

DRAFT LATM PLAN **DARLEY, BACCHUS MARSH**

LOCAL AREA TRAFFIC MANAGEMENT STUDY

SALT³

DRAFT LATM PLAN DARLEY, BACCHUS MARSH

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1 INTRODUCTION

SALT has been engaged by Moorabool Shire Council to undertake a Local Area Traffic Management (LATM) study for the Darley Township (Stage 4 of the LATM study for the greater Bacchus Marsh township). The study is being undertaken in response to increased population growth and traffic volumes, and is in direct response to recommendations within the Bacchus Marsh Integrated Transport Strategy.

The following report provides a draft LATM plan to address the concerns raised during the first stage of the LATM plan, also conducted by SALT, which consisted of an existing condition assessment of the study area (20454TREP01F01 – Existing Conditions Report). This assessment collated relevant background information, traffic data community consultation surveys and an on-site investigation, and should be read in conjunction with the Draft LATM plan outlined within this report.

1.1 STUDY AREA

The study area is located in the Darley township and is bounded by Albert Street, Halletts Way, Ramsay Crescent in the south; Lerderberg River and the Bacchus Marsh Golf Club in the east; Pamela Court and Augusta Place in the north; and Manning Boulevard in the west. The extent of the study area is generally shown in **Figure 1**.

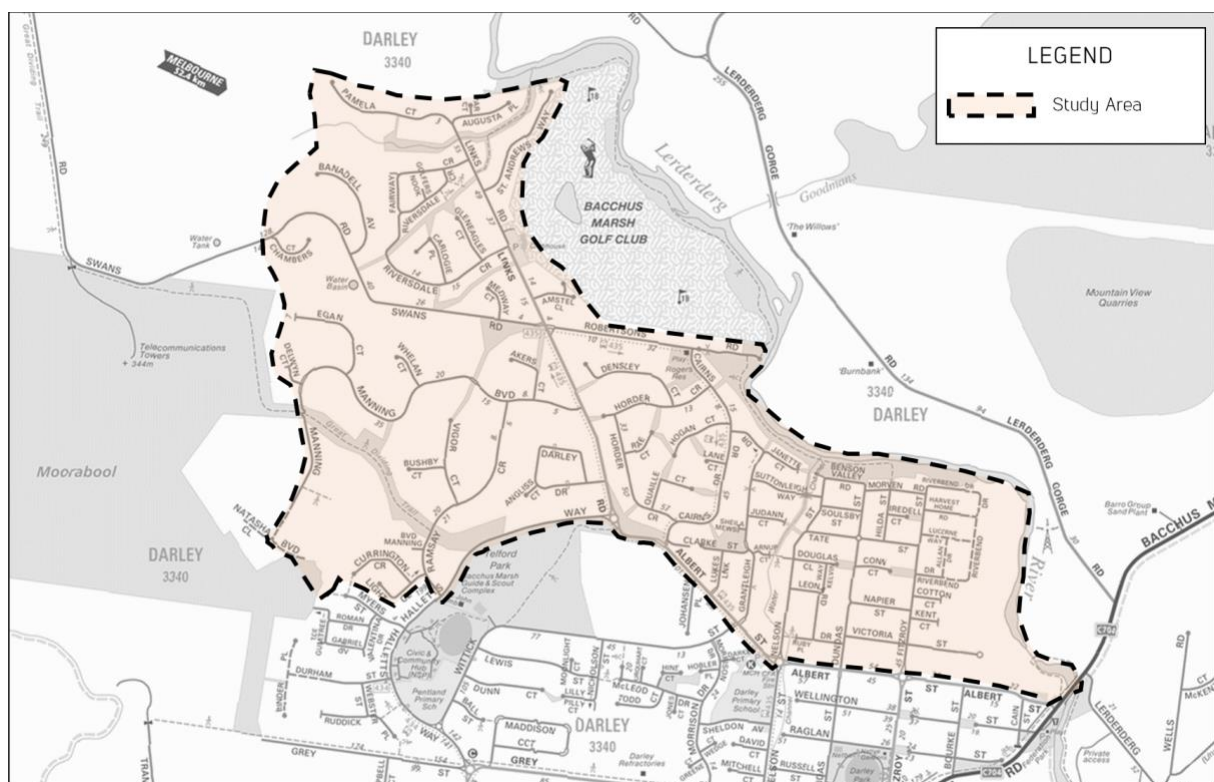


Figure 1 Study area shown on Melway (map reference: 327:H11)

Sections of Albert Street and Halletts Way were reviewed as part of the previous stage, Stage 3, of the Bacchus Marsh LATM Study. The previously proposed LATM measures and SALT’s new proposed LATM measures will be discussed in this report.

1.2 EXISTING LATM MEASURES

The existing traffic management devices implemented in the local area by Council are shown in **Figure 2**.



