people in: a weekly or monthly market, street musicians and artists, outdoor tango dancing, a rotation of streets that are turned into play-streets on a weekend and so on. Activities and events can happen in the short term without having to modify streets and buildings.

Beautiful spaces by themselves can attract people. Making really beautiful squares and gardens will draw people in such as little corners, that are a pleasure to stay for a while. Surprising fountains, playful street furniture or abundant displays of flowers can make a lasting impression that make people return and spread the word that Wembley is an amazing place

Question 2 – How to develop vibrancy, quality and connections?

After discussing the identity of the Wembley Centre, the groups continue to the second part of the scenario game. With the identity discussion in mind, participants were asked to consider how they wanted to enhance the vibrancy, quality and connections in the Wembley Centre. The primary objective of the Activity Centre Plan is to develop input for reviewing the Town Planning Scheme. Therefore, the game focused on the matters that need to be organised in the zoning and planning regulations. However, other aspects, such as public space improvements and organising activities, can arise from the Activity Centre Plan and were incorporated into the game discussion. The groups were given a game board and a range of pieces to develop their scenarios.

Board

The board shows a scale map of the current Centre with colours representing existing zoning and showing the footprint of the existing buildings shaded according to building height. The approved or planned developments (Urban on Cambridge and Parkside Walk) were drawn in as if they already exist. Tree coverage and pedestrian network outside the road reserves are also indicated, as are the buildings and parks with heritage value.

Pieces

The groups received various pieces to build their scenario on the board. The first type of element focused on attracting people and encouraging them to stay longer including pieces for public squares, gardens, parks, street profiles and undercover parking. The pieces for upgrade streets comprised of different options. with a choice of three different profiles. All of these pieces are at the same scale as the board. Other elements were also included to represent the organisation of activities; local markets; events and a street manager, to help improve shop diversity and quality. The groups could determine for themselves what type of market or events they would like and in what location.

The second type of element consisted of building blocks, which add people to the area, either living or working there. Several of these elements could also be used to make additional pedestrian connections and add public spaces. The elements represented either one, two or three lots and had building heights ranging between three, five and seven storeys.

Points

All elements are numbered. The first element pieces had numbers relating to 'activity points'. The numbers on the building blocks showed the number of people each development would add to the area. There is a relationship between the amount of activity points and the amount of extra people in the area. Extra people will mean more pressure on the public space, network and events, so more of these spaces will be needed. On the other hand, more people in the area would led to more spending in the shops, cafes and restaurants, more investment, higher revenues, more volunteers available, and so on. Thus more activity points apply.

Ambition levels

The groups explored three ambition levels: basic, medium and high. The groups working on the basic ambition level had six activity points at their disposal, needed to add 400 people to the area but did not have an additional undercover parking block. The medium ambition level had 12 activity points, 750 people to add and one parking block. The high ambition level had 20 activity points, 1300 extra people and two parking blocks. The different ambition levels are appointed to each of the groups.

Ambition level	Activity points	Adding people	Parking block
Basic	6	400	0
Medium	12	750	1
High	20	1300	2

Rules

The groups were free to fill in their ambition level as they chose. They could select any combination of elements, as long as the group agreed on the choices. The activity elements could be placed anywhere on the board. The building blocks could only be placed on lots, however, not on the existing high buildings or the Parkside Walk site (Former Nursery Site). Replacing those buildings with the building blocks would not add any more people to the area or may have even reduced the amount. The groups were allowed to put elements in the Subiaco area, but these points did not count towards the ambition level as the Activity Centre Plan as it is outside the Town. The groups had approximately 45 minutes to develop their scenario. The facilitators made notes of the discussion and points made by the group members. After all groups had finished their scenario, they presented the outcomes to each other and discussed the results with the other groups.

The scenario game board for Wembley Centre

The scenario game board for Wembley Centre in use by participants

Scenario Game Pieces

Square

Public garden

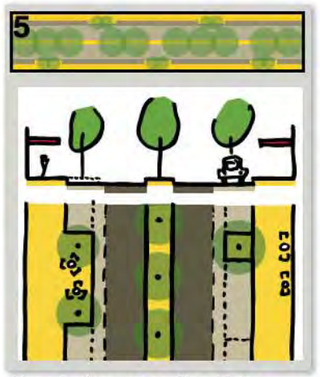
Playground

Upgrading streetscape, 3 profiles

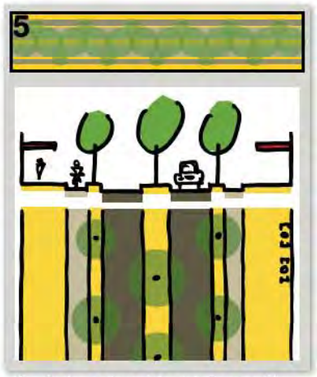
Street manager

Market

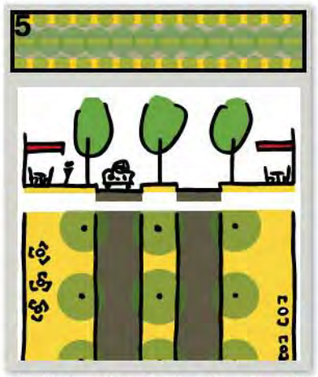
Events



Upgrade of current profile, with few parking bays turned into sidewalk space

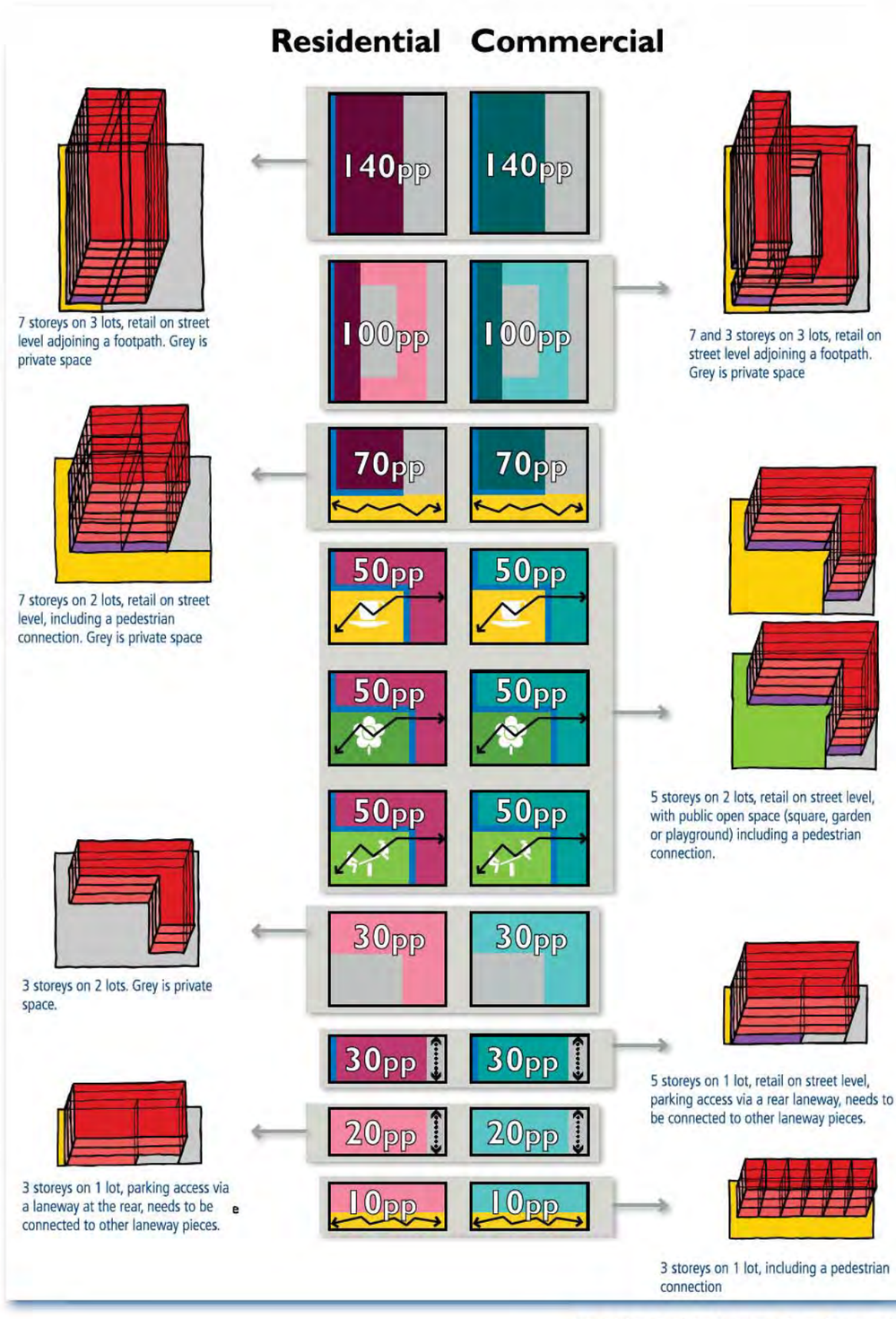


2x single car lane + bycicle lanes, wider sidewalks and wider median



2x single car lane + wider sidewalks and wider median

Undercover parking



Outcomes of the scenario game

Both rounds of the scenario game led to vigorous discussions and a range of outcomes. The outcomes per round are described below.

Question 1 - How to make Wembley Centre unique?

Public Spaces

Overall, the groups agreed that improving public space was the most important of the four themes. Although, the ideas on how this could be achieved varied.

Some groups concentrated on streetscape. They stated that Cambridge Street is currently quite unattractive and the intersection with Jersey Street is not pedestrian friendly. The centre should first of all be a pedestrian based precinct. Wider sidewalks could reduce vehicle dominance; create more space for pedestrian traffic, sidewalk activities and terraces, shop displays, garden beds and street vendors. One group suggested unique planting and continuous historical style awnings to give Cambridge Street a special character.

The views on street parking varied. Some promoted removal of on-street parking to provide more pedestrian space. Others believed on-street parking spaces contribute to the liveliness and are of utmost important for traffic calming. Larger setbacks can also widen the sidewalks.

Other groups expressed that the Centre needs more public squares or a mix of urban and green spaces. Places for people to meet and stay, to sit, play chess and watch other people stroll by. This will also break up the constant footpaths, though at the moment there is little reason to walk down the strip. Wembley Centre is missing a central focus point and a square could fulfil that function.

Various groups would like to see Henderson Park and Rutter Park (which is north of the centre near Wembley Primary School) improved, to attract people and encourage them to stay longer. The laneways can be more effective too, with shops, events or in other ways.

The public space should reflect the expectations of residents. Maintaining the 'village' character was mentioned a few times. However, not everybody agreed with this point of view. Some would like to see more gentrification, with apartments and cafe culture.

Adventurous shopping & Activities and events

Almost every group associated better public spaces with 'activities and events' and/ or the 'adventurous shopping' themes. Great urban spaces will lead to more events and will attract unique shops. The groups, however, had different opinions on which theme is more important. One group thought activities and events even more important than public spaces and that the centre improvement needs to start with that. Another group started with adventurous shopping and put public spaces in third place.

The groups mentioned a wide variety of activities and events: weekend markets (often mentioned), open microphone afternoons, mobile coffee and food carts, street parties on Salvado Road (to connect to the Wembley Sports Park), a free concert, and so on.

Some noted that the shopping experience theme might be difficult to implement. It will depend very much on rents. Cheaper rentals for young artists was suggested, or a cheaper rent approach as in Northbridge. Establishing a business association was also suggested to help improve the shopping experience and quality of the services. Others emphasised to keep the Centre small and that will keep rents low and provide a better fit better with the neighbourhood.

The focus on attracting local people was mentioned often. The Centre should primarily be a Centre for the neighbourhood, with a good mix for locals. Attracting people from further away comes second for most groups. If the Centre works well for locals, it will become livelier and will attract other people too and it should grow naturally. Though what the local needs are, besides daily shopping, were not specified. Overshadowing of cafés by large buildings, for instance, was seen as an issue. One group suggested relocating the community hall from Rutter Park to the Centre.

Telling unique stories

Heritage was generally seen as very valuable, but mostly as an extra layer to add to other themes and not a first priority. The Wembley Hotel and Henderson Park are generally seen as important places to protect. One group mentioned the Cambridge Heritage Trail, which should be more obviously integrated in the Centre's Public Art Guidelines. Another group suggested using historic elements for contemporary use, for instance, reuse a trolley bus as a street cafe. A third group referred to the library in Floreat, where a lot of material is available, even though people cannot directly experience this in the Centre itself. A local resident has written a book on the history of Wembley, which could be drawn on too.

Traffic

There was broad support among the groups for an extra theme: traffic calming of Cambridge Street. This will not necessarily make Wembley unique, but was identified as being essential to increase the feeling of safety and comfort. The general view was that if this is not improved, all the other things will not help.

Some people viewed the fall in Cambridge Street driving east as a disadvantage. From the roundabout at Simper Street, drivers can see the traffic lights at the Jersey Street intersection, which is perceived to provoke speeding to make the green light. Most participants regarded the maximum speed of 60 km/hour as being too fast and 40 km/hour is suggested.

Most groups thought the vehicle traffic should be subordinate to pedestrian movement in the centre. Some thought the current parking on Cambridge Street is inadequate; others disagreed. Several people noted that Cambridge Street currently divides the north from the south. On the other hand, calming traffic on Cambridge Street might affect the liveability on other east-west streets like Salvado Road.

Other points

The discussions was not limited to the four themes. The food court is seen as iconic by many, a point of difference to other centres. However, it is also seen to be an eyesore and not connected to the street. It should be made known to passers-by. Improving the connections with the Wembley Sports Park could contribute to attracting more people to the centre. Henderson Park and the Rose Garden can be better connected to the main strip and used for events. The Centre should be activated throughout the day and into the evening.

Question 2 - How to develop vibrancy, quality and connections?

Ambition level

There was a clear difference between the ambition levels for activity points and for adding people. Generally participants preferred a lower ambition in adding people and buildings and a higher ambition in adding public space and activities. The high ambition level generally represented too much development for most groups and higher buildings were often placed to meet the points required for the given scenario. On the other hand, the basic ambition level generally provided too few options to improve the public space and activate the centre. Residents tended to prefer a lower ambition in terms of adding people and buildings, while business owners liked to add a few more people.

Concentrate or spread out

There was difference between groups as to whether to spread out or concentrate development. One group deliberately chose not to place any development in the existing centre, to preserve the existing buildings and scale. In contrast, one group concentrated all development in the existing centre. Alternatively, another group developed the Centre specifically with small elements to maintain the existing scale. Most groups, however, decided on a combination of development within the existing centre and in the immediate surrounding area.

Regardless of the ambition level, maintaining the 'village' atmosphere was mentioned by several groups, with an emphasis on attention to the architecture, setbacks and heritage. Especially the correlation in scale between old and modern buildings. Most people would like to see the Wembley Hotel and Henderson Park preserved.

It was interesting that the area over which the groups added people and buildings did not expand much as the ambition level increased. Given the choice between building height and development area, groups tended to favour increased height to keep the development confined. The lower ambition levels showed a clear preference for keeping the building heights low. One group specifically mentioned it would be desirable to keep development low, ideally three storeys or less. However, when the task was to add more people, the groups tended to use higher building blocks instead of using lower blocks dispersing development. This use of height is mostly for two reasons - to avoid spreading development too much beyond outside the existing Centre, and the need to add people to meet the ambition level requirements the group had to work with.

People pieces	Basic	Medium	High
3 storey	45%	47%	23%
5 storey	45%	34%	41%
7 storey	9%	19%	36%

In the basic ambition ,45% of the used building blocks are 3 storeys and another 45% are 5 storeys, while only 9% are 7 storeys. In the medium ambition, the use of 3 storeys is simular with 47%, but the 5 storey blocks decreases to 34%, while the 7 storey blocks increases to 19%. Only in the high ambition level does the use of 3 storey blocks start to decrease, to 23%, in favour of the 7 storey blocks (36%). In this ambition level the use of 5 storey blocks remains roughly the same (41%).

Development into the residential area north of Cambridge Street was considered to be undesirable among most groups. Some groups did extend the food court site or the IGA site a little to the north. One group put a few more people between Ruislip Street and Rutter Park, to have more people use the park and because the location does not affect the surrounding residential lots too greatly. Another group deliberately spread the development opportunities over the residential area, to let more people (lot owners) benefit financially and spread the impact of densification more equally. One group, with a 'basic' ambition used the same argument: 'important to spread out density', to develop their scenario. They however did not develop to the north, but spread along Cambridge Street and towards Parkside Walk.

Development direction

Overall the groups developed the Wembley Centre in two clear directions:

1. Along Cambridge Street, connecting the centre with the local centre around Nanson Street.
2. To the south, connecting the town centre with Salvado Road, Henderson Park, Parkside Walk and the Wembley Sports Park.

Five groups continued the Centre towards the Nanson Street local centre. They varied in the intensity, depending on the ambition task of the group. Another group, working with the 'basic' ambition, did not put extend the Centre towards Nanson Street in terms of what they put on the board, but mentioned this would be a desirable development. The groups mostly focused development on the north side of Cambridge Street, although three groups also included some level of development on the south side. However, several groups mentioned they would like to see the Nanson Street Local Centre retained with its current character and low scale.

Six groups chose to concentrate density to the south side, between Cambridge Street and Salvado Road. Most development was placed between Jersey Street and Marlow Street. Three of these groups continued the development on the east side of Jersey Street. One of these groups put development pieces west of Marlow Street, to connect with Parkside Walk and the Wembley Sports Park.

All of these groups put higher buildings along Salvado Road, opposite Henderson Park, arguing that higher buildings here will have the least negative impact on existing dwellings. They thought it would also create a better background for the park, provide more passive surveillance, increase liveliness with some retail and cafes on ground floor, and provide nice view of the park for the occupants. However, a potential issue with increasing traffic on Salvado Road was identified. Traffic could be moved north to Grantham Street, although not everybody agrees, especially people living on Grantham Street.

	Basic 1		Basic 2		Basic 3		Basic 4		Medium 1		Medium 2		Medium 3		Medium 4		High 1		High2		High 3		High 4		TOT.		
Activity pieces	piece	block	piece	block	piece	block	piece	block	piece	block	piece	block	piece	block	piece	block	piece	block	piece	block	piece	block	piece	block	piece		block
square		1	1		2	5				3			2		1			1	1	4		1	1	2	25	8	17
garden			1	2	1	3	1	1	1	1	1	4	1	4	1	1	7	4		6		3		4	47	14	33
playground		1		1	1							2	1	2		2	1	2					2	1	16	5	11
st.manager			1																1				1		3		
market	1		2		1				1				2				1		2				1		11		
event			1										1				1		1						4		
Streetscape																											
prof. parking													1		2		2				2		2	[3]	9		
prof. bicycle																					2				2		
prof. sidewalk	1				[1]		1		2		2								3				1		10		

People pieces	Res.	Com.	Res.	Com.	Res.	Com.	Res.	Com.	Res.	Com.	Res.	Com.	Res.	Com.	Res.	Com.	Res.	Com.	Res.	Com.	Res.	Com.	Res.	Com.	TOT.	Res.	Com.	Res.	Com.
1 lot - 10p. / 3st.	5		2					1			20		1			3							3	2	37	31	6	84%	16%
1 lot - 20p. / 3st.	6	1		2											3	1	3	1							17	12	5	71%	29%
1 lot - 30p. / 5st.	2	1	2	1								2				4	3	1			1	3	2		22	10	12	45%	55%
2 lots - 30p. / 3st.				1												1			2						4	2	2	50%	50%
2 lots - 50p. / 5st. (Sq)		1			4	1			2	1							1		1	3	1		2		17	11	6	65%	35%
2 lots - 50p. / 5st. (Ga)				2	1	2		1	1		1	3	4			1	1	3	4	2	1	2	3	1	33	16	17	48%	52%
2 lots - 50p. / 5st. (Pg)	1			1							1	1	2		1	1		2					1		11	6	5	55%	45%
2 lots - 70p. / 7st.			1							1								1			1		1	1	6	3	3	50%	50%
3 lots - 100p. / 7&3st.							2		2				2		2		4		2		1		2	1	18	17	1	94%	6%
3 lots - 140p. / 7st.								1	2			2	2		1		2		4		5	5	3		27	19	8	70%	30%
	14	3	5	7	5	3	2	3	7	2	22	8	11	0	7	11	14	8	13	5	10	10	17	5	192	127	65	66%	34%
	82%	18%	42%	58%	63%	38%	40%	60%	78%	22%	73%	27%	100%	0%	39%	61%	64%	36%	72%	28%	50%	50%	77%	23%					

Parking																									TOT.
food court	0		0		0		0		1		1		1		1		2		2		2		2		6
IGA									1		1				1				1		1				2
elsewhere													1				2		1		1				4

Overview of all the game pieces that are used by the 12 groups in the scenarios.

Scenario Game Boards from each Table

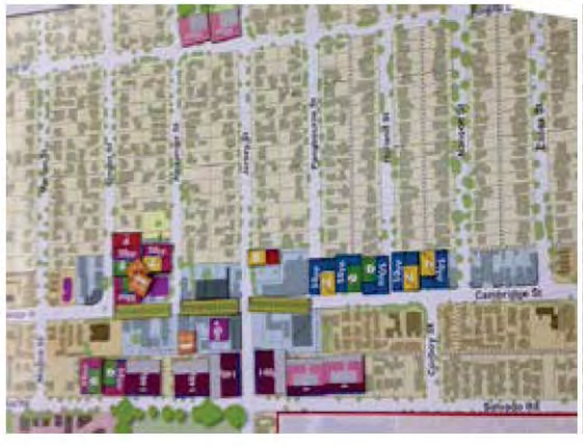













Height interface

Many groups tapered down building heights towards the existing one and two storey buildings. This was most prominent in an east-west direction, along Cambridge Street and Salvado Road. Six groups did this on a smaller scale, placing three to five storey blocks next to the 'Urban on Cambridge' development. Tapering building heights was also applied in the south-north direction. Five groups used the "7+3" storey block to taper down northwards, either from Salvado Road to residential lots along Cambridge street, or from the food court and IGA sites towards residential lots to the north. No groups tapered down further into the existing residential area.

Residential and Commercial

Generally groups applied a mix of residential and commercial, overall at a rate of two-thirds residential and one-third commercial. However, some groups did not focus on the difference between residential and commercial when choosing their pieces. Commercial blocks were almost only used along Cambridge Street. Five groups talked specifically about extending mixed use from Cambridge Street towards Salvado Road, between Marlow and Jersey Streets, to create a more permeable block with people living and working. Three groups used a commercial block to strengthen that connection and combine it with a pedestrian route or adjacent to Jersey Street. All other development blocks placed along Salvado Road were residential.

Street profile

When groups had limited points for public space, the choice between streetscape upgrades and adding public places became difficult. When groups had enough points to use, they all selected one or more streetscape upgrade pieces. With one exception, all groups used streetscape pieces that showed either the profile with parking or the profile with only carriageways and pedestrian space. The first profile with parking was chosen most often because it was considered to help calm traffic and also provide access. The second profile emphasised the importance of making more space for pedestrians. One group who used the 'pedestrian profile' suggested an alternative: making Cambridge Street a one-way street, with parking on an angle.

Interestingly, the groups with a lower ambition, and less points to apply to public space, tended to choose the profile without parking, while the profile with parking was used more by groups with a higher ambition level. The latter groups placed relatively more public places (squares, gardens and playgrounds) on the board. The streetscape upgrade pieces were all used to upgrade Cambridge Street. The first priority tends to be the stretch between Simper Street and Alexander Street, followed by the stretch from Alexander Street to Jersey Street. Three of the high ambition groups, who had more points to use, also upgraded the section of Cambridge Street between Jersey Street and Pangbourne Street. Ideally they would apply the upgrade all the way to Essex Street.

Squares, gardens and playgrounds

Almost all groups added at least one public square, in one form or another. Every group, except for one, introduced one or more public garden. Two-thirds of the groups also placed one or more playgrounds on the board.

The squares were mostly used between Cambridge Street and Henderson Park and along Cambridge Street: on the food court site, the IGA site, the service station site and to strengthen the connection towards Essex Street/Nanson Street. The gardens were used in the same area and surrounding the squares, while the playgrounds were mostly used on the outer edges of the Centre . Several groups mentioned they used squares and gardens to prevent or break up a 'wall' of higher buildings along Cambridge Street.

Two groups put activity elements in Henderson Park, to upgrade the park and enhance its use. Other groups also found it important, but had other priorities for their pieces. One of the groups saw little value in the Rose Garden and green spaces around Selby Street and The Boulevard as these spaces are under-used. The group used these locations to develop, so they could keep the Centre free from development, and suggested relocating the rose garden, to Cambridge Street for instance, to give the streetscape a special character.

Market, street manager and events

Eight of the twelve groups placed a market on the board; three groups even used two market pieces. The market was mostly referred to as a weekly or monthly farmers and crafts market. Almost all the groups chose the area around the Wembley Hotel and food court as the best location for a market. Three groups used the market in combination with the connection to Salvado Road. One group placed a market in Henderson Park. Both the street manager and events pieces were used by one-third of groups. The street manager was consequently used to improve Cambridge Street. The events were placed either on Henderson Park or the food court site.

Connections

All groups talked about increasing the network of connections, believing this would increase the flow of people, liveliness in the centre and business for retail. There was a general focus on connecting the centre with Henderson Park and Wembley Sports Park. Most connections were made in the area opposite Alexander Street. Ten of the twelve groups defined one or more clear connections in the block bound by Cambridge Street, Salvado Road, Jersey Street and Marlow Street. The two remaining groups, with a basic ambition level and fewer activity points to use, left the current informal connections over private property and the vacant block on Salvado Road owned by the Town.

Seven groups formalised existing informal connections using the vacant block. Five groups created distinct new connections, using public space, garden strips, a pedestrian avenue or courtyards. Four groups doubled the number of connections in their scenario. Two groups even used strips of public garden or a streetscape piece to deliberately create strong connections. Several groups developed the edges of the block between Jersey Street and Marlow Street, to improve the connection southwards. Six groups used the police station site on Marlow Street to add more people to the area and improve the connection between the centre and Wembley Sports Park.

In addition to the north-south connections, several groups looked at the east-west laneways to strengthen the network. Six groups talked about activating the laneway on the south side of Cambridge Street and improving its continuity.

One of these groups intentionally develops the laneway, as a parallel retail strip, to intensify the pedestrian network. Also six groups, not all the same groups as the previous groups, work on a parallel laneway on the north side of Cambridge Street. Most of them only focused on the connection between the food court and the IGA site, although two groups continued the connection past Pangbourne Street, to link with the existing laneways eastwards.

Parking blocks

Most of the groups that had to put an undercover parking block on the board (ambition 'medium' and 'high'), placed them at the food court site. Two groups combined parking with the IGA site, while one group put two blocks between the IGA and food court, to make a parking connection. Two groups put a parking block between Cambridge Street and Salvado Road, opposite the Hotel. All groups expressed concern about the connection of the parking with Cambridge Street and the traffic difficulties it might cause.

Hotel/Food Court Precinct

Most groups regarded the site as a focus point in the centre. Two-thirds of the groups strengthened the food court site with a combination of public space, activities and/or development. When the ambition level was higher, the scenarios consisted of more elaborate solutions; from simply adding a market or a square to more complex proposals of five to seven storeys with internal squares, gardens, playground, roof garden or terrace, outdoor cinema, corridors and undercover parking. Three groups even extended the development northwards by one or two lots. Some deliberately increased the development behind the hotel to create a critical mass. Every group kept the Wembley Hotel, regarding it as an important heritage building in the centre.

IGA Site and Service Station Precinct

A second potential focus point for the centre was the Cambridge Street and Jersey Street intersection, with the IGA on one site and the service station on the other. Half of the groups redeveloped the IGA site. An important reason was to improve the street front along Cambridge Street. Most of the groups incorporated better public spaces on the site. Two groups, did not redevelop the buildings, but did add a square or garden to the site. One group developed the adjoining lots to the north to create a stronger core and add a garden and east-west connection. All these groups mentioned the importance of the IGA for the centre. Some suggested staging redevelopment by first developing half of the site to maintain the IGA throughout redevelopment.

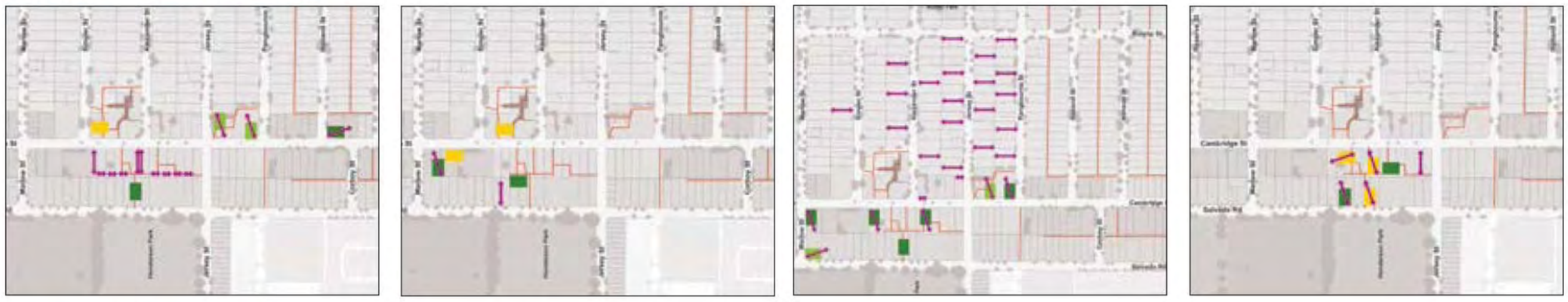
Eight groups saw the service station as an opportunity site to improve the centre. Five groups put a quality public space on the site: a square, garden or playground. Three groups combined the public space with development. Three other groups, one in each ambition level, used the IGA site to add people to the centre, combined with public space.

One group explored the idea of making Jersey Street a second spine, perpendicular to Cambridge Street. Their aim was to connect Henderson Park, Rutter Park and the primary school. In the end, however, they favoured development along Salvado Road and keeping the development concentrated.

