THE CITY OF
GREATER GEELONG

MARSHALL PRECINCT STRUCTURE PLAN

ACCESS MANAGEMENT STRATEGY

CITY OF GREATER GEELONG

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Introduction

The Marshall Precinct is located on the northern boundary of the Armstrong Creek Urban Growth Area. The precinct has an irregular boundary generally bounded by Barwon Heads Road to the east, the future Bellarine Link to the South, and the Grovedale / Waurn Ponds train line to the west. The surrounding land uses include the North East Industrial Precinct (NEIP) to the east, Horseshoe Bend Precinct to the south, the existing Marshall community to the north and the existing Grovedale community to the west.

BACKGROUND

The City of Greater Geelong is currently preparing a Precinct Structure Plan (PSP) for the Marshall Precinct in Armstrong Creek. The PSP will provide the framework for transition from low intensity farmland zoned for urban growth, to urban land-uses identified in the PSP, including up to 1,500 dwellings within the precinct area.

The Marshall Precinct is a unique area with a number of interlinked major transport infrastructure projects that influence the design of the precinct. These projects include the Barwon Heads Road Duplication, the Geelong Ring Road Extension, South Geelong to Waurn Ponds rail duplication project and the Torquay Transit Corridor.

Due to these complex interfaces, Council has identified the need to prepare an Access Management Strategy for the Marshall Precinct. It is noted that Council commissioned Cardno to undertake a Preliminary Traffic Report and this work has been used to guide the Access Management Strategy. The intention of the Access Management Strategy is to identify potential high level transport network options within the precinct, which would then be subject to a final detailed traffic impact assessment (TIA). It is expected that the TIA would finalise the forecast traffic volumes, analyse intersection performance and link volumes, and identify the detailed traffic control requirements to finalise the precinct design.

OBJECTIVES AND PROCESS

In consideration of the numerous planning projects concurrently being undertaken, the objectives of the Access Management Strategy are to:

1. Review existing planning and identify known constraints as they relate to transport;
2. Review high level transport issues;
3. Identify the expected network requirements for each mode of transport;
4. Prepare design principles for the network design for each mode of transport;
5. Identify alignment options to address the network requirements for each mode of transport; and;
6. Recommend the preferred Access Management Strategy

To address these objectives, the Access Management Strategy has been prepared under a three stage process as outlined in Figure 1. This included a review of existing planning and constraints, identification of high level transport issues, summary of design principles, options analysis, rapid SWOT analysis, and finally a recommendation of the preferred Access Management strategy to inform design of the precinct.

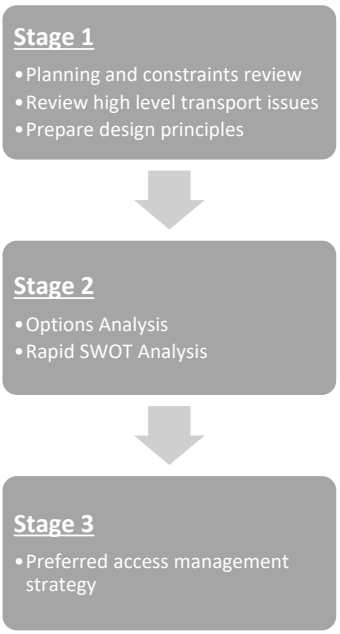


Figure 1 - Process Overview

REFERENCES

1. Cardno Preliminary Traffic Report - 2016
2. Armstrong Creek Bus Planning Study – June 2012
3. Torquay Transit Corridor Study 2012
4. Bellarine Link Access Management Strategy 2017
5. Barwon Heads Road Duplication Project 2017
6. Horseshoe Bend Precinct Structure Plan 2014
7. North East Industrial Precinct Structure Plan 2010

Planning Review

Approved planning for precincts on the boundary of the Marshall Precinct have a significant influence on access arrangements and the design of the future internal transport network. A review of approved planning in the area has identified a number of fixed characteristics that are fundamental to how the internal network can be designed. These known planning elements are discussed in the following sections.

PLANNED PEDESTRIAN AND CYCLE FACILITIES

Key planned pedestrian and off-road cycle facilities that interface with the Marshall Precinct are identified in Figure 2.

Figure 2 - Planned pedestrian and cycle facilities

Key facilities include:

1. On-road cycle facilities are planned to be provided in the following locations:
    a. Bellarine Link in the form of a 4.0m sealed shoulder in either direction
    b. Barwon Heads Road in the form of 1.7m lanes in either direction. Provision of on-road cycle facilities is expected to be provided at the Station Road grade separation of Barwon Heads Road, providing a safer alternative to a right turn across Barwon Heads Road for southbound cyclists.
    c. Horseshoe Bend Road (realigned section south of Reserve Road) in the form of 1.7m lanes in either direction.
    d. Tannery Road in the form of 1.7m lanes in either direction.
    e. Barwarre Road in the form of a widened traffic lane in either direction.
    f. Reserve Road in the form of widened lanes to Barwarre Road.
    g. Station Road in the form of widened lanes to Barwon Heads Road.
2. Off-road shared path facilities will be provided in the following locations:
    a. Torquay transit corridor - will include a north-south off-road shared path across the Bellarine Link into the Marshall Precinct from southern precincts of Armstrong Creek.
    b. Bellarine Link - will include an east-west off-road shared path along the northern side of the Bellarine Link alignment.
    c. Horsheshoe Bend Road (realigned section south of Reserve Road) - will include a north-south off-road shared path on the eastern side of Horseshoe Bend Road
    d. Horseshoe Bend Road (existing section south of Reserve Road) - may have off-road shared paths within the planned recreation reserve
    e. Horseshoe Bend Precinct will have a north-south off-road shared path running parallel with Barwon Heads Road, interfacing with the Marshall Precinct at the future signalised intersection of Barwon Heads Road / Bellarine Link
    f. Horseshoe Bend Road (north of Marshalltown Road) will have a north-south off-road shared path linking to the Barwon River
    g. North East Industrial Precinct will have an off-road shared path running along Tannery Road.