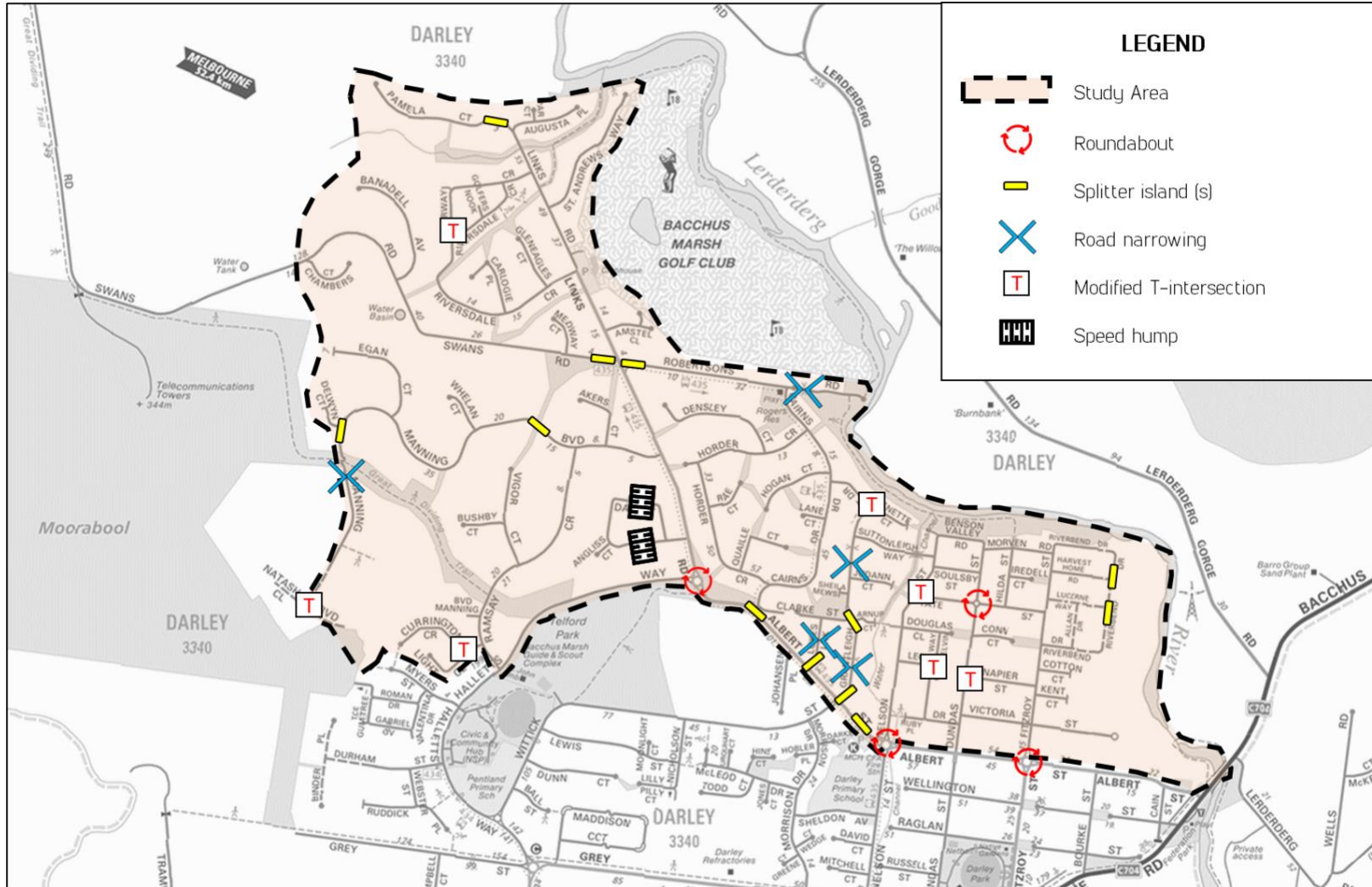


Figure 2 Existing LATM measures implemented within the study area

1.3 PREVIOUSLY PROPOSED TREATMENTS

The previous stage of the Bacchus Marsh LATM Study, Stage 3, included Albert Street and Halletts Way in the study area.

As part of the previous investigations, it was concluded that modifications to the Nelson Street / Albert Street roundabout and the Albert Street / Halletts Way / Links Road roundabout were appropriate LATM treatments. Raised treatments were also proposed at the intersection of Dundas Street / Albert Street and Bourke Street / Albert Street.

For Halletts Way, as previously mentioned, modifications were proposed to the roundabout intersection with Links Road and Albert Street. Additionally, a 50 km/h speed limit was proposed along Halletts Way.

The previously proposed treatments are shown in **Figure 3**.

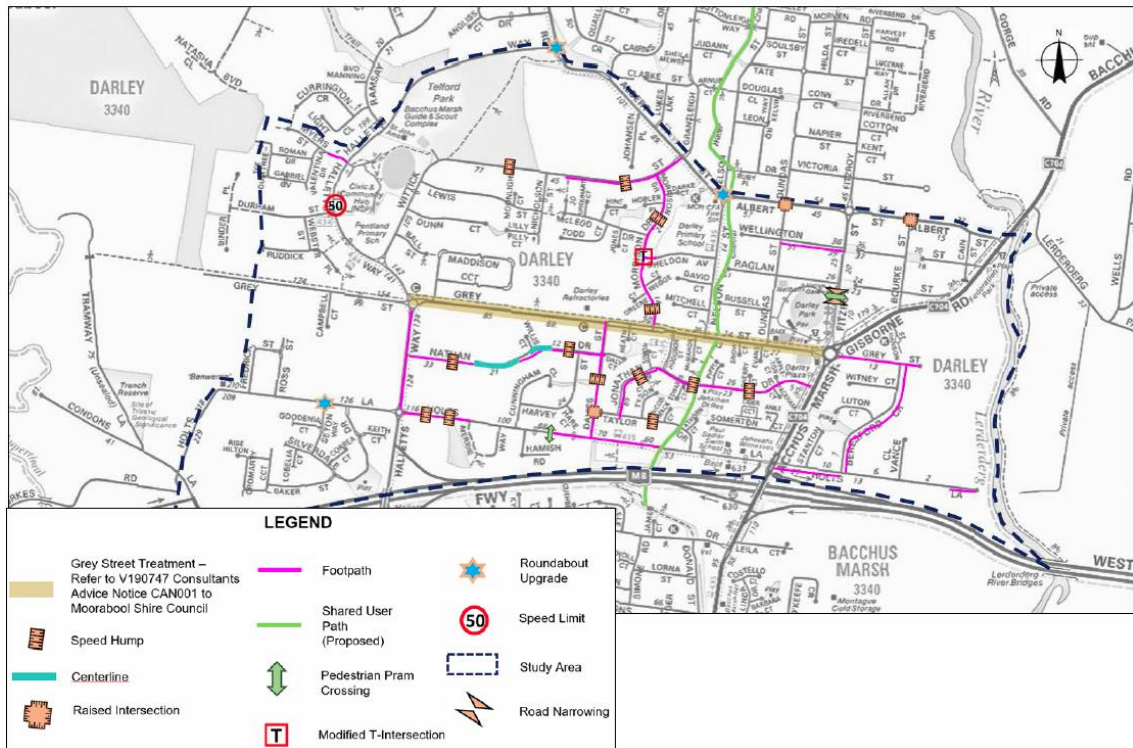


Figure 3 Stage 3 proposed LATM treatments

Since the conclusion of the previous study, the proposed treatments on Albert Street have not been implemented at the time of this report.

For Halletts Way, the speed limit of 50 km/h has been implemented at the time of this report.

2 SCOPE OF WORKS

2.1 OVERVIEW

The Local Area Traffic Management (LATM) measures proposed in the following sections are informed by SALT's understanding of the study area as set out within the existing conditions assessment (20454TREP01F01 – Existing Conditions Report) and the principles of the Austroads Guide to Local Area Traffic Management.

It is imperative to understand that the scope of an LATM plan cannot directly impose measures on arterial roads managed by Department of Transport (VicRoads), as any works associated with maintenance or improvements to these roads cannot be undertaken by Council. However, an LATM plan does consider these roads at all stages and endeavours to accommodate the needs of the local community wherever possible. In any case, there are no arterial roads within this LATM study area.

Similarly, although car parking issues can be highlighted by an LATM study, directly fixing parking supply issues is not the main intent of an LATM study. However, parking access can be addressed and where possible, car parking provision improvements can sometimes be made indirectly.

2.2 COMPLIMENTARY PROJECTS

SALT is aware of the following planned/approved projects in Darley that have complementary aims to this Draft LATM plan:

- Bacchus Marsh Integrated Transport Strategy;
- Bacchus Marsh Hike and Bike Strategy;
- Aqualink North Cycling and Walking Corridor; and
- Bald Hill 1000+ Steps.