Outcome Analysis - Public space and connections

Basic ambition level

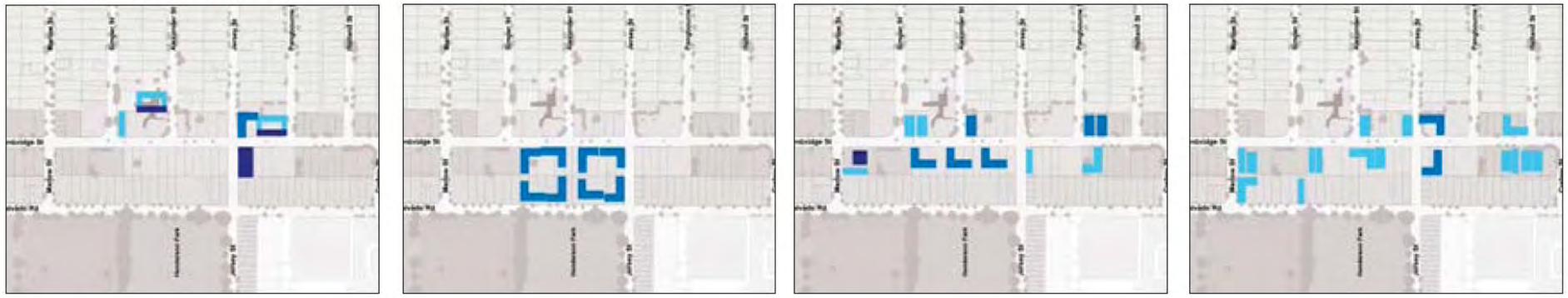
Medium ambition level



High ambition level

Outcome Analysis - Building heights

Basic ambition level



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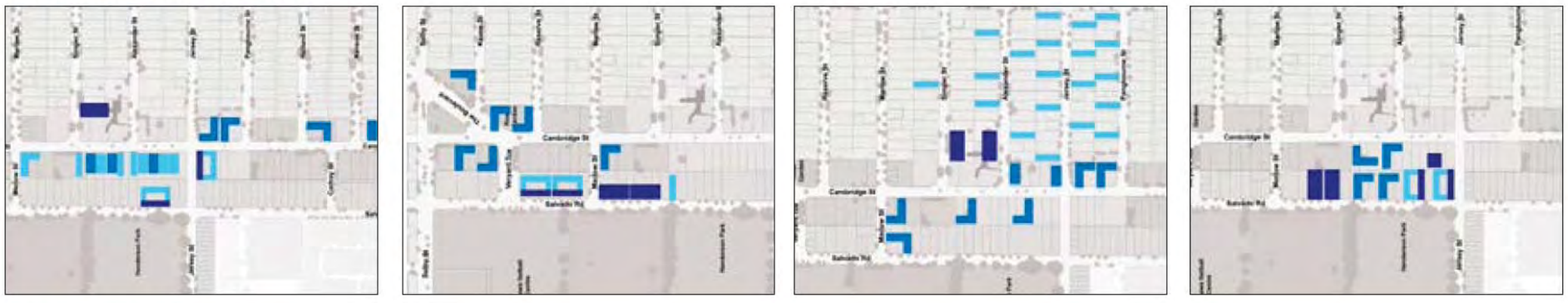
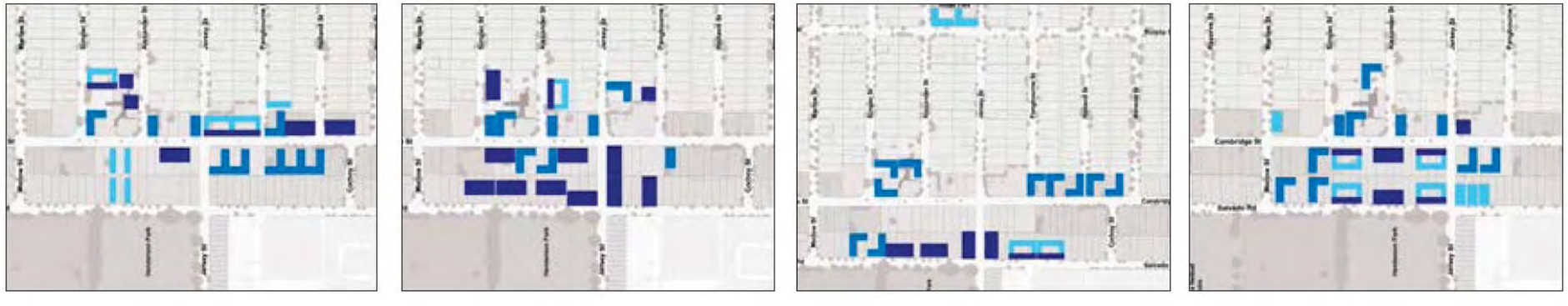


High ambition level



Preferred Scenario

A clear picture of the preferred scenario emerged from the twelve scenarios developed among the scenario game participants. The preferred scenario builds upon key themes and development ideas from the workshop scenarios. Analysing all outcomes, the following common elements can be identified:

- Two main development directions being mixed use development along Cambridge Street between Marlow Street and Essex/ Denton Streets, and southern pedestrian connections to Henderson Park, Parkside Walk (Former Nursery Site) and Wembley Sports Park facilitated by multi-storey residential development along Salvado Road;
- Anchor points (landmark sites) being the Wembley Hotel/Cambridge Forum site and, the IGA site/Shell Service Station site on the corners of Jersey and Cambridge Streets; and
- Improved pedestrian connections and public spaces including an attractive pedestrian network along Cambridge Street and new pedestrian connections between Cambridge Street and Salvado Road.

The preferred scenario retained the existing Residential R20 area north of Cambridge Street as a low density residential to reflect the traditional character of this area. The scenario limited the potential for impact on this area by focusing most new residential development along Salvado Road. In addition, building height in different precincts is proposed to taper down towards existing development.

The preferred scenario allows opportunities to introduce new development to enhance the future growth and vitality of the Wembley Centre, whilst minimising the potential for impacts on the existing, well established lower density residential area north of the Centre.

Under the preferred scenario much of the housing redevelopment is focused along Salvado Road. This also provides the opportunity for the desired pedestrian connection between the existing commercial development on Cambridge Street and Henderson Park, Parkside Walk and Wembley Sports Park. Furthermore, the amenity of new multi-storey residential buildings along Salvado Road would benefit from the outlook onto Henderson Park; whilst the impact of the higher residential density would be limited.

Whilst there will still be opportunities for redevelopment along Cambridge Street, it will be retained as the commercial focus of the centre with the existing rhythm of development along Cambridge Street generally to be maintained. The preferred scenario also extends mixed use development from Pangbourne Street to the existing Nanson Street Local Centre to connect the centres. The community consultation exercise indicated, however, that the existing form and character of the Nanson Street Local Centre is valued, so the detailed plan may not encourage redevelopment of this local centre.

The area, in particular Salvado Road, features numerous grouped dwelling strata properties which present challenges to redevelopment and implementation of key elements of the plan. Therefore ensuring sufficient development incentives are available to encourage and facilitate redevelopment will be vital. The identification of suitable types of development incentives to encourage redevelopment and lot amalgamation will be an important component of the next phase of planning and preparation of implementation proposals to support the Detailed Activity Centre plan.

It is important to note that under the preferred scenario no change is proposed to the existing R20 residential area north of the Wembley Centre nor is it proposed to extend the centre northwards. This area north of the centre is to remain low density and continue to accommodate family housing, acknowledging the traditional character of this part of the suburb. Notably, Henderson Park is also clearly indicated as being retained as a regional reserve.

Preferred Scenario

Two main development directions

- Mixed use development along Cambridge Street between Marlow Street and Essex Street/ Denton Street. Cambridge Street, between Marlow and Pangbourne Street is to remain as the commercial focus of the centre with mixed use to extend to the existing Nanson/Essex Street Local Centre; and
- Southern pedestrian connections to Henderson Park, Parkside Walk and Wembley Sports Park facilitated by multi-storey residential development on the north side of Salvado Road (between Marlow Street and in line with Bishop Street). This area could also include some cafe/ retail/ hospitality uses adjacent to pedestrian connections.

Anchor points (landmark sites)

- Wembley Hotel/Cambridge Forum (344-350 Cambridge Street); and
- Corner of Jersey Street and Cambridge Street - Wembley IGA site (322 Cambridge Street) and Shell Service Station site (333 Cambridge Street);
- Anchor points/ landmark sites are to incorporate a public square/ gardens/ plaza, underground parking and a public car park facility and will form a key component of the pedestrian network.

Improved pedestrian connections and public spaces

- Improve public spaces and pedestrian network along Cambridge Street with traffic to be calmed. Initially between Simper to Jersey Streets and then extend west to Marlow Street and east to Essex Street;
- New pedestrian connections between Cambridge Street and Salvado Road (options include securing Council owned lot and redevelopment to incorporate pedestrian connections);
- Making better use of the existing Marlow Street connection by redevelopment along Cambridge Street up to Marlow Street;
- Linking east-west orientated laneways either side of Cambridge Street and connecting existing car parking areas; and
- Sequence of squares, gardens and playgrounds throughout the centre.

Tapering building heights to existing development

- Residential interface - development abutting existing residential areas to be generally one to two storey with a maximum height of three storeys;
- Four development precincts are proposed as illustrated in the map on the following page, which are proposed to have individual development requirements:-
  - » *Precinct 1 - Anchor points/ landmark sites - The main development area with buildings to a maximum height of seven storeys. These sites will also feature squares/ garden/ public plaza.*
  - » *Precinct 2 - Cambridge Street (Marlow Street to Jersey Street) - Buildings up to five storeys. The facades, awnings and shopfronts to reflect the rhythm of existing development (i.e. present as individual lot development to avoid tunnel affect along Cambridge Street).*
  - » *Precinct 3 - Cambridge Street (Pangbourne Street to Essex Street) - Mixed use development up to three storeys to connect to Nanson/ Essex Street Local Centre.*
  - » *Precinct 4 - Salvado Road (Marlow Street to Bishop Street) - A mix of apartments with a range of building heights to facilitate lot amalgamation and strategic pedestrian links.*

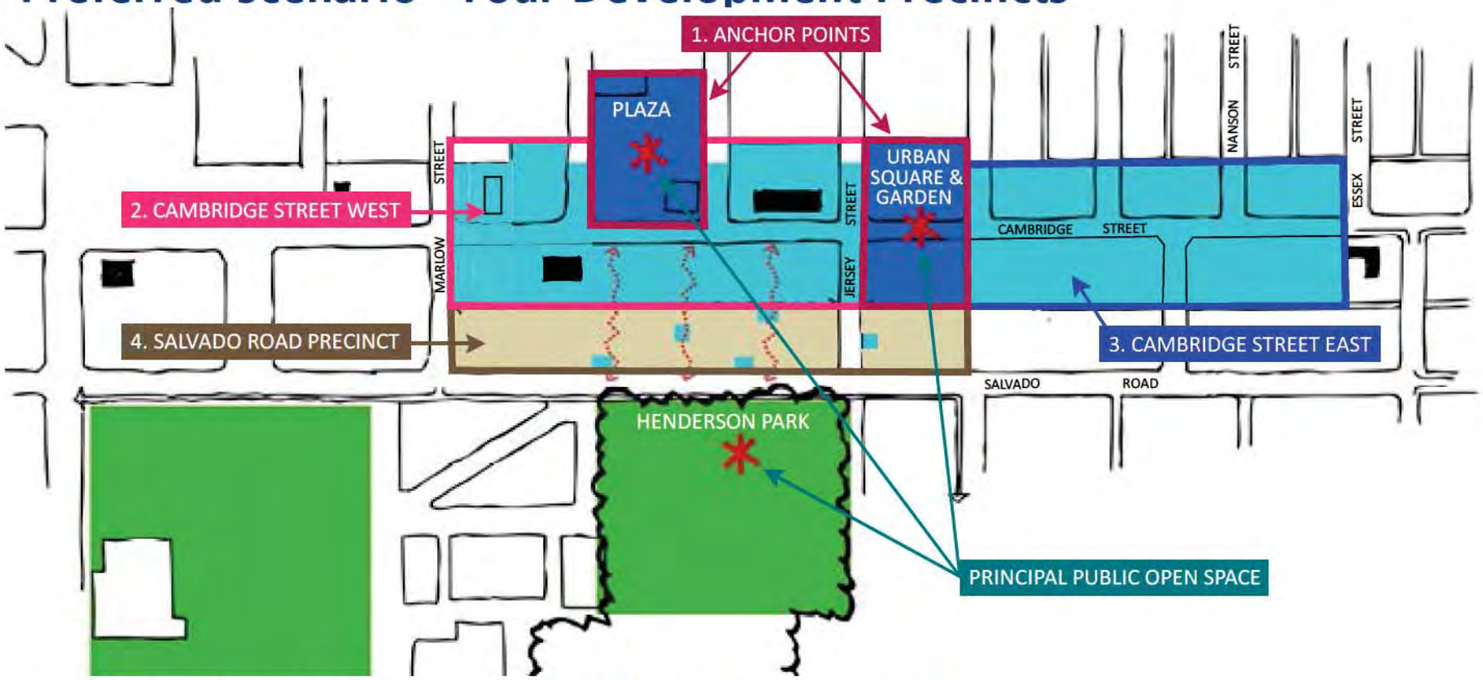
Heritage

- Opportunity to give statutory heritage protection to Wembley Hotel and Henderson Park.
- Our Lady of Victories Church potential to be an entry statement to the Centre from the west.

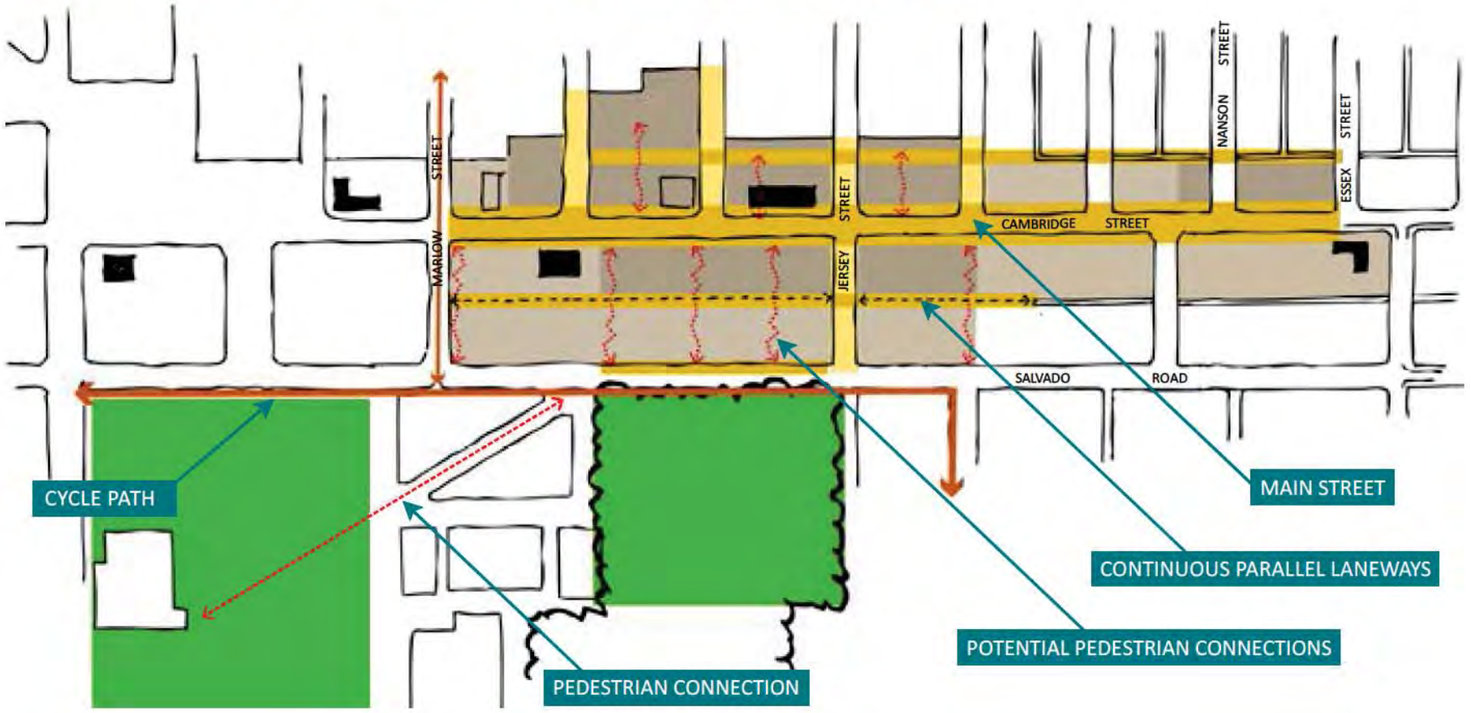
Focus on local needs and opportunity for activities and events

- Community desire for a market (could be accommodated either on private land, within a road reserve or Henderson Park).

Preferred scenario - Four Development Precincts



Preferred scenario - Network of Connections



2.5 The Vision

This Wembley Activity Centre Plan seeks to develop the existing centre along Cambridge Street into a true urban heart for the community of Wembley. A heart that is the urban hub of a green and lush neighbourhood. A centre where everybody in Wembley gravitates to and that embraces every demographic and sub-group: young, old, families, couples, individuals, workers, stay-at-home mums and dads, students, and so on. A centre where the residents of Wembley find most of their daily needs, buy their groceries, have a drink or a bite to eat. Most of all, a centre where you always meet people you know, where you wave to neighbours, exchange news with a friend, ask a question of an acquaintance and smile to a stranger. A centre that is the beating heart of the community.

To develop the existing area into such a comprehensive district centre, attention needs to be turned to people instead of the current focus on movement of cars.

From it's pre-war beginning, the commercial strip on Cambridge Street was pedestrian orientated and characterised by a rich variety of day-to-day shopping, with a butcher, greengrocer, a bakery, newsagency, post office and so on. However, from the 1960's cars have generally dominated the planning and design of the area, resulting in mostly car-dominated streets, blank walls and parking lots, where pedestrians are not the focus. This combined with changing shopping patterns led to a change in how the Wembley Centre functioned.

By the late 1990's though, a slow reversal started to take shape with parts of the streetscape upgraded, new trees planted and the first stretch of powerlines was put underground. A few street-orientated developments were built and the first footpath terraces appeared. People were back in the picture and started to claim their space. It is now time to take this development to the next level.

This Activity Centre Plan incorporates land-use planning, built form development, public realm and movement and access into one plan that changes the focus towards people. The plan is intended to provide the framework for planning in the centre for over the next 10 to 20 years, with some elements more possible in the near future and others longer term ambitions.

"Cars don't buy things, people do."

Steve Burgess, author of "Complete Streets - Guidelines to Urban Street Design" (2010)

Cars are important to the extent that they bring people to the area and therefore the centre needs to be well-accessed with sufficient parking provided for. Though ultimately cars do not buy anything; people do. It is the shops, cafés, services and other businesses that are the centre's economic engine and only when businesses thrive will the centre flourish. The experiences of pedestrians on the street need to be the key focus of centre planning.

"What attracts people most is other people."

William Whyte in 'City - Rediscovering the Center' (1988)

At the moment, the Wembley Centre misses the vibrancy of an urban heart. People do not tend to visit often enough or stay long enough to become familiar with other people who visit the centre too. To change this, the centre needs to provide more reasons for people to stay.

Vibrancy is based on the accumulation of individual activities of many people: walking, strolling, window-shopping, buying, sitting, watching, greeting, waiting, relaxing, meeting, drinking, chatting, playing, picnicing, and so on. An inviting urban structure is needed which provides diverse opportunities to do these activities in various settings and atmospheres, so that every user and visitor can find a place that suits their needs and mood at that moment.

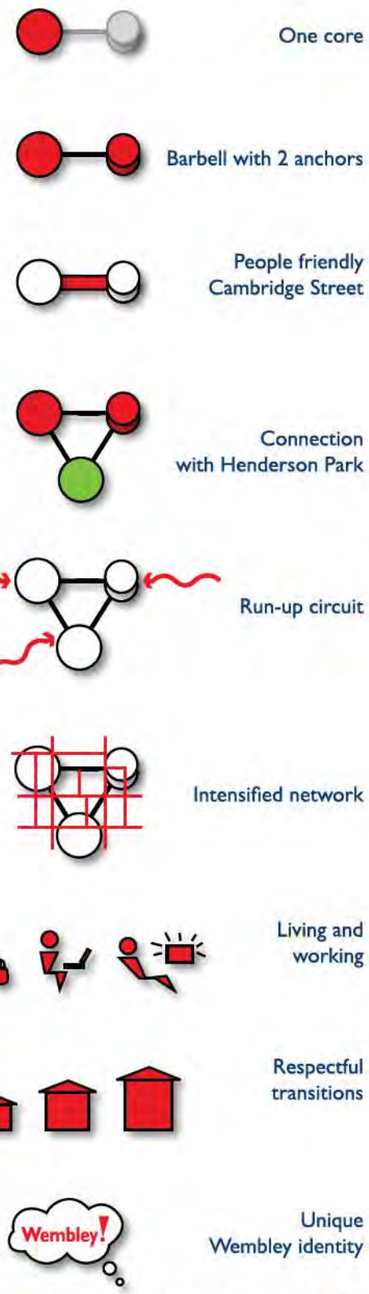
From life between cars (Wembley Town Centre 2015)....

....to a vibrant people's place, full of reasons and opportunities to stay and informally meet others

Nine ingredients

To development such an urban structure, that will lock in the vibrancy and liveliness of a beating heart, this Activity Centre Plan comprises the following nine ingredients.

1. One core
2. Barbell with two anchors
3. People friendly Cambridge Street
4. Connection with Henderson Park
5. Run-up circuit
6. Intensified network
7. Living and working
8. Respectful transitions
9. Unique Wembley identity



1. One Core

The development of a central urban place, that functions as the core of the centre is important. It is a place where everybody in the community gravitates to and naturally comes together. The area around the Wembley Hotel, is the most suitable location for this place and plaza. The Hotel is already the central point in the community's perception which is a great opportunity to reinforce the site as the focal point of the centre.

2. Barbell with anchors at each end

The core gives a focus to the Centre, but additional anchors are needed to get people walking throughout the centre. When people start walking, they stay longer, meet more people and the chance they spend money increases. The anchors together form the economic engine of the centre. The anchors are a combination of a distinctive open space, a commercial magnet and a sound connection with the Cambridge Street which is the "barbell" in between. The Cambridge and Jersey Street intersection, a combination of the IGA and service station site, form the natural location to be developed as the other anchors.

3. People friendly Cambridge Street

The success of the anchors is affected by the quality of their connector. The more attractive the barbell - Cambridge Street - is, the better the flow of people. Widening the footpaths, to create more space for pedestrians, is essential. Widening the median will make it easier to cross the street. Improving the microclimate, with more trees and wider awnings, is also important. Strengthening the interaction between the businesses and the footpaths, with terraces and inviting shop windows, will make the street livelier. Upgrading the streetscape itself, with better pavement, benches and so on, will also make the street more attractive.

Traffic calming, while maintaining vehicle access through the centre, is crucial. Traffic calming could be achieved by reducing the maximum speed together with taking out interruptions to traffic flow. The combination of 60k/h with on-street parking, lane reduction, turn offs and driveway connections, leads to an increase of braking and accelerating, which causes traffic congestion. Reducing the speed and removing some of the interruptions reduces the change in traffic speed and improves the flow and traffic capacity of the road, while also creating a safer and more pleasant environment for pedestrians.

4. Connection with Henderson Park

The proximity of Henderson Park presents a great opportunity for the Centre. Henderson Park is an attractor in its own right, though not often used in combination with the Centre. The park could enrich the experiences in the Centre and increase the choices for places to stay and opportunities for visitors. This plan integrates the park with the centre, as another beacon in conjunction with the two anchors. Upgrading and activating the park and improving the connections along Jersey Street and the Council owned lot at No. 164 Salvado Road as part of a development on the site, creates a loop that becomes interesting to walk and assists in developing an experience.

5. Run-up Circuit

The run-up circuit involves developing a strong pedestrian circuit to more easily connect the centre's services with the surrounding area. The Centre along Cambridge Street will be continued to the Nanson-Essex local centre. This part of Cambridge Street can become an interesting run-up to the Centre, with unique specialities that both benefit from people moving around the centre, contributing towards the centre's diversity and experience. On the west side, the Centre is proposed to be extended to Marlow Street, from where the connection to the Wembley Sports Park and the Rose Garden is easier made. The Our Lady of Victories Church will be an icon on a street-crossing square, marking the west part of the Centre. Another link to the Wembley Sports Park will be made through the new connections to Salvado Road which will link with Parkside Walk (former Nursery site).

6. Intensified Network

A powerful feature to let people stay longer in a centre, is the possibility to wander around, pause or sit down at a choice of places, take a different route, discover a new shop and have a variety of experiences. To achieve this a fine-grained network of streets, alleys, laneways, paths and passages traversing the area are needed, with a range of squares and gardens in different sizes and with various atmospheres.

7. Living and Working

Creating this more elaborate network goes hand-in-hand with incorporating more people living and working in the Centre. The existing lots provide only a limited number of passages and no inviting open spaces to stay. Redevelopment of existing lots will therefore be needed. To make this redevelopment financially achievable, more density will need to be granted. That additional density itself will mean more people will be living and working on these lots. Thus the number of users of the Centre will increase too, enhancing the vibrancy of the Centre.

8. Respectful Transitions

All these developments will not happen at once. The transformation will be gradual, over many years. Therefore, new development needs to be respectful to existing buildings and residents. The transitions to the lower density lots require careful attention. Development regulations will address overshadowing, ensure suitable internal daylight and scale and a development scale and rhythm which is attuned with the existing buildings.

9. Unique Wembley Identity

The new developments need to contribute to a unique Wembley identity. Gentrification with standardised development types might be attractive for quick gain, but will not help the Centre in the long run. It can result in a centre having no difference to any other commercial area in Perth and take from Wembley's own character.

The pre-war roots of Wembley can still be reflected in new development. The plan encourages new developments to incorporate as many pre-war buildings as possible. Secondly, the plan develops distinctive rules to reflect pre-war building qualities in contemporary buildings. Together they will strengthen the current character and develop a strong, unique identity.

The nine ingredients above are incorporated into the following sections. Four sections (3.2 to 3.5) describe overarching themes for the Centre on the whole: land-use, built form, public realm and movement and parking

The two last sections focus on the development process and implementation. Section 3.6 gives an overview of the integrated development regimes for each precinct. They show how the four themes come together in the form of development regulations for individual lots. The last section, 3.7, elaborates on the development strategy for the whole Centre and the implementation of the plan.

Activity Centre Master Plan

Indicative plan: illustrates one possible development outcome, showing a mix of existing (grey) and new development (white).

Technical Appendices

Appendix 1 - Transport Impact Assessment

Wembley Activity Centre Plan

Transport Impact Assessment

Prepared for
Town of Cambridge

21 December 2016

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Shaping the Future

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Document Information

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Document Title	Wembley Activity Centre Plan
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Document History

Revision	Date	Description of Revision	Prepared by:	Reviewed by:
A	2 Dec 2016	First Draft	Raymond Rachmat	Jacob martin
B	7 Dec 2016	Second Draft	Raymond Rachmat	Jacob martin
0	21 Dec 2016	Final Report	Raymond Rachmat	Jacob Martin

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Appendices

Tables

Figures

1 Introduction

Cardno has been commissioned by the Town of Cambridge to prepare a Transport Impact Assessment for the proposed Wembley Activity Centre. The Town of Cambridge has recently completed the draft plan for the Activity Centre. The plan will help guide future development in the area.

This report has been prepared in accordance with the Western Australian Planning Commission (WAPC) *Transport Assessment Guidelines for Developments Volume 2: Planning Schemes, Structure Plans, and Activity Centre Plans*.

Wembley is defined in the State Planning Policy 4.2 as a District Centre. The following policy objectives related to movement are stipulated in SPP 4.2:

- Ensure activity centres provide sufficient development intensity and land use mix to support high frequency public transport
- Maximise access to activity centres by walking, cycling and public transport while reducing private car trips

2 Existing Situation

2.1 Site Location

The Site is located within the Town of Cambridge LGA, in the suburb of Wembley and Jolimont. **Figure 2-1** shows the extent of the Activity Centre.

Figure 2-1 Extent of the Activity Centre

2.2 Existing Land Use

Figure 2-2 shows the existing land uses within the Site. Existing land uses within the Site consist of mostly medium density residential with retail and commercial land uses along Cambridge Street classified as 'Local Centre'.

Figure 2-2 Existing Land use

Source: Town of Cambridge Local Planning Scheme No.1

2.3 Existing Road Network

The Main Roads WA Metropolitan Functional Road Hierarchy (MFRH) classifies the roads within Wembley Activity Centre as shown in **Figure 2-3.**

Figure 2-3 Existing Road Network

Source: Main Roads WA

Road classifications are defined in the Main Roads Functional Hierarchy (MRFH) as follows:

- ***Primary Distributors***: These provide for major regional and inter-regional traffic movement and carry large volumes of generally fast moving traffic. Some are strategic freight routes and all are National or State roads. They are managed by Main Roads.
- ***Regional Distributors***. Roads that are not Primary Distributors, but which link significant destinations and are designed for efficient movement of people and goods within and beyond regional areas. They are managed by Local Government.
- ***District Distributor A***: These carry traffic between industrial, commercial and residential areas and generally connect to Primary Distributors. These are likely to be truck routes and provide only limited access to adjoining property. They are managed by Local Government.
- ***District Distributor B***. Perform a similar function to District Distributor A, but with reduced capacity due to flow restrictions from access to and roadside parking alongside adjoining property. These are often older roads with a traffic demand in excess of that originally intended. District Distributor A and B roads run between Land-use cells and generally not through them, forming a grid which would ideally space them around 1.5 Kilometres apart. They are managed by Local Government.
- ***Local Distributors***: Carry traffic within a cell and link District Distributors at the boundary to access roads. The route of the Local Distributor discourages through traffic so that the cell formed by the grid of District Distributors only carries traffic belonging to or serving the area. These roads should accommodate buses but discourage trucks. They are managed by Local government.

- ***Access Roads***: Provide access to abutting properties with amenity, safety and aesthetic aspects having priority over the vehicle movement function. These roads are bicycle and pedestrian friendly. They are managed by Local government.

Table 2-1 Road Classification within the Wembley Activity Centre

Road Name	Road Hierarchy Classifications
Cambridge Street	Distributor A
Grantham Street	Distributor A
Salvado Road	Access Road west of Jersey Street Distributor B east of Jersey Street
Marlow Street	Access Road
Simper Street	Access Road
Alexander Street	Access Road
Jersey Street	Access Road north of Cambridge Street Distributor B south of Cambridge Street
Pangbourne Street	Access Road
Holland Street	Access Road
Nanson Street	Access Road
Essex Street	Access Road
Corboy Street	Access Road

Cambridge Street

Cambridge Street is a Distributor A Road in the MRWA Metropolitan Functional Road Hierarchy (MFRH) and functions as a major east-west transport link through the Centre and provide reginal link between the Centre and Perth CBD as well as Mitchell Freeway. Cambridge Street serves an active commercial precinct as well as a major east-west corridor for commuters traveling to and from the Perth CBD.

While Distributor A type roads generally provide limited access to adjacent properties, many properties currently have access along Cambridge Street due to lack of alternative laneways or service roads.

In the vicinity of the Centre the form of the street is a two-way, four-lane dual carriageway, with a posted speed limit of 60km/h. On-street parking is permitted at designated locations. Clearway is in effect in the westbound direction in in the AM peak (7:30 to 9:00 Mon-Fri) and the eastbound direction in the PM peak (16:15 to 18:00 Mon-Fri). Footpaths are available on both sides of the road, however there are no formal cycling facilities.