PLANNED PUBLIC TRANSPORT ELEMENTS

The future public transport elements have been summarised in Figure 3 and the following sections discuss the existing planning associated with the public transport network.

Figure 3 – Planned public transport network

South Geelong to Waurn Ponds Rail Duplication

The South Geelong to Waurn Ponds Rail Duplication project involved initial planning to identify works required to duplicate the rail track from South Geelong to Waurn Ponds. The project is intended to enable increased service frequency between Geelong and Waurn Ponds. The planning for this project is in the early stages and further work will be required to confirm specific design aspects. It is recommended that future planning for the project consider the following:

1. Potential for relocation of the existing Marshall Station further south, centrally located between Marshalltown Road and Reserve Road;
2. Grade separated pedestrian crossing of the rail line, centrally located between Marshalltown Road and Reserve Road;
3. Connection of station facilities on the eastern and western side of the rail line to improve access to the station from the west;
4. Off-road 3.0m shared path on the eastern side of the rail line to connect to off-road facilities north of Marshalltown Road;
5. Improved pedestrian and cyclist crossing facilities at Reserve Road and Marshalltown Road; and,
6. Potential for increased delays to traffic at existing level crossings of Marshalltown Road and Reserve Road due to increased service frequencies.

Torquay Transit Corridor

Transport for Victoria are currently undertaking planning work for the Torquay Transit Corridor. The planning for this project is in the early stages so limited detail is available regarding the design and further work will be required to confirm specific design aspects. It is recommended that future planning for the project consider the following:

1. Improved pedestrian crossing facilities of the rail line at Reserve Road
2. Off-road 3.0m shared path along the transit corridor alignment from Reserve Road to the south
3. Grade separated off-road shared path over Bellarine Link

Armstrong Creek Bus Network

Bus network planning undertaken for the Armstrong Creek Growth Area identified the following locations are required for bus access to and through Marshall.

1. Bellarine Link
2. Barwon Heads Road
3. Marshalltown Road
4. Drews Road
5. Reserve Road
6. East-west connector

PLANNED EXTERNAL ROAD NETWORK

The planned future external road network has been summarised in Figure 4 and the following sections discuss the characteristics of each of the boundary conditions to the precinct.

Figure 4 - External Road Network Interfaces

Bellarine Link

The proposed Bellarine Link alignment runs along the southern boundary of the Marshall Precinct and is intended to be an 80km/hr arterial road (as outlined in the Horseshoe Bend Precinct Structure Plan). The link is intended to provide the final east-west link between the current southern end of the Geelong Ring Road at Surf Coast Highway across the Barwon River. This will be a major east-west link between the Armstrong Creek Growth area and the developing southern section of the Geelong urban area and the Bellarine Peninsula to the east.

The design for Bellarine Link is currently under development, however the general alignment of the road, and the locations and layout of intersections are relatively fixed as outlined below:

1. Existing Horseshoe Bend Road (south of Reserve Road) will directly connect to Drews Road and Bellarine Link at an all movements signalised intersection. The lane configuration proposed by VicRoads is identified in Figure 5.
2. Existing Horseshoe Bend Road (north of Reserve Road) will connect to Bellarine link at a left-in left-out intersection.
3. Existing Barwon Heads Road will connect to Bellarine link at an all movements signalised intersection under the ultimate configuration. VicRoads has advised that they will also retain sufficient space to enable future grade separation of Bellarine Link at this location if necessary in the long term.
4. Existing Reserve Road will not have a direct connection to Bellarine Link, so Reserve Road will need to be realigned to an appropriate internal road network alignment.

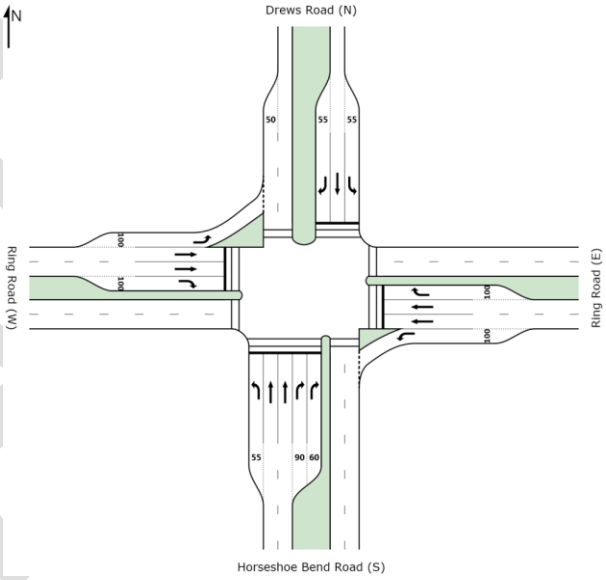


Figure 5 - Proposed lane configuration Drews Rd

Barwon Heads Road

The Barwon Heads Road alignment is still subject to design, however the alignment of the road and locations of intersections are relatively fixed as outlined below:

1. Barwarre Road will remain connected to Barwon Heads Road via an all-movements signalised intersection.
2. Station Road will remain connected to Barwon Heads Road via grade separation and two separate left-in left-out intersections.
3. Grove Road will no longer have direct access to Barwon Heads Road, which will create a local loop back to Marshalltown Road via Tamala Avenue.
4. The existing intersection of Marshalltown Road / Barwon Heads Road / Horseshoe Bend Road will be modified to a 4-leg signalised intersection, where Horseshoe Bend Road will be truncated to the north and to the south of Marshalltown Road.
5. A new signalised intersection will be constructed approximately 700m south of Marshalltown Road. This intersection will be a 4-leg intersection, providing connection into the Marshall precinct to the west and the North East Industrial Precinct to the east.

