

# Final LATM Plan

## Bacchus Marsh Local Area Traffic Management Study – Area 2

V171899



Prepared for  
Moorabool Shire Council

7 March 2019

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F01	07/03/19	Final Report	Joshua Hiscock	Matthew Ballard
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## Executive Summary

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Cardno was engaged by Moorabool Shire Council in January 2018 to develop a Local Area Traffic Management (LATM) plan for Stage 1 & 2 of the Bacchus Marsh study area, with Stage 1 of the study finalised in August 2018.

An LATM study is a formal way of addressing community concerns within the study area including, traffic, pedestrian and cyclist related issues within the local streets, whilst reflecting the requirements and expectations of the local community.

The initial consultation process involved the distribution of questionnaire surveys to residents and businesses in the study area in September 2018. A total of 154 responses were received.

The questionnaire survey was supplemented by an online interactive survey, inviting users to pinpoint key issues within the area. A total of 45 locations within the study area were identified.

Community feedback received from the initial questionnaire survey was analysed together with a detailed existing conditions assessment to develop a Draft LATM plan proposal.

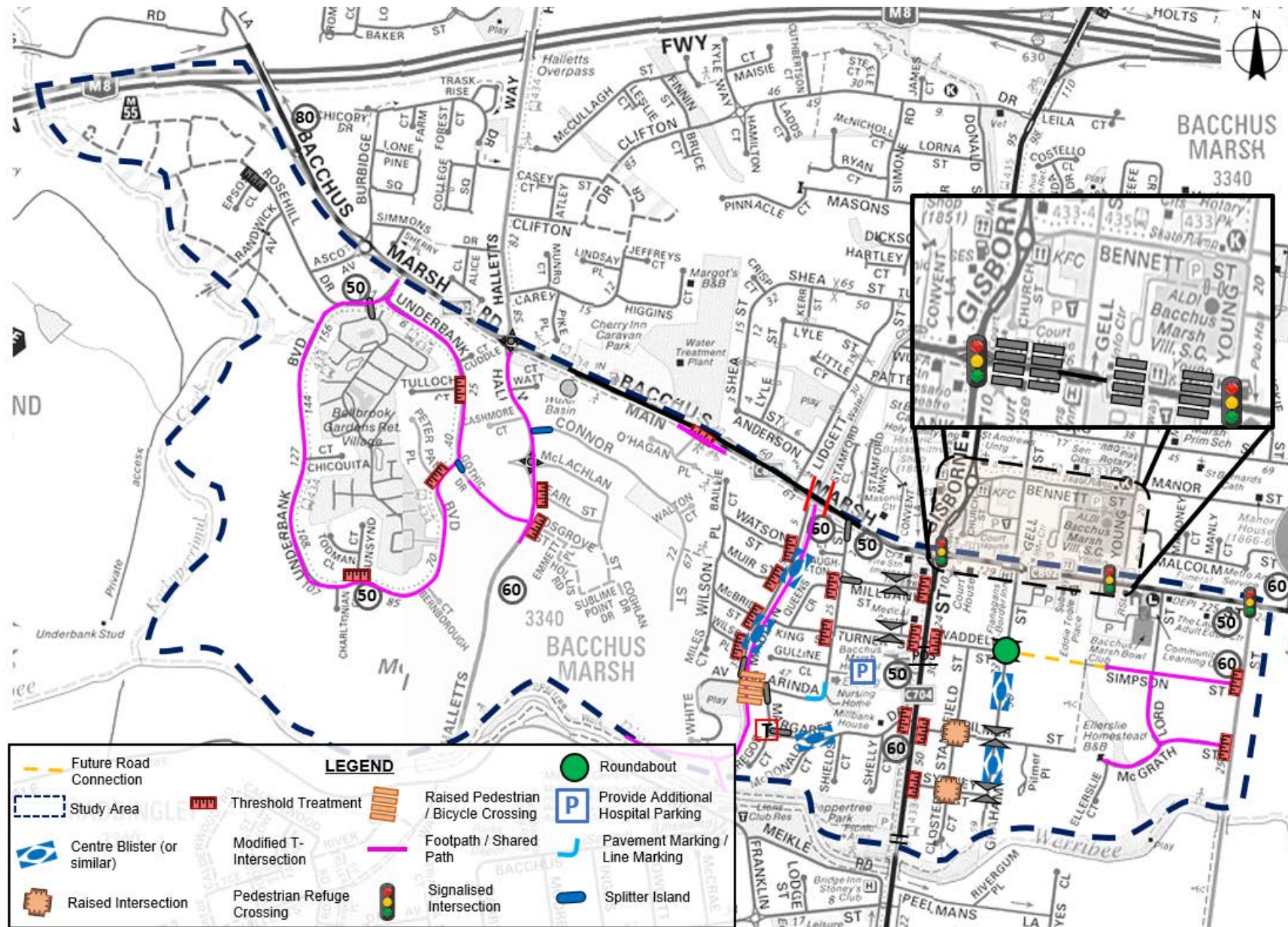
The draft plan was distributed to residents and businesses via a letter drop and an interactive online tool. Residents were also invited to attend community consultation sessions in person and provide additional feedback to the project team. The key traffic and transport issues the draft plan aimed to address included:

- > Heavy vehicles, congestion and vehicle safety on Grant Street;
- > Vehicle safety concerns and congestion on Main Street, including the intersections of Fiskin Street and Graham Street;
- > On-street parking on Clarinda Street, Turner Street, Main Street and Waddell Street;
- > Bacchus Marsh CFA access;
- > Traffic speeds and irresponsible driving on Bacchus Marsh Road / Main Street, Halletts Way, Graham Street, Fiskin Street, Margaret Drive and Madden Drive;
- > Traffic safety in local streets and at intersections along Bacchus Marsh Road / Main Street, Grant Street and Halletts Way;
- > Pedestrian facilities on Underbank Boulevard, Halletts Way, Simpson Street, Lord Street and Bacchus Marsh Road / Main Street in the vicinity of the Bacchus Marsh Activity Centre; and
- > Cycling facilities throughout the wider Bacchus Marsh Area.