Refer to **Figure 2-4** for the existing condition of Cambridge Street

Figure 2-4 Cambridge Street, between Simper Street and Alexander Street – Looking West

Salvado Road

Salvado Road is classified as a Distributor B Road east of Jersey Street and as an Access Road west of Jersey Street in the MRWA Metropolitan Functional Road Hierarchy (MFRH). Regardless of Main Roads Classification (for the section west of Jersey Street) Salvado Road is currently used by commuters to reach destinations in the Perth CBD and Subiaco, as evidenced by the existing traffic volumes westbound along this section (approximately 900vph in the AM peak)

In the vicinity of the Centre, it is an undivided two-way, two-lane street with a posted speed limit of 50km/h. On-street parking is permitted on both sides of the street in the vicinity of the Centre, with Clearway in effect west of Jersey Street for the westbound direction in in the AM peak (7:30 to 9:00 Mon-Fri). Footpaths are available on the northern side of the road. Cycling is catered for by shared path in the southern side of the street.

Refer to **Figure 2-5** and **Figure 2-6** for the existing condition of Salvado Road.

Figure 2-5 Salvado Road, West of Jersey Street – Westbound

Figure 2-6 Salvado Road, East of Jersey Street – Eastbound

Jersey Street

Jersey Street is the major north-south road through the Centre and connects to Cambridge Street and Salvado Road. Within the Centre, south of Cambridge Street, the road is classified as a Distributor B Road in the MRWA Metropolitan Functional Road Hierarchy (MFRH) and provides a link to other Distributor roads within and outside of the Centre, including Grantham Street, Cambridge Street, and Salvado Road. North of Cambridge Street, the road is classified as an Access Road and serves mainly as a residential street.

Within the Centre, the road form is as a two-way dual carriageway. The section between Cambridge Street and Salvado Road is sufficiently wide to permit two lanes in each direction, however line marking is only provided at the intersection approaches. Jersey Street also provide access to several properties that front Cambridge Street. Footpaths are available along both sides of the street, however no cycling facilities have been provided.

Refer to **Figure 2-7** for the existing condition of Jersey Street.

Figure 2-7 Jersey Street – Southbound

Selby Street

Selby Street is the major north-south road on the western edge of the Centre and is classified as a Distributor A Road in the MRWA Metropolitan Functional Road Hierarchy (MFRH) with a posted speed limit of 60km/h.

The road is constructed as a two-way, four lane dual carriageway with central median. North of The Boulevard the road reduces to one lane in each direction. Footpaths are available along the west side of the street, south of The Boulevard and on the eastern side north of The Boulevard. A shared path is available on the eastern side of the road from The Boulevard to Hay Street.

Refer to **Figure 2-8** for the existing condition of Selby Street.

Figure 2-8 Selby Street - Southbound

The Boulevard

The Boulevard is classified as a Distributor A Road in the MRWA Metropolitan Functional Road Hierarchy (MFRH) with a posted speed limit of 60km/h. The Boulevard serves as a major east-west link that connects residential in the suburbs to the west, such as City Beach, Floreat, and Wembley Downs, through to Cambridge Street and the Wembley Activity Centre.

The road is a two-way, two lane dual carriageway with local widening at the Selby Street signalised intersection. Footpaths are provided on the northern side of the road from Selby Street through to Cambridge Street. A shared path is also available on the northern side, however it terminates at Selby Street and does not extend into Cambridge Street.

Refer to **Figure 2-9** for **the** existing condition of The Boulevard.

Figure 2-9 The Boulevard - Eastbound

Grantham Street

Grantham Street is a Distributor A Road in the MRWA Metropolitan Functional Road Hierarchy (MFRH) with a posted speed limit of 60km/h. This road, similar in function to Cambridge Street serves as a major east-west corridor for commuters traveling to and from the Perth CBD. Access to adjacent property is limited, with many properties have its access located along intersecting streets or laneways.

The street is two-way, four-lane dual carriageway, similar to Cambridge Street, however Grantham Street does not serve an active commercial precinct at the same level as Cambridge Street. On-street parking is permitted at designated locations. Clearway is in effect in the westbound direction in in the AM peak (7:30 to 9:00 Mon-Fri) and the eastbound direction in the PM peak (16:15 to 18:00 Mon-Fri). Footpaths are available on both sides of the road, however there are no formal cycling facilities.

Refer to **Figure 2-10** for the existing condition of Grantham Street

Figure 2-10 Grantham Street – Westbound

2.4 Existing Traffic Volumes

Existing traffic volumes are shown in **Figure 2-11**, obtained from SCATS traffic data (the traffic signal control system) provided by Main Roads and traffic survey data provided by the Town of Cambridge.

From the SCATS data, AM and PM peak hours were determined to be 8:00-9:00 and 16:45-17:45, respectively.

Figure 2-11 Existing Traffic Link Volumes – AM Peak Hour

Figure 2-12 Existing Traffic Link Volumes – PM Peak Hour

2.5 Existing Public Transport Services

Public transport serving the Wembley area is provided by Transperth bus and train services. There are 3 bus routes serving the Site, consisting of Route 81, 82, and 85. The closest bus stops to these routes are located near the intersection of Cambridge Street / Marlow Street and Cambridge Street / Pangbourne Street. **Figure 2-13** shows the bus routes in the vicinity of the site and **Table 2-2** shows the typical frequencies of Route 81, 82, and 85.

Figure 2-13 Existing Bus Services

Table 2-2 Bus Service Frequency

Route	Peak Frequency	Off-peak Frequency
81 (City Beach - Perth)	20 min	60 min
82 (City Beach – Perth)	20 min	60 min
85 (Glendalough – Perth)	20 min	30 min

As shown **Table 2-2**, the bus routes have only moderate frequencies during the peak period. However, as the 3 routes passing through the Activity Centre use the same stops, combining these routes together forms a high frequency bus service to the Perth CBD, with peak frequency of between 5 to 15 minutes.

The closest train stations to the Site are Subiaco Station and Daglish Station. Walking distance to these stations are 1.7km and 1.4km respectively, significantly greater than the standard 800m walking catchment. It is therefore unlikely that a significant proportion of trips to the Site will use train travel as the sole mode. However, mode chaining in the form of bike 'n' ride to these stations is more than feasible, and could ultimately result in higher utilisation of public transport by residents.

2.6 Existing Pedestrian / Cycle Network

The existing pedestrian / cycle network in the immediate area surrounding the Site is shown in **Figure 2-14**.

Figure 2-14 Existing Pedestrian / Cycle Network

Source: Perth, Fremantle, and Stirling Comprehensive Bike Map, Department of Transport

The only cycling facility in the vicinity of the Site is the shared path along Salvado Road, however it does not connect into the Site. This lack of a safe and effective network limits the use of bicycle transportation.

Footpaths within the Site area generally exist on both sides of the street, which provides a reasonable level of pedestrian connection. Median refuges have been constructed for passive crossings and signalised pedestrian crossing points are available along Jersey Street and Cambridge Street, operating under a 'parallel walk' phasing.

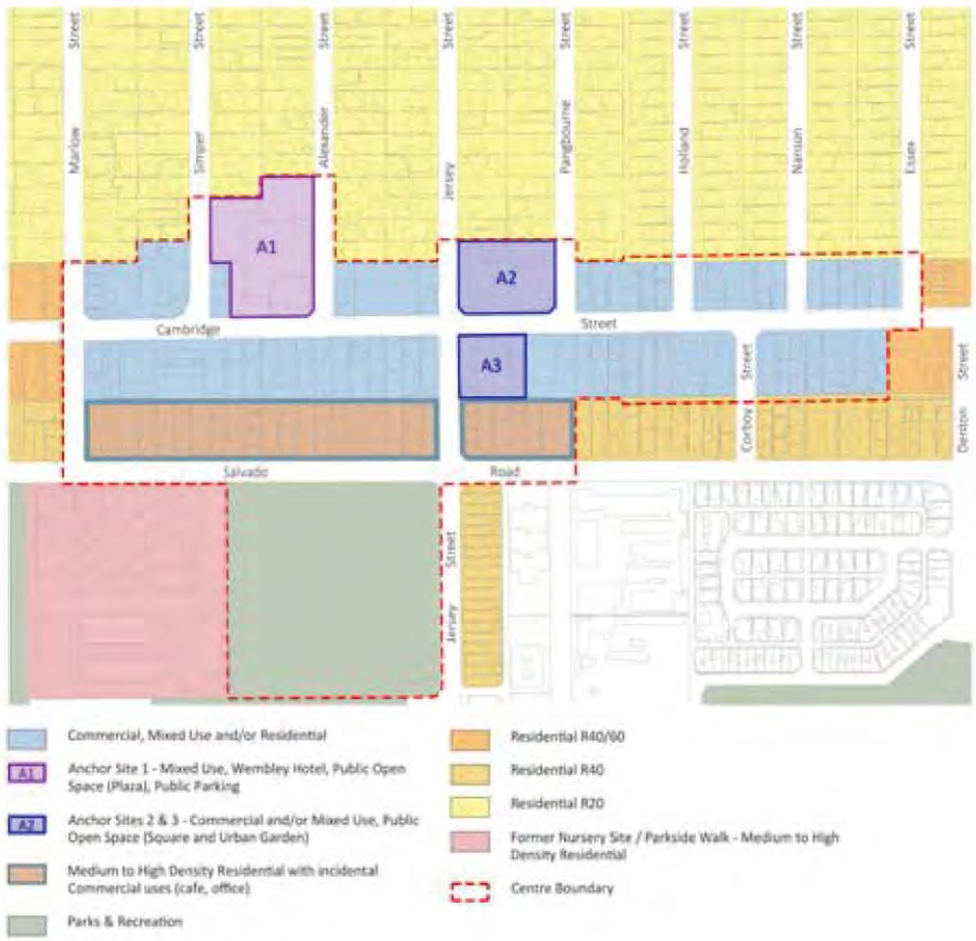
3 Proposed Development

3.1 Development Proposal

3.1.1 Proposed Land Use Zoning

The development proposed land uses changes within the existing Wembley Town Centre with the aim to create a comprehensive district centre. **Figure 3-1** shows the proposed land use changes within the Site.

Figure 3-1 Proposed Development Land Uses



Source: Wembley Activity Centre Detailed Plan

3.2 Potential Development Yield

The activity centre plan presents potential development yield scenarios that identifies the maximum development and realistic development potential. The analysis presented herein will assume maximum potential yield that maximises residential development as agreed with the Town of Cambridge.

Table 3-1 shows the estimated maximum development potential yield of the activity centre (mixed use scenario), sourced from the latest information provided by the Town of Cambridge. Note that the development potential is additional to the existing land use.

Table 3-1 Maximum Potential Yield Increase (Mixed Use Scenario)*

Land Use	Area (m^2)
Office/Consulting Rooms	27,850
Retail	12,500
Restaurant/Cafe	12,500
Residential	830 dwellings

Source: Town of Cambridge
** additional to the existing land use*

4 Road Hierarchy

4.1 Access Priority

It is understood that Cambridge Street, and to a lesser extent, Salvado Road will continue to operate to some extent as strategic roads connecting the Perth CBD and surrounds to residential suburbs along the coast. The roads also provide important corridors for freight traffic into the Centre and to retail/commercial nodes further to the west. However, it is expected that the primacy of Cambridge Street will decline over time as local demands for access to development and parking further impact through movements. This is likely to result in some redistribution of traffic to alternative routes outside of the Centre boundaries including Grantham Street (see **Section 2.4**) which provides much the same strategic connection as Cambridge Streetm forming a major east–west link between the western suburbs of the Town to the Perth CBD and Mitchell Freeway.

To address the function of the local road network in the context of the various transport modes, a Hierarchy of Use has been established, to provide the basic principles for road function and to influence the design of streetscape and development.

4.2 User Hierarchy

Private Vehicles

A hierarchy of use has been determined for the Centre incorporating fundamental SmartRoads principles. In general, private vehicle use is promoted along the periphery of the site and supported through strategic location of peripheral car parking.

Regional traffic is likely to continue to use Cambridge Street, Jersey Street and Salvado Road, but will tend to redistribute towards alternative corridors including Selby Street, Grantham Street and Hay Street. The use of internal roads by private vehicles is to be discouraged, to preserve capacity within the internal road network for other transport modes. Local traffic will be slowed through reduced speed limits and Local Area Traffic Management to create a better integration with pedestrian and cycling modes.

Car parking is generally located at the rear of the development, and accessed via a continuous laneway at the periphery of the Centre to minimise the volume of traffic in pedestrian-oriented areas.

Pedestrians

The activated central core, consisting largely of Cambridge Street and Salvado Road will be oriented towards pedestrian accessibility, with wide, attractive pedestrian footways and legible road crossings. Areas nearer to the edge of the Centre, where densities are lower, will focus on improved crossing infrastructure to maintain pedestrian safety and legibility in the context of higher traffic demands. A consistent provision of safe crossing points and high quality pedestrian facilities will be employed across the Activity Centre, particularly focused on identified desire lines from between land use nodes.

Public Transport

Public transport is a high priority as it provides regional connection to the Centre. These regional coverage services would be contained within the existing higher-order road corridors to minimise delays and promote their existing core function.

Cycling

Cycling will be promoted as a viable transport mode by creating a strong regional link along the existing Salvado Road shared path, linking to Cambridge Street via Jersey Street and Marlow Street. The Salvado Road shared path is currently being proposed to be extended eastward from Bishop Street in the form of a separated bicycle and pedestrian path, to link with the Fremantle Line Principal Shared Path at Haydn Bunton Drive, as described in both the Subiaco Bike Plan and the draft Town of Cambridge Bike Plan.

A strategic cycling corridor along The Boulevard and Ruislip Street is expected to form one of the primary east-west spine routes through the area, to supplement the Salvado Road path. Jersey Street will remain as the main connection into the Centre, with the local grid network allowing fine-grained connections via the surrounding streets.

Freight/Loading

Given the pedestrian friendly environment along Cambridge Street, loading/delivery activities are not generally recommended along this street during the daytime. The proposed continuous parking lanes parallel to Cambridge Street are recommended to be utilised as access to off-street loading and dock areas, to minimise the impact of service/delivery vehicles on pedestrian, cycling and bus modes along Cambridge Street and Salvado Road.

4.3 Road Infrastructure Changes

The Activity Centre Plan proposes a number of changes to Cambridge Street and Salvado Road cross-sections to create a Centre that is pedestrian friendly as shown in **Figure 4-1**.

Figure 4-1 Indicative Street Profiles of Cambridge Street and Salvado Road

Source: Wembley Activity Centre Detailed Plan

While these cross-sections have been considered through this Transport Assessment, localised changes are expected at significant intersections to ensure effective operational performance.

5 Traffic Analysis

5.1 Development Trip Generation

The estimates for trip generation rate for the Activity centre is presented in **Table 5-1**, which are sourced from the *ITE Trip Generation Manual (7th Edition)*. These rates have then been applied to the estimated maximum development yield scenario described in **Section 3**.

The total estimated base trip generation is presented in **Table 5-2**.

Table 5-1 Estimated Trip Generation Rate

Land Use	ITE Code	AM Peak	PM Peak
Office	710	1.67 per 100m²	1.6 per 100m²
Retail	820	1.11 per 100m²	4.04 per 100m²
Restaurant/Cafe	931	6 per 100m²	9.71 per 100m²
Residential	223	0.35 per dwelling	0.44 per dwelling

Table 5-2 Estimated Base Trip Generation

Land Use	AM Peak	PM Peak
Office	465	446
Retail	139	505
Restaurant/Cafe	750	1214
Residential	291	365
Total	**1644**	**2530**

5.2 Background Traffic Growth Scenario

To derive the future background traffic (traffic not associated with the Centre) of the road network in the vicinity of the centre, the Regional Operations Model (ROM), Main Roads WA's model of the Perth metropolitan road transport network, was consulted. The ROM data of the area (for the year 2011 and 2031) from the 2015 Subiaco Integrated Transport Strategy document were used as a benchmark. Traffic growth was estimated by comparing ROM projections for 2011 and 2031, resulting in a projected linear growth of 2% annually. This growth rate was then applied to the existing 2016 background traffic year to determine background traffic at 2031 (15-year horizon).

Link traffic volumes (traffic volumes along a section of a road) as described from the ROM data were not explicitly used for the future background traffic as 2011 ROM data was found to be inconsistent with observed traffic volumes at 2016, overstating the traffic demand by as much as 100% for some approaches.

It should be noted that no background trips are assumed to be diverted into the Centre. This is a very conservative assumption as it removes the positive impact of pass-by, transferred or redirected trips. That is, a proportion of the existing traffic that is already in the network would likely divert into the Centre, and therefore would not create any additional traffic. *An example of this is where visitors shop or dine within the Centre on the way home from work. While these trips are modelled as additional traffic, they do not in actually increase link volumes.*

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5.3 Development Traffic Distribution and Assignment

A desktop model of the Centre was developed in order to determine the impact of the planned developments on intersection performances and road capacities. SCATS data for the signalised intersections sourced from MRWA and additional traffic data provided by the Town of Cambridge was used to capture the existing (year 2016) background traffic data.

The above data was also used to determine the turning movement proportions at critical intersections in and around the Centre. **Figure 5-1** and **Figure 5-2** shows the link traffic volumes for the year 2031 in the AM and PM peak, which includes the total, full trip generated estimates by the Centre presented in **Table 5-2** and the background traffic for the year 2031.

Figure 5-1 2031 Scenario Link Traffic Volumes – AM Peak Hour

Figure 5-2 2031 Scenario Link Traffic Volumes – PM Peak Hour

6.2 2031 Full Build-Out Scenario – Existing Geometry

6.2.1 The Boulevard & Selby Street Intersection

Figure 6-2 shows a SIDRA representation of The Boulevard /Selby Street intersection. **Table 6-2** and **Table 6-3** show the SIDRA results of The Boulevard / Selby Street intersection performance. Refer to **Appendix A** for full SIDRA outputs.

Figure 6-1 The Boulevard /Selby Street – Existing Intersection Layout

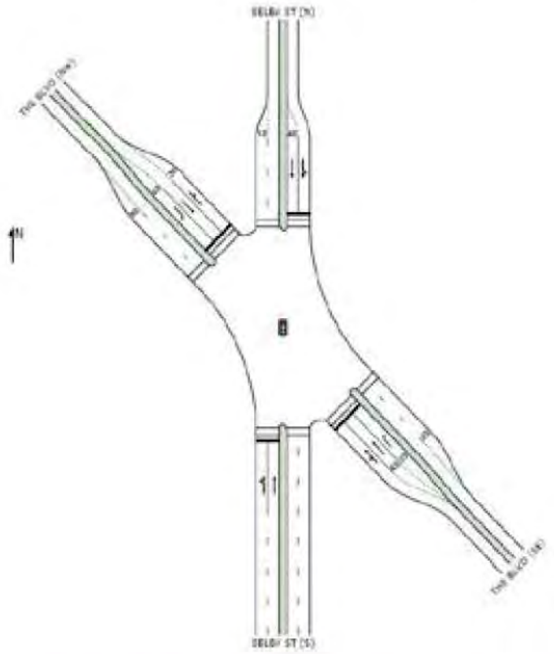


Table 6-2 The Boulevard / Selby Street Intersection Performance 2031 AM Peak

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: SELBY ST (S)											
1a	L1	185	5.0	0.174	9.2	LOS A	2.0	14.5	0.49	0.67	52.7
2	T1	556	5.0	0.871	21.2	LOS C	13.8	100.8	0.96	1.02	39.1
Approach		741	5.0	0.871	18.2	LOS B	13.8	100.8	0.84	0.93	42.5
SouthEast: THE BLVD (SE)											
21b	L3	2	7.0	0.258	26.9	LOS C	1.4	10.1	0.93	0.70	22.9
22	T1	194	7.0	0.532	21.1	LOS C	3.0	22.0	0.96	0.75	47.6
23a	R1	49	7.0	0.285	28.0	LOS C	1.1	8.4	0.98	0.72	36.0
Approach		245	7.0	0.532	22.5	LOS C	3.0	22.0	0.97	0.75	45.8
North: SELBY ST (N)											
7a	L1	199	5.0	1.459	451.0	LOS F	121.6	889.2	1.00	4.33	5.2
8	T1	1356	5.0	1.459	446.4	LOS F	122.2	891.7	1.00	4.33	4.9
Approach		1555	5.0	1.459	447.0	LOS F	122.2	891.7	1.00	4.33	4.9
NorthWest: THE BLVD (NW)											
27b	L3	40	3.0	0.282	16.6	LOS B	3.2	22.8	0.71	0.63	53.6
28	T1	1147	3.0	1.301	259.2	LOS F	122.1	876.4	0.96	3.41	14.3
29a	R1	440	3.0	1.037	75.8	LOS E	20.3	145.9	1.00	1.50	30.2
Approach		1627	3.0	1.301	203.6	LOS F	122.1	876.4	0.96	2.82	17.0
All Vehicles		4108	4.3	1.459	250.8	LOS F	122.2	891.7	0.96	2.93	11.5

Table 6-3 The Boulevard / Selby Street Intersection Performance 2031 PM Peak

Movement Performance - Vehicles											
Mov ID	ODMov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: SELBY ST (S)											
1a	L1	639	5.0	0.834	25.7	LOS C	35.2	256.9	0.79	0.83	44.7
2	T1	958	5.0	0.907	33.7	LOS C	46.8	341.3	0.91	0.93	32.2
Approach		1597	5.0	0.907	30.5	LOS C	46.8	341.3	0.87	0.89	38.3
SouthEast: THE BLVD (SE)											
21b	L3	15	8.0	1.343	400.8	LOS F	105.4	788.2	1.00	2.46	2.1
22	T1	1129	8.0	1.343	397.8	LOS F	105.4	788.2	1.00	2.43	10.2
23a	R1	250	8.0	1.063	179.6	LOS F	27.9	208.5	1.00	1.44	11.6
Approach		1394	8.0	1.343	358.7	LOS F	105.4	788.2	1.00	2.25	10.2
North: SELBY ST (N)											
7a	L1	201	5.0	0.876	44.1	LOS D	25.1	183.1	0.77	0.86	29.8
8	T1	750	5.0	0.876	39.5	LOS D	25.1	183.6	0.77	0.84	29.8
Approach		951	5.0	0.876	40.5	LOS D	25.1	183.6	0.77	0.84	29.8
NorthWest: THE BLVD (NW)											
27b	L3	35	3.0	0.073	27.5	LOS C	1.8	12.9	0.61	0.64	46.0
28	T1	297	3.0	0.336	23.8	LOS C	10.7	76.7	0.70	0.61	46.3
29a	R1	155	3.0	0.975	64.8	LOS E	8.2	59.2	1.00	1.03	32.5
Approach		487	3.0	0.975	37.1	LOS D	10.7	76.7	0.79	0.75	41.1
All Vehicles		4429	5.7	1.343	136.7	LOS F	105.4	788.2	0.88	1.29	18.4

During the AM peak, Selby Street north leg and The Boulevard northwest leg experience poor Level of Service (LoS) with extensive queuing and delays. These legs of the intersection are unable to accommodate the projected background growth through to 2031.

In the PM peak, The Boulevard southeast leg also experiences significant queuing and delays, particularly for through and left turn movements. The Selby Street southern approach has a long queue modelled, though with relatively short delays of 20-30 seconds. This is associated with a long green light phase for primary north-south movements.

It is noted that the contribution to traffic volumes from the Wembley Activity Centre is only a small component of the overall demand.

6.2.2 Cambridge Street & Selby Street Intersection

Figure 6-2 shows a SIDRA representation of Cambridge Street /Selby Street intersection. **Table 6-4** and **Table 6-5** show the SIDRA results of Cambridge Street / Selby Street intersection performance. Refer to **Appendix A** for full SIDRA outputs.

Figure 6-2 Cambridge Street /Selby Street – Existing Intersection Layout

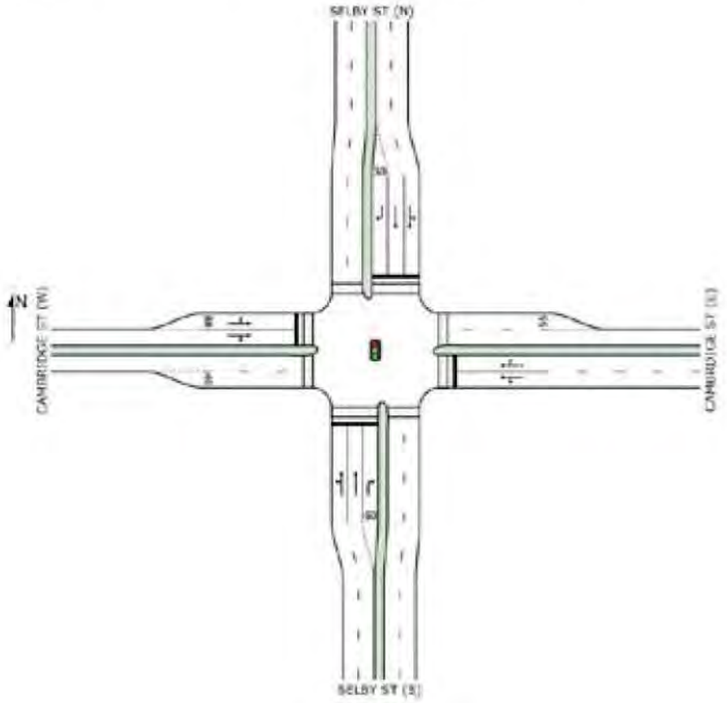


Table 6-4 Cambridge Street / Selby Street Intersection Performance 2031 AM Peak

Movement Performance - Vehicles											
Mov ID	ODMov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: SELBY ST (S)											
1	L2	56	5.0	0.410	16.6	LOS B	6.4	46.6	0.71	0.64	51.3
2	T1	645	5.0	0.410	11.0	LOS B	6.4	47.0	0.71	0.62	42.4
3	R2	141	5.0	0.996	60.7	LOS E	5.9	42.7	1.00	1.23	25.9
Approach		842	5.0	0.996	19.7	LOS B	6.4	47.0	0.76	0.73	37.9
East: CAMBRIDGE ST (E)											
4	L2	172	4.0	0.291	20.8	LOS C	3.5	25.5	0.78	0.76	40.6
5	T1	292	4.0	0.904	35.6	LOS D	12.3	88.8	1.00	1.15	42.2
6	R2	57	4.0	0.904	41.2	LOS D	12.3	88.8	1.00	1.15	26.8
Approach		521	4.0	0.904	31.3	LOS C	12.3	88.8	0.93	1.02	40.6
North: SELBY ST (N)											
7	L2	27	5.0	1.049	90.2	LOS F	55.6	406.0	1.00	1.83	16.0
8	T1	1695	5.0	1.049	85.9	LOS F	55.6	406.0	1.00	1.82	14.6
9	R2	85	5.0	0.275	19.6	LOS B	1.5	10.9	0.65	0.72	46.2
Approach		1807	5.0	1.049	82.8	LOS F	55.6	406.0	0.98	1.77	15.7
West: CAMBRIDGE ST (W)											
10	L2	47	4.0	0.845	31.1	LOS C	16.0	115.6	0.99	1.04	33.1
11	T1	722	4.0	2.336	439.7	LOS F	130.7	946.0	1.00	2.22	9.8
12	R2	247	4.0	2.336	1245.8	LOS F	130.7	946.0	1.00	4.51	3.7
Approach		1016	4.0	2.336	616.8	LOS F	130.7	946.0	1.00	2.72	7.2
All Vehicles		4166	4.6	2.336	193.3	LOS F	130.7	946.0	0.94	1.70	12.0

Table 6-5 Cambridge Street / Selby Street Intersection Performance 2031 PM Peak

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: SELBY ST (S)											
1	L2	126	5.0	1.274	283.4	LOS F	93.5	682.6	1.00	3.51	13.6
2	T1	1471	5.0	1.274	277.8	LOS F	94.3	688.2	1.00	3.51	5.4
3	R2	284	5.0	1.306	314.4	LOS F	35.4	258.5	1.00	2.71	7.8
Approach		1881	5.0	1.306	283.7	LOS F	94.3	688.2	1.00	3.39	6.5
East: CAMBRDIGE ST (E)											
4	L2	150	4.0	0.527	17.0	LOS B	6.8	49.1	0.81	0.74	45.3
5	T1	577	4.0	1.129	93.2	LOS F	34.7	251.1	0.92	1.60	28.6
6	R2	109	4.0	1.129	158.3	LOS F	34.7	251.1	1.00	2.23	10.1
Approach		836	4.0	1.129	88.0	LOS F	34.7	251.1	0.91	1.53	26.9
North: SELBY ST (N)											
7	L2	13	5.0	0.672	19.8	LOS B	7.9	57.4	0.84	0.75	39.3
8	T1	832	5.0	0.672	14.4	LOS B	7.9	57.4	0.84	0.75	39.4
9	R2	74	5.0	0.428	29.5	LOS C	1.7	12.4	0.98	0.74	40.7
Approach		919	5.0	0.672	15.7	LOS B	7.9	57.4	0.85	0.75	39.6
West: CAMBRIDGE ST (W)											
10	L2	51	4.0	0.312	15.8	LOS B	3.6	26.2	0.72	0.64	37.7
11	T1	428	4.0	0.862	19.5	LOS B	8.8	63.4	0.88	0.89	48.3
12	R2	76	4.0	0.862	32.1	LOS C	8.8	63.4	1.00	1.08	44.2
Approach		555	4.0	0.862	20.9	LOS C	8.8	63.4	0.88	0.89	46.8
All Vehicles		4191	4.7	1.306	151.1	LOS F	94.3	688.2	0.93	2.11	14.3

According to the analysis results above, all legs except for Selby Street south experience significant delays and considerable queuing In the AM peak. The Cambridge Street west approach operates extremely poorly for the existing configuration and signal timing scenario, caused by heavy traffic volumes on the northern leg taking most of the cycle time.

In the PM peak, the Selby Street southern approach and Cambridge Street eastern approach operate beyond their capacities for the 2031 horizon, with every turning movement experiencing a LoS F. Poor performance is related to the insufficient capacity for right turning vehicles under the existing filter phase arrangement, caused by significant increases in opposing through movements.

It is noted that the contribution to traffic volumes from the Wembley Activity Centre is only a small component of the overall demand at this intersection.

6.2.3 Cambridge Street & Jersey Street Intersection

Figure 6-3 and **Figure 6-4** shows a SIDRA representation of Cambridge Street /Jersey Street intersection for AM peak and PM peak based on a proposed peak-hour clearway restriction along Cambridge Street.

Table 6-6 and **Table 6-7** show the SIDRA results of Cambridge Street / Jersey Street intersection performance. Refer to **Appendix A** for full SIDRA outputs.