Western Boundary – Road Links

The western boundary of Marshall is bounded by the existing rail line. This forms a barrier between the Marshall Precinct and the existing suburbs to the west. There are two level-crossings of the rail line that should be retained for access into Marshall, including Reserve Road and Marshalltown Road. Marshalltown Road is an existing connector road running in an east-west alignment on the northern edge of the precinct. Reserve Road is an existing connector road running in an east-west alignment at the southern edge of the precinct.

Transport for Victoria (TfV) have advised that there is no future intent to grade separate at these locations and that there are no planning requirements to preserve capability to grade separate at these locations.

Eastern Boundary – Road Links

The eastern boundary of Marshall is generally governed by the existing Barwon Heads Road alignment. To the eastern side of Barwon Heads Road is the planned North East Industrial Precinct which specifies the characteristics for Tannery Road and Keystone Avenue as outlined below:

1. Tannery Road is identified as part of the primary road network, with a cross section consistent with a median divided connector road, incorporating one lane in each direction and kerbside parking.
2. Keystone Avenue is identified as part of the ‘primary road network’, with two lanes in each direction, central median, kerbside parking / layby on one side.
3. North East Industrial Precinct Local Access Road is identified as a local access road in the North East Industrial Precinct Structure Plan, running in a south-west to north-east alignment.

Key Issues

A workshop was held with officers from the Engineering Services Department of CoGG, where a number of existing issues were discussed. These included North to South through traffic; East to West through traffic; Smith Street Road Reserve; Drews Road Cycle Provision; Barwon Heads Road Southbound Cyclist Right Turn; and Drews Road bus route. These issues are discussed in further detail in the following section.

EXISTING PEDESTRIANS

Existing pedestrian facilities in the Smith Street Road Reserve have been identified as a valuable community asset to seek to maintain. The road reserve contains significant vegetation to be protected and also provides a direct alignment to connect with the future train station. These characteristics make the existing reserve a valuable pedestrian and off-road cycle network asset, connecting the local area with Marshall Station and the neighbouring North East Industrial Precinct. Protection of this area as a greenway is therefore a supported principle in the Access Management Strategy.

Existing crossing opportunities of the rail line are limited, with separation of 1km between Reserve Road and Marshalltwon Road. The Reserve Road level crossing currently has no pedestrian crossing facilities and as development increases in this area it will be necessary to improve facilities to accommodate pedestrians at this location.

EXISTING CYCLISTS

The cross section of Drews Road in the existing developed area has a width in the order of 9.8m. This width is insufficient for on-road cycle provision and options to connect Station Road with Drews Road with on-road cycle should therefore be explored. There are currently no dedicated cyclist facilities on Marshalltown Road between Barwarre Road and Barwon Heads Road.

Cyclists heading southbound along Barwon Heads Road do not currently have safe right turning facilities into the Marshall precinct. It is expected that the Barwon Heads Road duplication project will provide grade separated facilities at Station Road to provide a safer alternative for on-road cyclist access to and from the precinct.

PUBLIC TRANSPORT

The existing bus network is identified in Figure 6. Drews Road is currently unsealed, so existing services are currently accessing Marshall Station via Marshalltown Road. As development progresses in Armstrong Creek, there will be a need to operate bus services through the precinct to serve local demand and to provide more direct connections to the station from Armstrong Creek suburbs to the south. Drews Road and an East-West Connector road will therefore be important connections through the precinct to Grovedale and to Marshall Station.

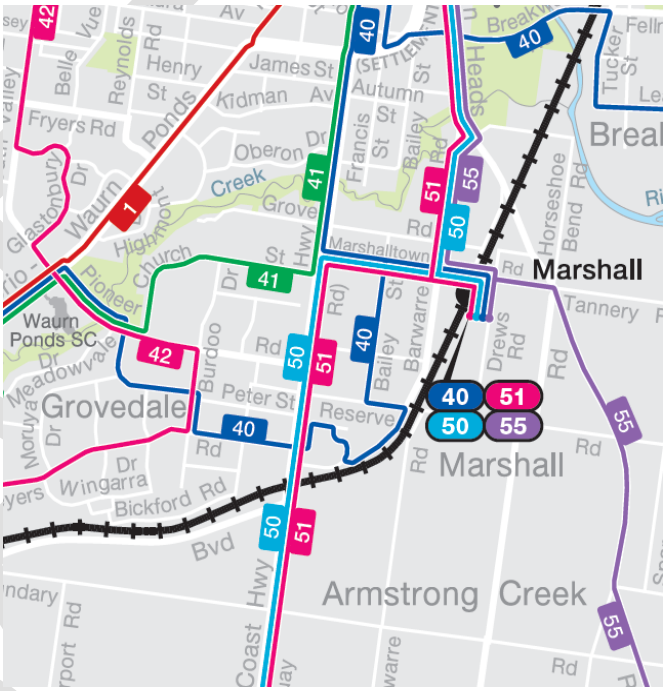


Figure 6 - Existing bus network

EXISTING TRAFFIC

Review of existing traffic volumes indicate that Reserve Road and Horseshoe Bend Road in the Marshall area are currently performing some sub-regional functions. This is primarily related to the alignments of the North-South local roads (Horseshoe Bend Road and Barwarre Road) providing more direct routes between the north and the south when compared to the existing Barwon Heads Road alignment, which follows a north-west to south-east orientation along the precinct boundary.