The Bacchus Marsh Integrated Transport Strategy and the Hike and Bike Strategy (2014) proposes to implement footpaths along Cairns Drive, Robertstons Road, Links Road (north of Robertsons Road/Swans Road) as well as in St Andrews Way. These footpaths will have connections to the Lerderderg Walking Track.

The Aqualink North Cycling and Walking Corridor project proposes to install a walking track between Albert Street in the south and the Lerderderg Walking track in the north. This walking track follows the alignment of an existing water channel and will bisect Suttonleigh Way, Nelson Street and Albert Street. At the walking track's intersection with each of these roads, there will be a raised pedestrian crossing treatment, with the exact details of the treatments to be confirmed.

The Bald Hill 1000+ Steps project will install a renewed walking trail along the existing Lerderderg Trail walking track. In the study area, the existing trail bisects Manning Boulevard and Ramsay Crescent. This walking track will provide improved walking and recreation facilities for residents.

Where appropriate, the location of the proposed works for the above complimentary projects will be shown in **Figure 12**.

3 OVERVIEW OF POTENTIAL LATM TREATMENTS

In order to guide decisions concerning implementation of certain measures, it is important to have a thorough understanding of the potential treatments available to address issues throughout the study area, such as those raised by the local Bacchus Marsh community.

The following sections comprise descriptions of several LATM treatments that are considered appropriate for the urban/semi-regional context of the section of the Darley township that the study area is located in. The sections will also provide the respective advantages and disadvantages of each treatment.

It is noted that these treatments may be considered individually or in combination with one another and that on long stretches of road, it is best to implement a number of treatments to maintain the same profile throughout.

3.1 CENTRE BLISTER (OR SIMILAR)

A centre blister is a concrete island positioned at the centreline (median) of a street with a wide oval plan shape that narrows the lanes, diverts the angle of traffic flow into and out of the device and can be used to provide pedestrians with a refuge.

Figure 4 provides an example of a centre blister LATM treatment.



Figure 4 Example of centre blister island (from Nearmap aerial photography)

Advantages:

- Reduce vehicle speeds;
- Prevent drivers from overtaking others;
- Provide a refuge for pedestrians and cyclists crossing the street;
- Flexibility in design allows buses and commercial traffic to be accommodated; and
- Visually enhance the street through landscaping and reduce the 'gun barrel' effect on long straight roads.

Disadvantages:

- Prohibit or limit access and movement from driveways;
- Reduce on-street parking adjacent to the islands;
- Can create a squeeze point for cyclists if not appropriately catered for in the design;
- May require kerb and footpath realignment in narrow streets;
- Ineffective at reducing through traffic; and

- Relatively expensive to install and maintain.

3.2 MODIFIED T-INTERSECTION

Modified T-intersections are used to effect a change in the vehicle travel path, thereby slowing traffic via deflection of traffic movements and/or reassignment of priority.

Figure 5 provides an example of a modified T-intersection.



Figure 5 Example of a modified T-intersection (from Nearmap aerial photography)

Advantages:

- Control traffic movements and improve traffic flow;
- Reduce vehicle speeds at the treatment point;
- Facilitate safe pedestrian crossing;
- Remove/reduce the number of vehicle conflict points;
- Can lower vehicle speeds along the length of the street when installed in a series; and
- Can accommodate buses and heavy vehicles.

Disadvantages:

- Relatively expensive devices;
- Can create squeeze points for cyclists if not appropriately catered for in the design;
- Reduce the availability of on-street parking opportunities.

3.3 SPEED HUMP

A speed hump is a speed reduction device in the form of a raised curved profile extending across the roadway. Speed humps are typically 70mm to 120mm high, with a total length of three to four metres.

Figure 6 provides an example of a speed hump.



Figure 6 Example of a speed hump (from Nearmap aerial photography)

Advantages:

- Significantly reduce vehicle speeds in the vicinity of the device;
- Can significantly reduce road crashes;
- Relatively inexpensive to install and maintain;
- Discourage through traffic;
- Regulate speeds over the entire length of a street when used in a series; and
- Can be designed to limit discomfort to cyclists.

Disadvantages:

- Traffic noise may increase just before and just after the device due to braking, acceleration and the vertical displacement of vehicles;
- Can divert traffic to nearby streets without LATM measures;
- Can be uncomfortable for vehicle passengers and cyclists; and
- May adversely affect access for buses, commercial vehicles and emergency vehicles.

3.4 RAISED TREATMENT

A raised treatment is a raised section of roadway approximately 90mm to 100mm high, ramped up from the normal level of the street with a platform extending over more than a standard car length (at least 6m but typically more). Raised sections of roadway can be located at mid-block locations, or they can cover an intersection between two roadways.

Figure 7 provides an example of a raised treatment.



Figure 7 Example of a raised treatment (from Google Maps Streetview)

Advantages:

- Significantly reduce vehicle speeds in the vicinity of the device;
- May discourage through traffic;
- Can be used as form of threshold treatment;
- Can highlight the presence of an intersection; and
- Can regulate speeds over the entire length of the street when used in a series.

Disadvantages:

- Traffic noise may increase just before and just after the device due to braking, acceleration and the vertical displacement of vehicles;
- Can divert traffic to nearby streets without LATM measures;
- Can be uncomfortable for vehicle passengers and cyclists;
- May adversely affect access for buses, commercial vehicles and emergency vehicles; and
- Require care that ramp markings are not confused with intersection control markings when located at an intersection.

3.5 LEFT-IN / LEFT-OUT

A left-in / left-out treatment is typically represented by a raised island at an intersection, which aims to obstruct right-turn and through movements to and from the intersection, street or driveway.

Figure 8 provides an example of a left-in / left-out treatment.