Figure 6-3 Cambridge Street /Jersey Street – Existing Intersection Layout AM Peak

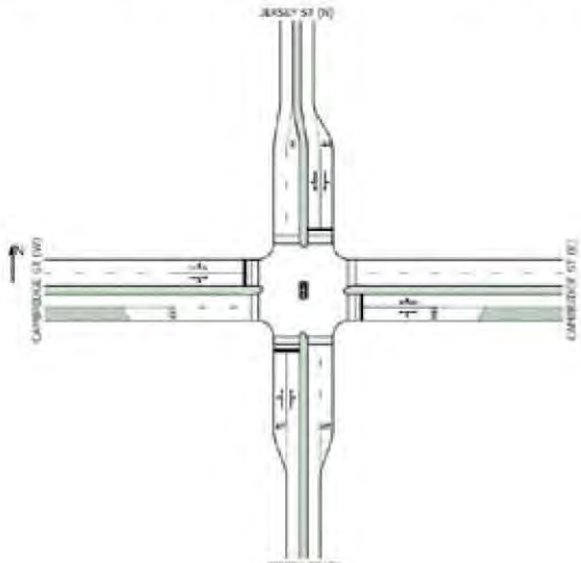


Figure 6-4 Cambridge Street /Jersey Street – Existing Intersection Layout PM Peak

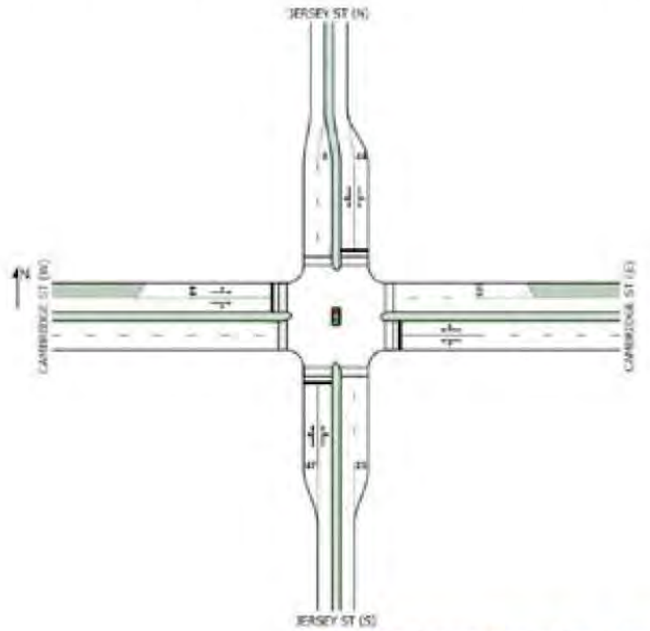


Table 6-6 Cambridge Street / Jersey Street Intersection Performance 2031 AM Peak

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: JERSEY ST (S)											
1	L2	107	2.0	0.658	29.4	LOS C	7.1	50.0	0.94	0.83	23.9
2	T1	145	1.0	0.658	24.8	LOS C	7.1	50.0	0.94	0.83	34.2
3	R2	97	4.0	0.745	39.3	LOS D	3.2	23.1	1.00	0.87	33.1
Approach		349	2.1	0.745	30.3	LOS C	7.1	50.0	0.96	0.84	31.8
East: CAMBRIDGE ST (E)											
4	L2	152	2.0	0.765	27.9	LOS C	13.9	100.4	0.96	0.92	40.0
5	T1	757	5.0	0.765	22.5	LOS C	13.9	100.4	0.95	0.91	42.9
6	R2	13	0.0	0.765	28.1	LOS C	13.0	95.1	0.95	0.91	44.0
Approach		922	4.4	0.765	23.5	LOS C	13.9	100.4	0.95	0.91	42.5
North: JERSEY ST (N)											
7	L2	46	3.0	0.905	42.2	LOS D	14.0	98.0	1.00	1.18	38.5
8	T1	386	0.0	0.905	38.1	LOS D	14.0	98.0	1.00	1.17	29.9
9	R2	115	0.0	0.905	45.2	LOS D	6.5	45.8	1.00	1.13	30.2
Approach		547	0.3	0.905	39.9	LOS D	14.0	98.0	1.00	1.16	30.9
West: CAMBRIDGE ST (W)											
10	L2	67	3.0	0.850	23.6	LOS C	27.9	202.1	0.89	0.95	39.9
11	T1	1017	4.0	0.850	19.4	LOS B	27.9	202.1	0.91	0.96	44.5
12	R2	254	2.0	0.850	31.6	LOS C	13.0	93.5	0.98	1.02	23.3
Approach		1358	3.6	0.850	21.9	LOS C	27.9	202.1	0.92	0.97	41.4
All Vehicles		3176	3.1	0.905	28.4	LOS C	27.9	202.1	0.95	0.97	38.4

Table 6-7 Cambridge Street / Jersey Street Intersection Performance 2031 PM Peak

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: JERSEY ST (S)											
1	L2	345	0.0	1.198	224.1	LOS F	72.0	504.3	1.00	2.55	4.9
2	T1	319	0.0	1.198	219.6	LOS F	72.0	504.3	1.00	2.55	10.3
3	R2	123	1.0	0.398	28.6	LOS C	3.5	24.6	0.69	0.78	37.3
Approach		787	0.2	1.198	191.7	LOS F	72.0	504.3	0.98	2.27	9.4
East: CAMBRIDGE ST (E)											
4	L2	152	0.0	1.208	235.9	LOS F	84.4	594.9	1.00	2.65	11.0
5	T1	1287	1.0	1.208	230.6	LOS F	84.4	594.9	1.00	2.63	12.1
6	R2	21	0.0	1.208	236.4	LOS F	80.2	565.8	1.00	2.62	15.9
Approach		1460	0.9	1.208	231.2	LOS F	84.4	594.9	1.00	2.63	12.1
North: JERSEY ST (N)											
7	L2	42	0.0	0.382	24.0	LOS C	5.7	39.7	0.83	0.71	44.5
8	T1	181	0.0	0.382	19.4	LOS B	5.7	39.7	0.83	0.71	37.0
9	R2	92	0.0	0.755	42.3	LOS D	3.3	22.9	1.00	0.87	30.6
Approach		315	0.0	0.755	26.7	LOS C	5.7	39.7	0.88	0.75	36.1
West: CAMBRIDGE ST (W)											
10	L2	127	0.0	0.614	18.0	LOS B	13.3	95.1	0.77	0.71	42.4
11	T1	928	3.0	0.935	28.5	LOS C	22.8	163.1	0.73	0.89	39.8
12	R2	112	0.0	0.935	49.5	LOS D	22.8	163.1	0.70	1.06	17.9
Approach		1167	2.4	0.935	29.4	LOS C	22.8	163.1	0.73	0.88	38.4
All Vehicles		3729	1.1	1.208	142.4	LOS F	84.4	594.9	0.90	1.85	15.9

From the SIDRA outcomes above, the intersection is expected to perform satisfactorily during the AM peak. However, there are relatively long queues projected at the Cambridge Street western approach (approximately 300m), which could impact access to the Centre. Contribution to traffic volumes from the Wembley Activity Centre in the AM is considered to be a moderate component of the overall demand.

During the PM peak, the traffic volumes resulting from the Wembley Activity Centre are considered to be a significant component of the overall demand. The Jersey Street southern approach and Cambridge Street eastern approach performed unsatisfactorily, with a representative LoS F. This intersection therefore would not be able to accommodate the estimated baseline future traffic demand in its current form.

To ensure that the intersection functions during peak time, mitigation measure such as turning restrictions during peak time may be required, and have been modelled in **Section 7**.

6.2.4 Salvado Road & Jersey Street Intersection

Figure 6-5 shows a SIDRA representation of Salvado Road / Jersey Street intersection. **Table 6-8** and **Table 6-9** show the SIDRA results of Salvado Road / Jersey Street intersection performance. Refer to **Appendix A** for full SIDRA outputs.

Figure 6-5 Salvado Road / Jersey Street – Existing Intersection Layout

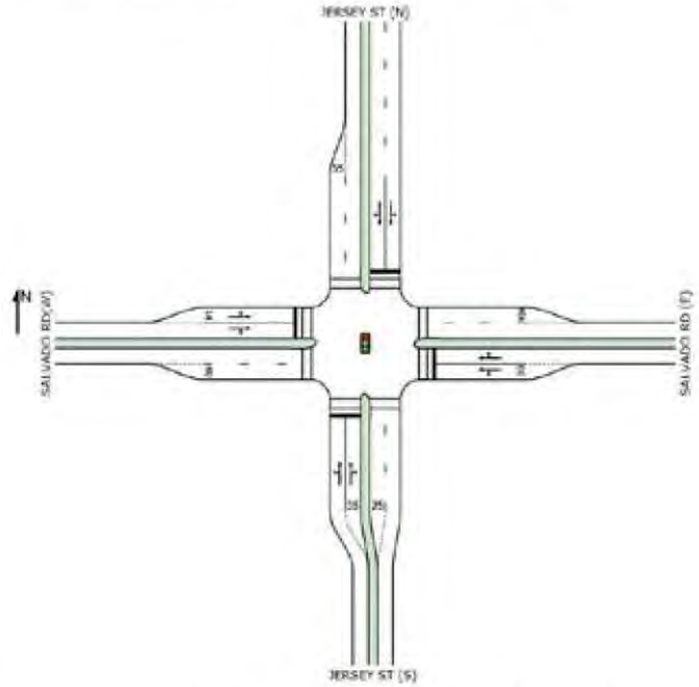


Table 6-8 Salvado Road / Jersey Street Intersection Performance 2031 AM Peak

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: JERSEY ST (S)											
1	L2	23	0.0	0.134	18.9	LOS B	2.2	15.4	0.67	0.57	42.6
2	T1	161	0.0	0.502	22.6	LOS C	4.1	28.8	0.82	0.67	34.2
3	R2	42	0.0	0.502	35.4	LOS D	4.1	28.8	0.96	0.77	35.1
Approach		226	0.0	0.502	24.7	LOS C	4.1	28.8	0.83	0.68	36.5
East: SALVADO RD (E)											
4	L2	88	0.0	0.390	19.4	LOS B	7.4	52.1	0.73	0.66	41.1
5	T1	309	0.0	1.363	109.5	LOS F	26.2	183.5	0.80	1.10	21.4
6	R2	94	0.0	1.363	376.9	LOS F	26.2	183.5	1.00	2.30	5.1
Approach		491	0.0	1.363	144.5	LOS F	26.2	183.5	0.83	1.25	17.0
North: JERSEY ST (N)											
7	L2	257	0.0	0.886	32.3	LOS C	24.3	171.3	0.95	1.01	29.3
8	T1	399	1.0	0.886	27.7	LOS C	24.3	171.3	0.95	1.01	31.9
9	R2	102	0.0	0.499	37.3	LOS D	3.4	23.7	0.95	0.77	30.0
Approach		758	0.5	0.886	30.6	LOS C	24.3	171.3	0.95	0.98	30.8
West: SALVADO RD(W)											
10	L2	89	0.0	1.216	259.7	LOS F	76.5	535.2	1.00	2.77	9.1
11	T1	1139	0.0	2.188	705.4	LOS F	178.7	1251.1	1.00	3.91	5.3
12	R2	92	0.0	2.188	1125.2	LOS F	178.7	1251.1	1.00	4.96	3.8
Approach		1320	0.0	2.188	704.6	LOS F	178.7	1251.1	1.00	3.91	5.2
All Vehicles		2795	0.1	2.188	368.4	LOS F	178.7	1251.1	0.94	2.38	8.0

Table 6-9 Salvado Road / Jersey Street Intersection Performance 2031 PM Peak

Movement Performance - Vehicles											
Mov ID	ODMov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: JERSEY ST (S)											
1	L2	103	9.0	0.590	40.0	LOS D	3.7	27.7	1.00	0.81	34.7
2	T1	380	2.0	2.013	956.6	LOS F	103.7	737.1	1.00	4.08	2.6
3	R2	44	0.0	2.013	961.2	LOS F	103.7	737.1	1.00	4.08	3.8
Approach		527	3.2	2.013	777.8	LOS F	103.7	737.1	1.00	3.44	3.7
East: SALVADO RD (E)											
4	L2	85	4.0	0.562	10.2	LOS B	12.6	89.0	0.53	0.51	46.0
5	T1	1032	1.0	1.964	332.0	LOS F	164.3	1164.1	0.70	2.04	10.0
6	R2	312	2.0	1.964	921.2	LOS F	164.3	1164.1	1.00	4.78	2.2
Approach		1429	1.4	1.964	441.5	LOS F	164.3	1164.1	0.76	2.55	7.2
North: JERSEY ST (N)											
7	L2	84	1.0	1.351	363.7	LOS F	45.8	321.5	1.00	2.66	5.3
8	T1	230	0.0	1.351	359.1	LOS F	45.8	321.5	1.00	2.66	6.3
9	R2	105	0.0	1.083	127.9	LOS F	7.7	53.9	1.00	1.36	15.4
Approach		419	0.2	1.351	302.1	LOS F	45.8	321.5	1.00	2.33	7.3
West: SALVADO RD(W)											
10	L2	66	2.0	0.217	8.5	LOS A	3.5	24.5	0.38	0.40	45.4
11	T1	326	0.0	0.391	10.6	LOS B	4.0	28.3	0.53	0.50	43.9
12	R2	34	0.0	0.391	30.2	LOS C	4.0	28.3	0.89	0.74	38.5
Approach		426	0.3	0.391	11.8	LOS B	4.0	28.3	0.54	0.51	43.5
All Vehicles		2801	1.4	2.013	418.6	LOS F	164.3	1164.1	0.81	2.37	7.1

The traffic volumes resulting from the Wembley Activity Centre are moderate and based on the AM peak analysis results, Salvado Road western approach is unable to accommodate the baseline estimated traffic demand in 2031. All other legs appear to perform satisfactorily.

During the PM Peak, the traffic volumes resulting from the Wembley Activity Centre are a significant component of the PM peak traffic demand on the intersection. The results shows that Salvado Road eastern approach experiences a substantial queue and delays and Jersey Street approaches also operate beyond the available capacity. The baseline estimated traffic scenario as defined for the 2031 scenario cannot be feasibly accommodated by the existing intersection form.

To ensure that the intersection functions during peak time, mitigation measure such as turning restriction during peak time and / or peak time clearway operations may be required, and have been modelled in **Section 7**.

7 Mitigation Measures

From the analysis results presented in the previous section, all intersections were found to operate beyond their feasible capacity during 2031 peak-hour operation, with the exception of the Cambridge Street / Jersey Street intersection in the AM peak. All intersections are therefore expected to require modifications to ensure that the traffic network would perform effectively for this build-out horizon.

7.1 Travel Demand Management

Due to limited available space in the area for intersection upgrades, management of travel demand to the Centre (e.g. through parking supply restrictions and fees), and promotion of sustainable transport modes will need to be a significant part of the mitigation measures.

To derive the ultimate capacity of the critical intersections, modifications have been modelled for Cambridge Street / Jersey Street and Salvado Road /Jersey Street intersections to maximise traffic throughput within the existing envelope. Pedestrian crossing movements were retained at all legs.

The difference between the derived peak hour capacity and the estimated baseline traffic demand represents the magnitude of mode shift away from private vehicle for the Wembley Activity Centre necessary to allow the network to function.

The results of iterative SIDRA analysis showed that the critical PM peak hour Activity Centre generation needed to be reduced by 40% to allow the modified intersections to function. This shift in transportation mode would come from increased sustainable transport modes (such as public transport, walking, and cycling) and managing the parking supply within the Centre.

Cardno has developed a model that calculates the internal trip capture for an activity centre, based on land use criteria and mode share. This model has been used to determine a benchmark for trip reduction on the basis of mixed land-use synergies and internal trip catchment, and to identify the residual need for mode shift. The results of this analysis shows a predicted internal trip capture of approximately 10% in the AM Peak period, and a 29% internal trip capture in the PM peak period.

Therefore, to achieve the identified 40% reduction in trip generation during the critical PM peak, an additional mode shift of 10% would be required, across all trip purposes.

Also from the model, it has been calculated that internal trip capture results in a reduction in parking requirements in the order of 21%, compared to standard statutory requirements. An additional 11% reduction is recommended to reinforce travel mode shift, offset by improvements to sustainable transport infrastructure, for a total reduction of 32%. This proposed measure of limiting parking supply and encouraging use of sustainable transport modes is in line with the Town's *Parking and Access Strategy* in the medium-long term.

For the purposes of network assessment, the impacts of mixed-use development and parking supply reduction are expected to result in a reduction in trip generation of 23% in the AM Peak and 40% in the PM Peak.

7.2 The Boulevard & Selby Street Intersection

Changes proposed to this intersection as shown in **Figure 7-1** consist of the following:

- extend the short lane on the north leg approach (Selby Street) to 100m from the existing 40m
- widening the east leg approach to create two full length lanes for through traffic,
- extend the right turn pocket on the east leg approach to 60m from 35m
- extend the exit merge lane on the The Boulevard southeast leg to 100m
- signal timing modification shown in **Figure 7-2**

It is important to note that the majority of the traffic growth at this intersection is as a result of regional traffic and is not associated with the Centre. The proposed mitigation above and the corresponding SIDRA analysis results are presented to demonstrate the minimum extent of upgrades that may be required to allow the intersection to operate at an acceptable level and may not be feasible within the existing road reserve.

Refer to **Appendix B** for full ISDRA outputs.

Figure 7-1 The Boulevard & Selby Street Intersection – Mitigated Geometry

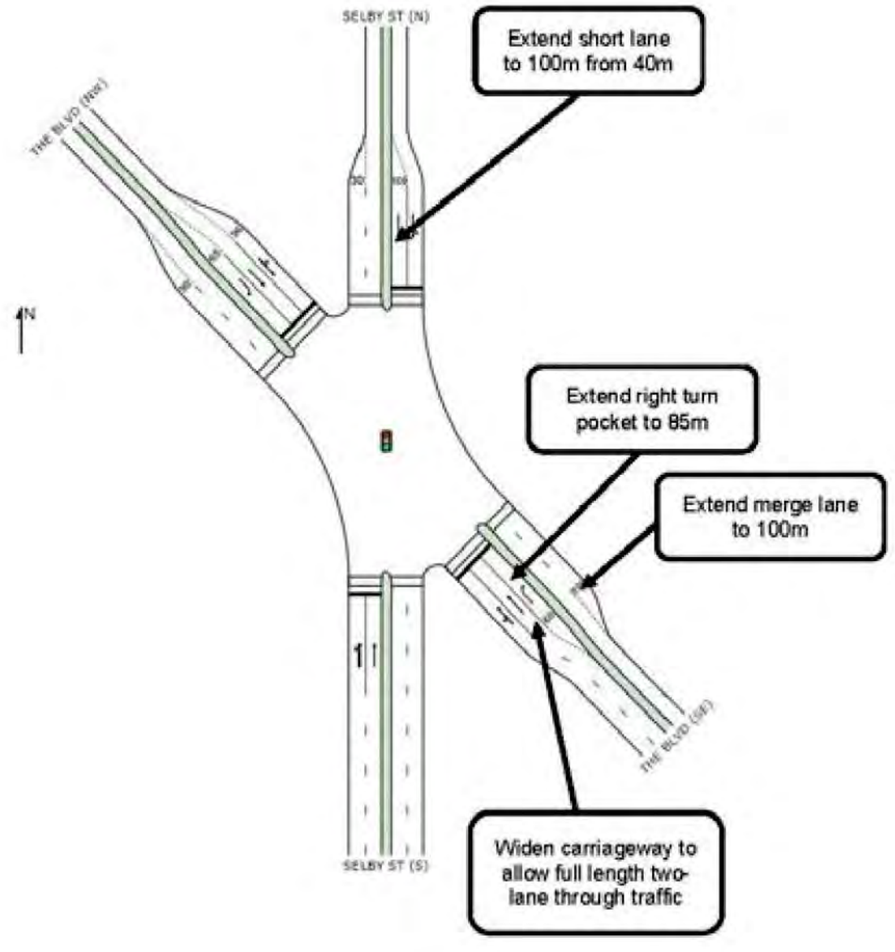
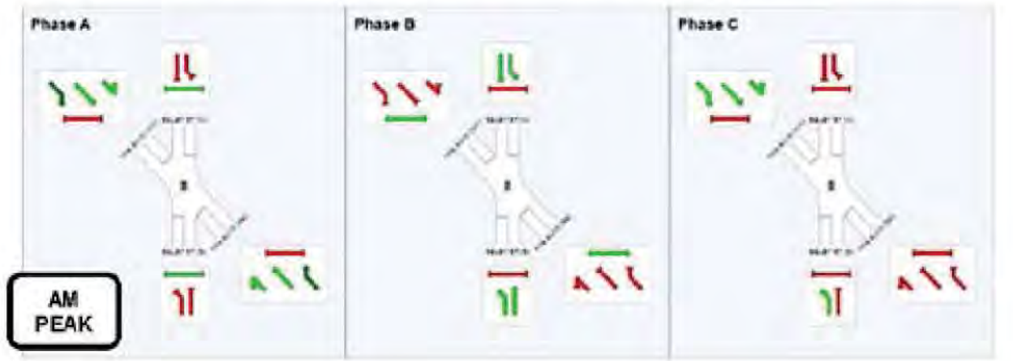


Figure 7-2 The Boulevard and Selby Street Intersection – AM & PM Peak Phasing Summary



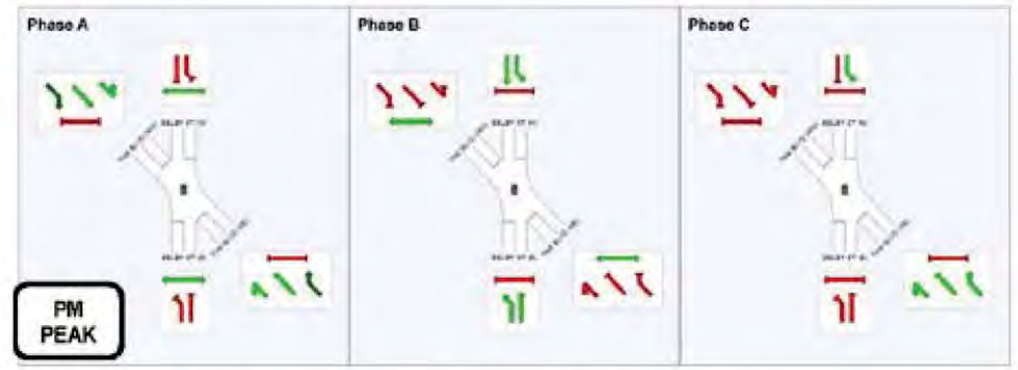


Table 7-1 and **Table 7-2** shows the results of the SIDRA analysis for the mitigated intersection geometry under the 2031 full build-out scenario for the AM and PM peak respectively.

Table 7-1 The Boulevard & Selby Street Intersection 2031 AM Peak Performance – Mitigated Geometry

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: SELBY ST (S)											
1a	L1	185	5.0	0.148	9.9	LOS A	2.8	20.2	0.42	0.63	52.5
2	T1	556	5.0	0.618	12.6	LOS B	11.5	84.2	0.66	0.59	45.4
Approach		741	5.0	0.618	11.9	LOS B	11.5	84.2	0.60	0.60	47.9
SouthEast: THE BLVD (SE)											
21b	L3	2	3.0	0.476	43.2	LOS D	2.3	16.6	1.00	0.75	16.0
22	T1	197	3.0	0.983	54.5	LOS D	6.7	48.1	1.00	1.05	35.9
23a	R1	50	3.0	0.411	41.1	LOS D	1.6	12.9	0.99	0.74	30.5
Approach		249	3.0	0.983	51.7	LOS D	6.7	48.1	1.00	0.98	35.1
North: SELBY ST (N)											
7a	L1	185	5.0	0.936	45.9	LOS D	38.0	277.7	1.00	1.22	28.5
8	T1	1356	5.0	0.936	41.4	LOS D	38.0	277.7	0.98	1.21	29.2
Approach		1541	5.0	0.936	41.9	LOS D	38.0	277.7	0.98	1.21	29.3
NorthWest: THE BLVD (NW)											
27b	L3	40	3.0	0.767	29.9	LOS C	17.4	125.2	0.94	0.89	46.5
28	T1	1070	3.0	0.921	32.5	LOS C	25.0	179.7	0.95	1.03	42.8
29a	R1	440	3.0	0.857	32.4	LOS C	15.2	109.0	1.00	1.00	41.8
Approach		1550	3.0	0.921	32.4	LOS C	25.0	179.7	0.97	1.02	42.7
All Vehicles		4081	4.1	0.983	33.4	LOS C	38.0	277.7	0.91	1.01	36.2

Table 7-2 The Boulevard & Selby Street Intersection 2031 PM Peak Performance – Mitigated Geometry

Movement Performance - Vehicles											
Mov ID	ODMov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: SELBY ST (S)											
1a	L1	639	5.0	0.923	35.8	LOS D	31.2	227.9	0.97	1.05	40.7
2	T1	958	5.0	1.003	57.7	LOS E	49.2	359.3	1.00	1.40	24.3
Approach		1597	5.0	1.003	48.9	LOS D	49.2	359.3	0.99	1.26	31.5
SouthEast: THE BLVD (SE)											
21b	L3	13	3.0	0.661	25.9	LOS C	13.9	99.6	0.88	0.77	23.6
22	T1	960	3.0	0.661	19.4	LOS B	13.9	100.1	0.88	0.77	48.4
23a	R1	212	3.0	0.593	23.3	LOS C	5.5	39.6	0.94	0.79	38.5
Approach		1185	3.0	0.661	20.1	LOS C	13.9	100.1	0.89	0.78	47.0
North: SELBY ST (N)											
7a	L1	172	5.0	0.544	18.8	LOS B	11.4	83.5	0.76	0.71	42.3
8	T1	750	5.0	0.544	15.0	LOS B	11.5	83.9	0.76	0.70	43.0
Approach		922	5.0	0.544	15.7	LOS B	11.5	83.9	0.77	0.70	42.9
NorthWest: THE BLVD (NW)											
27b	L3	35	3.0	0.251	31.8	LOS C	2.8	20.1	0.87	0.72	47.1
28	T1	254	3.0	0.471	26.4	LOS C	6.0	42.8	0.91	0.74	45.0
29a	R1	155	3.0	0.921	57.5	LOS E	7.5	53.8	1.00	1.15	34.2
Approach		444	3.0	0.921	37.7	LOS D	7.5	53.8	0.94	0.88	40.9
All Vehicles		4148	4.2	1.003	32.1	LOS C	49.2	359.3	0.91	0.96	38.9

The analysis results for this revised geometry show that the intersection would operate at an acceptable LOS during the weekday peak periods, using the proposed mitigation measures.

7.3 Cambridge Street & Selby Street Intersection

Changes proposed to this intersection as shown in **0** consist of the following:

- Add an additional through lane on Selby Street southbound on the approach and departure side of sufficient length to allow effective diverge and merge
- Extend Cambridge Street east leg eastbound merge lane to 120m
- Add a 30m long right turn pocket on Cambridge Street east leg approach
- No signal phasing changes proposed

It is important to note that the majority of the traffic growth at this intersection is as a result of regional traffic and is not associated with the Centre. The proposed mitigation above and the corresponding SIDRA analysis results are presented to demonstrate the minimum extent of upgrades that may be required to allow the intersection to operate at an acceptable level and may not be feasible within the existing road reserve.

Refer to **Appendix B** for full ISDRA outputs

Figure 7-3 Cambridge Street & Selby Street Intersection – Mitigated Geometry

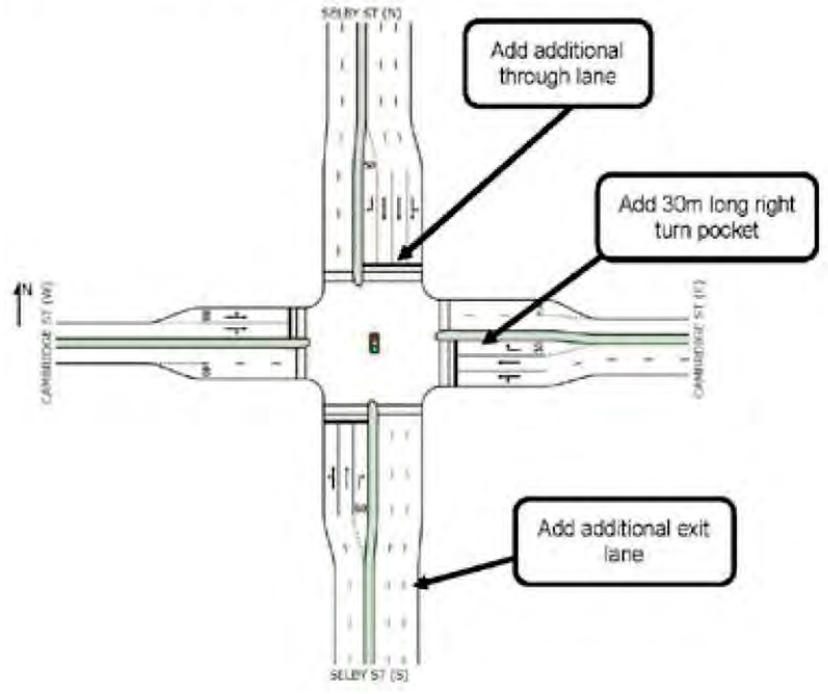


Table 7-3 Cambridge Street & Selby Street Intersection 2031 AM Peak Performance – Mitigated Geometry

Movement Performance - Vehicles											
Mov ID	ODMov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: SELBY ST (S)											
1	L2	56	5.0	0.513	20.7	LOS C	7.5	54.9	0.83	0.73	49.3
2	T1	645	5.0	0.513	15.1	LOS B	7.6	55.3	0.83	0.72	38.5
3	R2	131	5.0	0.892	43.5	LOS D	4.5	33.2	1.00	1.07	30.9
Approach		832	5.0	0.892	20.0	LOS B	7.6	55.3	0.86	0.77	37.8
East: CAMBRDIGE ST (E)											
4	L2	175	4.0	0.232	16.9	LOS B	3.1	22.2	0.68	0.74	43.0
5	T1	296	4.0	0.372	12.1	LOS B	5.6	40.3	0.73	0.62	52.7
6	R2	58	4.0	0.262	27.2	LOS C	1.4	10.3	0.88	0.75	31.0
Approach		529	4.0	0.372	15.3	LOS B	5.6	40.3	0.73	0.67	48.4
North: SELBY ST (N)											
7	L2	25	5.0	0.845	27.1	LOS C	16.2	118.0	0.93	0.95	34.2
8	T1	1695	5.0	0.845	21.5	LOS C	16.2	118.2	0.93	0.94	33.7
9	R2	85	5.0	0.352	26.6	LOS C	1.9	14.2	0.83	0.75	41.9
Approach		1805	5.0	0.845	21.9	LOS C	16.2	118.2	0.92	0.93	34.4
West: CAMBRIDGE ST (W)											
10	L2	47	4.0	0.671	20.0	LOS C	11.9	86.0	0.87	0.77	36.5
11	T1	674	4.0	0.972	26.2	LOS C	21.2	153.2	0.90	0.95	45.5
12	R2	247	4.0	0.972	61.9	LOS E	21.2	153.2	1.00	1.41	34.5
Approach		968	4.0	0.972	35.0	LOS D	21.2	153.2	0.93	1.06	41.8
All Vehicles		4134	4.6	0.972	23.7	LOS C	21.2	153.2	0.89	0.90	39.9

Table 7-4 Cambridge Street & Selby Street Intersection 2031 PM Peak Performance – Mitigated Geometry

Movement Performance - Vehicles											
Mov ID	ODMov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: SELBY ST (S)											
1	L2	126	5.0	0.816	21.2	LOS C	19.5	142.3	0.90	0.93	49.0
2	T1	1471	5.0	0.816	15.6	LOS B	19.6	143.2	0.90	0.93	38.1
3	R2	262	5.0	0.705	20.6	LOS C	6.1	44.3	0.84	0.90	41.1
Approach		1859	5.0	0.816	16.7	LOS B	19.6	143.2	0.89	0.92	40.1
East: CAMBRDIGE ST (E)											
4	L2	138	4.0	0.749	27.7	LOS C	8.5	61.8	0.98	0.92	38.7
5	T1	528	4.0	0.749	22.0	LOS C	8.5	61.8	0.98	0.92	47.5
6	R2	100	4.0	0.595	32.5	LOS C	2.6	19.1	1.00	0.80	28.6
Approach		766	4.0	0.749	24.4	LOS C	8.5	61.8	0.98	0.90	44.6
North: SELBY ST (N)											
7	L2	12	5.0	0.287	10.9	LOS B	2.7	19.4	0.41	0.36	48.3
8	T1	832	5.0	0.287	5.4	LOS A	2.7	19.4	0.41	0.35	50.1
9	R2	74	5.0	0.461	30.1	LOS C	1.8	13.3	0.95	0.76	40.4
Approach		918	5.0	0.461	7.5	LOS A	2.7	19.4	0.45	0.38	48.1
West: CAMBRIDGE ST (W)											
10	L2	51	4.0	0.633	25.3	LOS C	6.7	48.4	0.95	0.82	34.7
11	T1	394	4.0	0.917	26.5	LOS C	7.8	56.7	0.97	0.96	45.4
12	R2	76	4.0	0.917	42.2	LOS D	7.8	56.7	1.00	1.16	40.4
Approach		521	4.0	0.917	28.6	LOS C	7.8	56.7	0.97	0.97	43.6
All Vehicles		4064	4.7	0.917	17.6	LOS B	19.6	143.2	0.82	0.80	43.2

The analysis of this revised geometry show that the intersection will operate at an acceptable level of service during the weekday peak periods, using the proposed mitigation measures.