Drews Road is currently unsealed and the staggered alignment with Horseshoe Bend Road (south) is not aligned with the desire line between the north and south. These characteristics result in Drews Road experiencing limited existing traffic. The Horseshoe Bend Precinct Structure Plan, does however identify that Horseshoe Bend Road will be realigned to intersect with Drews Road and the Bellarine Link. This realignment, combined with sealing of Drews Road and closure of Horseshoe Bend Road (at Barwon Heads Road) will provide more direct routes to Marshall Station, but will also present an attractive alignment for through traffic to travel between the south and north of the precinct. Provision of an East-West Connector Road may also be an attractive route for through traffic to cut through to Barwon Heads Road, so design of Drews Road and the East-West Connector will require careful consideration to ensure that future traffic on these roads is in line with the desired road hierarchy for the precinct. Consideration should be given to traffic control and alignment options to ensure the appropriate management of through traffic.

Once Bellarine Link is constructed, the section of Reserve Road west of Drews Road will require realignment. RRV has given consideration to direct connection to Bellarine Link, however this was ruled out by RRV based on the planned function of Bellarine Link. Reserve Road will therefore need to be realigned to connect to Drews Road once Bellarine Link is constructed. There is a reasonable existing traffic volume using Reserve Road (in the order of 1,800 vpd) between the rail line and Drews Road that will need to be accommodated on the realignment.

Design Principles

A series of design principles have been prepared to guide preparation of the internal transport network elements of the PSP. The following sections articulate the desired design principles for each of the different modes of transport.

PEDESTRIAN AND OFF-ROAD CYCLE NETWORK

1. Provide controlled pedestrian and cycle crossing facilities at the rail crossing of Reserve Road
2. Provide grade-separated crossing facilities at Marshall Station to improve accessibility across the railway line and the station.
3. Provide high quality pedestrian and cyclist facilities along the Smith Street Road Reserve to maximise usage interface with the greenway.
4. Maximise usage of known utility easements for direct pedestrian and off-road cyclist facilities.
5. Provide high quality off-road pedestrian and cyclist facilities to connect the following locations:
    a. Horseshoe Bend Road (realigned section) to Drews Road / Smith Street
    b. Drews Road / Smith Street to Marshall Station
    c. Marshall Station to North East
    d. Barwon Heads Road to Drews Road
    e. Torquay Transit Corridor to Marshall Station
    f. Marshall Station to Marshalltown Road
    g. Reserve Road to Drews Road / Bellarine Link
    h. Drews Road / Bellarine Link to Barwon Heads Road
    i. Horseshoe Bend Road (along existing alignment)
6. Provide high quality crossing facilities at key locations, including:
    a. Drews Road / East-West Connector
    b. Drews Road / Bellarine Link
    c. Horseshoe Bend Road / East-West Connector
    d. Horseshoe Bend Road / Bellarine Link
    e. Barwon Heads Road / East-West Connector
    f. Barwon Heads Road / Bellarine Link

ON-ROAD CYCLE NETWORK

1. Provide direct on-road cycle facilities to Marshall Station from key points in the arterial road network and Barwarre Road. Specific connections should include:
    a. Between Barwon Heads Road and Drews Road along the East-West Connector
    b. Between Bellarine Link and Marshalltown Road along Drews Road
    c. Between Drews Road and Barwarre Road along Marshalltown Road
    d. Between Drews Road and Barwarre Road along Reserve Road
2. Provide on-road cycle facilities to enable safer right turns for cyclists from Barwon Heads Road southbound. Consideration should be given to providing on-road cyclist facilities to enable a left turn running under Barwon Heads Road at Station Road.

BUS NETWORK

Provide capability for buses along the following roads:

1. East-west connector
2. Drews Road
3. Marshalltown Road
4. Reserve Road

ROAD NETWORK

1. Provide an east-west oriented connector level road to provide access to the arterial road network and the North East Industrial Precinct via Barwon Heads Road.
2. Realign Reserve Road to connect to Drews Road in order to facilitate connection of Bellarine Link to Drews Road.
3. Provide a north-south oriented connector level road along the Drews Road alignment to accommodate local and Marshall Station traffic.
4. Provide a north-south oriented key local road along the existing Horseshoe Bend Road alignment to provide local residents with connections to the east-west connector.
5. Design of road network elements (both alignments and control devices) should encourage through

vehicle trips to use the arterial road network and avoid unnecessarily using the internal network.

6. Provide vehicle access to Marshall Station on the western side of the railway line

Options Analysis

An options analysis was undertaken to consider the known constraints and endorsed planning in the area to identify suitable access strategies. This process identified four potential access strategies to be considered in a Rapid SWOT analysis. The differences between options related primarily to the alignment of the east-west connector and realignment options for Reserve Road. The following provides an overview of each of the options.

OPTION 1

The concept plan for Option 1 is presented in Figure 7 and Attachment 1 – Option 1. This option provides an east-west connector alignment running immediately to the south of the Smith Street road reserve, preserving vegetation and pedestrian / cyclist facilities in the Smith Street road reserve which allows the existing Smith St to be maintained as a pedestrian and cyclist greenway. Reserve Road connects directly to the east-west connector at a raised roundabout with pedestrian crossings on all approaches at the Drews Road / Reserve Road / East-West Connector located approximately 400m north of the Drews Road / Bellarine Link intersection.

Figure 7 - Option 1 Concept Plan

OPTION 2

The concept plan for Option 2 is presented in Figure 8 and Attachment 2 - Option 2. This option presents an alternative east-west connector alignment located approximately 200m south of the Smith Street road reserve. This option provides a local access street running immediately south of the Smith Street road reserve, preserving vegetation and pedestrian / cyclist facilities in the Smith Street road reserve and maintaining Smith Street as a pedestrian and cyclist only greenway. Reserve Road connects directly to the east-west connector at a roundabout at the Drews Road / Reserve Road / East-West Connector intersection location approximately 200m north of the Drews Road / Bellarine Link intersection.