Community feedback was an important component of the study, and provided valuable insight to the importance of each treatment for the local area, as well as the benefit each treatment provided. A number of additional measures were subsequently included to address other concerns raised by the community.

Following further investigation, and having regard to the community consultations and feedback conducted during the study, a Final Local Area Traffic Management Plan was prepared as shown on the following page, along with a priority ranking and associated cost estimate for each nominated measure. The treatments outlined within the final plan are to be funded as part of Council's Capital Works Program, when funding becomes available.

### Final LATM Plan





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# 1 Introduction

Cardno has been engaged by Moorabool Shire Council to undertake a Local Area Traffic Management (LATM) study for the Bacchus Marsh Area. The study is being undertaken in response to increased population growth and subsequent traffic congestion, and is in direct response to recommendations within the Bacchus Marsh Integrated Transport Strategy.

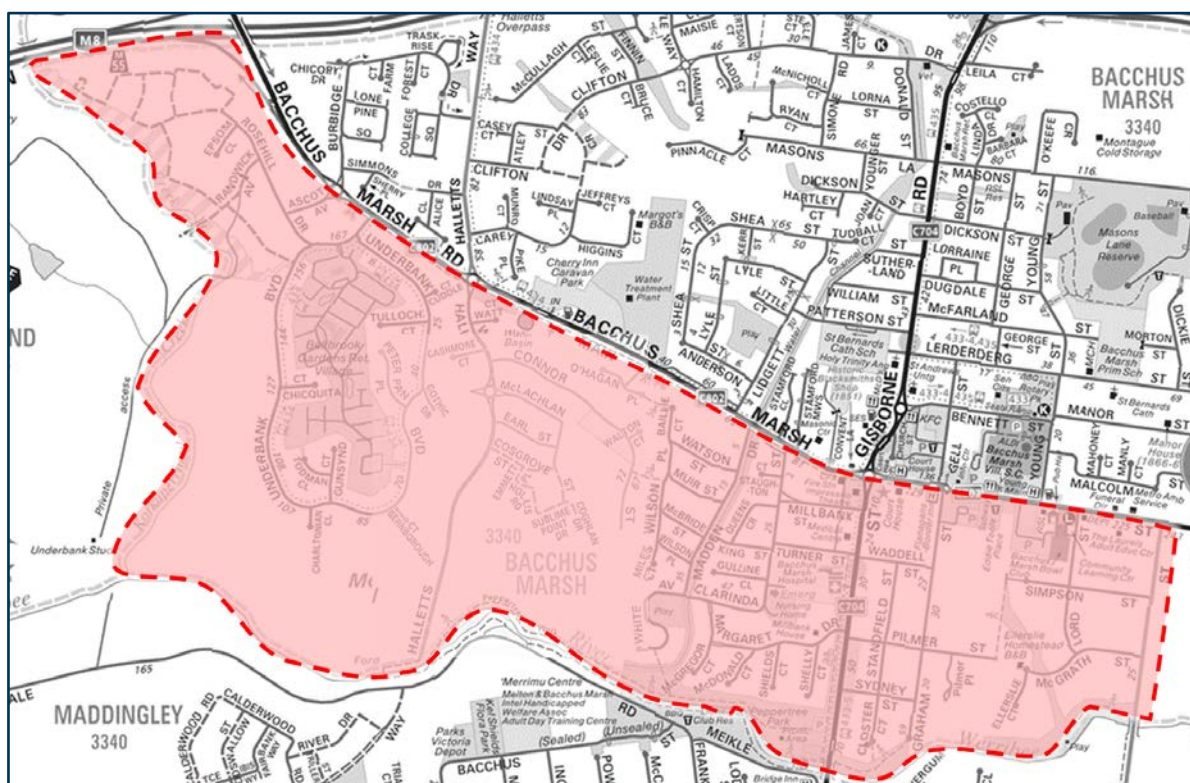
The following report provides a Final LATM Plan to respond to feedback from the community consultation sessions on the Draft LATM Plan. This report should be read in conjunction with the Existing Conditions Assessment (Document Reference V171899REP006F02) and the Draft LATM Plan (Document Reference V171899REP007F01).

In the course of preparing the Final LATM Plan, Cardno has consulted with Moorabool Shire Council to inform the measures proposed.

## 1.1 Study Area

The study area is bound by Main Street / Bacchus Marsh Road to the north, the Werribee River to the south, Korkuperrimul Creek to the west, and Fiskin Street to the east. The extent of the study area is generally shown in Figure 1-1.

Figure 1-1 Bacchus Marsh LATM Study Area Map



## 1.2 Existing LATM Measures

The existing traffic management devices currently implemented in the local area by Council are shown in Figure 1-2.

## 1.3 Proposed LATM Measures

A series of proposed LATM measures was prepared by Cardno to address the main traffic issues identified from the traffic data and community consultation data, in consultation with Council officers. These proposals were previously presented in the Draft LATM Plan, which were central to the community consultation process and crucial to the development of the Final LATM Plan.

The proposed Draft LATM Plan measures are shown in Figure 1-3.