7.4 Cambridge Street & Jersey Street Intersection

As stated in **Section 6.2.3**, the AM peak results shows that the intersection can accommodate the increase in traffic volume, therefore, changes proposed to this intersection are for the PM peak scenario only. Operational changes proposed are as follows:

- Right turn ban on Jersey Street north and south approach during the PM peak. Peak hour turning demands are likely to divert to Salvado Road
- Signal timing modifications to a two phase, 'parallel walk' configuration, as shown in **Figure 7-4.**

No geometrical changes are proposed due to limited space available.

Refer to **Appendix B** for full ISDRA outputs.

Figure 7-4 Cambridge Street and Jersey Street Intersection – AM & PM Peak Phasing Summary

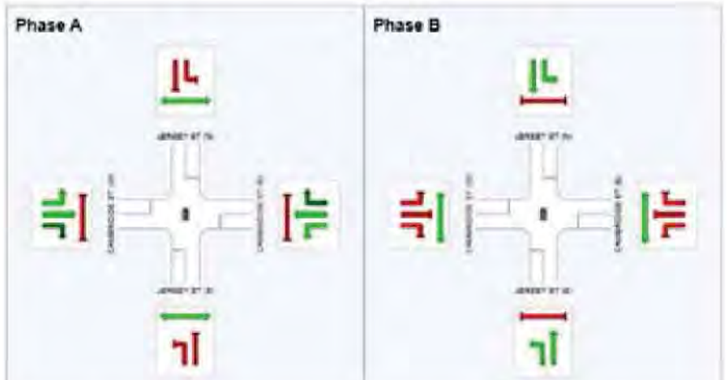


Table 7-5 Cambridge Street & Jersey Street Intersection 2031 PM Peak Performance – Mitigated Operations

Movement Performance - Vehicles											
Mov ID	ODMov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: JERSEY ST (S)											
1	L2	305	0.0	0.918	46.0	LOS D	15.9	111.3	1.00	1.09	17.6
2	T1	315	0.0	0.918	29.1	LOS C	15.9	111.3	0.89	0.80	33.0
Approach		620	0.0	0.918	37.4	LOS D	15.9	111.3	0.94	0.94	26.4
East: CAMBRIDGE ST (E)											
4	L2	140	0.0	0.614	15.7	LOS B	15.1	106.6	0.70	0.66	47.9
5	T1	1138	1.0	0.614	10.7	LOS B	15.1	106.6	0.71	0.66	50.2
6	R2	21	0.0	0.614	16.9	LOS B	14.2	100.3	0.72	0.65	48.6
Approach		1299	0.9	0.614	11.4	LOS B	15.1	106.6	0.71	0.66	50.0
North: JERSEY ST (N)											
7	L2	42	0.0	0.329	28.7	LOS C	4.3	30.0	0.87	0.72	42.6
8	T1	262	0.0	0.329	24.1	LOS C	4.5	31.4	0.87	0.71	35.1
Approach		304	0.0	0.329	24.7	LOS C	4.5	31.4	0.87	0.71	36.5
West: CAMBRIDGE ST (W)											
10	L2	111	0.0	0.890	32.3	LOS C	21.6	154.4	0.88	0.87	35.8
11	T1	811	3.0	0.890	29.1	LOS C	21.6	154.4	0.78	0.93	39.6
12	R2	98	0.0	0.868	39.2	LOS D	15.3	109.1	0.92	1.04	21.0
Approach		1020	2.4	0.890	30.4	LOS C	21.6	154.4	0.77	0.93	37.9
All Vehicles		3243	1.1	0.918	23.6	LOS C	21.6	154.4	0.79	0.80	39.9

The analysis of this revised geometry show that the intersection will operate at an acceptable level of service during the weekday peak periods, using the proposed mitigation measures.

7.5 Salvado Road & Jersey Street Intersection

Changes proposed to this intersection are operational only and no kerbline modification is required.

Operational changes proposed are as follow:

- Linemark Jersey Street two lanes in each direction Cambridge Street to Salvado. Retain as clearway for peak periods.
- Right turn ban on Salvado Road west leg in the AM peak
- Right turn ban on Salvado Road east leg in the PM peak
- Clearway on Salvado Road western approach in the PM peak
- Extend kerbside lane of Salvado Road western approach to 80m

Refer to **Appendix B** for full ISDRA outputs.

Figure 7-5 Salvado Road & Jersey Street Intersection – Mitigated Geometry AM Peak

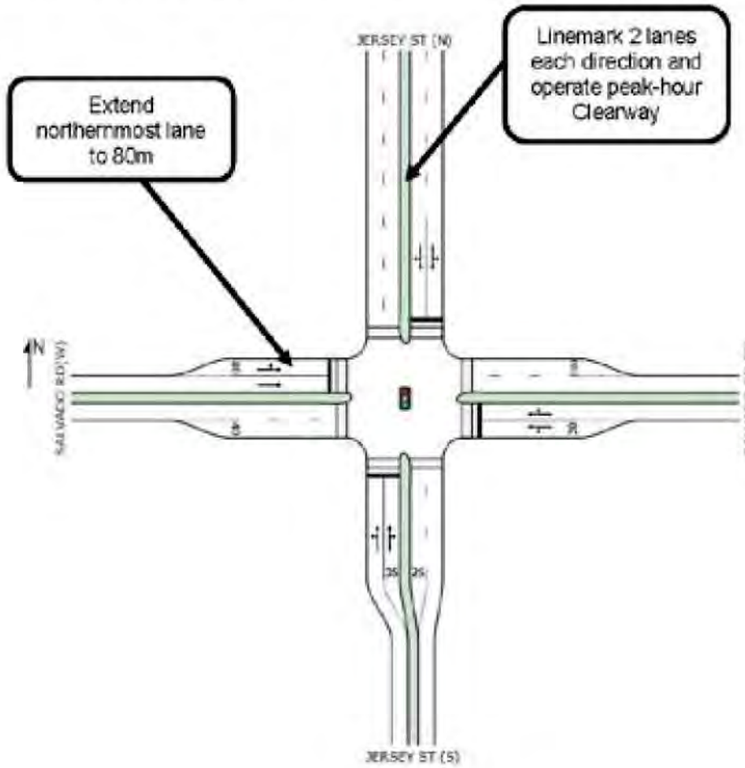


Figure 7-6 Salvado Road & Jersey Street Intersection – Mitigated Geometry PM Peak

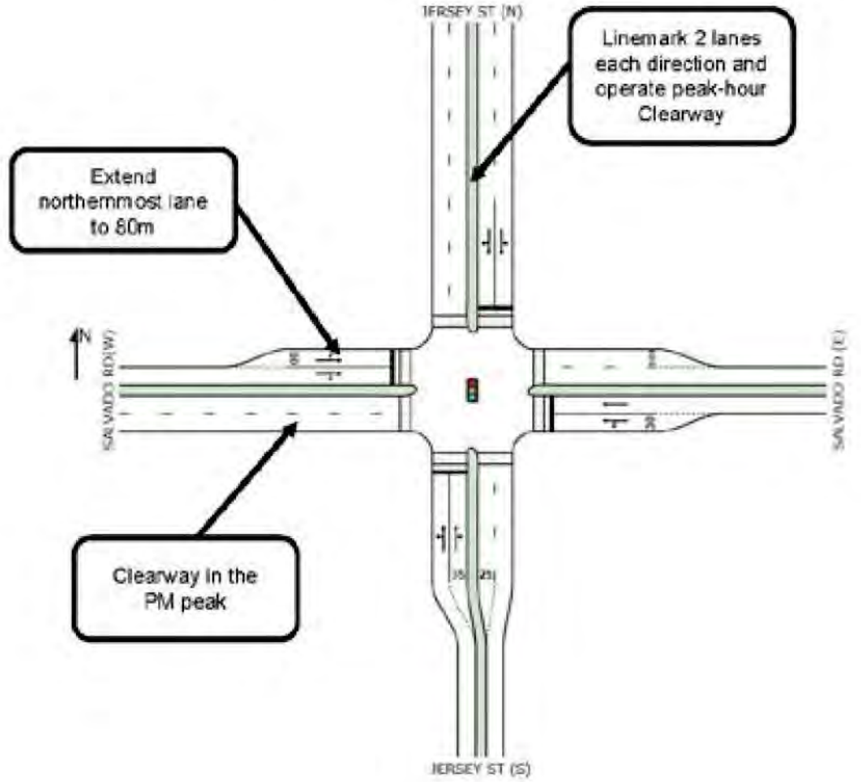
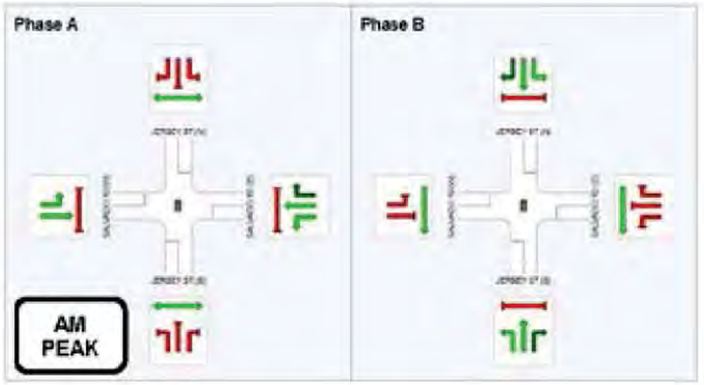


Figure 7-7 Salvado Road and jersey Street Intersection – AM & PM Peak Phasing Summary



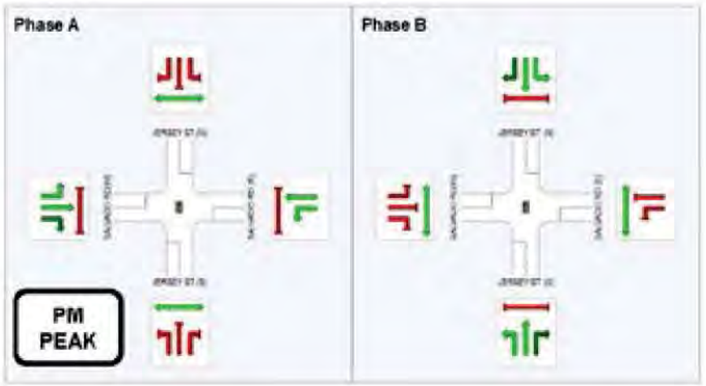


Table 7-6 Salvado Road & Jersey Street Intersection 2031 AM Peak Performance – Mitigated Geometry

Movement Performance - Vehicles											
Mov ID	ODMov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: JERSEY ST (S)											
1	L2	22	9.0	0.252	20.5	LOS C	4.3	30.7	0.72	0.61	42.1
2	T1	161	2.0	0.252	15.9	LOS B	4.3	30.7	0.72	0.61	38.1
3	R2	42	0.0	0.269	37.5	LOS D	1.4	9.9	0.95	0.74	33.6
Approach		225	2.3	0.269	20.3	LOS C	4.3	30.7	0.76	0.63	37.4
East: SALVADO RD (E)											
4	L2	88	4.0	0.351	18.5	LOS B	6.6	46.6	0.70	0.65	41.5
5	T1	294	1.0	0.786	20.7	LOS C	6.9	49.3	0.80	0.75	39.4
6	R2	89	2.0	0.786	40.0	LOS D	6.9	49.3	1.00	0.98	26.3
Approach		471	1.7	0.786	23.9	LOS C	6.9	49.3	0.82	0.78	37.7
North: JERSEY ST (N)											
7	L2	255	1.0	0.840	28.8	LOS C	20.0	140.5	0.92	0.93	30.7
8	T1	396	0.0	0.840	23.4	LOS C	20.0	140.5	0.88	0.89	33.6
9	R2	97	0.0	0.304	22.2	LOS C	3.3	23.3	0.67	0.66	36.4
Approach		748	0.3	0.840	25.1	LOS C	20.0	140.5	0.87	0.87	33.1
West: SALVADO RD(W)											
10	L2	87	2.0	0.744	23.2	LOS C	18.9	132.3	0.89	0.83	37.0
11	T1	1116	0.0	0.744	17.6	LOS B	18.9	132.3	0.87	0.79	41.1
Approach		1203	0.1	0.744	18.0	LOS B	18.9	132.3	0.87	0.79	40.9
All Vehicles		2647	0.7	0.840	21.3	LOS C	20.0	140.5	0.85	0.80	38.2

Table 7-7 Salvado Road & Jersey Street Intersection 2031 PM Peak Performance – Mitigated Geometry

Movement Performance - Vehicles											
Mov ID	ODMov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: JERSEY ST (S)											
1	L2	91	0.0	0.605	22.6	LOS C	10.1	70.5	0.82	0.73	41.2
2	T1	380	0.0	0.605	19.1	LOS B	10.1	70.5	0.84	0.74	35.8
3	R2	166	0.0	0.605	27.3	LOS C	7.8	54.3	0.90	0.80	37.4
Approach		637	0.0	0.605	21.8	LOS C	10.1	70.5	0.85	0.76	37.3
East: SALVADO RD (E)											
4	L2	85	0.0	0.884	35.5	LOS D	18.1	126.6	0.81	0.99	35.3
5	T1	912	0.0	0.884	30.9	LOS C	18.2	127.3	0.80	0.98	36.4
Approach		997	0.0	0.884	31.3	LOS C	18.2	127.3	0.80	0.98	36.3
North: JERSEY ST (N)											
7	L2	81	0.0	0.418	20.2	LOS C	6.5	45.6	0.66	0.61	35.5
8	T1	222	1.0	0.418	15.6	LOS B	6.5	45.6	0.66	0.61	37.8
9	R2	174	0.0	0.636	32.3	LOS C	5.5	38.3	0.90	0.83	31.7
Approach		477	0.5	0.636	22.5	LOS C	6.5	45.6	0.75	0.69	34.8
West: SALVADO RD(W)											
10	L2	58	0.0	0.198	17.4	LOS B	3.5	24.6	0.65	0.60	39.5
11	T1	285	0.0	0.357	15.7	LOS B	5.2	36.2	0.72	0.64	41.6
12	R2	30	0.0	0.357	22.1	LOS C	5.2	36.2	0.77	0.66	41.5
Approach		373	0.0	0.357	16.5	LOS B	5.2	36.2	0.71	0.63	41.4
All Vehicles		2484	0.1	0.884	24.9	LOS C	18.2	127.3	0.79	0.81	37.1

The analysis of this revised geometry show that the intersection will operate at an acceptable level of service during the weekday peak periods, using the proposed mitigation measures.

8 Parking Management

The Town's *Parking and Access Strategy* is a guiding document for future control and management of parking. The document includes recommendations for a number of precincts within the Town including the Wembley Town Centre, which is the heart of the currently proposed Wembley Activity Centre.

In the medium term (2016-2020) the parking management plan recommends that the Town should continue to provide efficient and cost effective parking while starting to make explicit use of parking as a travel demand management (TDM) tool. In the long term (2021 and beyond) the Town is recommended to focus on strengthening a culture based on higher use of sustainable mode of transport such as walking, cycling, and public transport for work as well as other trip purposes.

Table 8-1 summarises recommended measures to achieve the abovementioned goals, adapted from the Town of Cambridge's *Access and Parking Strategy* see *Part 2 – Precinct Management Plans, Section 9* of this Strategy for more details.

Table 8-1 Parking Management Recommendations for Wembley Activity Centre

Medium Term (2016-2020)	Long Term (2020+)
• Increase enforcement resources and offer to monitor parking enforcement on private sites	• Continue to review demand for parking based on survey results and other data. Where parking demand regularly exceeds 80%, implement or increase parking fees
• Continue to review demand for parking based on survey results and other information	• Manage parking to prioritise activities supporting economic activity while providing additional space for pedestrian amenity and, potentially, for public transport
• Introduce maximum parking ratios for new office and commercial developments - 1 bay per 40m2	• Introduce and enforce 2P parking restrictions on residential streets
• Visitors to retail developments accommodated in nearby short stay parking	• Consider residential priority parking schemes
• Reduce minimum parking ratios	• Review the maximum parking standards to take account of changes in the use of alternatives to the car, vehicle occupancies and mode share
• Increase the availability of motorcycle parking bays	• Where specific residential streets are increasingly used for all-day parking during business hours, meters could be introduced to cover the weekday daytime periods
• Upgrade pedestrian access from Salvado Road along Jersey Street to Cambridge Street to encourage use of Salvado Road for long-term parking Monday-Friday	
• Encourage practical shared parking initiatives for property developments with more than 10 parking bays	
• Provide wayfinding signage on Cambridge Street either side of Jersey Street indicating the availability of parking bays *along the continuous laneways parallel to Cambridge Street* and off-street car parks	
• Commission an initial design and feasibility study for a deck car park on the preferred site with the purposed of providing additional short stay public parking	

8.2 Parking Supply Constraints

Detailed analysis of the full build-out scenario for the Wembley Activity Centre, and the road network constraints at critical intersections within the Precinct has resulted in an understanding of the necessary reduction of parking supply to facilitate the overall needs of the area.

In particular, a reduction of parking supply in the order of 32% has been identified as sufficient to preserve the function of the network, and ensure that it can still operate for the benefit of buses, service delivery and private vehicles, within the restrictions of road reserve constraints. This parking supply constraint is consistent with the aims of the Cambridge *Access and Parking Strategy*, and the *Parking Guidelines for Activity Centres* (DoT).

8.3 Parking Location

To support these land uses, public parking is proposed to be located at the rear of Anchor Site 1 (Wembley Hotel), accessible from Simper Street and Alexander Street. Additional off-street car parking will be provided at the rear of developments fronting Cambridge Street and accessible via a continuous laneway. On-street parking will also be provided along Cambridge Street.

8.4 Parking Pricing

To manage parking within the Wembley Activity Centre, a fee-based demand management system is recommended. This is consistent with the guidance contained within the *Parking Guidelines for Activity Centres* and can be used to present a price signal to visitors and employees to reinforce supply restrictions and mode shift targets.

It is expected that the instigation of parking pricing regimes would be related to relative demand rates and occupancy levels, and would be used to ensure that the parking supply can be used efficiently.

9 Pedestrian Movement and Amenity

Pedestrian activity and connectivity are critical factors in the effectiveness and vitality of an Activity Centre. For this reason, the pedestrian environment must be carefully considered, particularly along primary pedestrian routes. This includes construction of high quality paths, shade trees and street furniture to provide amenity. By allocating suitable resources to the pedestrian environment, the use of pedestrian modes will grow, reducing the demand for other modes as well as the requirement for parking.

9.1 Network Provision

All streets within the Centre will provide off-street pedestrian path (along both sides of the road). North-south connections within the Centre are also proposed, to create a fine-grained network of pedestrian paths. This will serve pedestrian desire lines to and from off-street car parking along the continuous laneway, and will support active transport routes from the surrounding catchment by pedestrians and bikes.

See **Figure 9-1** for network of proposed paths to and within the Centre.

Figure 9-1 Movement and Access Map

Source: Wembley Activity Centre Plan, Town of Cambridge

Pedestrian modes are at their most important along activated frontages which rely on pedestrian traffic to retain their commercial viability and 'place-making' appeal. These areas, predominantly along Cambridge Street, will attract the highest-quality pedestrian infrastructure, and require the most attractive streetscapes.

The Activity Centre Plan proposes a number of changes to Cambridge Street to improve pedestrian amenity along the street which include:

- Dual carriageway road with one lane in each direction, widening the median to 2 metres and creating a pedestrian refuge
- Formalising on-street parking - maximum 4 parking bays in row to create gaps and increase crossing density
- Use of kerbing and verge treatments to break up on-street parking and provide areas for outdoor dining, street trees and furniture
- Change of carriageway surface material or colour to communicate a change in environment.
- Speed limit reduction from 60km/h to 40km/h

9.2 Pedestrian Legibility

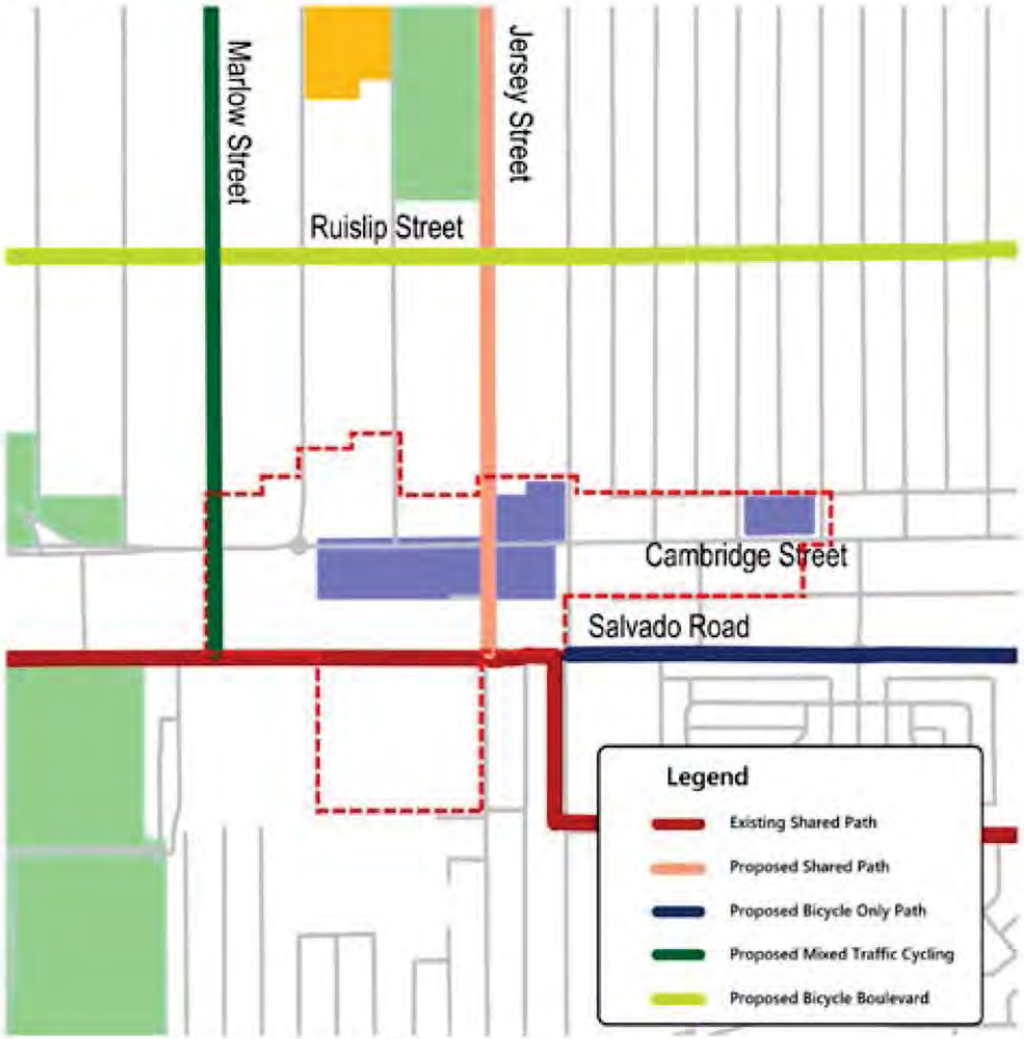
Pedestrian legibility in the existing centre is generally considered to be good, as the centre is relatively small and concentrated mainly between Simper Street and Pangbourne Street. Crossover activity between land uses on both sides of Cambridge Street is supported through passive crossing and median refuges along the street, as well as signalised pedestrian crossing at Jersey Street intersection.

10 Cycling

10.1 Network Provision

The cycling network within the vicinity of the Centre as per the Town of Cambridge draft Bike Plan 2017 is shown in **Figure 10-1.**

Figure 10-1 Indicative Future Cycling Network within the Centre



Cambridge Street is an important transport corridor and it is where most of the attractor / attractions within the Centre is located. However, high traffic volume and narrow verge space make this road corridor largely unsuitable for cycling whether off-road or on-road. To facilitate regional east-west cycling two primary corridors are proposed. These consist of:

1. a southern corridor which includes the existing Salvado Road shared path and a high quality separated bicycle path on the southern side, connecting to Oceanic Drive through to West Coast Highway and Subiaco Station, and;
2. a northern corridor which includes a bicycle boulevard (on road 'Safe Active Streets' treatment) along Ruislip Street, connecting to The Boulevard through to West Coast Highway and the Mitchell Freeway PSP.

Connection from the Ruislip Street and Salvado Road primary corridors will be provided along an upgraded Jersey Street shared path (along the eastern side) and Marlow Street on-road mixed traffic, in addition to shared use of on-road and path infrastructure along parallel north-south roads throughout the Activity Centre.

10.2 End-of-Trip Facilities

End of trip facilities consist of bicycle parking, showers, lockers and other ancillary infrastructure designed to support cycling as a comfortable, practical mode choice, particularly for commuters. The level of end of trip facility provided depends on the target demographic and the available infrastructure funding sources.

Given that the built environment of the activity centre will be of a 'high-street' characteristic constituting small retail and office spaces, it is unlikely that each building could provide secure commuter parking as well as showers and locker facility. In this instance, public facilities will be of greatest benefit. It is recommended that a public parking facility be investigated in the Activity Centre, ideally located near the Cambridge / Jersey core.

Visitor parking can be of a lower scale, consisting of small clusters of bike racks near retail, office and civic buildings, in areas with good passive surveillance. Consideration should be given to utilising on-street parking areas for bike parking where pedestrian activity is high to reduce risk of conflict between cyclists and pedestrians. In particular, the installation of indented bike corrals outside of high-demand retail/commercial areas will support on-street cycling and reduce the incidence of cyclist/pedestrian conflicts in pedestrian activation zones.

11 Public Transport

11.1 Expansion of Public Transport Services

To facilitate mode shift towards public transport to the Centre, service improvements are proposed for bus modes. The plan proposed the following upgrades:

> Link to the Subiaco Train Station

> Realignment of the Circle Route 998 and 999 along Selby Street to the Wembley Town Centre or provide better connections to the Circle Route

There is no existing bus route between Subiaco Station and the Wembley Town Centre, and providing this route would link the Subiaco Town Centre and the Wembley Activity Centre. The Public Transport Authority (PTA) has advised that such route is not currently planned and no funding has been allocated, therefore this route is not currently supported. There is capacity for the Town, in coordination with the City of Subiaco to provide a shuttle service or deviation, funded through parking fees in the respective Centre areas.

PTA has advised that realignment of the Circle Route to the Centre would result in increased travel time for existing passengers and increase in operating cost. A demonstrated increase in demand would be required to justify such a change. Alternatively, better pedestrian connectivity from existing Circle Route bus stops at Selby Street would increase the attractiveness of this route for access to the Centre.

The PTA also commented on the lack of bus priority infrastructure in the Centre to encourage car drivers to switch to public transport. However, given the proposal of reducing Cambridge Street to one lane each way, there is limited capacity to provide bus priority lanes within the Centre. Outside the Centre however, bus priority facilities including queue jump or lanes could still be provided.

PTA also note that embayments would need to be provided at the bus stops between Marlow Street and Simper Street, as these are timed stops.

11.2 Autonomous Vehicles

Autonomous vehicle technology keeps maturing and trials are currently being conducted in many parts of the world, including Western Australia. It is not improbable that within 15 to 20 years autonomous vehicles will be common across the metropolitan road network. This technology would open the possibility of high frequency and cost effective public transport through private ride sharing or autonomous bus systems, which will reduce the need for private vehicles and relieve pressure on the road network.

The impacts of autonomous vehicles are not fully understood, but it is recommended that the Town participate in ongoing research and develop a strategy in the medium term regarding the effects and infrastructure outcomes arising from the uptake in such technology. This could be developed in conjunction with the PTA through the aforementioned shuttle service, or ride sharing trials through third party suppliers.

12 Conclusion

The Wembley Activity Centre Plan provides a long-term vision that will transform the Centre an urban hub for the community with a mix of land uses providing more opportunities for visiting, working and living in the Centre. To achieve the high quality transport environment envisaged in this Plan, we propose an integrated network of transport modes encompassing private vehicles, public transport cycling and walking modes.

Analysis were undertaken on critical intersections in the vicinity of the Centre to gauge the impact of the Centre to the surrounding road network. The results showed that all critical intersections were found to operate beyond their feasible capacity for the year 2031 scenario.