Figure 8 - Option 2 Concept Plan

OPTION 3

The concept plan for Option 3 is presented in Figure 9 and Attachment 3 – Option 3. This option presents a variation to Option 1, with an alternative treatment to the Reserve Road alignment, creating a staggered t-intersection arrangement at Drews Road, avoiding creation of a 4-way intersection with the east-west connector.

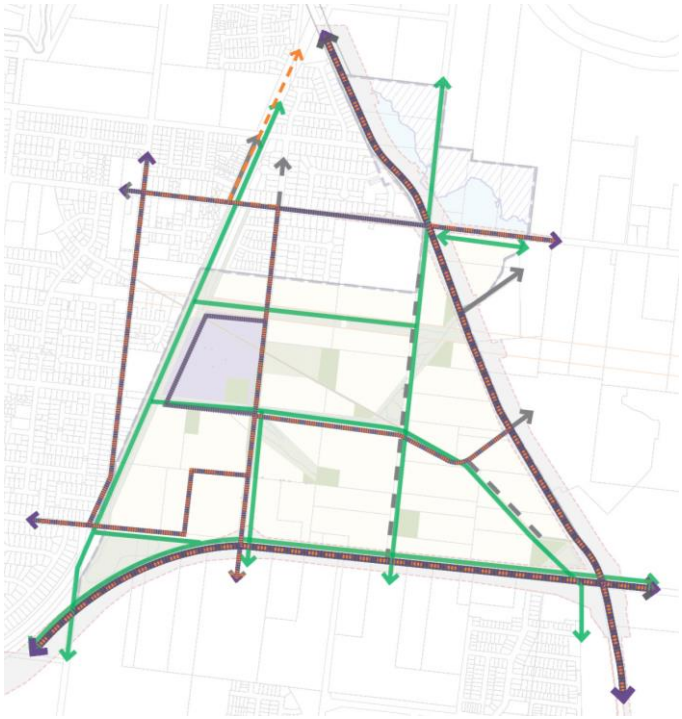


Figure 9 - Option 3 Concept Plan

OPTION 4

The concept plan for Option 4 is presented in Figure 10 and in Attachment 4 – Option 4. This option is a variation to Option 1, with an alternative treatment to the East-West connector alignment. The intersections of the East-West connector remain consistent with Option 1, however the horizontal alignment deviates to the south of Smith Street Road Reserve to reduce perceived impacts to the Smith Street greenway.

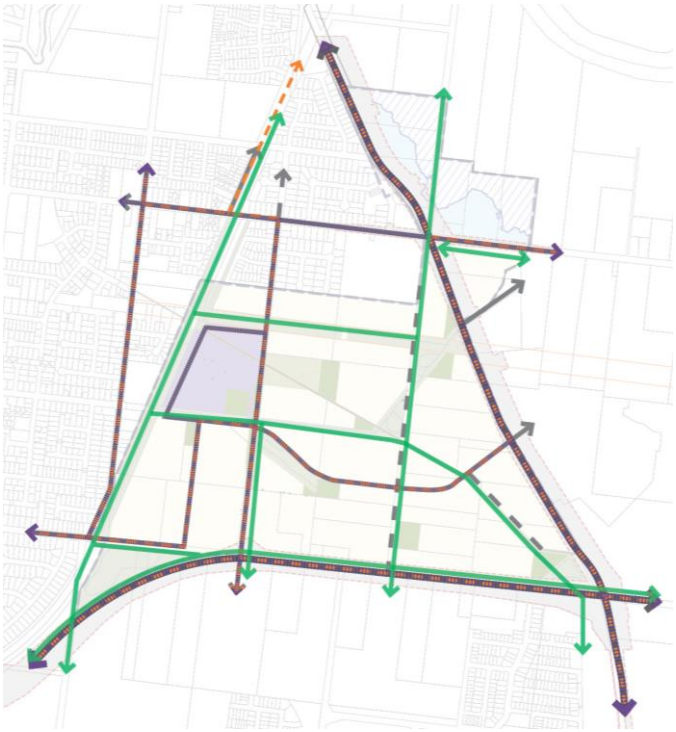


Figure 10 - Option 4 Concept Plan

Rapid SWOT Analysis

OPTION 1

Strengths

1. Alignment reduces residential exposure to E-W connector road, with limited direct residential access on the northern side due to parallel alignment to Smith Street and easement.
2. Alignment is a direct and intuitive route for access to the station for on-road cycle, buses and pedestrians
3. Central location maximises residential catchment area for bus stops on the E-W connector road.
4. Central location maximises attractiveness of E-W connector for properties in the northern areas of Marshall, reducing traffic pressure on Drews Road.
5. Central location minimises attractiveness of the E-W connector for through traffic from south-north.
6. Central location of the E-W Connector / Drews Road intersection provides a best-practice centralised location for speed reduction on Drews Road.
7. Incorporates traffic control devices at key junctions to provide discontinuity to the Surf Coast Highway - Barwon Heads Road route, which is intended to discourage use of Reserve Road and the east-west connector for through traffic movements.
8. Provides 400m intersection spacing between Reserve Road / East-West Connector / Drews Road intersection and the Bellarine Link / Drews Road Intersection. This is considered an optimal intersection spacing offering greater network resilience to the future Bellarine Link, providing adequate spacing for queues and allowing lane drop to occur between Bellarine Link and the proposed east west-connector.

Weaknesses

1. Alignment of the connector road would be located adjacent to the existing Smith Street corridor.
2. The alignment of the connector road would run between the existing areas with Environmental Significance Overlay
3. Introduces reasonably long diversion for Reserve Road traffic travelling between West-South.
4. Curved road alignment will be required across the utility easement.

Opportunities

1. Opportunity to reduce cross-section of the E-W connector with removal of on-street parking from the northern side. Targeted parking indents could be considered in locations.
2. Opportunity to provide raised pedestrian crossings at the roundabout of East-West Connector and Drews Road, providing good level of service for pedestrians to access Marshall Station.