Figure 1-2 Existing Traffic Management Measures

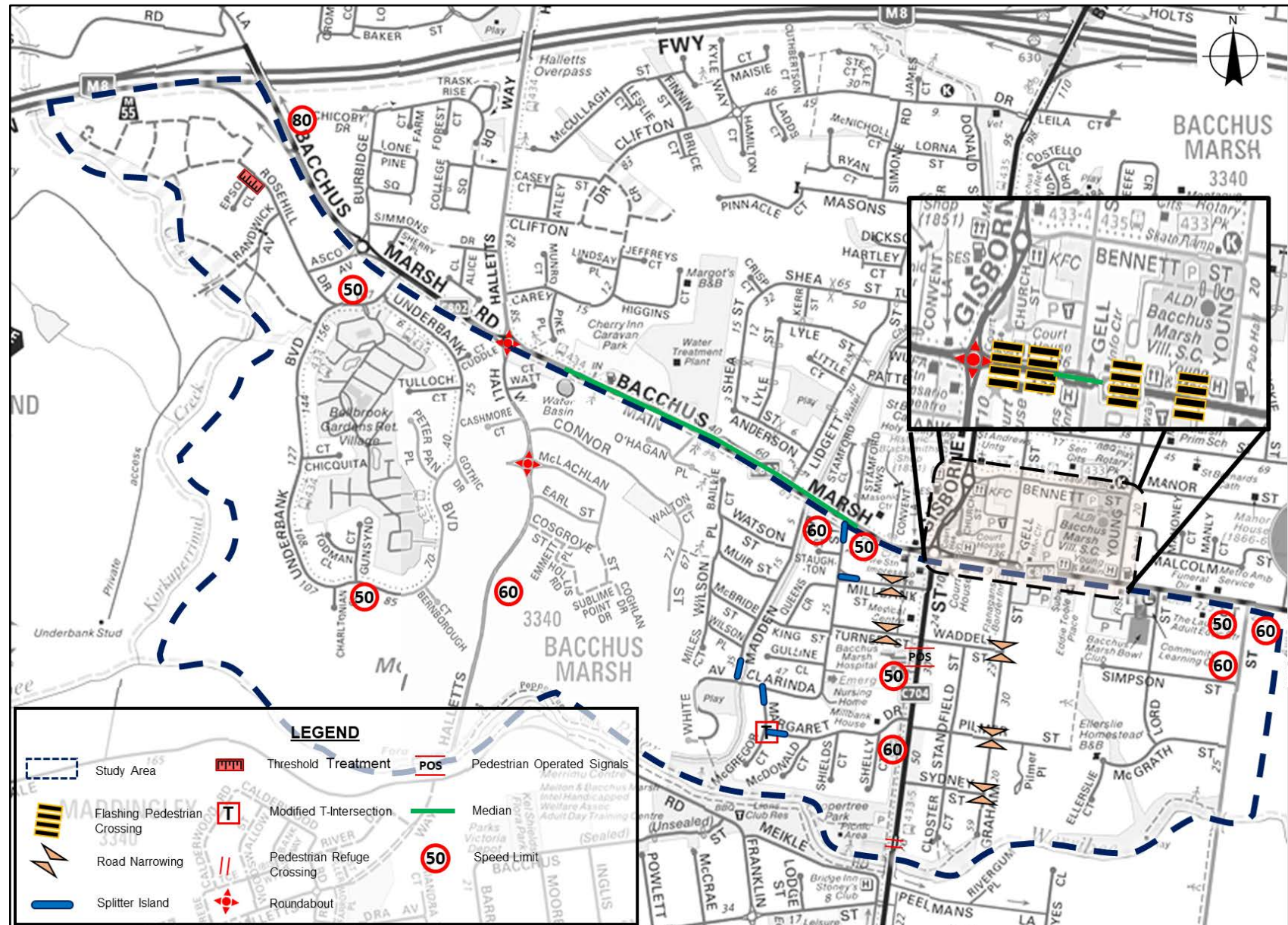
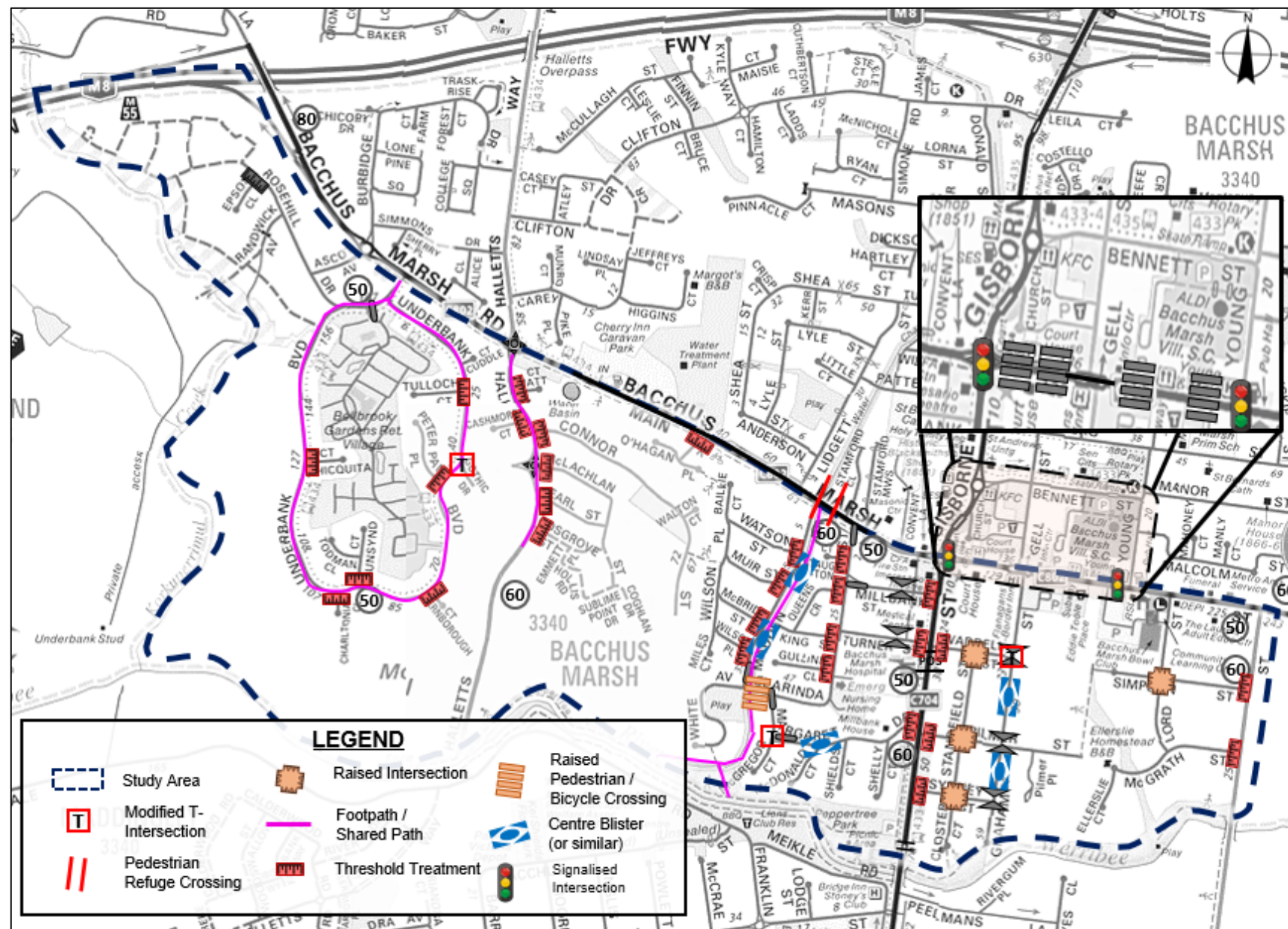