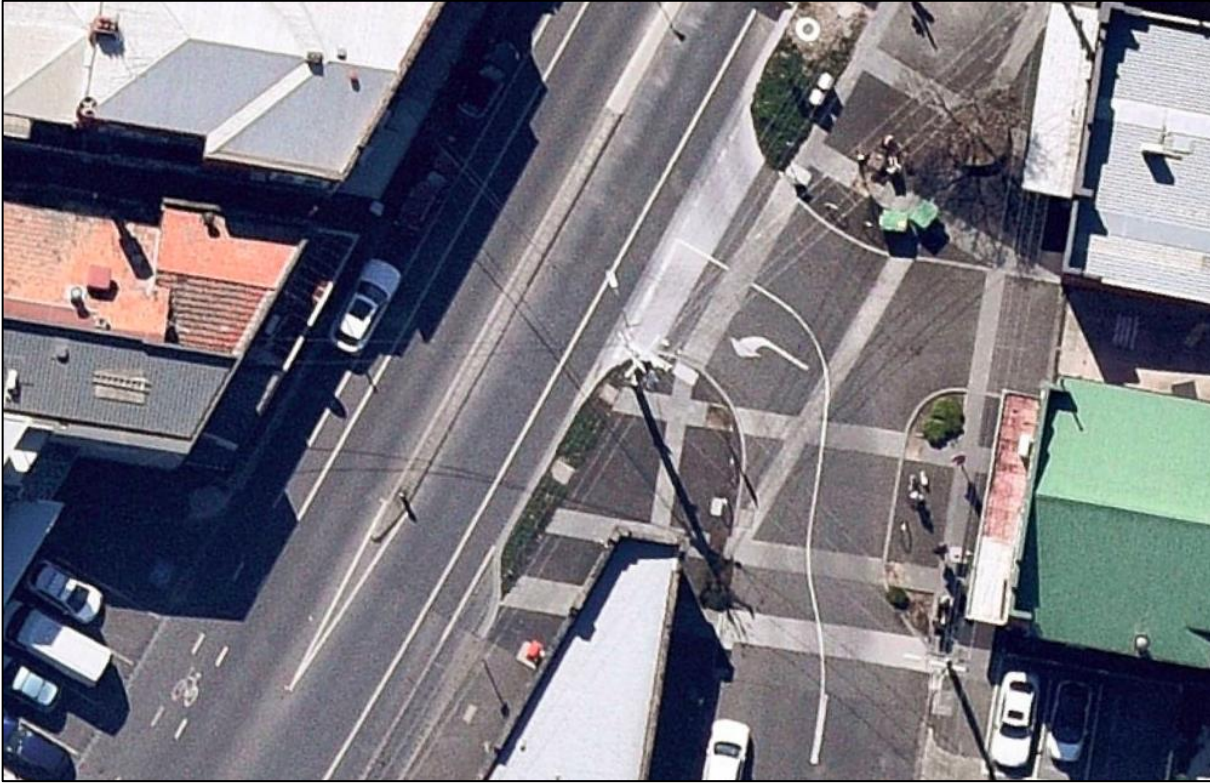


Figure 8 Example of a left-in / left-out treatment (from Nearmap aerial photography)

Advantages:

- Reduce traffic volume;
- Reduce the number of conflict points;
- Provide a refuge for pedestrians and cyclists;
- Reinforce the need for drivers crossing the dividing line to give way; and
- Provide greater landscaping opportunities.

Disadvantages:

- Restrict access to local streets and/or driveways;
- May create a squeeze point for cyclists;
- Divert traffic to other local streets without the same restriction; and
- Drivers may not comply if an appropriate designed median island is not incorporated.

3.6 SHARROWS

Sharrows are pavement markings consisting of a bicycle symbol and two chevron markings. The intention of sharrows is to position cyclists into the centre of the traffic lane and to encourage them to mix with through traffic, to avoid conflict with cars and other vehicles at narrow sections of road or squeeze points, such as small roundabouts.

Figure 9 provides an example of a sharrow treatment.



Figure 9 Example of a sharrow treatment (from Nearmap)

Advantages:

- Encourage cyclists to ride in a safe road position;
- Inexpensive to implement and maintain; and
- Reinforce awareness of cyclists in local street networks.

Disadvantages:

- No regulations or road rules supporting the use of sharrows in Victoria;
- May be confusing for drivers and cyclists; and
- Limited research into the effectiveness of sharrows.

3.7 FULL ROAD CLOSURE

A full road closure is the closure of a street to traffic. It serves as a means of eliminating through traffic from a street or simplifying an intersection layout to reduce the possible number of conflict points and the consequent crash risk.

Figure 10 provides an example of a full road closure.



Figure 10 Example of a full road closure (from Google Maps Streetview)

Advantages:

- Reduce traffic volume;
- Remove / reduce the number of conflict points when employed at an intersection;
- Increase pedestrian safety;
- Remove non-local traffic;
- Can accommodate pedestrian, cyclist and/or bus access; and
- Provide landscaping opportunities.

Disadvantages:

- May restrict or reduce accessibility for local residents;
- May divert traffic to other adjacent local streets without closures, resulting in increased traffic volumes in those streets;
- May restrict access for emergency services;
- May increase travel times for some road users; and
- May reduce the availability of on-street parking.

3.8 SURFACE TREATMENTS

Surface treatments or threshold treatments (when used at an intersection or a driveway) are coloured and/or textured road surface treatments that contrast with the adjacent roadway. Surface treatments aim to alert drivers that they are entering a driving environment that is different from the one they have just left, through the use of visual and/or tactile clues.

Figure 11 provides an example of a surface treatment.



Figure 11 Example of a surface treatment (from Nearmap)

Advantages:

- Reduce approach speeds to an intersection;
- Highlight the presence of an intersection;
- Provide separation between residential areas from areas of non-residential use; and
- Alert the driver that they are entering into a local area.

Disadvantages:

- Increased maintenance requirements;
- Texturing may create stability problems for cyclists, motorcyclists and pedestrians;
- Turning traffic from and into the low speed local areas may be more likely to affect traffic flow on the connecting roads;
- Vehicle priority may be unclear to pedestrians in some circumstances; and
- Effectiveness is limited unless complemented by other devices in the street.

3.9 OTHER TREATMENT OPTIONS

Other treatment options that could be implemented are straight-forward. The following treatments improve safety of both pedestrians, cyclists and drivers and/or define priority on sections of the roadway. Such treatments include:

- Speed limit reductions; and
- Signage and linemarking changes to improve clarity of communication.

4 PROPOSED LATM MEASURES AND RECOMMENDATIONS

A number of proposed LATM measures have been recommended by SALT to address the main traffic issues identified from the traffic data, site observations and community consultation data.

4.1 KEY ISSUES

Issues have been identified through: community consultation via a questionnaire survey, social media engagement and MySocialPinpoint; site observation; and analysis of the existing conditions via tube count surveys and existing traffic data provided by Council. The following key issues were identified to guide the formulation of appropriate recommendations:

- **Speeding and honing behaviour:** particularly along Swans Road, Halletts Way, Links Road, Robertsons Road, Fitzroy Street and Dundas Street;
- **Pedestrian safety/facilities:** Lack of footpaths on roads throughout the study area;
- **Bicycle safety/facilities:** lack of bike lanes or road shoulder for safe cyclist travel throughout study area; and
- **Truck activity:** instances of truck speeding and problems with truck parking.

4.1.1 ENGINEERING INVESTIGATIONS

Investigations were made into community concerns to confirm issues identified. For issues such as speeding and honing behaviour, pedestrian safety/facilities and bicycle safety/facilities, inspection of street environments and/or analysis of tube count survey data was sufficient to confirm the presence of existing issues. **Section 4.4** discusses the proposed treatments for these issues.

For community concerns about truck activity, it was found that the concerns were isolated issues primarily relating to parking in and around Cotton Court (near Fitzroy Street), with one concern raised about truck speed issues in Halletts Way. A tube count survey conducted in 2021 confirmed the presence of Heavy Vehicles (HV%) in these locations, with Heavy Vehicle proportions of 14.2% and 20.0% recorded for Fitzroy Street and Halletts Way, respectively.