Threats

1. Existing consultation work identified options for connector to be located further south.
2. Further detailed consideration of lot layouts between Drews Road and the realigned Reserve Road will be required.

OPTION 2

Strengths

1. Alignment of connector road to the south allows roads abutting Smith Street Greenway to be defined as local access roads, providing a lower order street fronting the greenway.
2. Alignment of connector road to the south provides shorter travel distance between Reserve Road and Bellarine Link

Weaknesses

1. Alignment of E-W Connector is less direct for traffic and on-road cyclists travelling between Marshall Station, Barwon Heads Road and the North East Industrial Precinct.
2. Intersection spacing (<180m) between Bellarine Link and E-W Connector provides lower network resilience.
3. Two lane departure on the northern leg of Drews Road / Bellarine Link intersection would need to transition to single lane prior to intersection of E-W Connector / Drews Road within the 180m separation.

Opportunities

1. Some opportunity (subject to traffic analysis) to provide raised pedestrian crossings at the roundabout of the East-West Connector and Drews Road offer the ability to improve pedestrian priority.

Threats

1. Performance of Drews Road / E-W Connector and Bellarine Link / Drews Road would need to be undertaken to confirm queue length and separation requirements.
2. Impact of pedestrian crossings on queue performance would need to be considered in traffic impact assessment if this option is considered the preferred option.

OPTION 3

Strengths

1. Provides discontinuity between Reserve Road to the west and Barwon Heads Road to the east to make this an undesirable through traffic route.
2. Provides an optimal alignment for subdivision, allowing maximum development potential.

Weaknesses

1. Introduces discontinuity to E-W travel which makes legibility of the network more difficult.
2. The network layout is less beneficial under scenarios with Marshall Station being relocated to the south.

Opportunities

1. Reduces need for 4-way intersections, thereby eliminating need for a roundabout at the E-W Connector / Drews Road intersection.

Threats

1. Engineering services have indicated that they do not support the introduction of a stagger-T arrangement for the Reserve Road / East-West Connector alignment.

OPTION 4

Strengths

1. Alignment reduces residential exposure to E-W connector road, with reduced direct residential access on the southern side due to parallel alignment with the drainage reserve to the south.
2. Alignment avoids the Smith Street greenway providing greater pedestrian amenity in this area.
3. Deviated alignment reduces desirability of the East-West Connector as a through traffic route from the south.
4. Central location of the E-W Connector / Drews Road intersection provides a best-practice centralised location for speed reduction on Drews Road.
5. Incorporates traffic control devices at key junctions to provide discontinuity to the Surf Coast Highway - Barwon Heads Road route, which is intended to discourage use of Reserve Road and the east-west connector for through traffic movements.
6. Provides approximately 400m intersection spacing between Reserve Road / East-West Connector / Drews Road intersection and the Bellarine Link / Drews Road Intersection. This is considered an optimal intersection spacing offering greater network resilience to the future Bellarine Link, providing adequate spacing for queues and allowing lane drop to occur between Bellarine Link and the proposed east west-connector.

Weaknesses

1. Alignment is a less direct route to Barwon Heads Road providing a slightly longer journey for local on-road cycle, bus and general traffic trips.
2. The alignment of the connector road would run between the existing areas with Environmental Significance Overlay
3. Introduces reasonably long diversion for Reserve Road traffic travelling between West-South.

Opportunities

1. Opportunity to reduce the cross-section of the E-W connector with removal of on-street parking from the southern side. Targeted parking indents could be considered in locations.
2. Opportunity to provide raised pedestrian crossings at the roundabout of East-West Connector and Drews Road, providing good level of service for pedestrians to access Marshall Station.

Threats

1. Existing consultation work identified options for connector to be located further south.
2. Engineering services support a more direct alignment of the East-West Connector Road to Barwon Heads Road.
3. Further detailed consideration of lot layouts between Drews Road and the realigned Reserve Road will be required.

Conclusion & Recommendations

This report has reviewed existing issues and planning relevant to the preparation of the transport components of the Marshall Precinct Structure Plan. The review of the existing planning adjacent to the precinct has identified the boundary conditions that have guided the framework for the preparation of initial concept design for the internal transport network.

Based on the planned transport infrastructure and known network characteristics, a series of design principles were prepared to guide the preparation of potential transport network alignments in the PSP area. These principles were considered and four concepts were prepared in consultation with key Council staff.