However, it is important to note that the assumptions made for the purpose of strategic analysis were conservative overall. Considerations include:

> Maximum development potential of the Centre

> The background traffic growth rate derived from Main Roads traffic model for Perth's metropolitan road network, the Regional Operations Model (ROM), which assumes unrestricted traffic growth and does not take into account the limitations of the capacity of the road network.

> No background trips are assumed to be diverted into the Centre where, for example, customers may shop or dine in the Centre on the way home from work, therefore generating activity without adding traffic into the road network. Neglecting this effect is therefore a conservative assumption.

> Baseline trip generation were derived from conservative suburban guidelines and under a maximum feasible development yield scenario.

There is currently very little scope for intersection upgrades given the narrow road reserves. Minor upgrades have been recommended within the Activity Centre to reduce unnecessary constraints, but without compromising the function of the Centre network for non-car travel modes. Due to these limitations, travel demand management will play an important role in maintaining a high quality transport environment in the Centre. This will include promotion of sustainable public transport modes and parking supply restrictions to encourage transport mode shift.

Parking has been chosen as the focus to shift travel mode away from car, with the required reduction in supply determined through analysis. A reduction of parking supply in the order of 32% has been identified as necessary to preserve the function of the network, and ensure that it can still operate for the benefit of buses, service delivery and private vehicles, within the restrictions of road reserve constraints.

Primarily, pedestrian traffic will be along activated frontages and along desirelines from parking along the proposed continuous laneways to destinations along Cambridge Street. Active, people-oriented street frontages, predominantly along Cambridge Street, will attract the highest-quality pedestrian infrastructure, and the plan proposes a number of changes to Cambridge Street to improve pedestrian amenity, including on-street parking formalisation and median widening to provide better crossing facilities. A comprehensive path network has also been identified, creating a fine-grained pedestrian network within the Centre to serve pedestrian desirelines to and from off-street car parking.

Cycling corridors serving the Centre are proposed to be provided along:

> Salvado Road: an off-road facility using the existing shared path on the southern side and proposed bicycle only path

> Ruislip Street: bicycle boulevard and connection to The Boulevard

> Marlow Street: on-road mixed traffic cycling

> Jersey Street: shared path along the eastern side of the street

The above recommendation is consistent with the Town of Cambridge Draft Bike Plan 2017.

Improvements to public transport provision are necessary to facilitate travel mode shift towards public transport for residents and employees from outside of the walkable catchment. It is recommended that the

Town, in coordination with the City of Subiaco, consider a shuttle service or deviation, funded through parking fees in the respective Centre areas.

Bus lane priority along Cambridge Street within the Centre is not considered to be feasible, given the proposal of reducing Cambridge Street to one lane each way. Outside the Centre however, peak hour bus lanes could still be provided utilising the Clearway lane.

In addition the Town is recommended to participate in ongoing research regarding autonomous vehicle and develop a strategy in the medium term regarding the effects and infrastructure outcomes arising from the uptake in such technology.

APPENDIX A

SIDRA OUTPUTS – 2031 EXISTING GEOMETRY

MOVEMENT SUMMARY

Site: Selby Street / The Boulevard 2031 AM Peak

Selby Street / The Boulevard 2031 PM Peak

Signals - Fixed Time Coordinated Cycle Time = 45 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: SELBY ST (S)											
1a	L1	185	5.0	0.174	9.2	LOS A	2.0	14.5	0.49	0.67	52.7
2	T1	556	5.0	0.871	21.2	LOS C	13.8	100.8	0.96	1.02	39.1
Approach		741	5.0	0.871	18.2	LOS B	13.8	100.8	0.84	0.93	43.5
SouthEast: THE BLVD (SE)											
21b	L3	2	7.0	0.258	26.9	LOS C	1.4	10.1	0.93	0.70	22.9
22	T1	194	7.0	0.532	21.1	LOS C	3.0	22.0	0.96	0.75	47.6
23a	R1	49	7.0	0.285	28.0	LOS C	1.1	8.4	0.98	0.72	36.0
Approach		245	7.0	0.532	22.5	LOS C	3.0	22.0	0.97	0.75	45.8
North: SELBY ST (N)											
7a	L1	199	5.0	1.459	451.0	LOS F	121.8	889.2	1.00	4.33	5.2
8	T1	1356	5.0	1.459	446.4	LOS F	122.2	891.7	1.00	4.33	4.9
Approach		1555	5.0	1.459	447.0	LOS F	122.2	891.7	1.00	4.33	4.9
NorthWest: THE BLVD (NW)											
27b	L3	40	3.0	0.282	16.6	LOS B	3.2	22.8	0.71	0.63	53.6
28	T1	1147	3.0	1.301	259.2	LOS F	122.1	876.4	0.96	3.41	14.3
29a	R1	440	3.0	1.037	75.8	LOS E	20.3	145.9	1.00	1.50	30.2
Approach		1627	3.0	1.301	203.6	LOS F	122.1	876.4	0.96	2.82	17.0
All Vehicles		4168	4.3	1.459	250.8	LOS F	122.2	891.7	0.96	2.93	11.5

Level of Service (LOS) Method: Delay (HCM 2000).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop Queued	Effective Stop Rate per ped
P1	South Full Crossing	53	16.9	LOS B	0.1	0.1	0.87	0.87
P5	SouthEast Full Crossing	53	16.9	LOS B	0.1	0.1	0.87	0.87
P3	North Full Crossing	53	16.9	LOS B	0.1	0.1	0.87	0.87
P7	NorthWest Full Crossing	53	16.9	LOS B	0.1	0.1	0.87	0.87
All Pedestrians		211	16.9	LOS B			0.87	0.87

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

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PHASING SUMMARY

Site: Selby Street / The Boulevard 2031 AM Peak

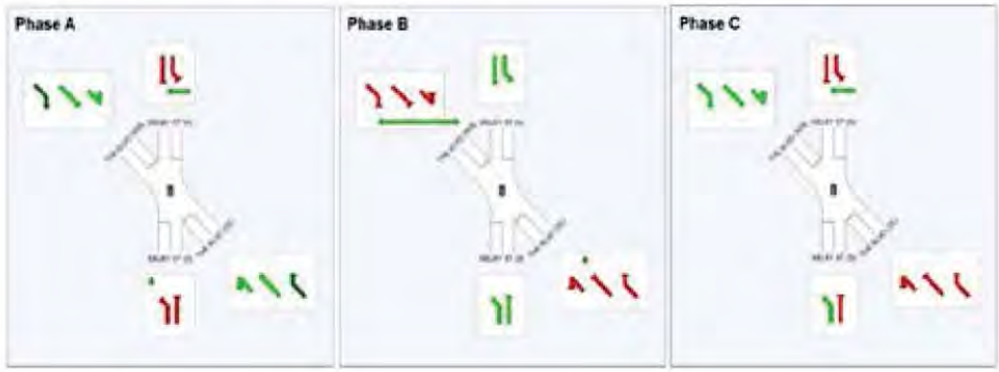
Selby Street / The Boulevard 2031 PM Peak

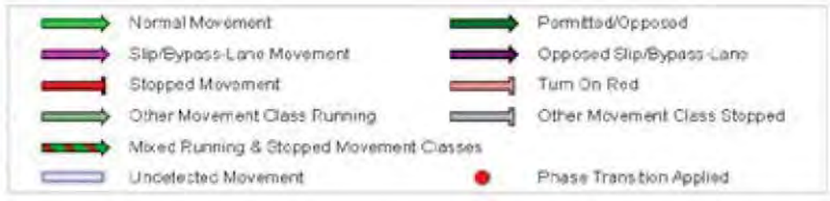
Signals - Fixed Time Coordinated Cycle Time = 45 seconds (Optimum Cycle Time - Minimum Delay)

Phase times determined by the program
Sequence: Existing Signal Phasing
Movement Class: All Movement Classes
Input Sequence: A, B, C
Output Sequence: A, B, C

Phase Timing Results

Phase	A	B	C
Reference Phase	Yes	No	No
Phase Change Time (sec)	0	12	33
Green Time (sec)	6	15	6
Yellow Time (sec)	4	4	4
All-Red Time (sec)	2	2	2
Phase Time (sec)	12	21	12
Phase Split	27 %	47 %	27 %





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MOVEMENT SUMMARY

Site: Selby Street / The Boulevard 2031 PM Peak

Selby Street / The Boulevard 2031 AM Peak

Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: SELBY ST (S)											
1a	L1	639	5.0	0.834	25.7	LOS C	35.2	256.9	0.79	0.83	44.7
2	T1	958	5.0	0.907	33.7	LOS C	46.8	341.3	0.91	0.93	32.2
Approach		1597	5.0	0.907	30.5	LOS C	46.8	341.3	0.87	0.89	38.3
SouthEast: THE BLVD (SE)											
21b	L3	15	8.0	1.343	400.8	LOS F	105.4	788.2	1.00	2.46	2.1
22	T1	1129	8.0	1.343	397.8	LOS F	105.4	788.2	1.00	2.43	10.2
23a	R1	250	8.0	1.063	179.6	LOS F	27.9	208.5	1.00	1.44	11.6
Approach		1394	8.0	1.343	358.7	LOS F	105.4	788.2	1.00	2.25	10.2
North: SELBY ST (N)											
7a	L1	201	5.0	0.876	44.1	LOS D	25.1	183.1	0.77	0.86	29.8
8	T1	750	5.0	0.876	39.5	LOS D	25.1	183.8	0.77	0.84	29.8
Approach		951	5.0	0.876	40.5	LOS D	25.1	183.8	0.77	0.84	29.8
NorthWest: THE BLVD (NW)											
27b	L3	35	3.0	0.073	27.5	LOS C	1.8	12.9	0.61	0.64	48.0
28	T1	297	3.0	0.336	23.8	LOS C	10.7	76.7	0.70	0.61	46.3
29a	R1	155	3.0	0.975	64.8	LOS E	8.2	59.2	1.00	1.03	32.5
Approach		487	3.0	0.975	37.1	LOS D	10.7	76.7	0.79	0.75	41.1
All Vehicles		4429	5.7	1.343	136.7	LOS F	105.4	788.2	0.88	1.29	18.4

Level of Service (LOS) Method: Delay (HCM 2000).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop Queued	Effective Stop Rate per ped
P1	South Full Crossing	53	35.3	LOS D	0.1	0.1	0.77	0.77
P5	SouthEast Full Crossing	53	26.1	LOS C	0.1	0.1	0.66	0.66
P3	North Full Crossing	53	26.7	LOS C	0.1	0.1	0.67	0.67
P7	NorthWest Full Crossing	53	26.1	LOS C	0.1	0.1	0.66	0.66
All Pedestrians		211	28.5	LOS C			0.69	0.69

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

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PHASING SUMMARY

Site: Selby Street / The Boulevard 2031 PM Peak

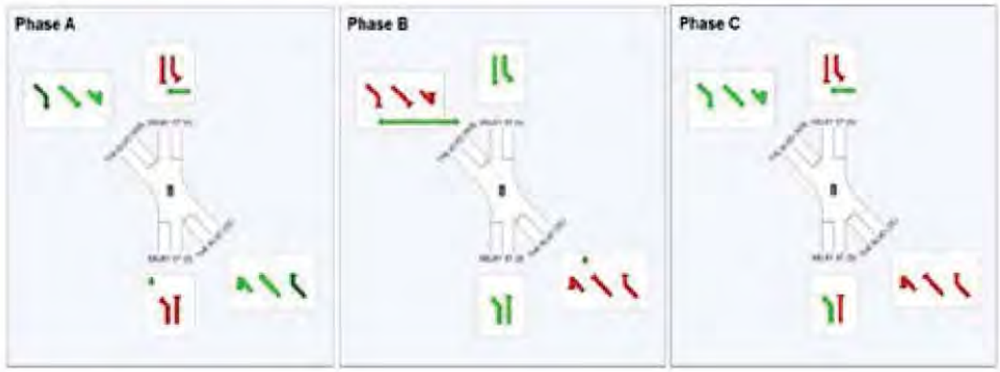
Selby Street / The Boulevard 2031 AM Peak

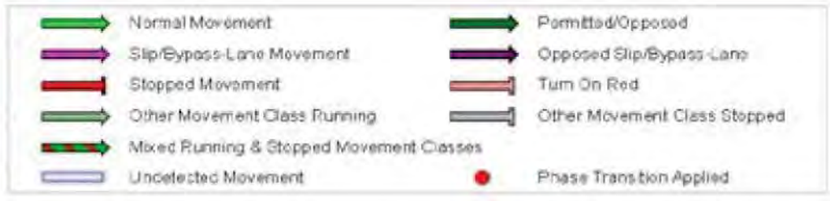
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Optimum Cycle Time - Minimum Delay)

Phase times determined by the program
Sequence: Existing Signal Phasing
Movement Class: All Movement Classes
Input Sequence: A, B, C
Output Sequence: A, B, C

Phase Timing Results

Phase	A	B	C
Reference Phase	Yes	No	No
Phase Change Time (sec)	0	46	108
Green Time (sec)	40	56	8
Yellow Time (sec)	4	4	4
All-Red Time (sec)	2	2	2
Phase Time (sec)	46	62	12
Phase Split	38 %	52 %	10 %





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MOVEMENT SUMMARY

Site: Selby Street / Cambridge Street 2031 AM Peak

Selby Street / Cambridge Street 2031 PM Peak
Signals - Fixed Time Coordinated Cycle Time = 55 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: SELBY ST (S)											
1	L2	56	5.0	0.410	16.6	LOS B	6.4	46.6	0.71	0.64	51.3
2	T1	645	5.0	0.410	11.0	LOS B	6.4	47.0	0.71	0.62	42.4
3	R2	141	5.0	0.996	60.7	LOS E	5.9	42.7	1.00	1.23	25.9
Approach		842	5.0	0.996	19.7	LOS B	6.4	47.0	0.76	0.73	37.9
East: CAMBRIDGE ST (E)											
4	L2	172	4.0	0.291	20.8	LOS C	3.5	25.5	0.78	0.76	40.6
5	T1	292	4.0	0.904	35.6	LOS D	12.3	88.8	1.00	1.15	42.2
6	R2	57	4.0	0.904	41.2	LOS D	12.3	88.8	1.00	1.15	26.8
Approach		521	4.0	0.904	31.3	LOS C	12.3	88.8	0.93	1.02	40.6
North: SELBY ST (N)											
7	L2	27	5.0	1.049	90.2	LOS F	55.6	406.0	1.00	1.83	16.0
8	T1	1695	5.0	1.049	85.9	LOS F	55.6	406.0	1.00	1.82	14.6
9	R2	85	5.0	0.275	19.6	LOS B	1.5	10.9	0.65	0.72	45.2
Approach		1807	5.0	1.049	82.8	LOS F	55.6	406.0	0.98	1.77	15.7
West: CAMBRIDGE ST (W)											
10	L2	47	4.0	0.845	31.1	LOS C	16.0	115.6	0.99	1.04	33.1
11	T1	722	4.0	2.336	439.7	LOS F	130.7	946.0	1.00	2.22	9.8
12	R2	247	4.0	2.336	1245.8	LOS F	130.7	946.0	1.00	4.51	3.7
Approach		1016	4.0	2.336	616.8	LOS F	130.7	946.0	1.00	2.72	7.2
All Vehicles		4186	4.6	2.336	193.3	LOS F	130.7	946.0	0.94	1.70	12.0

Level of Service (LOS) Method: Delay (HCM 2000)
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
The results of iterative calculations indicate a somewhat unstable solution. See the Diagnostics section in the Detailed Output report.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	53	21.9	LOS C	0.1	0.1	0.89	0.89
P2	East Full Crossing	53	16.1	LOS B	0.1	0.1	0.77	0.77
P3	North Full Crossing	53	21.9	LOS C	0.1	0.1	0.89	0.89
P4	West Full Crossing	53	16.1	LOS B	0.1	0.1	0.77	0.77
All Pedestrians		211	19.0	LOS B			0.83	0.83

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

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PHASING SUMMARY

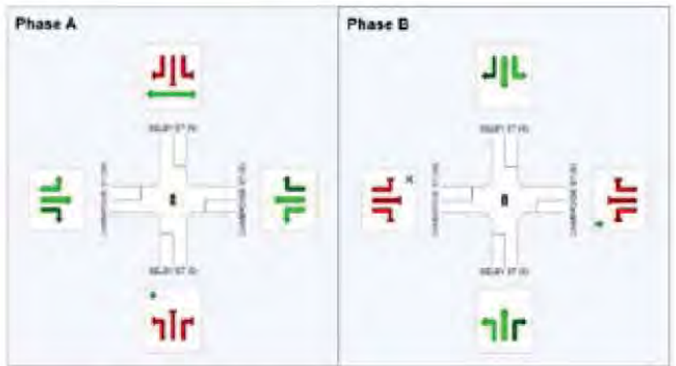
Site: Selby Street / Cambridge Street 2031 AM Peak

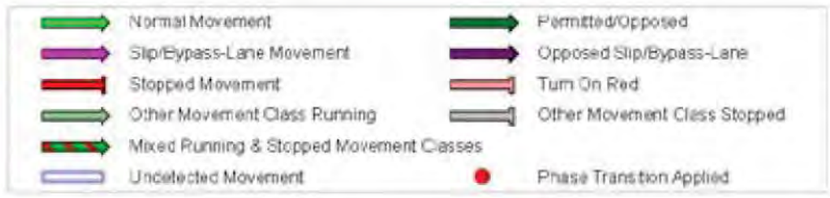
Selby Street / Cambridge Street 2031 PM Peak
Signals - Fixed Time Coordinated Cycle Time = 55 seconds (Optimum Cycle Time - Minimum Delay)

Phase times determined by the program
Sequence: Two-Phase
Movement Class: All Movement Classes
Input Sequence: A, B
Output Sequence: A, B

Phase Timing Results

Phase	A	B
Reference Phase	Yes	No
Phase Change Time (sec)	0	24
Green Time (sec)	18	25
Yellow Time (sec)	4	4
All-Red Time (sec)	2	2
Phase Time (sec)	24	31
Phase Split	44 %	56 %





The results of iterative calculations indicate a somewhat unstable solution. See the Diagnostics section in the Detailed Output report.

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MOVEMENT SUMMARY

Site: Selby Street / Cambridge Street 2031 PM Peak

Selby Street / Cambridge Street 2031 AM Peak
Signals - Fixed Time Coordinated Cycle Time = 45 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: SELBY ST (S)											
1	L2	126	5.0	1.274	283.4	LOS F	93.5	682.6	1.00	3.51	13.6
2	T1	1471	5.0	1.274	277.8	LOS F	94.3	688.2	1.00	3.51	5.4
3	R2	284	5.0	1.306	314.4	LOS F	35.4	258.5	1.00	2.71	7.8
Approach		1881	5.0	1.306	283.7	LOS F	94.3	688.2	1.00	3.39	6.5
East: CAMBRIDGE ST (E)											
4	L2	150	4.0	0.527	17.0	LOS B	6.8	49.1	0.81	0.74	45.3
5	T1	577	4.0	1.129	93.2	LOS F	34.7	251.1	0.92	1.60	28.6
6	R2	109	4.0	1.129	158.3	LOS F	34.7	251.1	1.00	2.23	10.1
Approach		836	4.0	1.129	88.0	LOS F	34.7	251.1	0.91	1.53	26.9
North: SELBY ST (N)											
7	L2	13	5.0	0.672	19.8	LOS B	7.9	57.4	0.84	0.75	39.3
8	T1	832	5.0	0.672	14.4	LOS B	7.9	57.4	0.84	0.75	39.4
9	R2	74	5.0	0.428	29.5	LOS C	1.7	12.4	0.98	0.74	40.7
Approach		919	5.0	0.672	15.7	LOS B	7.9	57.4	0.85	0.75	39.6
West: CAMBRIDGE ST (W)											
10	L2	51	4.0	0.312	15.8	LOS B	3.6	26.2	0.72	0.64	37.7
11	T1	428	4.0	0.862	19.5	LOS B	8.8	63.4	0.88	0.89	48.3
12	R2	76	4.0	0.862	32.1	LOS C	8.8	63.4	1.00	1.08	44.2
Approach		555	4.0	0.862	20.9	LOS C	8.8	63.4	0.88	0.89	45.8
All Vehicles		4191	4.7	1.306	151.1	LOS F	94.3	688.2	0.93	2.11	14.3

Level of Service (LOS) Method: Delay (HCM 2000).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop Queued	Effective Stop Rate per ped
P1	South Full Crossing	53	16.9	LOS B	0.1	0.1	0.87	0.87
P2	East Full Crossing	53	16.9	LOS B	0.1	0.1	0.87	0.87
P3	North Full Crossing	53	16.9	LOS B	0.1	0.1	0.87	0.87
P4	West Full Crossing	53	16.9	LOS B	0.1	0.1	0.87	0.87
All Pedestrians		211	16.9	LOS B			0.87	0.87

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

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PHASING SUMMARY

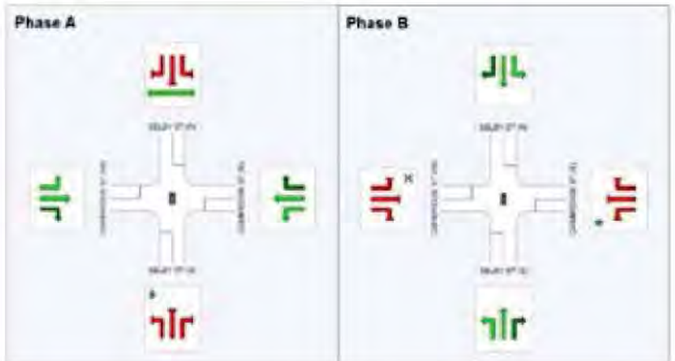
Site: Selby Street / Cambridge Street 2031 PM Peak

Selby Street / Cambridge Street 2031 AM Peak
Signals - Fixed Time Coordinated Cycle Time = 45 seconds (Optimum Cycle Time - Minimum Delay)

Phase times determined by the program
Sequence: Two-Phase
Movement Class: All Movement Classes
Input Sequence: A, B
Output Sequence: A, B

Phase Timing Results

Phase	A	B
Reference Phase	Yes	No
Phase Change Time (sec)	0	24
Green Time (sec)	18	15
Yellow Time (sec)	4	4
All-Red Time (sec)	2	2
Phase Time (sec)	24	21
Phase Split	53 %	47 %



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MOVEMENT SUMMARY

Site: Jersey Street / Cambridge Street 2031 AM Peak

Jersey Street / Cambridge Street 2031 AM Peak

Signals - Fixed Time Coordinated Cycle Time = 60 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: JERSEY ST (S)											
1	L2	107	2.0	0.658	29.4	LOS C	7.1	50.0	0.94	0.83	23.9
2	T1	145	1.0	0.658	24.8	LOS C	7.1	50.0	0.94	0.83	34.2
3	R2	97	4.0	0.745	39.3	LOS D	3.2	23.1	1.00	0.87	33.1
Approach		349	2.1	0.745	30.3	LOS C	7.1	50.0	0.96	0.84	31.8
East: CAMBRIDGE ST (E)											
4	L2	152	2.0	0.765	27.9	LOS C	13.9	100.4	0.96	0.92	40.0
5	T1	757	5.0	0.765	22.5	LOS C	13.9	100.4	0.95	0.91	42.9
6	R2	13	0.0	0.765	28.1	LOS C	13.0	95.1	0.95	0.91	44.0
Approach		922	4.4	0.765	23.5	LOS C	13.9	100.4	0.95	0.91	42.5
North: JERSEY ST (N)											
7	L2	46	3.0	0.905	42.2	LOS D	14.0	98.0	1.00	1.18	38.5
8	T1	386	0.0	0.905	38.1	LOS D	14.0	98.0	1.00	1.17	29.9
9	R2	115	0.0	0.905	45.2	LOS D	6.5	45.8	1.00	1.13	30.2
Approach		547	0.3	0.905	39.9	LOS D	14.0	98.0	1.00	1.16	30.9
West: CAMBRIDGE ST (W)											
10	L2	87	3.0	0.850	23.6	LOS C	27.9	202.1	0.89	0.95	39.9
11	T1	1017	4.0	0.850	19.4	LOS B	27.9	202.1	0.91	0.96	44.5
12	R2	254	2.0	0.850	31.6	LOS C	13.0	93.5	0.98	1.02	23.3
Approach		1358	3.6	0.850	21.9	LOS C	27.9	202.1	0.92	0.97	41.4
All Vehicles		3176	3.1	0.905	26.4	LOS C	27.9	202.1	0.95	0.97	38.4

Level of Service (LOS) Method: Delay (HCM 2000).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop Queued	Effective Stop Rate per ped
P1	South Full Crossing	53	24.4	LOS C	0.1	0.1	0.90	0.90
P2	East Full Crossing	53	24.4	LOS C	0.1	0.1	0.90	0.90
P3	North Full Crossing	53	11.4	LOS B	0.1	0.1	0.62	0.62
P4	West Full Crossing	53	24.4	LOS C	0.1	0.1	0.90	0.90
All Pedestrians		211	21.1	LOS C			0.83	0.83

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

PHASING SUMMARY

Site: Jersey Street / Cambridge Street 2031 AM Peak

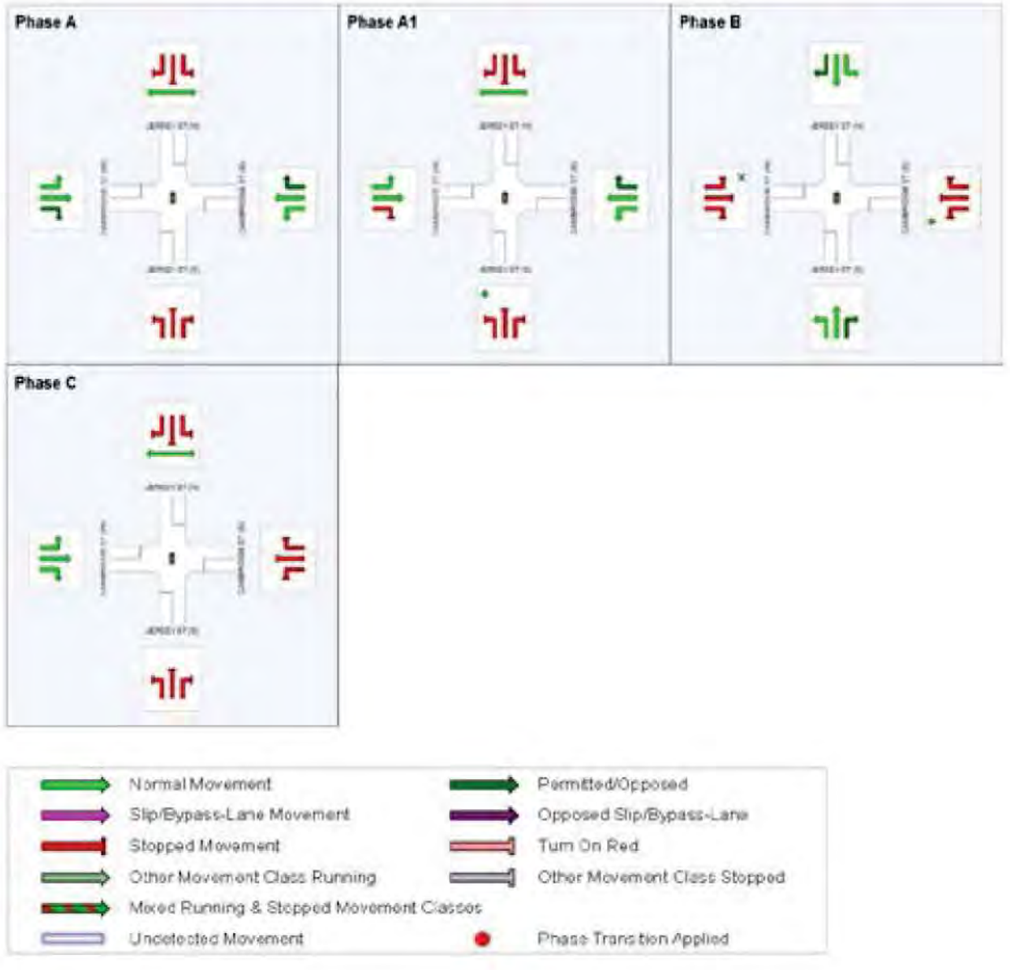
Jersey Street / Cambridge Street 2031 AM Peak

Signals - Fixed Time Coordinated Cycle Time = 60 seconds (Optimum Cycle Time - Minimum Delay)

Phase times determined by the program
Sequence: Existing Signal Phasing
Movement Class: All Movement Classes
Input Sequence: A, A1, B, C
Output Sequence: A, A1, B, C

Phase Timing Results

Phase	A	A1	B	C
Reference Phase	Yes	No	No	No
Phase Change Time (sec)	0	12	26	45
Green Time (sec)	6	8	13	9
Yellow Time (sec)	4	4	4	4
All-Red Time (sec)	2	2	2	2
Phase Time (sec)	12	14	19	15
Phase Split	20 %	23 %	32 %	25 %



MOVEMENT SUMMARY

Site: Jersey Street / Cambridge Street 2031 PM Peak

Jersey Street / Cambridge Street 2031 PM Peak
Signals - Fixed Time Coordinated Cycle Time = 65 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: JERSEY ST (S)											
1	L2	345	0.0	1.198	224.1	LOS F	72.0	504.3	1.00	2.55	4.9
2	T1	319	0.0	1.198	219.6	LOS F	72.0	504.3	1.00	2.55	10.3
3	R2	123	1.0	0.398	28.6	LOS C	3.5	24.6	0.89	0.78	37.3
Approach		787	0.2	1.198	191.7	LOS F	72.0	504.3	0.98	2.27	9.4
East: CAMBRIDGE ST (E)											
4	L2	152	0.0	1.208	235.9	LOS F	84.4	594.9	1.00	2.65	11.0
5	T1	1287	1.0	1.208	230.6	LOS F	84.4	594.9	1.00	2.63	12.1
6	R2	21	0.0	1.208	236.4	LOS F	80.2	565.8	1.00	2.62	15.9
Approach		1460	0.9	1.208	231.2	LOS F	84.4	594.9	1.00	2.63	12.1
North: JERSEY ST (N)											
7	L2	42	0.0	0.382	24.0	LOS C	5.7	39.7	0.83	0.71	44.5
8	T1	181	0.0	0.382	19.4	LOS B	5.7	39.7	0.83	0.71	37.0
9	R2	92	0.0	0.755	42.3	LOS D	3.3	22.9	1.00	0.87	30.6
Approach		315	0.0	0.755	26.7	LOS C	5.7	39.7	0.88	0.75	36.1
West: CAMBRIDGE ST (W)											
10	L2	127	0.0	0.614	18.0	LOS B	13.3	95.1	0.77	0.71	42.4
11	T1	928	3.0	0.935	28.5	LOS C	22.8	163.1	0.73	0.89	39.8
12	R2	112	0.0	0.935	49.5	LOS D	22.8	163.1	0.70	1.06	17.9
Approach		1167	2.4	0.935	29.4	LOS C	22.8	163.1	0.73	0.88	38.4
All Vehicles		3729	1.1	1.208	142.4	LOS F	84.4	594.9	0.90	1.85	15.9