Regarding the community concerns about truck traffic in Cotton Court, the issues raised are in relation to truck parking, which fall outside of the scope of the LATM study. Parking arrangements and enforcement are a matter that could be considered by Council.

It was determined that the proposed LATM measures on Halletts Way designed to address speeding and honing behaviour would also be adequate to address community concerns about truck speed issues.

4.2 OBJECTIVES

The objectives of the proposed plan are as follows:

- Speed calming on local streets that have environments that are conducive to high speeds;
- Increase and improve footpath provision to improve levels of accessibility for active road users;
- Maximise the benefits of available funding, with priority given to locations with higher demand and higher level of community concerns; and
- Maintain adequate levels of accessibility for local residents, public transport, businesses and emergency services.

4.3 PLAN OF PROPOSED LATM TREATMENTS

The proposed LATM measures consider a range of traffic management treatments intended to address the key concerns outlined above. The draft proposed LATM plan is shown in **Figure 12**.

A plan of the draft proposed LATM treatments, overlaid with the existing LATM treatments, can be viewed in **APPENDIX 1**.

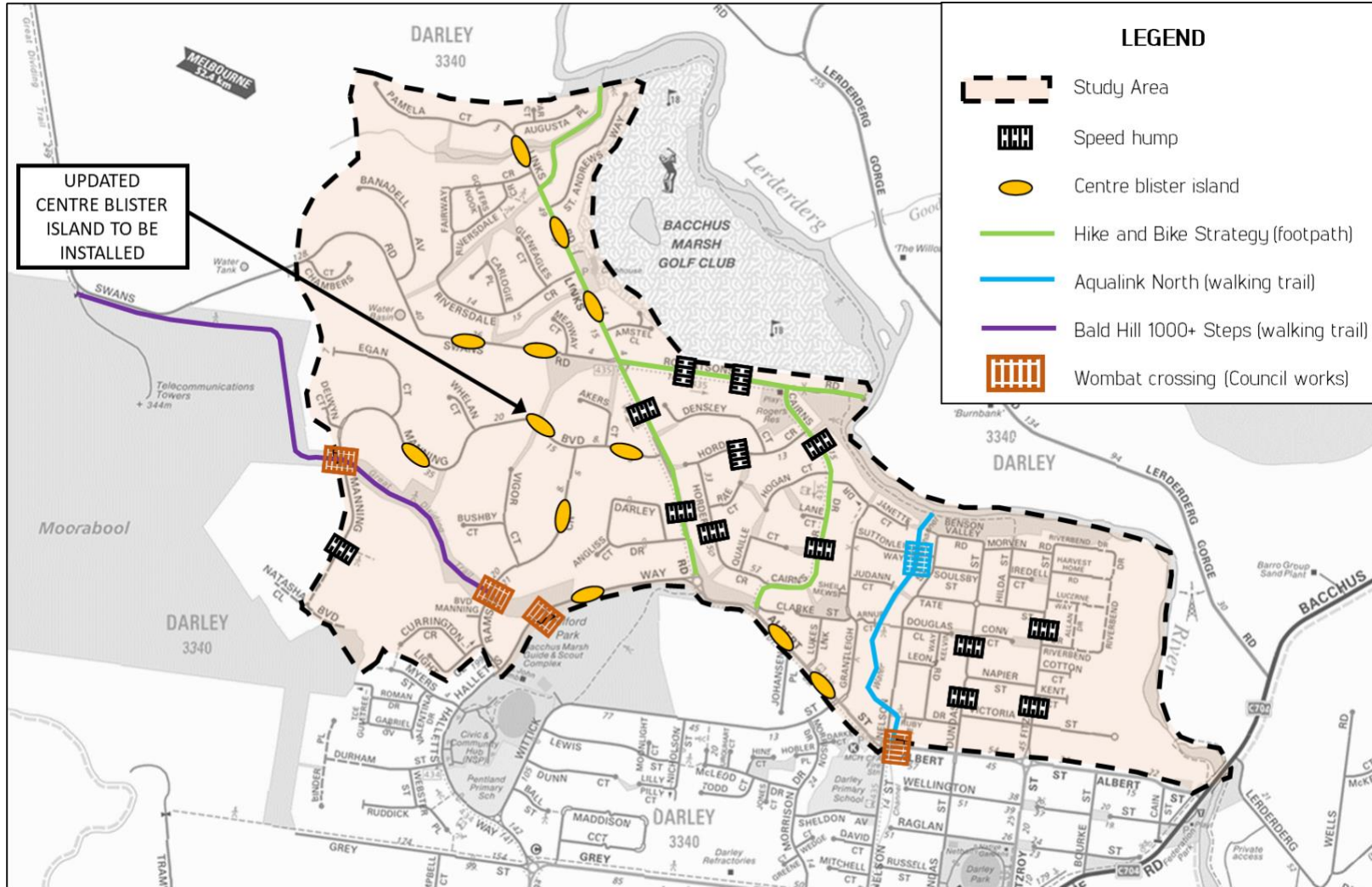


Figure 12 Draft proposed LATM plan

4.4 DISCUSSION OF PROPOSED LATM TREATMENTS

The following sections provide a summary of all the individual treatments included in the initial traffic management plan:

4.4.1 ALBERT STREET (BETWEEN NELSON STREET AND LINKS ROAD)

It is acknowledged that LATM treatments/modifications have been proposed for sections of Albert Street in previous stages of the overall Bacchus Marsh LATM study. As these treatments and modifications have not yet been implemented at the time of this report, SALT's current investigations have been unable to discern the nature of the changes these modifications and treatments would have upon the traffic issues along Albert Street.

The following discusses SALT's proposed treatments for Albert Street. These LATM treatments should be revisited once the previously proposed LATM treatments have been implemented, as those treatments may resolve the issues that have been identified by SALT and therefore make the following recommendations redundant.

Multiple community concerns were raised about speeding/hooning and other irresponsible driver behaviour issues on Albert Street. This was validated by a tube count survey in 2021 recording an 85th percentile speed of 62.7 km/hr, although Albert Street has a 50 km/hr speed limit. This is in part owing to the road environment on Albert Street being conducive to high speeds.

The proposed LATM treatments involve installation of two (2) no. centre blister islands along Albert Street. Centre blister islands have been selected as they will address the main issue along Albert Street, which is speeding and irresponsible driving. Centre blister islands are appropriate LATM controls for areas with higher traffic volumes, such as Albert Street, Halletts Way and sections of Links Road.

The exact locations of the LATM treatments would be determined in later stages of the project. High level placement is shown in **Figure 12**.