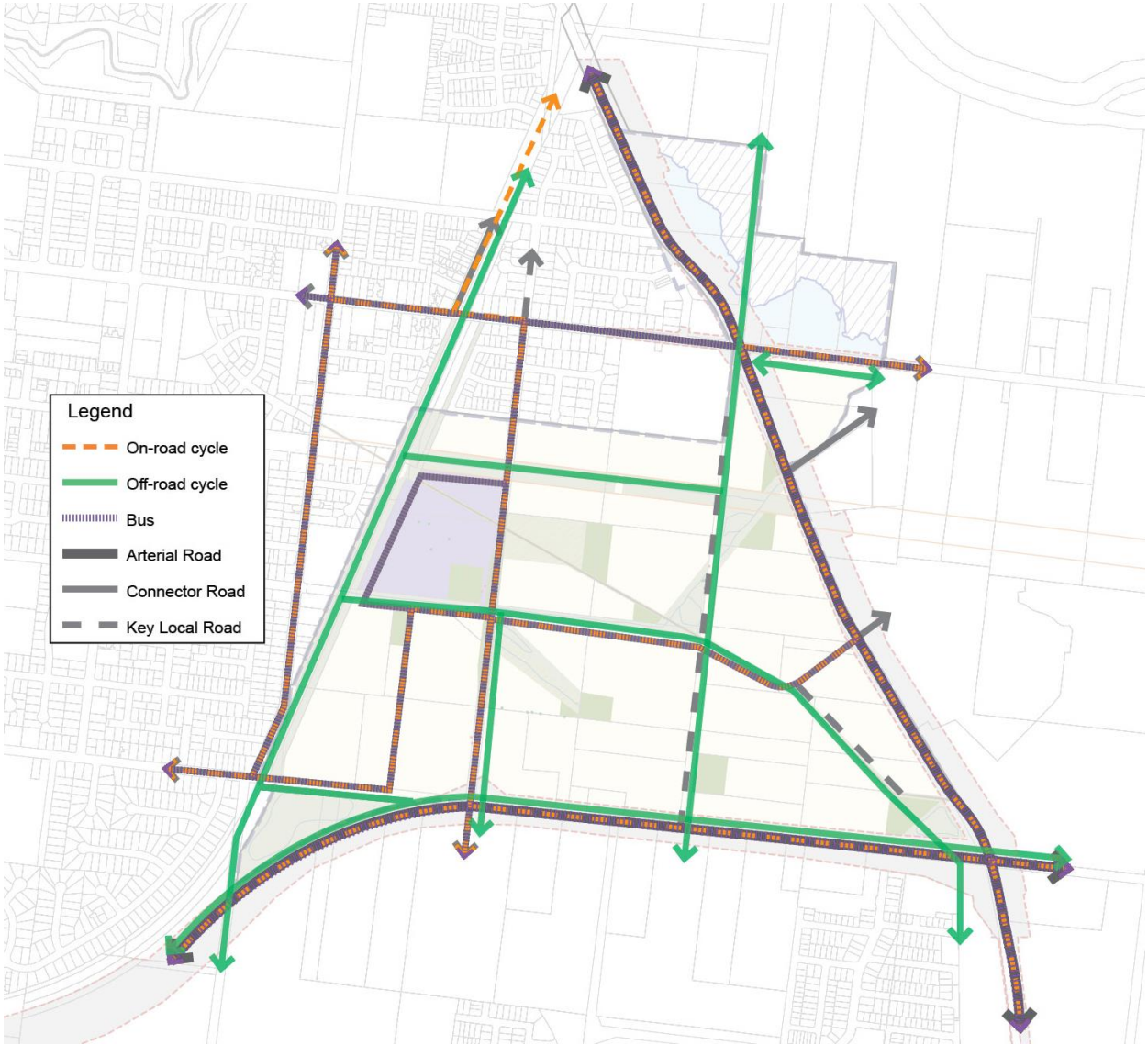
A rapid SWOT analysis was undertaken for each of the options. The SWOT analysis identified that all four options generally achieved the design principles, however some options were considered to perform better from either access or amenity perspectives.

When evaluated with an access focus, Option 1 was considered to offer the most logical and direct routes between Reserve Road and Barwon Heads Road and offered the most convenient road connection to Marshall Station. Through discussions with Council's Planning and Urban Design Units, the Option 1 alignment of the East-West Connector Road (being directly adjacent to the Smith Street Greenway) was considered to detract significantly from the planned greenway environment and Option 4 was considered to offer more pedestrian amenity in the Smith Street Greenway.

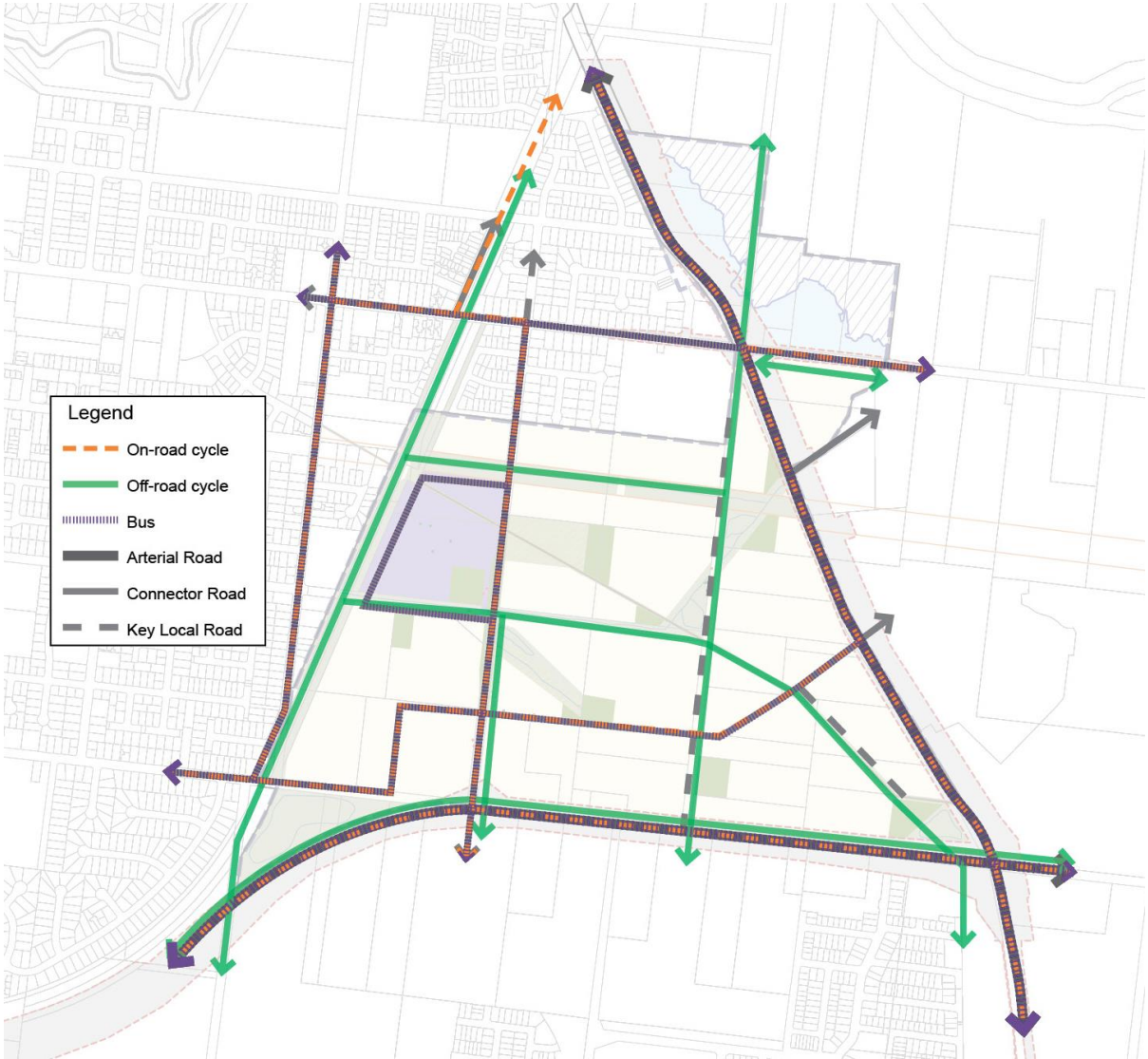
Given the overarching vision for Armstrong Creek is to encourage a high proportion of active travel, encouraging walking and cycling by maintaining high pedestrian amenity is a priority. Based on this, Option 4 was considered the preferred response based on competing transport objectives in the area.