Figure 1-3 Proposed Draft LATM Measures



## 2 Scope of This Report

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### 2.1 Overview

The Final Local Area Traffic Management (LATM) Plan outlined in the following sections has been informed by Cardno's understanding of the study area as contained within the Existing Conditions Assessment (V171899REP006F02), the Draft LATM Plan (V171899REP007F01) and the findings of the Community Consultation.

The Final LATM Plan provides an overview of the community consultation process for the Draft LATM Plan, and the subsequent revisions to the plan in response to the community feedback.

It is imperative to understand that the scope of an LATM plan cannot directly impose measures on arterial roads managed by VicRoads, as any works associated with maintenance or improvements to these roads cannot be undertaken by Council. However, an LATM plan nonetheless considers these roads at all stages and endeavours to accommodate the needs of the local community wherever possible.

Within the study area there are two VicRoads operated roads, as follows:

- > Grant Street, operating in a north-south direction through the centre of the study area; and
- > Bacchus Marsh Road / Main Street, generally operating in an east-northwest direction on the southern and western borders of the study area.

Similarly, although car parking issues can be highlighted by an LATM study, directly fixing parking supply issues cannot generally be achieved as part of an LATM study. However, parking access can be addressed and where possible, car parking provision improvements can sometimes be achieved indirectly.

### 2.2 Complementary Projects

Cardno understands that a number of studies and projects are currently being undertaken by VicRoads, the Victorian Planning Authority and Moorabool Shire Council that aim to address major concerns within the study area relating to traffic congestion and road safety. Particularly, it is understood that these studies and associated projects aim to address congestion along Main Street and Gisborne Road, as well as to address concerns regarding heavy vehicle movements through Bacchus Marsh Town Centre.

Accordingly, it is noted here that this LATM study does not directly address community concerns relating to heavy vehicle movements and traffic congestion along Main Street and Gisborne Road. Rather, this LATM study is complementary to the broader area studies being undertaken, whilst addressing concerns from the community regarding congestion and road safety within the local street network. This study also includes recommendations for advocacy for projects to be undertaken by VicRoads and other authorities responsible for the arterial road network.

## 3 Community Consultation

### 3.1 Overview

A letter was delivered to the residences in the study area detailing the proposed LATM plan. The letters were sent out and made available to the community on 26 September 2018. In addition, an interactive website was created using My Social PinPoint, which provided an interactive map for the community to provide feedback on (web link: <https://msc.mysocialpinpoint.com/latm-stage-2#/>).

The letter included a plan detailing the proposed LATM Plan, an update of the first consultation, invitation to two drop-in sessions to provide feedback in person on Tuesday 22<sup>nd</sup> January 2019 and Tuesday 29<sup>th</sup> January 2019, and a link to the website to provide feedback online.

At the drop in sessions, Council and Cardno representatives provided background information about the LATM Study, the findings and observations, explained the proposed treatments and sought the community's opinions on whether they supported the proposed plan, and if not, which elements of the proposed plan were they not supportive of. During the sessions, community members were asked to provide feedback on the Draft LATM plan, to allow for clarification, refinement and identification of amendments to be incorporated into the Final LATM plan.

The interactive map provided descriptions of the proposed treatment at each location and the community's opinions were collected by asking whether they supported, partly supported or do not support the treatment and/or its location. Additionally, interactive map users were prompted to indicate the priority ranking of the treatment on a five-point scale, with one being 'not urgent' to five being 'should be installed immediately'.

Responses to the proposed LATM plan were collated in electronic format through the interactive map until Tuesday 5<sup>th</sup> February 2019.

Copies of the letter and relevant consultation content are attached in Appendix A.

### 3.2 Drop in Session Response

Across the two community drop-in sessions, approximately 40 members of the community attended to provide detailed discussion and feedback about the Bacchus Marsh LATM Study. During these sessions, community members were invited to submit individual survey responses and place dots on maps of the Draft LATM Plan.

A total of 17 individual survey responses were received. A summary of the conclusions from key discussion points during the consultation and the individual survey responses are presented below:

- > Most residents expressed their concerns regarding traffic congestion and high heavy vehicle volumes along Grant Street and Gisborne Road. Generally, the common opinion amongst residents indicated that the recently completed Halletts Way connection has alleviated some of the congestion along Grant Street and Gisborne Road, however this remains the foremost issue within the study area;
- > A number of residents stressed concerns regarding parking issues surrounding the Bacchus Marsh Hospital. Concerns include both parking availability and safety, particularly on Clarinda Street, Turner Street, Gulline Close and King Street. It was also noted by residents that, the issue is being compounded by the currently ongoing construction at the hospital;
- > Residents indicated that they experienced difficulty turning into and out of Fiskin Street onto Main Street due to congestion and hesitation due to safety. Within this stage of the LATM study, it was generally preferred amongst residents to signalise the intersection of Fiskin Street / Main Street, then Young Street / Main Street;
- > Rat running and associated speeding, increased traffic volumes and dangerous driving were established as concerns for residents along Graham Street and abutting streets, Pilmer Street, Waddell Street and Sydney Street. However, some residents expressed doubts about the effectiveness of the proposed treatments in these streets, particularly citing that due to the nature of the drivers that centre blisters may be ineffective;
- > To the east of Grant Street, residents also raised concerns regarding rat-running along Margaret Drive, Madden Drive and Turner Street, although supported the treatment of this side (west) of Grant Street was generally viewed less important than the treatment Graham Street (east) side of Grant Street;

- > Similar to concerns raised during Stage 1 of the LATM study, community responses in this stage also indicated that they found the intersection of Main Street / Graham Street dangerous and/or confusing;
- > Residents raised concern regarding incomplete pedestrian footpath connectivity on local streets throughout the study area. As such, the proposed pedestrian treatments along Underbank Boulevard and the water channel were generally strongly supported, with additional improved footpaths/facilities requested along Simpson Street, Lord Street and across Grant Street;
- > At the intersections of Graham Street / Waddell Street, Graham Street / Sydney Street and Graham Street / Pilmer Street, community feedback indicated that they find the narrowed intersections quite dangerous. It was also noted that the existing give-way signs at these locations are setback approximately 6 metres from the give-way line marking; and
- > Generally, threshold treatments were supported.