4.4.2 CAIRNS DRIVE

Multiple community concerns were raised about speeding/hooning and other irresponsible driver behaviour issues on Cairns Drive. This is in part owing to the road environment on Cairns Drive being conducive to high speeds. Existing traffic speed data on Cairns Drive has confirmed that speeding is an issue, with a tube count survey from 2021, conducted south of Grantleigh Drive, revealing an 85th percentile speed of 60.2 km/h.

Further community concerns were raised about pedestrian safety and the lack of pedestrian facilities such as footpaths, considering that Cairns Drive is a regular travel path for bus route 435.

The proposed LATM treatments involve installation of two (2) no. speed humps along Cairns Drive. Speed humps have been selected as they will address the main issue along Cairns Drive, which is speeding and irresponsible driving. Speed humps are appropriate for roads which are generally flat and have environments that are conducive to high speeds. Further, speed humps can be designed to be suitable for bus travel.

In line with the Bacchus Marsh Hike and Bike Strategy and the Bacchus Marsh Integrated Transport Strategy, a footpath is recommended to be installed along the length of Cairns Drive. This will serve to increase pedestrian safety, especially school children, who we are advised frequently walk on/near Cairns Drive to catch the bus.

In order to strictly adhere to Austroads LATM design guidelines (set out in *'Austroads Guide to Traffic Management Part 8 – Local Area Traffic Management'*), a greater number of speed humps would be required to be placed along these streets. However, the placement of the proposed speed humps is likely to have the desired effect (reducing speeding and irresponsible driving) while also being a pragmatic and more realistic treatment.

The exact locations of the LATM treatments would be determined in later stages of the project. High level placement is shown in **Figure 12**.

4.4.3 DUNDAS STREET AND FITZROY STREET

Multiple community concerns were raised about speeding/hooning and other irresponsible driver behaviour issues on Dundas and Fitzroy Streets. This is in part owing to the road environment on these streets being conducive to high speeds. These concerns are supported by the tube count surveys conducted in 2021 which reveal 85th percentile

speeds of 52.2 km/hr and 60.6 km/hr on Dundas Street and Fitzroy Street, respectively. These streets have a speed limit of 50 km/hr.

The proposed LATM treatments involve installation of two (2) no. speed humps along both of Dundas and Fitzroy Streets. Speed humps have been selected as they will address the main issue along Dundas and Fitzroy Streets, which is speeding and irresponsible driving. Speed humps are appropriate for roads which are generally flat and have environments that are conducive to high speeds.

In order to strictly adhere to Austroads LATM design guidelines (set out in *'Austroads Guide to Traffic Management Part 8 – Local Area Traffic Management'*), a greater number of speed humps would be required to be placed along these streets. However, the placement of the proposed speed humps is likely to have the desired effect (reducing speeding and irresponsible driving) while also being a pragmatic and realistic treatment.

The exact locations of the LATM treatments would be determined in later stages of the project. High level placement is shown in **Figure 12**.

4.4.4 HALLETTS WAY (BETWEEN LINKS ROAD AND RAMSAY CRESCENT)

It is acknowledged that LATM treatments/modifications for sections of Halletts Way have been proposed in previous stages of the overall Bacchus Marsh LATM study. As some of these treatments and modifications have not been implemented at the time of this report, SALT's current investigations have been unable to discern the nature of the changes these modifications and treatments would have upon the traffic issues along Halletts Way.

The following discusses SALT's proposed treatments for Albert Street. These LATM treatments should be revisited once the previously proposed LATM treatments have been implemented, as those treatments may resolve the issues that have been identified by SALT and therefore make the following recommendations redundant.

Multiple community concerns were raised about speeding/hooning and other irresponsible driver behaviour issues on Halletts Way. This is in part owing to the road environment on Halletts Way being conducive to high speeds. A tube count on Halletts Way recorded an 85th percentile speed of 64.1 km/hr, validating community concerns of speeding, considering Halletts Way is subject to a speed limit of 50 km/hr.

Further community concerns were raised about pedestrian safety/facilities, parking issues and truck traffic issues.

The proposed LATM treatments involve installation of one (1) no. centre blister islands along Halletts Way. One is considered sufficient due to Council planning to install a wombat crossing, an LATM measure which should also control speeding issues, along Halletts Way at its intersection with the Lerderderg Trail.

Centre blister islands have been selected as they will address the main issue along Halletts Way, which is speeding and irresponsible driving. Centre blister islands also provide the opportunity for landscaping, however they require more space than speed humps and are better suited to sections of road which are not generally flat or that experience high traffic volumes.

The exact locations of the LATM treatments would be determined in later stages of the project. High level placement is shown in **Figure 12**.

4.4.5 HORDER CRESCENT

Some community concerns were raised about speeding/hooning and other irresponsible driver behaviour issues on Horder Crescent. This is in part owing to the road environment being conducive to high speeds. These comments are deemed valid by a tube count survey from 2021 revealing an 85th percentile speed of 58.5 km/hr on Horder Crescent.

The proposed LATM treatments include installation of two (2) no. speed humps along Horder Crescent. Speed humps have been selected as they will address the main issue along Horder Crescent, which is speeding and irresponsible driving. Speed humps are appropriate for roads which are generally flat and have environments that are conducive to high speeds.

In order to strictly adhere to Austroads LATM design guidelines (set out in *'Austroads Guide to Traffic Management Part 8 – Local Area Traffic Management'*), a greater number of speed humps would be required to be placed along these streets. However, the placement of the proposed speed humps is likely to have the desired effect (reducing speeding and irresponsible driving) while also being a pragmatic and realistic treatment.

The exact locations of the LATM treatments would be determined in later stages of the project. High level placement is shown in **Figure 12**.

4.4.6 LINKS ROAD

Multiple community concerns were raised about speeding/hooning and other irresponsible driver behaviour issues on Links Road. This is in part owing to the road environment being conducive to high speeds. Existing traffic speed data on Links Road has confirmed that speeding is an issue, with multiple tube count surveys revealing 85th percentile speeds between 6 km/h and 19 km/h over the speed limit (which is 50 km/h).

Further community concerns were raised about pedestrian safety and the lack of pedestrian facilities such as footpaths, considering that Links Road is a regular travel path for bus route 435.

The proposed LATM treatments for Links Road between Halletts Way/Albert Street and Swans Road/Robertsons Road includes installation of two (2) no. speed humps. Speed humps have been selected as they will address the main issue along Links Road, which is speeding and irresponsible driving. Speed humps are appropriate for roads which are generally flat and have environments that are conducive to high speeds. Further, speed humps can be designed to be suitable for bus travel.

In order to strictly adhere to Austroads LATM design guidelines (set out in *'Austroads Guide to Traffic Management Part 8 – Local Area Traffic Management'*), a greater number of speed humps would be required to be placed along these streets. However, the placement of the proposed speed humps is likely to have the desired effect (reducing speeding and irresponsible driving) while also being a pragmatic and realistic treatment.