Level of Service (LOS) Method: Delay (HCM 2000).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop Queued	Effective Stop Rate per ped
P1	South Full Crossing	53	26.8	LOS C	0.1	0.1	0.91	0.91
P2	East Full Crossing	53	25.0	LOS C	0.1	0.1	0.88	0.88
P3	North Full Crossing	53	14.9	LOS B	0.1	0.1	0.68	0.68
P4	West Full Crossing	53	25.0	LOS C	0.1	0.1	0.88	0.88
All Pedestrians		211	23.0	LOS C			0.84	0.84

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

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PHASING SUMMARY

Site: Jersey Street / Cambridge Street 2031 PM Peak

Jersey Street / Cambridge Street 2031 PM Peak
Signals - Fixed Time Coordinated Cycle Time = 65 seconds (Optimum Cycle Time - Minimum Delay)

Phase times determined by the program
Sequence: Existing Signal Phasing
Movement Class: All Movement Classes
Input Sequence: A, A1, B, C
Output Sequence: A, A1, B, C

Phase Timing Results

Phase	A	A1	B	C
Reference Phase	Yes	No	No	No
Phase Change Time (sec)	0	12	27	53
Green Time (sec)	6	9	20	6
Yellow Time (sec)	4	4	4	4
All-Red Time (sec)	2	2	2	2
Phase Time (sec)	12	15	26	12
Phase Split	18 %	23 %	40 %	18 %

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MOVEMENT SUMMARY

Site: Jersey Street / Salvado Road 2031 AM Peak

Jersey Street / Salvado Road 2031 PM Peak
Signals - Fixed Time Coordinated Cycle Time = 70 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: JERSEY ST (S)											
1	L2	23	0.0	0.134	18.9	LOS B	2.2	15.4	0.67	0.57	42.6
2	T1	161	0.0	0.502	22.8	LOS C	4.1	28.8	0.82	0.67	34.2
3	R2	42	0.0	0.502	35.4	LOS D	4.1	28.8	0.96	0.77	35.1
Approach		226	0.0	0.502	24.7	LOS C	4.1	28.8	0.83	0.68	35.5
East: SALVADO RD (E)											
4	L2	88	0.0	0.390	19.4	LOS B	7.4	52.1	0.73	0.66	41.1
5	T1	309	0.0	1.363	109.5	LOS F	26.2	183.5	0.80	1.10	21.4
6	R2	94	0.0	1.363	376.9	LOS F	26.2	183.5	1.00	2.30	5.1
Approach		491	0.0	1.363	144.5	LOS F	26.2	183.5	0.83	1.25	17.0
North: JERSEY ST (N)											
7	L2	257	0.0	0.886	32.3	LOS C	24.3	171.3	0.95	1.01	29.3
8	T1	399	1.0	0.886	27.7	LOS C	24.3	171.3	0.95	1.01	31.9
9	R2	102	0.0	0.499	37.3	LOS D	3.4	23.7	0.95	0.77	30.0
Approach		758	0.5	0.886	30.6	LOS C	24.3	171.3	0.95	0.98	30.8
West: SALVADO RD(W)											
10	L2	89	0.0	1.216	259.7	LOS F	76.5	535.2	1.00	2.77	9.1
11	T1	1139	0.0	2.188	705.4	LOS F	178.7	1251.1	1.00	3.91	5.3
12	R2	92	0.0	2.188	1125.2	LOS F	178.7	1251.1	1.00	4.96	3.8
Approach		1320	0.0	2.188	704.6	LOS F	178.7	1251.1	1.00	3.91	5.2
All Vehicles		2795	0.1	2.188	368.4	LOS F	178.7	1251.1	0.94	2.38	8.0

Level of Service (LOS) Method: Delay (HCM 2000).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop Queued	Effective Stop Rate per ped
P1	South Full Crossing	53	19.4	LOS B	0.1	0.1	0.74	0.74
P2	East Full Crossing	53	20.9	LOS C	0.1	0.1	0.77	0.77
P3	North Full Crossing	53	19.4	LOS B	0.1	0.1	0.74	0.74
P4	West Full Crossing	53	20.9	LOS C	0.1	0.1	0.77	0.77
All Pedestrians		211	20.1	LOS C			0.76	0.76

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

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PHASING SUMMARY

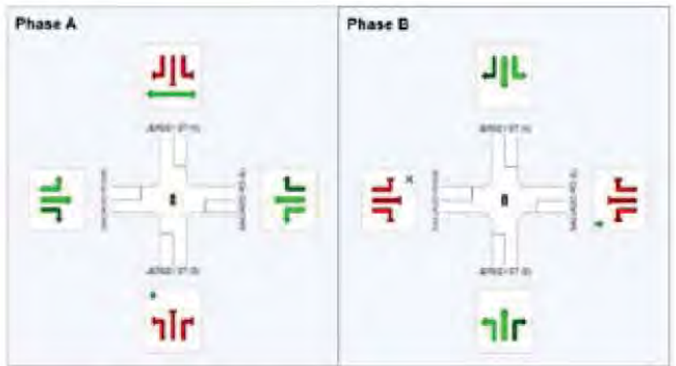
Site: Jersey Street / Salvado Road 2031 AM Peak

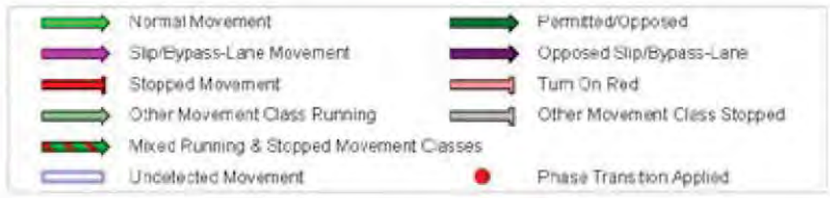
Jersey Street / Salvado Road 2031 PM Peak
Signals - Fixed Time Coordinated Cycle Time = 70 seconds (User-Given Cycle Time)

Phase times determined by the program
Sequence: Two-Phase
Movement Class: All Movement Classes
Input Sequence: A, B
Output Sequence: A, B

Phase Timing Results

Phase	A	B
Reference Phase	No	Yes
Phase Change Time (sec)	34	0
Green Time (sec)	30	28
Yellow Time (sec)	4	4
All-Red Time (sec)	2	2
Phase Time (sec)	36	34
Phase Split	51 %	49 %





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MOVEMENT SUMMARY

Site: Jersey Street / Salvado Road 2031 PM Peak

Jersey Street / Salvado Road 2031 AM Peak
Signals - Fixed Time Coordinated Cycle Time = 70 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: JERSEY ST (S)											
1	L2	103	9.0	0.590	40.0	LOS D	3.7	27.7	1.00	0.81	34.7
2	T1	380	2.0	2.013	956.6	LOS F	103.7	737.1	1.00	4.08	2.6
3	R2	44	0.0	2.013	961.2	LOS F	103.7	737.1	1.00	4.08	3.8
Approach		527	3.2	2.013	777.8	LOS F	103.7	737.1	1.00	3.44	3.7
East: SALVADO RD (E)											
4	L2	85	4.0	0.562	10.2	LOS B	12.6	89.0	0.53	0.51	46.0
5	T1	1032	1.0	1.964	332.0	LOS F	164.3	1164.1	0.70	2.04	10.0
6	R2	312	2.0	1.964	921.2	LOS F	164.3	1164.1	1.00	4.78	2.2
Approach		1429	1.4	1.964	441.5	LOS F	164.3	1164.1	0.76	2.55	7.2
North: JERSEY ST (N)											
7	L2	84	1.0	1.351	363.7	LOS F	45.8	321.5	1.00	2.66	5.3
8	T1	230	0.0	1.351	359.1	LOS F	45.8	321.5	1.00	2.66	6.3
9	R2	105	0.0	1.083	127.9	LOS F	7.7	53.9	1.00	1.36	15.4
Approach		419	0.2	1.351	302.1	LOS F	45.8	321.5	1.00	2.33	7.3
West: SALVADO RD(W)											
10	L2	66	2.0	0.217	8.5	LOS A	3.5	24.5	0.38	0.40	45.4
11	T1	326	0.0	0.391	10.6	LOS B	4.0	28.3	0.53	0.50	43.9
12	R2	34	0.0	0.391	30.2	LOS C	4.0	28.3	0.89	0.74	38.5
Approach		426	0.3	0.391	11.8	LOS B	4.0	28.3	0.54	0.51	43.5
All Vehicles		2801	1.4	2.013	418.6	LOS F	164.3	1164.1	0.81	2.37	7.1

Level of Service (LOS) Method: Delay (HCM 2000).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop Queued	Effective Stop Rate per ped
P1	South Full Crossing	53	7.8	LOS A	0.0	0.0	0.47	0.47
P2	East Full Crossing	53	29.3	LOS C	0.1	0.1	0.92	0.92
P3	North Full Crossing	53	7.8	LOS A	0.0	0.0	0.47	0.47
P4	West Full Crossing	53	29.3	LOS C	0.1	0.1	0.92	0.92
All Pedestrians		211	18.6	LOS B			0.69	0.69

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

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PHASING SUMMARY

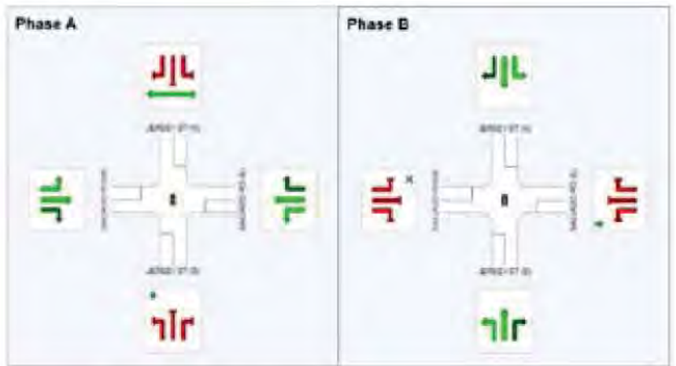
Site: Jersey Street / Salvado Road 2031 PM Peak

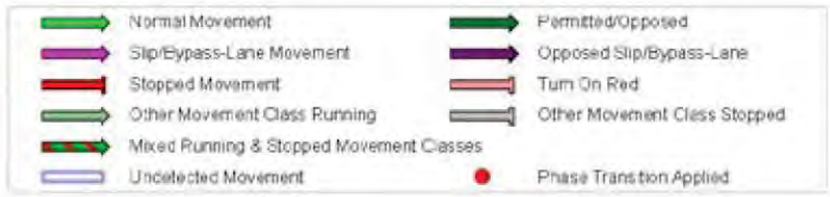
Jersey Street / Salvado Road 2031 AM Peak
Signals - Fixed Time Coordinated Cycle Time = 70 seconds (User-Given Cycle Time)

Phase times determined by the program
Sequence: Two-Phase
Movement Class: All Movement Classes
Input Sequence: A, B
Output Sequence: A, B

Phase Timing Results

Phase	A	B
Reference Phase	No	Yes
Phase Change Time (sec)	15	0
Green Time (sec)	49	9
Yellow Time (sec)	4	4
All-Red Time (sec)	2	2
Phase Time (sec)	55	15
Phase Split	79 %	21 %





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APPENDIX

B

SIDRA OUTPUTS –
2031 MITIGATED GEOMETRY

MOVEMENT SUMMARY

Site: Selby Street / The Boulevard 2031 AM Peak

Selby Street / The Boulevard 2031 PM Peak

Signals - Fixed Time Coordinated Cycle Time = 70 seconds (User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: SELBY ST (S)											
1a	L1	185	5.0	0.148	9.9	LOS A	2.8	20.2	0.42	0.63	52.5
2	T1	556	5.0	0.618	12.6	LOS B	11.5	84.2	0.66	0.59	45.4
Approach		741	5.0	0.618	11.9	LOS B	11.5	84.2	0.60	0.60	47.9
SouthEast: THE BLVD (SE)											
21b	L3	2	3.0	0.476	43.2	LOS D	2.3	16.6	1.00	0.75	18.0
22	T1	197	3.0	0.983	54.5	LOS D	6.7	48.1	1.00	1.05	35.9
23a	R1	50	3.0	0.411	41.1	LOS D	1.8	12.9	0.99	0.74	30.5
Approach		249	3.0	0.983	51.7	LOS D	6.7	48.1	1.00	0.98	35.1
North: SELBY ST (N)											
7a	L1	185	5.0	0.936	45.9	LOS D	38.0	277.7	1.00	1.22	29.5
8	T1	1356	5.0	0.936	41.4	LOS D	38.0	277.7	0.98	1.21	29.2
Approach		1541	5.0	0.936	41.9	LOS D	38.0	277.7	0.98	1.21	29.3
NorthWest: THE BLVD (NW)											
27b	L3	40	3.0	0.767	29.9	LOS C	17.4	125.2	0.94	0.89	48.5
28	T1	1070	3.0	0.921	32.5	LOS C	25.0	179.7	0.96	1.03	42.8
29a	R1	440	3.0	0.857	32.4	LOS C	15.2	109.0	1.00	1.00	41.8
Approach		1550	3.0	0.921	32.4	LOS C	25.0	179.7	0.97	1.02	42.7
All Vehicles		4081	4.1	0.983	33.4	LOS C	38.0	277.7	0.91	1.01	38.2

Level of Service (LOS) Method: Delay (HCM 2000).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	53	29.3	LOS C	0.1	0.1	0.92	0.92
P5	SouthEast Full Crossing	53	20.1	LOS C	0.1	0.1	0.76	0.76
P3	North Full Crossing	53	29.3	LOS C	0.1	0.1	0.92	0.92
P7	NorthWest Full Crossing	53	20.1	LOS C	0.1	0.1	0.76	0.76
All Pedestrians		211	24.7	LOS C			0.84	0.84

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

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PHASING SUMMARY

Site: Selby Street / The Boulevard 2031 AM Peak

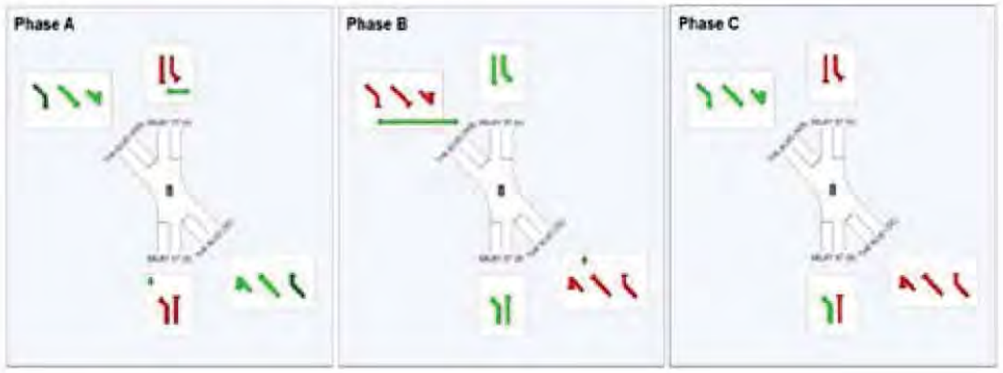
Selby Street / The Boulevard 2031 PM Peak

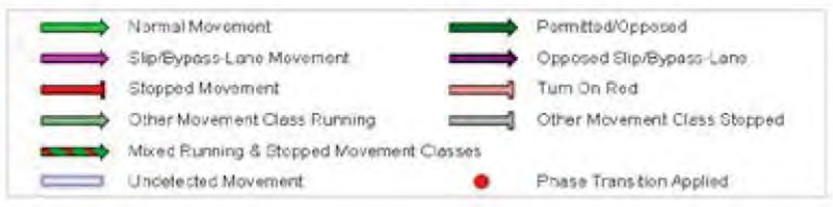
Signals - Fixed Time Coordinated Cycle Time = 70 seconds (User-Given Phase Times)

Phase times specified by the user
Sequence: Existing Signal Phasing
Movement Class: All Movement Classes
Input Sequence: A, B, C
Output Sequence: A, B, C

Phase Timing Results

Phase	A	B	C
Reference Phase	Yes	No	No
Phase Change Time (sec)	0	11	49
Green Time (sec)	5	32	15
Yellow Time (sec)	4	4	4
All-Red Time (sec)	2	2	2
Phase Time (sec)	11	38	21
Phase Split	16 %	54 %	30 %





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Project: \\Aupercfs01\pt\Projects\CWS80400_Town_of_Cambridge_TA_for_Wembley_Activity_Centre\5_Technical\Traffic\Modelling\BG 2031+Dev (Mitigated).sip6

MOVEMENT SUMMARY

Site: Selby Street / The Boulevard 2031 PM Peak

Selby Street / The Boulevard 2031 AM Peak

Signals - Fixed Time Coordinated Cycle Time = 70 seconds (User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: SELBY ST (S)											
1a	L1	639	5.0	0.923	35.8	LOS D	31.2	227.9	0.97	1.05	40.7
2	T1	958	5.0	1.003	57.7	LOS E	49.2	359.3	1.00	1.40	24.3
Approach		1597	5.0	1.003	48.9	LOS D	49.2	359.3	0.99	1.26	31.5
SouthEast: THE BLVD (SE)											
21b	L3	13	3.0	0.661	25.9	LOS C	13.9	99.6	0.88	0.77	23.6
22	T1	960	3.0	0.661	19.4	LOS B	13.9	100.1	0.88	0.77	48.4
23a	R1	212	3.0	0.593	23.3	LOS C	5.5	39.6	0.94	0.79	38.5
Approach		1185	3.0	0.661	20.1	LOS C	13.9	100.1	0.89	0.78	47.0
North: SELBY ST (N)											
7a	L1	172	5.0	0.544	18.8	LOS B	11.4	83.5	0.76	0.71	42.3
8	T1	750	5.0	0.544	16.0	LOS B	11.5	83.9	0.78	0.70	43.0
Approach		922	5.0	0.544	16.7	LOS B	11.5	83.9	0.77	0.70	42.9
NorthWest: THE BLVD (NW)											
27b	L3	35	3.0	0.251	31.8	LOS C	2.8	20.1	0.87	0.72	47.1
28	T1	254	3.0	0.471	26.4	LOS C	6.0	42.8	0.91	0.74	45.0
29a	R1	155	3.0	0.921	57.5	LOS E	7.5	53.8	1.00	1.15	34.2
Approach		444	3.0	0.921	37.7	LOS D	7.5	53.8	0.94	0.88	40.9
All Vehicles		4148	4.2	1.003	32.1	LOS C	49.2	359.3	0.91	0.96	38.9

Level of Service (LOS) Method: Delay (HCM 2000).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	53	29.3	LOS C	0.1	0.1	0.92	0.92
P5	SouthEast Full Crossing	53	20.9	LOS C	0.1	0.1	0.77	0.77
P3	North Full Crossing	53	29.3	LOS C	0.1	0.1	0.92	0.92
P7	NorthWest Full Crossing	53	20.9	LOS C	0.1	0.1	0.77	0.77
All Pedestrians		211	25.1	LOS C			0.84	0.84

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

Organisation: CARDNO | Processed: Friday, 2 December 2016 9:03:12 AM
Project: \\Aupercfs01\pt\Projects\CWS80400_Town_of_Cambridge_TA_for_Wembley_Activity_Centre\5_Technical\Traffic\Modelling\BG 2031+Dev (Mitigated).sip6

PHASING SUMMARY

Site: Selby Street / The Boulevard 2031 PM Peak

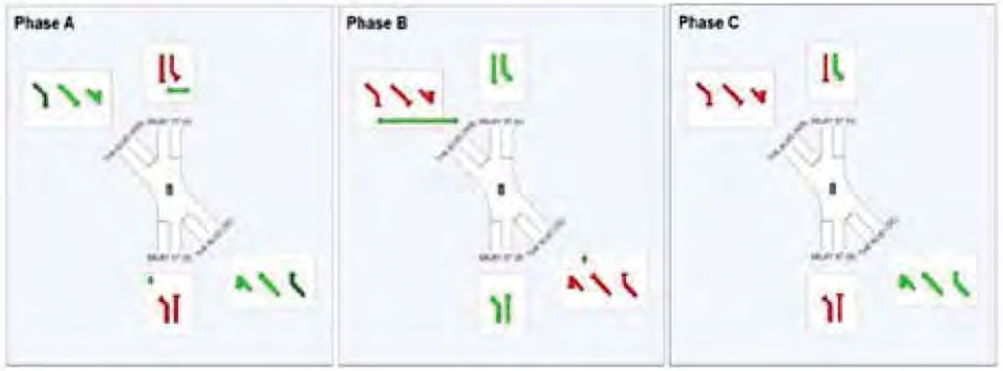
Selby Street / The Boulevard 2031 AM Peak

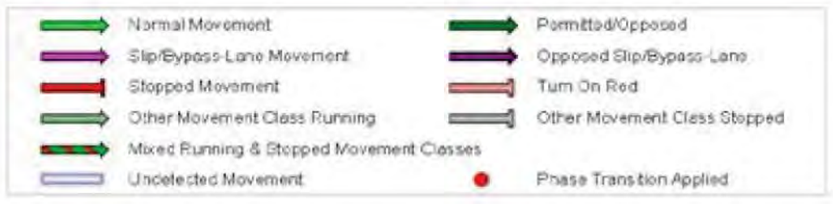
Signals - Fixed Time Coordinated Cycle Time = 70 seconds (User-Given Phase Times)

Phase times specified by the user
Sequence: Existing Signal Phasing
Movement Class: All Movement Classes
Input Sequence: A, B, C
Output Sequence: A, B, C

Phase Timing Results

Phase	A	B	C
Reference Phase	Yes	No	No
Phase Change Time (sec)	0	21	58
Green Time (sec)	15	31	6
Yellow Time (sec)	4	4	4
All-Red Time (sec)	2	2	2
Phase Time (sec)	21	37	12
Phase Split	30 %	53 %	17 %





MOVEMENT SUMMARY

Site: Selby Street / Cambridge Street 2031 AM Peak

Selby Street / Cambridge Street 2031 PM Peak
Signals - Fixed Time Coordinated Cycle Time = 55 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop Queued	Effective Stop Rate per veh	Average Speed km/h
South: SELBY ST (S)											
1	L2	56	5.0	0.513	20.7	LOS C	7.5	54.9	0.83	0.73	49.3
2	T1	645	5.0	0.513	15.1	LOS B	7.6	55.3	0.83	0.72	38.5
3	R2	131	5.0	0.892	43.5	LOS D	4.5	33.2	1.00	1.07	30.9
Approach		832	5.0	0.892	20.0	LOS B	7.6	55.3	0.86	0.77	37.8
East: CAMBRIDGE ST (E)											
4	L2	175	4.0	0.232	16.9	LOS B	3.1	22.2	0.68	0.74	43.0
5	T1	296	4.0	0.372	12.1	LOS B	5.6	40.3	0.73	0.62	52.7
6	R2	58	4.0	0.262	27.2	LOS C	1.4	10.3	0.88	0.75	31.0
Approach		529	4.0	0.372	15.3	LOS B	5.6	40.3	0.73	0.67	48.4
North: SELBY ST (N)											
7	L2	25	5.0	0.845	27.1	LOS C	16.2	118.0	0.93	0.95	34.2
8	T1	1695	5.0	0.845	21.5	LOS C	16.2	118.2	0.93	0.94	33.7
9	R2	85	5.0	0.352	26.6	LOS C	1.9	14.2	0.83	0.75	41.9
Approach		1805	5.0	0.845	21.9	LOS C	16.2	118.2	0.92	0.93	34.4
West: CAMBRIDGE ST (W)											
10	L2	47	4.0	0.671	20.0	LOS C	11.9	86.0	0.87	0.77	36.5
11	T1	674	4.0	0.972	26.2	LOS C	21.2	153.2	0.90	0.95	45.5
12	R2	247	4.0	0.972	61.9	LOS E	21.2	153.2	1.00	1.41	34.5
Approach		968	4.0	0.972	35.0	LOS D	21.2	153.2	0.93	1.06	41.8
All Vehicles		4134	4.6	0.972	23.7	LOS C	21.2	153.2	0.89	0.90	39.9

Level of Service (LOS) Method: Delay (HCM 2000).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop Queued	Effective Stop Rate per ped
P1	South Full Crossing	53	21.9	LOS C	0.1	0.1	0.89	0.89
P2	East Full Crossing	53	21.9	LOS C	0.1	0.1	0.89	0.89
P3	North Full Crossing	53	21.9	LOS C	0.1	0.1	0.89	0.89
P4	West Full Crossing	53	20.1	LOS C	0.1	0.1	0.86	0.86
All Pedestrians		211	21.4	LOS C			0.88	0.88

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

PHASING SUMMARY

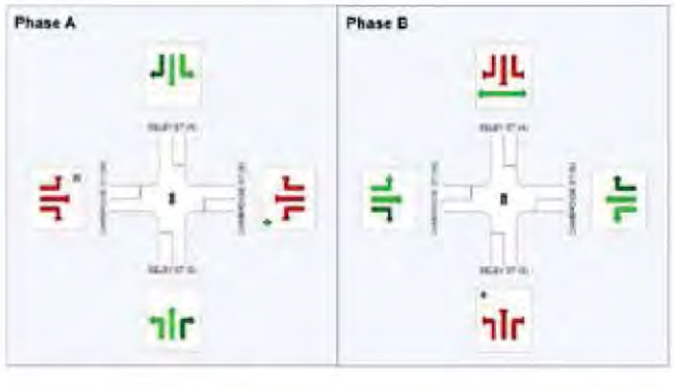
Site: Selby Street / Cambridge Street 2031 AM Peak

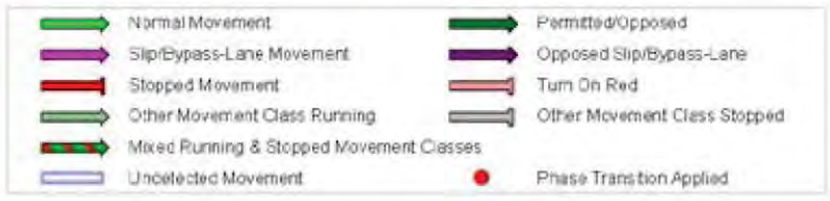
Selby Street / Cambridge Street 2031 PM Peak
Signals - Fixed Time Coordinated Cycle Time = 55 seconds (Optimum Cycle Time - Minimum Delay)

Phase times determined by the program
Sequence: Two-Phase
Movement Class: All Movement Classes
Input Sequence: A, B
Output Sequence: A, B

Phase Timing Results

Phase	A	B
Reference Phase	Yes	No
Phase Change Time (sec)	0	26
Green Time (sec)	20	23
Yellow Time (sec)	4	4
All-Red Time (sec)	2	2
Phase Time (sec)	26	29
Phase Split	47 %	53 %





MOVEMENT SUMMARY

Site: Selby Street / Cambridge Street 2031 PM Peak

Selby Street / Cambridge Street 2031 AM Peak
Signals - Fixed Time Coordinated Cycle Time = 50 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: SELBY ST (S)											
1	L2	126	5.0	0.816	21.2	LOS C	19.5	142.3	0.90	0.93	49.0
2	T1	1471	5.0	0.816	15.6	LOS B	19.6	143.2	0.90	0.93	38.1
3	R2	262	5.0	0.705	20.6	LOS C	6.1	44.3	0.84	0.90	41.1
Approach		1859	5.0	0.816	16.7	LOS B	19.6	143.2	0.89	0.92	40.1
East: CAMBRIDGE ST (E)											
4	L2	138	4.0	0.749	27.7	LOS C	8.5	61.8	0.98	0.92	38.7
5	T1	528	4.0	0.749	22.0	LOS C	8.5	61.8	0.98	0.92	47.5
6	R2	100	4.0	0.595	32.5	LOS C	2.6	19.1	1.00	0.80	28.6
Approach		766	4.0	0.749	24.4	LOS C	8.5	61.8	0.98	0.90	44.6
North: SELBY ST (N)											
7	L2	12	5.0	0.287	10.9	LOS B	2.7	19.4	0.41	0.36	48.3
8	T1	832	5.0	0.287	5.4	LOS A	2.7	19.4	0.41	0.35	50.1
9	R2	74	5.0	0.461	30.1	LOS C	1.8	13.3	0.95	0.76	40.4
Approach		918	5.0	0.461	7.5	LOS A	2.7	19.4	0.45	0.38	48.1
West: CAMBRIDGE ST (W)											
10	L2	51	4.0	0.633	25.3	LOS C	6.7	48.4	0.95	0.82	34.7
11	T1	394	4.0	0.917	26.5	LOS C	7.8	56.7	0.97	0.96	45.4
12	R2	76	4.0	0.917	42.2	LOS D	7.8	56.7	1.00	1.16	40.4
Approach		521	4.0	0.917	28.6	LOS C	7.8	56.7	0.97	0.97	43.6
All Vehicles		4064	4.7	0.917	17.6	LOS B	19.6	143.2	0.82	0.80	43.2

Level of Service (LOS) Method: Delay (HCM 2000).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
The results of iterative calculations indicate a somewhat unstable solution. See the Diagnostics section in the Detailed Output report.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	53	19.4	LOS B	0.1	0.1	0.88	0.88
P2	East Full Crossing	53	15.2	LOS B	0.1	0.1	0.78	0.78
P3	North Full Crossing	53	19.4	LOS B	0.1	0.1	0.88	0.88
P4	West Full Crossing	53	13.0	LOS B	0.1	0.1	0.72	0.72
All Pedestrians		211	16.8	LOS B			0.82	0.82

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

PHASING SUMMARY

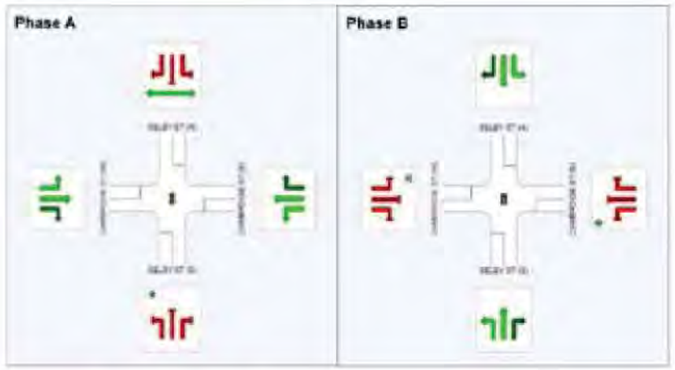
Site: Selby Street / Cambridge Street 2031 PM Peak

Selby Street / Cambridge Street 2031 AM Peak
Signals - Fixed Time Coordinated Cycle Time = 50 seconds (Optimum Cycle Time - Minimum Delay)

Phase times determined by the program
Sequence: Two-Phase
Movement Class: All Movement Classes
Input Sequence: A, B
Output Sequence: A, B

Phase Timing Results

Phase	A	B
Reference Phase	Yes	No
Phase Change Time (sec)	0	18
Green Time (sec)	12	26
Yellow Time (sec)	4	4
All-Red Time (sec)	2	2
Phase Time (sec)	18	32
Phase Split	36 %	64 %



Normal Movement
Slip/Bypass-Lane Movement
Stopped Movement
Other Movement Class Running
Mixed Running & Stopped Movement Classes
Undetected Movement
Permitted/Opposed
Opposed Slip/Bypass-Lane
Turn On Red
Other Movement Class Stopped
Phase Transition Applied

The results of iterative calculations indicate a somewhat unstable solution. See the Diagnostics section in the Detailed Output report.