### 3.3 Online Interactive Map Response

The online interactive map recorded a total of 127 responses across 33 individual users.

A summary of the community's responses to the proposed LATM treatments is presented in Table 3-1.

Table 3-1 Online Interactive Map Responses

Treatment Type	Location	Responses				% Support	Average Priority Ranking
		Support	Partly Support	Don't Support	Total		
Signalised Intersection	Main Street / Grant Street	13	3	7	23	70%	3.52
	Main Street / Young Street	10	1	8	19	58%	3.16
Modified T-Intersection	Margaret Drive / McGregor Court	2	0	0	2	100%	3.00
	Underbank Boulevard / Gothic Drive	3	0	0	3	100%	3.33
	Waddell Street / Graham Street	4	2	0	6	100%	4.17
Centre Blister	Graham Street	10	2	2	14	86%	3.64
	Margaret Drive	1	0	1	2	50%	3.00
	Madden Drive	1	0	0	1	100%	5.00
Raised Intersection	Sydney Street / Standfield Street	0	2	0	2	100%	4.00
	Waddell Street / Standfield Street	2	2	0	4	100%	4.00
	Simpson Street / Lord Street	2	0	2	4	50%	3.00
	Pilmer Street / Standfield Street	1	2	1	4	75%	3.00
Shared Path	Drainage Channel	1	0	0	1	100%	5.00
	Halletts Way	2	1	0	3	100%	4.33
Raised Crossing	Clarinda Street	4	0	0	4	100%	4.75
Threshold Treatments	Various	16	6	4	26	85%	3.12
Footpath	Underbank Boulevard	7	1	1	9	89%	3.78
<b>Total</b>		<b>79</b>	<b>22</b>	<b>26</b>	<b>127</b>	<b>80%</b>	<b>3.49</b>



As indicated in the above table, most of the proposed treatments received favourable responses with 15 of the 17 treatments receiving over 50% support. As expected, some of the treatments proposed were more controversial than others, such as the proposal to signalise the intersection of Main Street and Young Street.

The priority rankings for the proposed treatments were varied, with 6 of 17 treatments receiving a priority ranking of four or above (the treatment is considered urgent).

Eleven (11) treatments receiving a ranking of between three and four (the treatment is considered moderately urgent), with no treatments proposed receiving a ranking of less than three (the treatment is not considered urgent).

### 3.4 Other Community Consultation

In addition to the formal modes of feedback discussed in the previous sections, Cardno and Moorabool Shire Council were engaged by the community via direct phone calls and email correspondence throughout the LATM process. The following outlines some of the additional feedback received relating to the finalisation of the LATM plan:

#### 3.4.1 Bacchus Marsh CFA

With a CFA member originally in attendance at a community consultation session, a number of concerns were stressed in follow-up correspondence regarding the management of the road network surrounding the Fire Station. Particularly the issues stressed by the CFA related to access to and from the fire station, with particular concern regarding:

- > The proposed signalised intersection upgrade of Main Street / Grant Street;
- > Patrons to takeaway stores located to the east of the CFA parking in front of the CFA access; and
- > The no-entry signage to the access lane to the east of the fire station allowing for access between Millbank Street and Main Street.

Relating to the above issues experienced by the Bacchus Marsh CFA the following is noted:

- > Existing 'No Standing' parking signs and faded keep clear line marking are already in place at the fire station access crossover.
- > Access to the rear of 'Timeless Tattoos' located at 7 Grant Street is currently achieved via the access laneway. From preliminary aerial observations, it is noted that the access to this location is only achievable from the northern direction. As such, it is considered that if traffic flow allowed on the lane way was reversed access would be restricted at this location.

#### 3.4.2 Additional Feedback

Other feedback received included:

- > A number of complaints regarding the state of parking due to Bacchus Marsh hospital staff and patrons on surrounding streets including Clarinda Street, Gulline Close and Turner Street. Residents who live in the area stressed that they are currently experiencing issues getting into and out of their property on occasions;
- > In addition, it was noted that the lack of parking supplied by the Bacchus Marsh hospital is more than just an availability problem, as feedback received expressed concern regarding safety. Including the following issues:
  - o Visibility and narrowing along Clarinda Street and Turner Street due to parked vehicles on both sides of the roads resulting in a one-way street with insufficient passing room and a number of close incidents at the corner of Clarinda Street;
  - o Visibility at intersections abutting Clarinda Streets and at the intersection of Grant Street / Waddell Street due to parked vehicles near intersections; and
  - o Concern for parking spaces provided for emergency patients or patients with accessibility issues.
- > Noise and vibrations caused by vehicles on Main Street and Grant Street, particularly at night.

### 3.5 Review of Community Responses

The responses from the community for each of the proposed LATM treatment that were considered a high priority, a low priority, were notably supported, or notably not supported, are detailed further in Table 3-2. This information is based on the responses to the community consultation sessions, the online interactive map and other related correspondence.

It is noted that the community comments received at this stage of the LATM study for the proposed treatments within the Draft LATM Study were primarily from community members who did not support the proposed treatment. Specifically comments discussing the implementation of treatments were provided by, all 26 out of 26 residents who did not support a treatment, 13 out of 22 treatments who partially supported a treatment, and only 6 out of 79 residents who supported a treatment.