In line with the Bacchus Marsh Hike and Bike Strategy and the Bacchus Marsh Integrated Transport Strategy, footpath is recommended for both sides of Links Road between Halletts Way and Swans Road/Robertsons Road. Concrete footpath on both sides of the road will greatly increase the safety and comfortability for pedestrians, especially school children, who frequently walk on/near Links Road to catch the bus.

On Links Road between Swans Road/Robertsons Road and Pamela Court/Augusta Place, the proposed LATM treatments include installation of three (3) no. centre blister islands. Centre blister islands have been selected as they will address the main issue along Links Road, which is speeding and irresponsible driving. Centre blister islands also provide the opportunity for additional landscaping, however they require more space than speed humps and are better suited to sections of road which are not generally flat.

The exact locations of the LATM treatments would be determined in later stages of the project. High level placement is shown in **Figure 12**.

4.4.7 MANNING BOULEVARD

Proposed LATM treatments

Multiple community concerns were raised about speeding/hooning and other irresponsible driver behaviour issues on Manning Boulevard. This is in part owing to the road environment being conducive to high speeds. Existing traffic speed data on Manning Boulevard has confirmed that speeding is an issue, with multiple tube count surveys revealing 85th percentile speeds between 4 km/h and 12 km/h over the speed limit (which is 50 km/h).

The proposed LATM treatments for Manning Boulevard include a combination of centre blister islands and a speed hump. The speed hump is proposed on a section of road which received complaints about speeding issues and is generally flat. Speed humps are relatively cheap and effective for sections of road which are flat and conducive to high speeds. However, they can be disliked by residents. Centre blister islands require more room but offer opportunity for landscaping and are more effective in less flat sections of road.

The exact locations of the LATM treatments would be determined in later stages of the project. High level placement is shown in **Figure 12**.

In order to strictly adhere to Austroads LATM design guidelines (set out in *'Austroads Guide to Traffic Management Part 8 – Local Area Traffic Management'*), a greater number of speed humps would be required to be placed along these streets. However, the placement of the proposed speed hump is likely to have the desired effect (reducing speeding and irresponsible driving) while also being a pragmatic and realistic treatment.

Amendment to existing LATM treatment

It is noted that there is an existing LATM treatment on Manning Boulevard in the form of a splitter island / centre blister island slow point. The LATM treatment includes a pedestrian refuge in the centre island, however this refuge does not connect to any nearby pedestrian footpaths or formal walking tracks.

SALT's engineering investigations suggest that the LATM treatment does not have the desired effect of slowing traffic due to the LATM treatment only necessitating a minor deflection in the travel path of vehicles. Refer **Figure 13** for a Nearmap aerial image of the existing treatment.



Figure 13 Existing LATM treatment on Manning Boulevard

As a result, SALT recommends that the existing treatment be upgraded to provide greater vehicle deflection.

4.4.8 RAMSAY CRESCENT

Some community concerns were raised about speeding/hooning and other irresponsible driver behaviour issues on Ramsay Crescent. This is in part owing to the road environment being conducive to high speeds. Existing traffic speed data on Ramsay Crescent has confirmed that speeding is an issue, with a tube count survey revealing an 85th percentile speed of 57 km/h, which is 7 km/h over the speed limit of 50 km/h.

The proposed LATM treatments for Ramsay Crescent is a centre blister island, noting that Council intends to install a wombat crossing at the intersection of Ramsay Crescent and the Lerderderg Trail. The centre blister island is appropriate for Ramsay Crescent as the road contains steep sections. Additionally, there is enough room for the proposed treatments and the treatments will offer landscaping opportunities.

The exact locations of the LATM treatments would be determined in later stages of the project. High level placement is shown in **Figure 12**.

4.4.9 ROBERTSONS ROAD

Multiple community concerns were raised about speeding/hooning and other irresponsible driver behaviour issues on Robertsons Road. This is in part owing to the road environment being conducive to high speeds. The tube count survey from 2021 indicated a 85th percentile speed of 55.5 km/hr occurring on Robertsons Road, which has a speed limit of 50 km/hr.

Further community concerns were raised about pedestrian safety and the lack of pedestrian facilities such as footpaths, considering that Robertsons Road is a regular travel path for bus route 435.

The proposed LATM treatments for Robertsons Road are two (2) no. speed humps. Speed humps are appropriate for Robertsons Road as the road is not too steep and Robertsons Road is constantly used as a travel path for buses.

In line with the Bacchus Marsh Hike and Bike Strategy and the Bacchus Marsh Integrated Transport Strategy, a footpath is recommended to be installed along the length of Robertsons Road. This will serve to increase pedestrian safety, especially school children, who we are advised frequently walk on/near Robertsons Road to catch the bus. It additionally provides a connection to the Lerderberg Walking Track.

The exact locations of the LATM treatments would be determined in later stages of the project. High level placement is shown in **Figure 12**.

4.4.10 SWANS ROAD

Multiple community concerns were raised about speeding/hooning and other irresponsible driver behaviour issues on Swans Road. This is in part owing to the road environment being conducive to high speeds. Existing traffic speed data on Swans Road has confirmed that speeding is an issue, with a tube count survey revealing an 85th percentile speed of 64 km/h, which is 14 km/h over the speed limit of 50 km/h.

The proposed LATM treatments for Swans Road are two (2) no. centre blister islands. The centre blister islands are appropriate for Swans Road as the road contains steep sections. Additionally, there is enough room for the proposed treatments and the treatments will offer landscaping opportunities.