MOVEMENT SUMMARY

Site: Jersey Street / Cambridge Street 2031 AM Peak

Jersey Street / Cambridge Street 2031 AM Peak

Signals - Fixed Time Coordinated Cycle Time = 60 seconds (Optimum Cycle Time - Minimum Delay)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop Queued	Effective Stop Rate per veh	Average Speed km/h
South: JERSEY ST (S)											
1	L2	102	2.0	0.641	29.1	LOS C	6.8	48.2	0.94	0.82	24.1
2	T1	144	1.0	0.641	24.6	LOS C	6.8	48.2	0.94	0.82	34.3
3	R2	97	4.0	0.745	39.3	LOS D	3.2	23.1	1.00	0.87	33.1
Approach		343	2.1	0.745	30.1	LOS C	6.8	48.2	0.96	0.83	31.9
East: CAMBRIDGE ST (E)											
4	L2	147	2.0	0.728	26.5	LOS C	12.6	91.3	0.94	0.87	40.7
5	T1	721	5.0	0.728	21.1	LOS C	12.6	91.3	0.94	0.87	43.6
6	R2	13	0.0	0.728	26.7	LOS C	12.0	87.2	0.94	0.87	44.5
Approach		881	4.4	0.728	22.1	LOS C	12.6	91.3	0.94	0.87	43.2
North: JERSEY ST (N)											
7	L2	46	3.0	0.882	39.2	LOS D	12.9	90.9	1.00	1.12	39.4
8	T1	386	0.0	0.882	35.3	LOS D	12.9	90.9	1.00	1.12	30.7
9	R2	109	0.0	0.882	42.9	LOS D	6.5	45.7	1.00	1.10	30.9
Approach		541	0.3	0.882	37.2	LOS D	12.9	90.9	1.00	1.11	31.8
West: CAMBRIDGE ST (W)											
10	L2	86	3.0	0.833	21.9	LOS C	25.9	187.6	0.88	0.91	40.7
11	T1	997	4.0	0.833	17.7	LOS B	25.9	187.6	0.89	0.92	45.5
12	R2	249	2.0	0.833	30.1	LOS C	12.5	89.3	0.97	0.99	24.0
Approach		1332	3.6	0.833	20.3	LOS C	25.9	187.6	0.91	0.93	42.4
All Vehicles		3097	3.1	0.882	24.8	LOS C	25.9	187.6	0.94	0.94	39.2

Level of Service (LOS) Method: Delay (HCM 2000).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop Queued	Effective Stop Rate per ped
P1	South Full Crossing	53	24.4	LOS C	0.1	0.1	0.90	0.90
P2	East Full Crossing	53	24.4	LOS C	0.1	0.1	0.90	0.90
P3	North Full Crossing	53	11.4	LOS B	0.1	0.1	0.62	0.62
P4	West Full Crossing	53	24.4	LOS C	0.1	0.1	0.90	0.90
All Pedestrians		211	21.1	LOS C			0.83	0.83

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

PHASING SUMMARY

Site: Jersey Street / Cambridge Street 2031 AM Peak

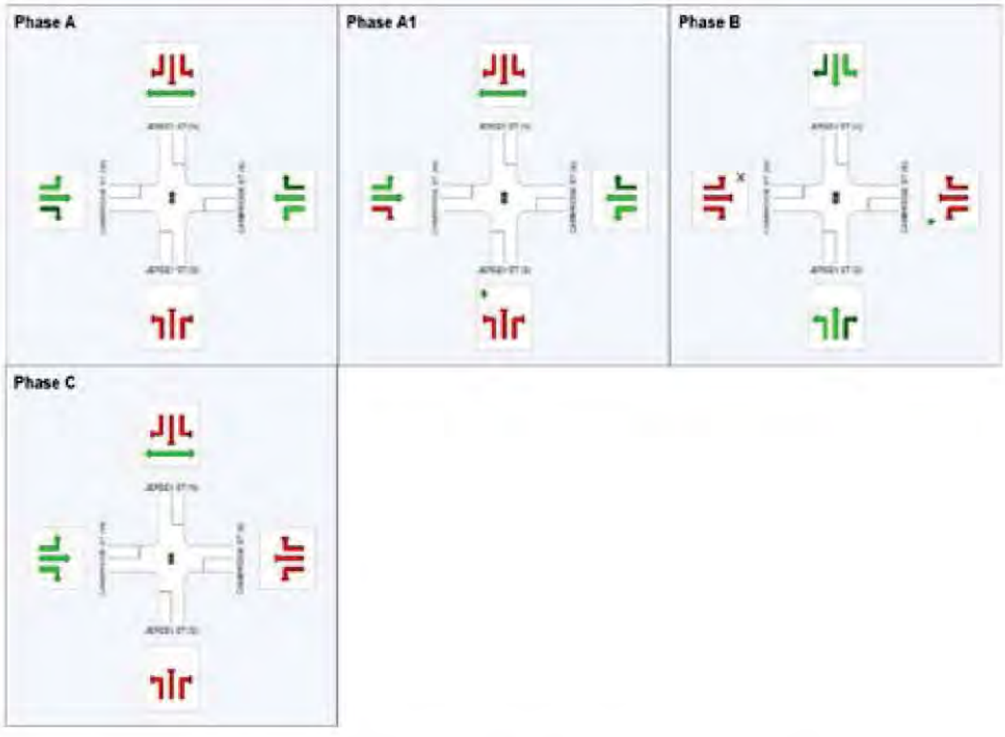
Jersey Street / Cambridge Street 2031 AM Peak

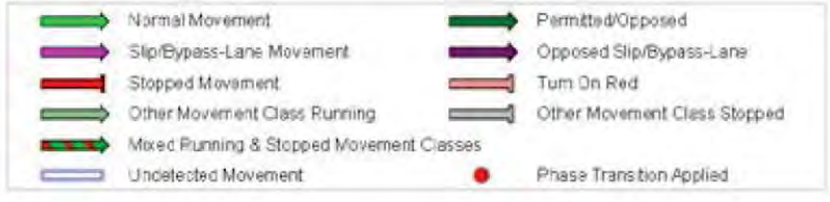
Signals - Fixed Time Coordinated Cycle Time = 60 seconds (Optimum Cycle Time - Minimum Delay)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Phase times determined by the program
Sequence: Existing Signal Phasing
Movement Class: All Movement Classes
Input Sequence: A, A1, B, C
Output Sequence: A, A1, B, C

Phase Timing Results

Phase	A	A1	B	C
Reference Phase	Yes	No	No	No
Phase Change Time (sec)	0	12	26	45
Green Time (sec)	6	8	13	9
Yellow Time (sec)	4	4	4	4
All-Red Time (sec)	2	2	2	2
Phase Time (sec)	12	14	19	15
Phase Split	20 %	23 %	32 %	25 %





Organisation: CARDNO | Processed: Wednesday, 30 November 2016 9:39:10 AM
Project: \\Aupercfs01\ipt\Projects\CW980400_Town_of_Cambridge_TA_for_Wembley_Activity_Centre\5_Technical\Traffic\Modelling\BG 2031+Dev (Mitigated).sip6

MOVEMENT SUMMARY

Site: Jersey Street / Cambridge Street 2031 PM Peak

Jersey Street / Cambridge Street 2031 PM Peak
Signals - Fixed Time Coordinated Cycle Time = 70 seconds (User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: JERSEY ST (S)											
1	L2	305	0.0	0.918	46.0	LOS D	15.9	111.3	1.00	1.09	17.6
2	T1	315	0.0	0.918	29.1	LOS C	15.9	111.3	0.89	0.60	33.0
Approach		620	0.0	0.918	37.4	LOS D	15.9	111.3	0.94	0.94	26.4
East: CAMBRIDGE ST (E)											
4	L2	140	0.0	0.614	15.7	LOS B	15.1	106.6	0.70	0.66	47.9
5	T1	1138	1.0	0.614	10.7	LOS B	15.1	106.6	0.71	0.66	50.2
6	R2	21	0.0	0.614	16.8	LOS B	14.2	100.3	0.72	0.65	48.6
Approach		1299	0.9	0.614	11.4	LOS B	15.1	106.6	0.71	0.66	50.0
North: JERSEY ST (N)											
7	L2	42	0.0	0.329	28.7	LOS C	4.3	30.0	0.87	0.72	42.6
8	T1	262	0.0	0.329	24.1	LOS C	4.5	31.4	0.87	0.71	35.1
Approach		304	0.0	0.329	24.7	LOS C	4.5	31.4	0.87	0.71	36.5
West: CAMBRIDGE ST (W)											
10	L2	111	0.0	0.890	32.3	LOS C	21.6	154.4	0.68	0.87	35.8
11	T1	811	3.0	0.890	29.1	LOS C	21.6	154.4	0.76	0.93	39.6
12	R2	98	0.0	0.868	39.2	LOS D	15.3	109.1	0.92	1.04	21.0
Approach		1020	2.4	0.890	30.4	LOS C	21.6	154.4	0.77	0.93	37.9
All Vehicles		3243	1.1	0.918	23.6	LOS C	21.6	154.4	0.79	0.80	39.9

Level of Service (LOS) Method: Delay (HCM 2000).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	53	12.0	LOS B	0.1	0.1	0.59	0.59
P2	East Full Crossing	53	29.3	LOS C	0.1	0.1	0.92	0.92
P3	North Full Crossing	53	12.0	LOS B	0.1	0.1	0.59	0.59
P4	West Full Crossing	53	29.3	LOS C	0.1	0.1	0.92	0.92
All Pedestrians		211	20.7	LOS C			0.75	0.75

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

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PHASING SUMMARY

Site: Jersey Street / Cambridge Street 2031 PM Peak

Jersey Street / Cambridge Street 2031 PM Peak
Signals - Fixed Time Coordinated Cycle Time = 70 seconds (User-Given Phase Times)

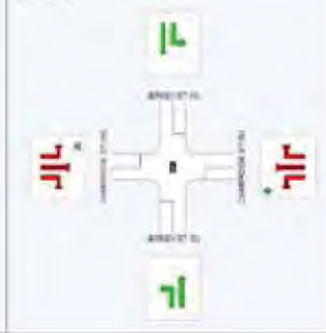
Phase times specified by the user
Sequence: Existing Signal Phasing
Movement Class: All Movement Classes
Input Sequence: A, B
Output Sequence: A, B

Phase Timing Results

Phase	A	B
Reference Phase	Yes	No
Phase Change Time (sec)	0	47
Green Time (sec)	41	17
Yellow Time (sec)	4	4
All-Red Time (sec)	2	2
Phase Time (sec)	47	23
Phase Split	67 %	33 %

Phase A

Phase B



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MOVEMENT SUMMARY

Site: Jersey Street / Salvado Road 2031 AM Peak

Jersey Street / Salvado Road 2031 AM Peak
Signals - Fixed Time Coordinated Cycle Time = 70 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: JERSEY ST (S)											
1	L2	22	9.0	0.252	20.5	LOS C	4.3	30.7	0.72	0.61	42.1
2	T1	161	2.0	0.252	15.9	LOS B	4.3	30.7	0.72	0.61	38.1
3	R2	42	0.0	0.269	37.5	LOS D	1.4	9.9	0.95	0.74	33.6
Approach		225	2.3	0.269	20.3	LOS C	4.3	30.7	0.76	0.63	37.4
East: SALVADO RD (E)											
4	L2	88	4.0	0.351	18.5	LOS B	6.6	46.6	0.70	0.65	41.5
5	T1	294	1.0	0.786	20.7	LOS C	6.9	49.3	0.80	0.75	39.4
6	R2	89	2.0	0.786	40.0	LOS D	6.9	49.3	1.00	0.98	26.3
Approach		471	1.7	0.786	23.9	LOS C	6.9	49.3	0.82	0.78	37.7
North: JERSEY ST (N)											
7	L2	255	1.0	0.840	28.8	LOS C	20.0	140.5	0.92	0.93	30.7
8	T1	396	0.0	0.840	23.4	LOS C	20.0	140.5	0.88	0.89	33.6
9	R2	97	0.0	0.304	22.2	LOS C	3.3	23.3	0.67	0.66	36.4
Approach		748	0.3	0.840	25.1	LOS C	20.0	140.5	0.87	0.87	33.1
West: SALVADO RD(W)											
10	L2	87	2.0	0.744	23.2	LOS C	18.9	132.3	0.89	0.83	37.0
11	T1	1116	0.0	0.744	17.6	LOS B	18.9	132.3	0.87	0.79	41.1
Approach		1203	0.1	0.744	18.0	LOS B	18.9	132.3	0.87	0.79	40.9
All Vehicles		2647	0.7	0.840	21.3	LOS C	20.0	140.5	0.85	0.80	38.2

Level of Service (LOS) Method: Delay (HCM 2000).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
The results of iterative calculations indicate a somewhat unstable solution. See the Diagnostics section in the Detailed Output report.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	53	18.6	LOS B	0.1	0.1	0.73	0.73
P2	East Full Crossing	53	21.7	LOS C	0.1	0.1	0.79	0.79
P3	North Full Crossing	53	18.6	LOS B	0.1	0.1	0.73	0.73
P4	West Full Crossing	53	21.7	LOS C	0.1	0.1	0.79	0.79
All Pedestrians		211	20.1	LOS C			0.76	0.76

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

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PHASING SUMMARY

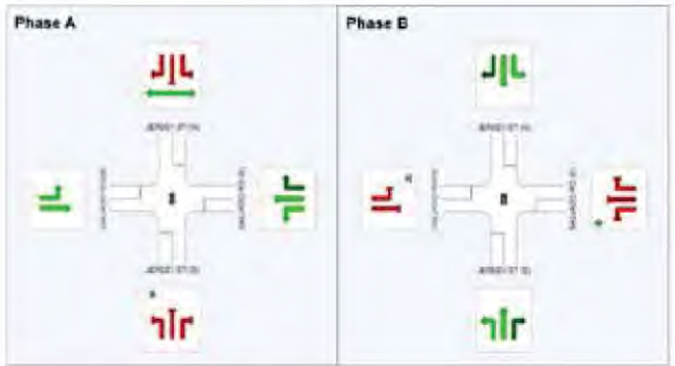
Site: Jersey Street / Salvado Road 2031 AM Peak

Jersey Street / Salvado Road 2031 AM Peak
Signals - Fixed Time Coordinated Cycle Time = 70 seconds (User-Given Cycle Time)

Phase times determined by the program
Sequence: Two-Phase
Movement Class: All Movement Classes
Input Sequence: A, B
Output Sequence: A, B

Phase Timing Results

Phase	A	B
Reference Phase	No	Yes
Phase Change Time (sec)	33	0
Green Time (sec)	31	27
Yellow Time (sec)	4	4
All-Red Time (sec)	2	2
Phase Time (sec)	37	33
Phase Split	53 %	47 %



The results of iterative calculations indicate a somewhat unstable solution. See the Diagnostics section in the Detailed Output report.

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MOVEMENT SUMMARY

Site: Jersey Street / Salvado Road 2031 PM Peak

Jersey Street / Salvado Road 2031 PM Peak
Signals - Fixed Time Coordinated Cycle Time = 70 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop Queued	Effective Stop Rate per veh	Average Speed km/h
South: JERSEY ST (S)											
1	L2	91	0.0	0.605	22.6	LOS C	10.1	70.5	0.82	0.73	41.2
2	T1	380	0.0	0.605	19.1	LOS B	10.1	70.5	0.84	0.74	35.8
3	R2	166	0.0	0.605	27.3	LOS C	7.8	54.3	0.90	0.80	37.4
Approach		637	0.0	0.605	21.8	LOS C	10.1	70.5	0.85	0.76	37.3
East: SALVADO RD (E)											
4	L2	85	0.0	0.884	35.5	LOS D	18.1	126.6	0.81	0.99	35.3
5	T1	912	0.0	0.884	30.9	LOS C	18.2	127.3	0.80	0.98	36.4
Approach		997	0.0	0.884	31.3	LOS C	18.2	127.3	0.80	0.98	36.3
North: JERSEY ST (N)											
7	L2	81	0.0	0.418	20.2	LOS C	6.5	45.6	0.66	0.61	35.5
8	T1	222	1.0	0.418	15.6	LOS B	6.5	45.6	0.66	0.61	37.8
9	R2	174	0.0	0.636	32.3	LOS C	5.5	38.3	0.90	0.83	31.7
Approach		477	0.5	0.636	22.5	LOS C	6.5	45.6	0.75	0.69	34.8
West: SALVADO RD(W)											
10	L2	58	0.0	0.198	17.4	LOS B	3.5	24.6	0.65	0.60	39.5
11	T1	285	0.0	0.357	15.7	LOS B	5.2	36.2	0.72	0.64	41.6
12	R2	30	0.0	0.357	22.1	LOS C	5.2	36.2	0.77	0.66	41.5
Approach		373	0.0	0.357	16.5	LOS B	5.2	36.2	0.71	0.63	41.4
All Vehicles		2484	0.1	0.884	24.9	LOS C	18.2	127.3	0.79	0.81	37.1

Level of Service (LOS) Method: Delay (HCM 2000).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop Queued	Effective Stop Rate per ped
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Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: Jersey Street / Salvado Road 2031 PM Peak

Jersey Street / Salvado Road 2031 PM Peak
Signals - Fixed Time Coordinated Cycle Time = 70 seconds (User-Given Cycle Time)

Phase times determined by the program
Sequence: Two-Phase
Movement Class: All Movement Classes
Input Sequence: A, B
Output Sequence: A, B

Phase Timing Results

Phase	A	B
Reference Phase	No	Yes
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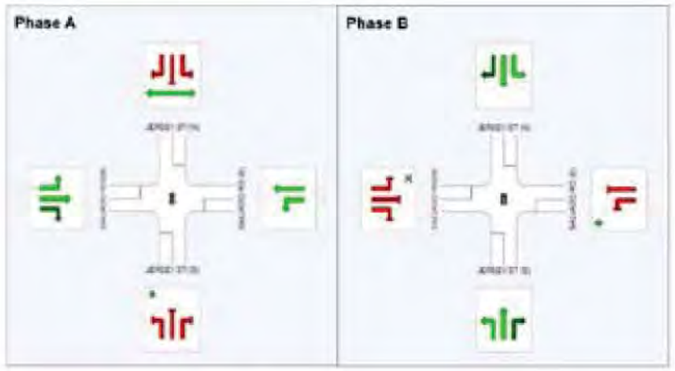
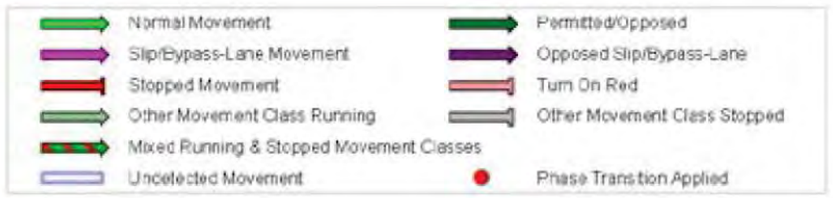
Green Time (sec)	31	27
Yellow Time (sec)	4	4
All-Red Time (sec)	2	2
Phase Time (sec)	37	33
Phase Split	53 %	47 %





The results of iterative calculations indicate a somewhat unstable solution. See the Diagnostics section in the Detailed Output report.

About Cardno

Cardno is a professional infrastructure and environmental services company, with expertise in the development and improvement of physical and social infrastructure for communities around the world. Cardno's team includes leading professionals who plan, design, manage and deliver sustainable projects and community programs. Cardno is an international company listed on the Australian Securities Exchange [ASX:CDD].

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Cardno
Shaping the Future

Appendix 2 - Reference Guide against Activity Centre Structure Plan requirements under Statement of Planning Policy 4.2

Centre Context

Required Content	Document reference	Comments / Further information
1. Classify the centre and assess its current performance against the activity centres hierarchy and the functions and performance targets in Table 2 of the Policy.	Background Analysis - Page 6, Page 12 - commercial uses. Page 13 - densities. Page 17 - public transport Page 27 - retail types	The Plan has been prepared based on 400m walkable catchment for District Centre A comparative table - Performance against Activity Centre, Functions/Targets under Table 2 of SPP4.2 is provided in this Addendum Further information is provided regarding Residential Density Targets in this Addendum
2. Document and map the centre's regional context, recording the centre's strengths, weaknesses, opportunities and constraints.	Background Analysis - Page 6 and 8	
3. Clearly define and map the existing centre boundary and any proposed extension.	Detailed Centre Plan - Page 9	Refer to further information in this Addendum under Centre Boundary Definition
4. Document and map the centre's demographic profile and defining characteristics.		Demographic information is referred to in this Addendum.
5. Conduct a baseline assessment of land and its use within the centre's boundary and walkable catchment	Background Analysis - Page 13-15 & 27	
6. Document and map transport links and accessibility nodes within the centre boundary and its surrounds. Note local street hierarchy, bus services and stops, rail facilities, and pedestrian/ cycle access and provision.	Background Analysis - Page 16 - 18 &25	
7. Review relevant state and local planning policy, guidance, and best practice noting key objectives and targets relating to the centre.	Background Analysis - Page 7	

Movement

Required Content	Document reference	Comments / Further information
1. Identify gaps and deficiencies in the strategic transport network affecting the provision, efficiency and choice of access to the centre;	Background Analysis - Page 16 - 18, 20 &25	
2. Define initiatives in consultation with transport agencies to improve access by all modes, particularly sustainable modes by (for example) service improvement, new/enhanced provision, priority measures, and congestion relief;	Detailed Centre Plan - Page 28 - 31	Comments on plan have been received from Public Transport Authority, Main Roads and West Cycle (peak cycling body in WA) and submissions responded to
3. Map the main points of arrival and key sites within the centre boundary and assess their suitability in terms of centre function and role, legibility and accessibility;	Background Analysis - Page 16 - 18 &25	
4. Focus travel-intensive uses (i.e. offices, anchor retail, and commercial leisure) on sites which are (or will be) highly accessible by sustainable transport;	Detailed Centre Plan - Page 8 - 9	Most development potential and commercial uses are located on Cambridge Street which is the focus of local bus services in the area.
5. Audit the public transport facilities within the centre boundary noting any deficiencies and hindrances in the service and infrastructure provision. Define initiatives in consultation with the PTA to address the shortfall in local public transport facilities;	Background Analysis - Page 17	Comments on plan have been received from Public Transport Authority and submissions responded to
6. Audit the pedestrian and cycle facilities within the centre boundary noting gaps, deficiencies and hindrances in the service and infrastructure provision	Background Analysis - Page 25	
(a) Define clear initiatives to address the shortfall in pedestrian and cycle facilities	Detailed Centre Plan - Page 28 - 31	

Movement

Required Content	Document reference	Comments / Further information
(b) Define cycle parking and end of trip standards for broad classes of development		This matter is dealt with in the Town's Parking Policy 5.1. The standards were introduced in 2013 following a comprehensive review of the Town's Parking Policy. This document is available online at http://www.cambridge.wa.gov.au/files/37205251-59e9-4ece-9953-a17300e45c43/Policy_51_Parking.pdf
(c) Promote linked sustainable journeys by providing for pedestrian, cycle and bus interchange at high-frequency transport hubs.	Detailed Centre Plan - Page 28 - 31	Improvements to pedestrian environment will assist in amenity for public transport users in the centre
(i) Design streets to meet the required level of use and access (including priority access where appropriate) and form a well-connected and legible network that includes safe and efficient pedestrian routes to public transport hubs	Detailed Centre Plan - Page 18, 23 - 26 illustrates indicative street profiles	
(ii) Inform traffic management proposals such as vehicle speed and access restraint, reduced severance/noise/pollution, and increased safety	Detailed Centre Plan - Page 28 - 31	Crossover rationalisation and speed limit reductions
(iii) Locate access to major development sites that avoids detriment to road capacity and safety.	Detailed Centre Plan - Page 28	A network of laneway connections at rear of those properties facing Cambridge Street are proposed to reduce the number of crossovers onto Cambridge Street.

Movement

Required Content	Document reference	Comments / Further information
(iv) Identify suitable routes for delivery and service access.	Detailed Centre Plan - Page 28	Rear laneway connections will improve delivery and service access
8. Locate heavy freight generating uses such as distribution and warehousing away from congested central areas and preferably near the strategic road network;	Not applicable - no heavy freight generating uses are proposed	
9. Undertake an audit of the existing parking supply occupancy rates and patterns of use, and use the findings to identify opportunities for more efficient use;	Background Analysis - Page 24 Detailed Plan - Page 30 (parking laneways) and 31	The Town's Access and Parking Strategy addresses this matter in greater detail and annual occupation surveys are undertaken. This information is available online at http://www.cambridge.wa.gov.au/Services/Planning_and_Design/Access_and_Parking It is proposed to continue these occupancy surveys into the future to aid the shift towards introducing maximum parking provisions as a key tool to manage long term traffic demands.
10. Adopt a strategy that provides for upper parking limits, parking standards for people with a disability and a management plan		The Town's Access and Parking Strategy addresses this matter in greater detail which is available online at http://www.cambridge.wa.gov.au/Services/Planning_and_Design/Access_and_Parking

Activity

Required Content	Document reference	Comments / Further information
1. Review the existing land use patterns within the centre boundary and identify any complementing use clusters and define these as discrete character areas;	Background Analysis - Page 22 (residential density) and Page 27 (retail / commercial)	Note - Grey shaded buildings on Page 27 are mostly residential use. Urban on Cambridge (344 Cambridge St) and 362 Cambridge St are mixed use developments
2. Record the existing uses and document any gaps in the land use mix. Identify the requirements to address the diversity performance target;	Background Analysis - Page 22 (residential density) and Page 27 (retail / commercial) Detailed Plan - Page 10- refer to "Right Mix"	Note - Grey shaded buildings on Page 27 are mostly residential use. Urban on Cambridge (344 Cambridge St) and 362 Cambridge St are mixed use developments. Comments in the Background document reflect that there are gaps in the commercial strip along Cambridge Street and there should be more opportunities for more cafes and restaurants (Centre Analysis Page 20). Diversity target - see further information further on in this Addendum
3. Assess existing community, civic and cultural facilities within the centre boundary. Make allowance for their provision relative to the scale and type of centre;	Educational and recreational facilities in the catchment were mapped (Background Analysis Page 14-15). Page 26 (Spatial Character) also refers	The centre includes Henderson Park and Our Lady of Victories Church. The plan encourages the creation of a series of open spaces including a plaza as the focal point of the activity centre.
4. Where required by the activity centres policy, conduct a retail sustainability assessment or retail needs assessment;	No assessment needed.	See information further on in this Addendum for retail floorspace estimations
5. Maximise pedestrian benefit by locating new retail along accessible streets and areas that can support high foot fall.	Covered in Land use principles (Detailed Centre Plan - Page 8).	Retail and hospitality uses encouraged on ground floor to assist with creation of lively, activated streets.

Activity

Required Content	Document reference	Comments / Further information
6. Identify employment sectors (retail and non-retail) and formats (i.e. live-work) and estimate the number and types of jobs provided by the centre;		The Centre is to have a local focus, with less than 20,000m2 retail floor space and comfortably satisfies diversity targets. The Wembley Centre is considered more appropriately to provide opportunity for smaller scale offices and commercial tenancies to complement the existing function of the Centre in providing the daily and weekly needs of the surrounding residential area. It is not considered the number and types of jobs provided in the Centre is going to have any significant regional impact and as such, identifying employment sectors and number of jobs is not a vital aspect of the Plan. The Plan is more focused towards getting the right mix of land uses right to ensure the Centre remains economically sustainable into the future.
7. Assess the housing densities required within the walkable catchment to meet the residential density targets in the Policy;	Equivalent to R30 density is possible under plan over the catchment	See information further in this Addendum for detail regarding Residential Density

Urban Form		
Required Content	**Document reference**	**Comments / Further information**
1. Map existing block structure, building bulk/ scale/layout, ownership patterns, anchor tenants, land use synergies (forming character areas) and any vacant or under-utilised land	Background Analysis - Pages 22, 23, 26 and 27	
2. Review existing building stock and identify heritage structures or currently disused/underused buildings and allocate their reuse/intensification	Background Analysis - Pages 22 and 26 Detailed Plan - Page 16	
3. Allocate and map locations within the centre boundary that are suitable for accommodating optimised building envelopes	Detailed Centre Plan - Page 12	
4. Define design controls that allocate maximum (and minimum) building heights and setbacks to safeguard an attractive and appropriate scale to streets and public spaces, and solar access	Detailed Centre Plan -Page 12 - 15 (refer also to Precincts from Page 33 onwards)	
5. Define design controls to optimise building densities within the centre boundary, subject to other built form and environmental objectives	Detailed Centre Plan -Page 12 - 15 (refer also to Precincts from Page 33 onwards)	
6. Define controls to minimise environmental impacts of development including: minimum standards to safeguard occupant amenity including segregation of incompatible uses and protection against potential nuisances		Plan proposes compatible land use mix (retail, commercial, residential) Matters would be dealt with at a Policy level

Urban Form		
Required Content	**Document reference**	**Comments / Further information**
7. Define land use and design controls that provide for active uses (e.g. retail, service, hospitality) at ground floor and maximise building articulation, including the use of glazing and entrances to animate spaces and minimise blank facades/inactivity	Detailed Centre Plan - Page 8, 14, 16, 17	
8. Provide weather protection using awnings, eaves, or street trees	Detailed Centre Plan - Page 12 and 16 (awnings) Detailed Plan - Pages 22 - 26 - street trees	
9. Review the provision and quality of public spaces (parks, plazas, pedestrian malls etc) and rank the spaces according to usage and function, and define and prioritise areas for improvement	Background Analysis - Page 15, 26 Detailed Area Plan - Public Realm section - Page 18 - 27	
10. Provide a landscape strategy that provides for biodiversity and urban	Detailed Area Plan - Public Realm section - Page 18 - 27	
11. Identify and map the key nodes, landmarks, and view lines. Identify opportunities to enhance legibility such as creating new/improving old links, and defining new landmarks.	Background Analysis - Page 26 Detailed Centre Plan -Anchor sites and Henderson Park to form three landmarks (Page 19) Connections (Page 22-27)	

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