Table 3-2 Detailed Community Feedback Summary

Treatment	Level of Support	Priority	Community Comments	Comments/Recommendation
Signalised Intersection Main Street / Grant Street	70%	3.52	<p>“Is there enough room for slip lanes instead? Probably not. Lights will only be efficient if turning lanes are provided. Otherwise one car can hold up the entire sequence.”</p> <p>“No need for lights at this intersection, the current roundabout works as well as any measure can at this junction.”</p>	<p>The traffic issues raised at the intersection of Main Street / Grant Street were not addressed within the Draft LATM Plan as arterial road treatments are typically excluded from LATM plans and projects.</p> <p>However in this instance, it is understood that a proposal is currently under consideration by VicRoads to upgrade the intersection of Main Street / Grant Street to a signalised intersection. Based on the existing traffic conditions along Main Street / Grant Street (congestion and conflicting vehicle / pedestrian movements), and the pedestrian safety improvements provided by a signalised intersection it is recommended that this treatment is incorporated into the Final LATM Plan to allow Council to advocate more strongly to VicRoads for this upgrade.</p>
Signalised Intersection Young Street / Main Street	58%	3.16	<p>“Not yet, maybe later”</p> <p>“Why Young Street and not Fiskin Street if we have to have traffic lights?”</p>	<p>The traffic issues raised at the intersection of Main Street / Young Street were not addressed within the Draft LATM Plan as arterial road treatments are typically excluded from LATM plans and projects.</p> <p>However, following further discussions with the community and Council, and re-assessing the existing conditions along Young Street and Main Street, it is recommended that a signalised intersection at the intersection of Young Street / Main Street be incorporated into the Final LATM Plan as a high priority treatment, to facilitate Council to advocate to VicRoads for the intersection upgrade. It is noted that in this study less support was received for this measure as was expressed during the Area 1 study.</p> <p>This treatment would improve safety by providing controlled turns into and out of Young Street, and a controlled pedestrian crossing.</p> <p>As outlined within the community comments, residents in this study area south of Main Street generally expressed more interest in signalised intersection at Fiskin Street / Main Street, than at Young Street.</p>

Treatment	Level of Support	Priority	Community Comments	Comments/Recommendation
Centre Blister Graham Street	86%	3.64	<p>"Having lived in Graham Street for 20 years there is not an issue with it being used as a "rabbit run" however the "blisters" have some minimal merit.</p> <p>The calming methods on the adjacent side roads are probably prudent."</p>	With 12 out of 14 supportive responses in the online interactive survey, the proposed centre blister treatment on Graham Street was one of the highest supported treatments within the study area. It is also noted that out of the proposed treatments with higher response rates (10 or more), this treatment received the highest average priority ranking.
Centre Blister Margaret Drive	50%	3.00	"Low pedestrian area, described as not effective at reducing through traffic, which is the desired result. Expensive to install."	<p>Overall, the number and level of support from responses to speed treatments along the identified 'rat run' on the western side of Grant Street were generally lower than treatments proposed on the eastern side (Graham Street, Pilmer Street etc.).</p> <p>During the community consultation sessions it was evident that although generally supported, the implementation of treatments here is not as high of a priority as on the Graham Street side. Overall, this response is understandable given that higher traffic volumes were observed along the Graham Street 'rat run'.</p> <p>The raised crossing, proposed to be combined with the water channel shared path received only positive feedback. This measure is particularly effective as it addresses all identified issues in this area including speeding, safety, pedestrian and cyclist facilities.</p>
Centre Blister Madden Drive	100%	5.00	-	
Raised Crossing Clarinda Street	100%	4.75	-	
Modified T-Intersection Margaret Drive / McGregor Court	100%	3.00	-	
Modified T-Intersection Waddell Street / Graham Street	100%	4.17	"I think most people are respectful of the speed limits in Graham Street but I think raised speed humps would be more effective than the curvy nature the other 3 additions (2 x Centre Blisters, 1 x Modified T-Intersection) to the street would be."	<p>The resident here is correct, in terms of reducing speed and discouraging through volumes, speed humps are generally a more effective treatment, however the speed humps can also result in more noise, discomfort and are generally considered less amenable than the alternative treatments proposed.</p> <p>Additionally, within community consultation feedback, it was noted numerous times the narrowed intersection is quite dangerous. As such, this treatment is strongly recommended as it can also be designed to improve the level of safety at this intersection.</p>
Modified T-Intersection Underbank Boulevard / Gothic Drive	100%	3.33	-	Although supported as part of the online consultation, it is noted that the inclusion of this type of measure was under the expectation that Gothic Drive would be connected through to the western leg of the Halletts Way roundabout located to the east. Through further consultation, currently it is understood that this connection is not planned. As such, it is recommended to change the type of treatment at this location to a splitter island with associated line marking.