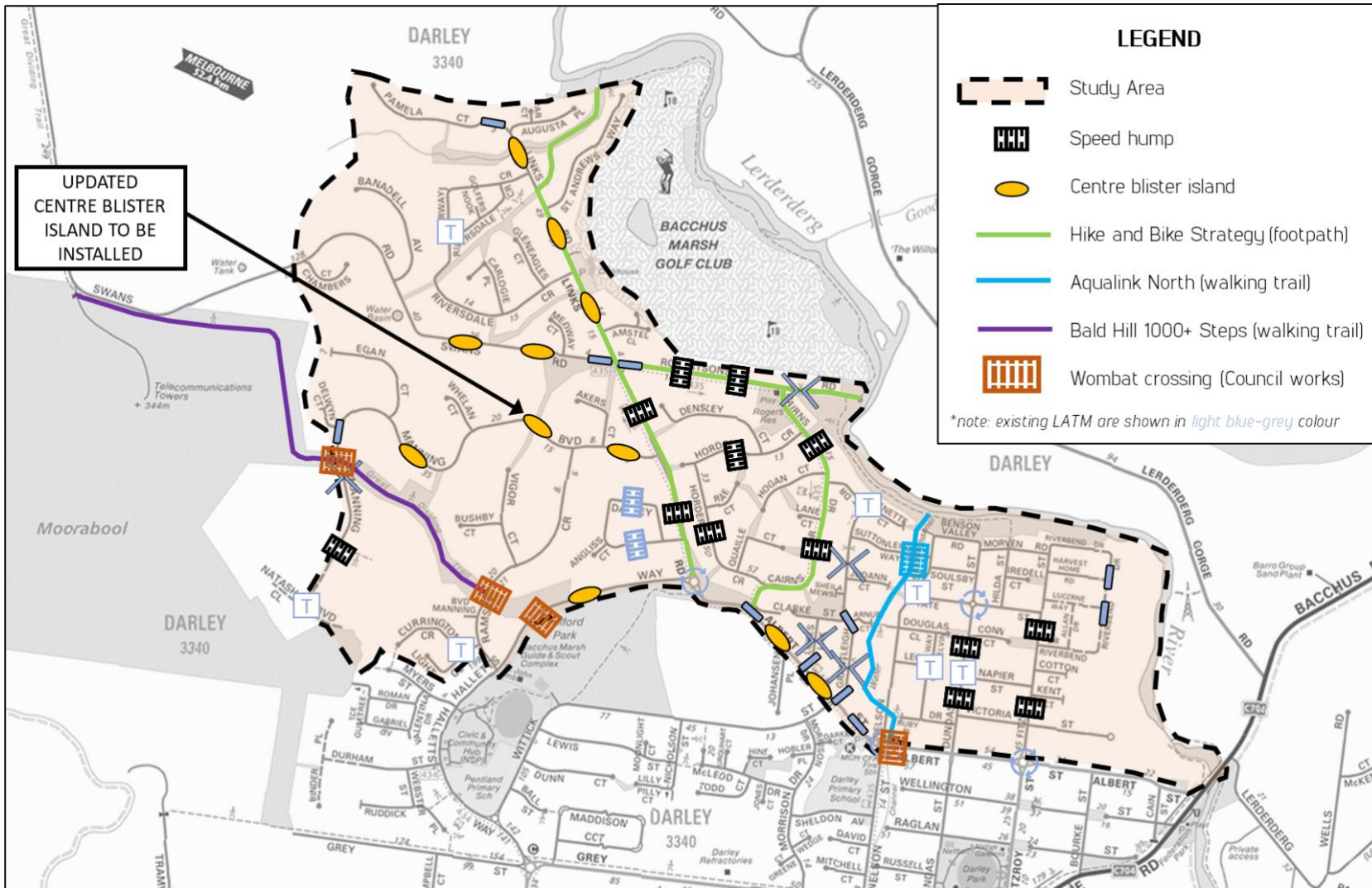
The exact locations of the LATM treatments would be determined in later stages of the project. High level placement is shown in **Figure 12**.



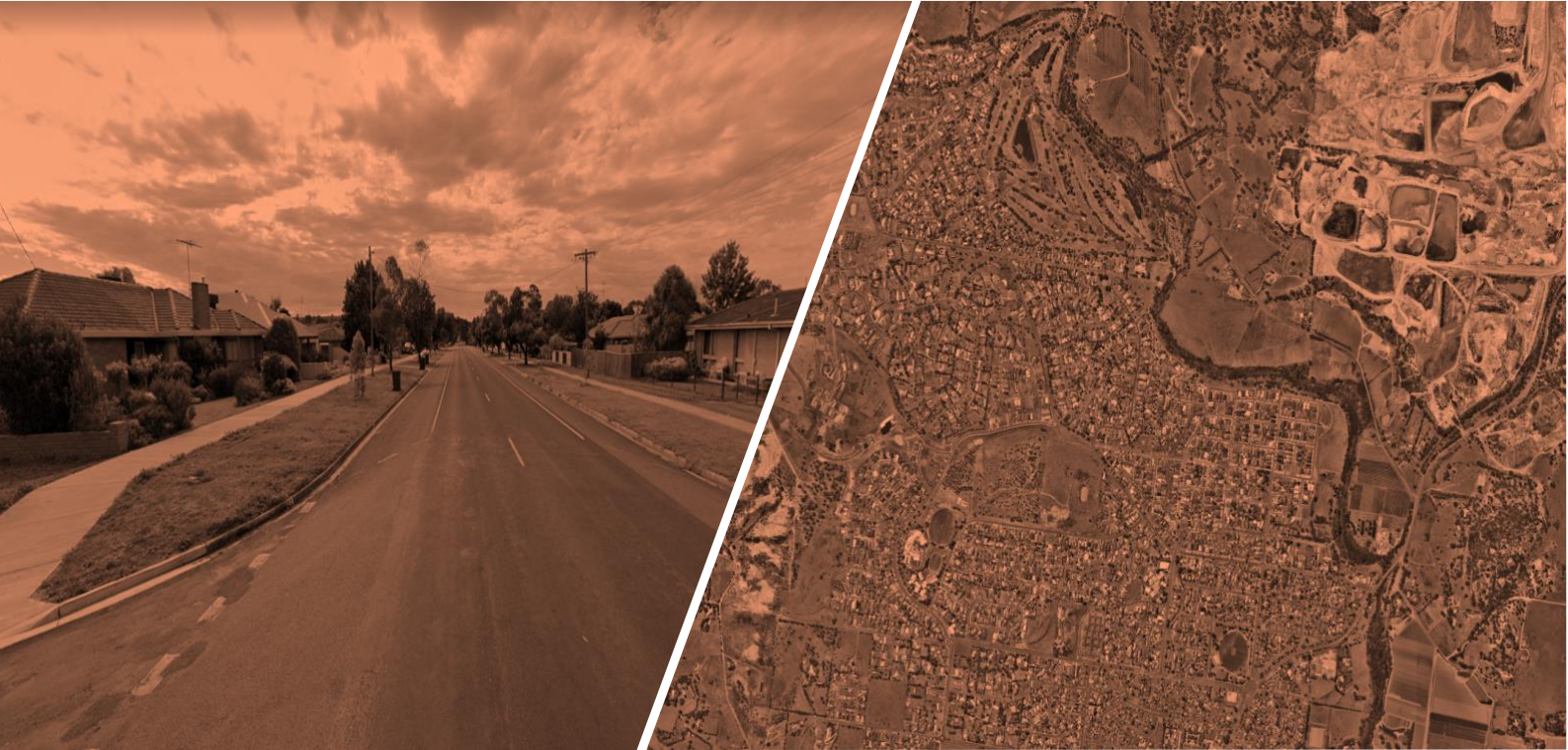
APPENDIX 1 PROPOSED DRAFT LATM PLAN WITH EXISTING LATM TREATMENTS OVERLAID

DRAFT LATM PLAN DARLEY, BACCHUS MARSH
PROPOSED LATM MEASURES AND RECOMMENDATIONS

The logo for SALT, featuring the word "SALT" in white capital letters on a black background, with a small superscript "3" to the right. The logo is positioned on a black triangular shape that is part of a larger geometric design of overlapping triangles in blue, orange, and teal colors.



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