Based on the above discussion and findings, it is recommended that Option 4 be taken forward to a Traffic Impact Assessment to review traffic performance and finalise the detailed traffic control elements required in the network.

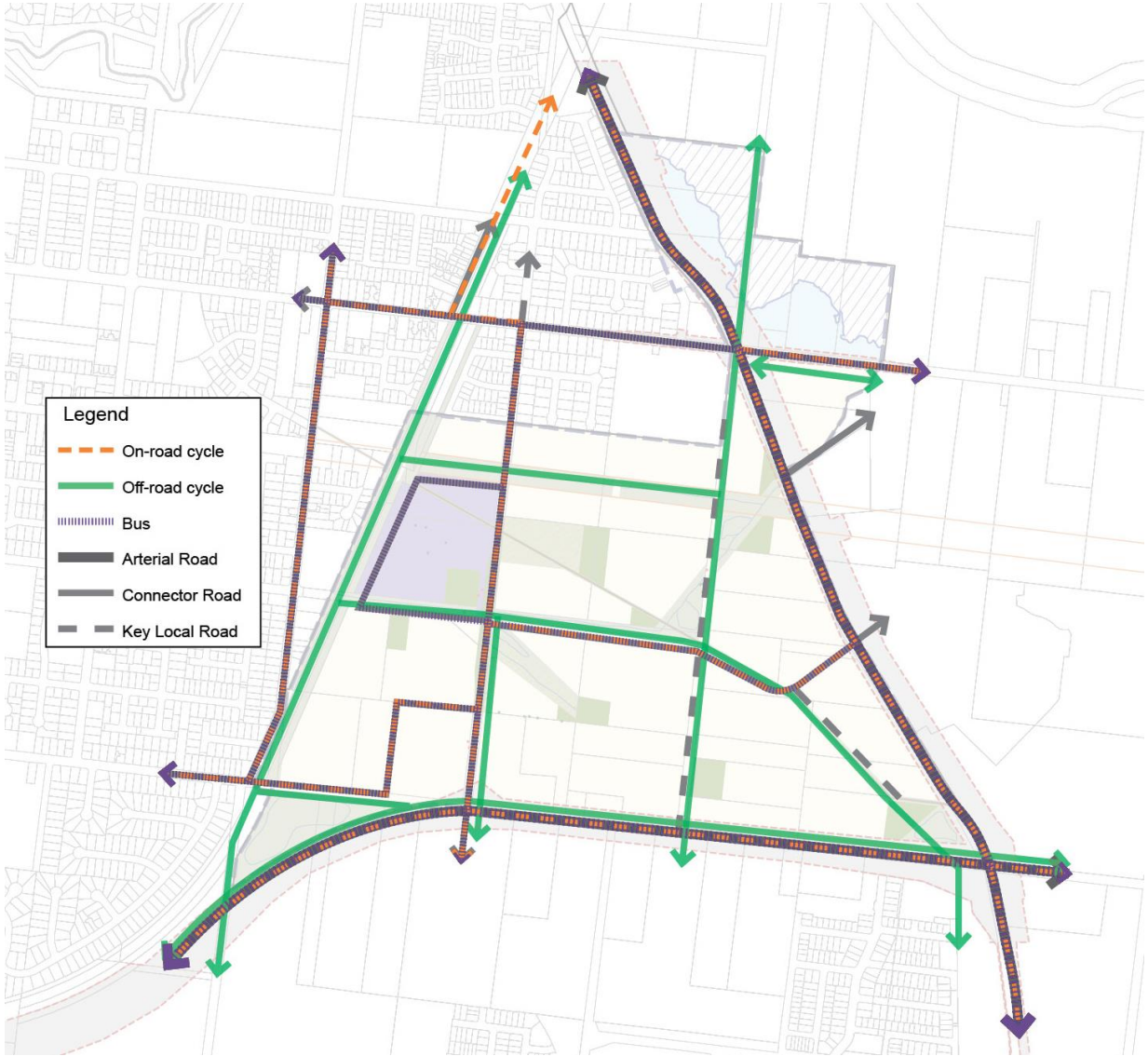
Attachment 1 – Option 1



Attachment 2 - Option 2



Attachment 3 – Option 3



Attachment 4 – Option 4