Treatment	Level of Support	Priority	Community Comments	Comments/Recommendation
Footpath Underbank Boulevard	89%	3.78	<p>"I live on Underbank Blvd. There is a considerable amount of pedestrian traffic around the Blvd and if it can be made safer all the better. However it is a low traffic volume street and I feel it is relatively safe. The less safe section would be the NW where there are some steep hills and potential out-of-control traffic."</p> <p>"I support a full footpath around Underbank Boulevard as it's not only the elderly that need it. Many people and children use the whole of the Boulevard to exercise and walk their dogs. I don't support a partial footpath"</p>	<p>The proposed footpath around Underbank Boulevard was widely viewed as a very positive measure. Most responses from the community particularly stressed that they would like the whole length of Underbank Boulevard to be provided with a footpath.</p> <p>During the community consultation sessions it became clear that as a large number of properties have developed gardens on the nature strip, often all the way up to the kerb, that the implementation of this measure will receive strong opposition and will likely become a difficult community issue. Particularly this is because it is likely necessary to only construct a footpath on one side of the roadway.</p>
Raised Intersection Pilmer Street / Standfield Street	75%	3.00	<p>"As a person who lives directly on the corner of this street, I can tell you that it is all four wheel drives and Hilux type utes that come hurtling down this street. A raised treatment is less likely to slow them down, and more likely to make them use it as a fun bump to test out whatever unnecessary suspension they're using. I know something needs to be done to stop people speeding, but maybe that should be more police and harsher penalties for those that are caught doing the wrong thing."</p>	<p>Generally the raised intersection treatments located within Pilmer Street, Sydney Street, Waddell Street and Graham Street were supported by the community. A number of residents raised concern about the effectiveness of the treatments, particularly relating to the vehicle type and driver behaviour exhibited within the area.</p> <p>Based on the community's responses, it is recommended to include the proposed raised intersection treatments within this area in the final LATM plan with priority given to the streets with the highest vehicle volumes and speeds.</p>
Raised Intersection Sydney Street / Standfield Street	100%	4.00	<p>"I don't feel that these will stop the "rat runners" but it will be beneficial in stopping the local bus companies taking short cuts."</p>	
Raised Intersection Waddell Street / Standfield Street	100%	4.00	<p>"I think these would be better in Graham Street than this one"</p>	
Raised Intersection Lord Street / Simpson Street	50%	3.00	<p>"I don't believe this area is used by through traffic. I don't recall any complaints to police about hoon drivers"</p>	<p>Generally, between the online feedback and the community consultation sessions, it was considered that there was not enough interest or need to implement a raised intersection at the intersection of Lord Street and Simpson Street. Instead, it was considered a higher priority to provide footpaths in this area.</p>
Shared Path Halletts Way	100%	4.33	<p>"There is no indication on this plan for a pedestrian/cycle link through the new development between Halletts Way and Underbank Blvd. This is important as part of an alternate access through back streets to town centre, and the proposed channel shared path, avoiding the busy Main Street."</p>	<p>The provision of a shared path along Halletts Way was strongly supported. As noted by this resident, generally even more pedestrian and cyclist facilities are desired throughout the study area. It is noted to Council that connective measures such as that suggested, should be considered when approving future development.</p>



Treatment	Level of Support	Priority	Community Comments	Comments/Recommendation
Threshold Treatments Various Locations	85%	3.12	<p>"This treatment is unnecessary for use on Clarinda Street and it's intersecting streets, and would be a non-cost effective installation"</p> <p>"This doesn't address the issue of existing Sydney Street"</p> <p>"Only support if no loss of parking spaces"</p>	<p>Generally, the implementation of threshold treatments throughout the study area were supported, however the comments here are noted. Given the community's sentiment towards these treatments, it is recommended that the application of threshold treatments throughout the area is refined.</p>
Advocacy for Additional Car Parking Spaces Bacchus Marsh Hospital / Clarinda Street	-	-	<p>"We live on Clarinda Street and it is quite difficult to get in and out during business hours"</p> <p>"At present travel in front of the Grant Wing in Clarinda St is forced to single lane due to parking on both sides restricting the road width to 4 metres."</p>	<p>Residents in the study area surrounding Clarinda Street and Turner Street have stressed this as major and high priority issue.</p> <p>From observation of aerial imagery prior to and during the ongoing construction works approximately 57 car parking spaces have been made unavailable. Assuming that car parking is reinstated at this location, it is anticipated that approximately 20 car parking spaces will be permanently lost from the location due to the space occupied by the new theatre.</p>

## 4 Recommended Final Local Area Traffic Management Plan

### 4.1 Detailed of the Final LATM Plan

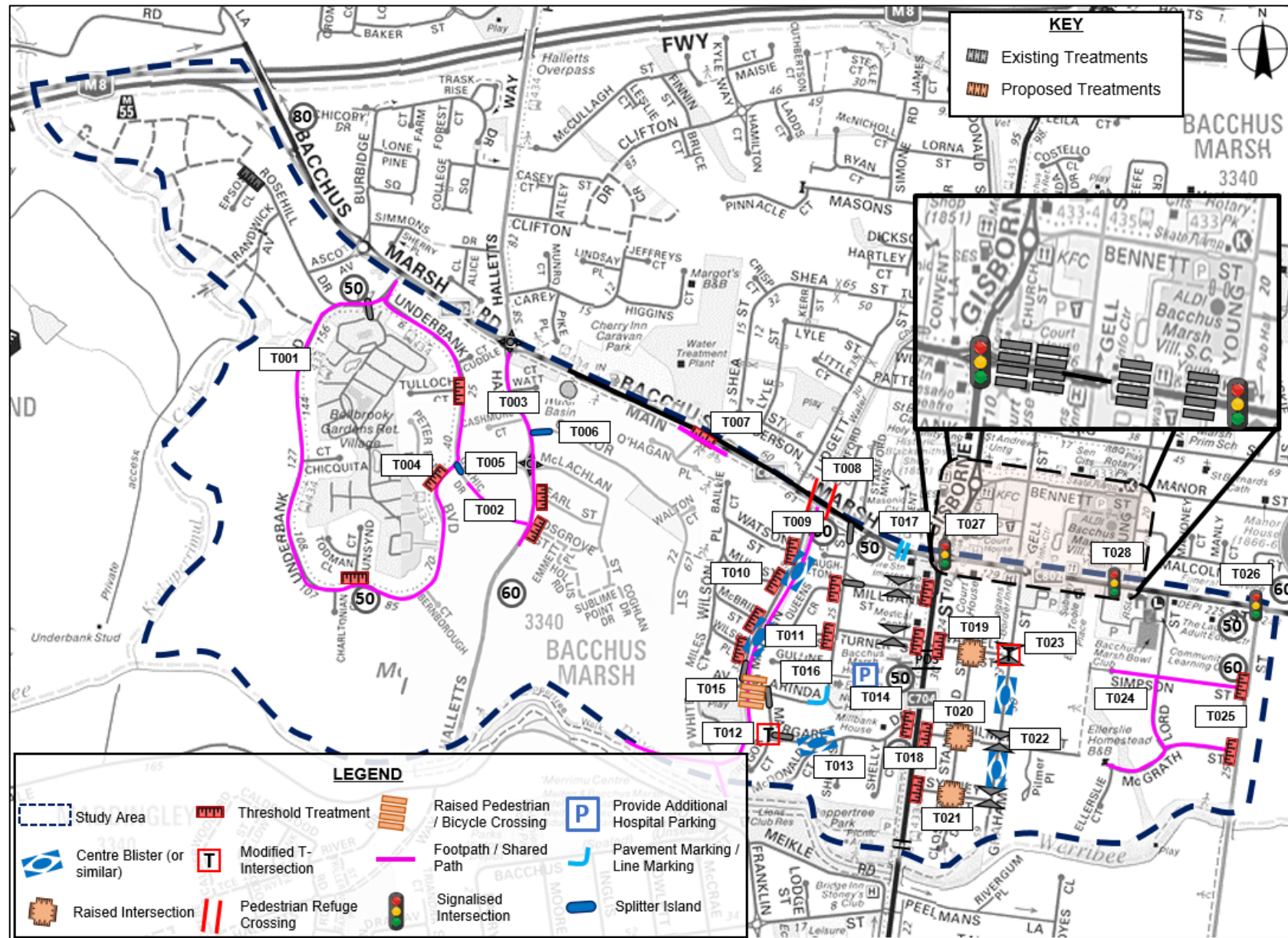
Based on the community consultation process, recommendations of Council and further investigations undertaken, the following adjustments to the LATM Plan have been made:

- > Raised Intersection at Simpson Street and Lord Street: Remove from the LATM plan, instead propose footpaths in the area to provide a safe pedestrian connection from local streets to Main Street.
- > Modified T-Intersection at Gothic Drive: Instead of proposing a modified T-intersection, it is recommended to implement a splitter island and associated line marking.
- > Modified T-Intersection at Waddell Street / Graham Street: Replace with a proposed roundabout, with construction to be subject to the development of land to the east of Graham Street.
- > Threshold Treatments: Refine the use of threshold treatments throughout the study area including:
  - In addition to the proposed threshold treatment at the intersection of Main Street and O'Hagan Place add a coloured cyclist/pedestrian line marking and/or signage.
  - Remove threshold treatments at entrance to 'short' local courts, of 100 metres or less.
- > Advocate for a signalised Intersection at Fiskin Street / Main Street intersection.
- > Advocate for additional parking to be provided on the site of or in the vicinity of the Bacchus Marsh Hospital.
- > Add a splitter island at intersection of Halletts Way and Connor Street.
- > Add line marking and no-parking signage (on the northern side only) at the Clarinda Street corner.
- > Add a footpath between Underbank Boulevard and Halletts Way.
- > *Although not included within the plan it is understood that Council is currently engaging VicRoads regarding 'Keep Clear' line marking at the access / egress of the CFA Fire Station, and the reinstatement of the hatched line-marking at this location*

### 4.2 Final LATM Plan

The recommended plan is shown in Figure 4-1. A detailed version can be seen in Appendix B.

Figure 4-1 Final Local Area Traffic Management Plan



## 4.3 Overview of Treatments

The following section represents an overview of the more complex treatments and provides example images for these treatments.

### 4.3.1 Centre Blister

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 4-2 provides an example of a centre blister LATM treatment.

Figure 4-2 Centre Blister



#### Advantages of Centre Blisters

- > 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 of Centre Blisters

- > 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.



### 4.3.2 Modified T-Intersection

Modified T-Intersections are used to affect a change in the vehicle travel path, thereby slowing traffic via deflection of traffic movements and/or reassignment of priority. Figure 4-3 shows an example of a modified T-intersection treatment.

Figure 4-3 Modified T Intersection (Burbidge Dr / Lone Pine Sq, Bacchus Marsh)



*Courtesy of Nearmap*

#### Advantages of Modified T-Intersections

- > 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 of Modified T-Intersections

- > 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.

### 4.3.3 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 4-4 presents an example of a typical speed hump treatment.

Figure 4-4 Speed Hump



#### Advantages of road humps

- > 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 of road humps

- > Traffic noise may increase just before and 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.

### 4.3.4 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 6 m but typically more). Raised sections of roadway can be located at mid-block locations, or they can cover an intersection between two roadways. Figure 4-5 presents an example of a raised intersection treatment.

Figure 4-5 Raised Intersection



### Advantages of a Raised Treatment

- > Significantly reduce vehicle speeds in the vicinity of the device;
- > May discourage through traffic;
- > Can be used as a 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 of a Raised Intersection

- > Traffic noise may increase just before and 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.
- > Require care that ramp markings are not confused with intersection control markings when located at an intersection.

#### 4.3.5 Surface Treatment / Threshold Treatment

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 by the use of visual and/or tactile clues. Figure 4-6 presents an example of a threshold treatment.

Figure 4-6 Threshold Treatment (Clifton Dr / Cuthbertson Ct, Bacchus Marsh)



*Courtesy of Nearmap*

### Advantages of Threshold Treatments

- > 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 of Threshold Treatments

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



#### 4.3.6 Road Narrowing / Kerb Outstands

Road narrowing treatments involve narrowing the width of a road in a specific location to reduce vehicle speeds, improve delineation of road areas and minimise pedestrian crossing distances. Road narrowing is typically achieved by extending the kerb into the roadway via the use of kerb outstands, which can be used for landscaping. Figure 4-7 shows an example of a road narrowing treatment.

Figure 4-7 Road Narrowing Treatment (Graham St / Pilmer St, Bacchus Marsh)



*Courtesy of Nearmap*

#### Advantages of Road Narrowing Treatments

- > Reduce vehicle speeds;
- > Relatively low cost;
- > Opportunities for landscaping;
- > Relatively minimal impact for emergency vehicles; and
- > Significantly less disruptive than alternative LATM treatments.

#### Disadvantages of Threshold Treatments

- > Reduce parking supply;
- > Difficult to accommodate bicycle lanes;
- > Introduce squeeze points for cyclists; and
- > May increase congestion on high volume streets.



## 4.4 Cost Estimates & Treatment Priority List

Table 4-1 outlines the indicative treatment cost and priority of the Final LATM Plan. The estimated costs are indicative only, and have been prepared to assist in developing an implementation plan. The installation costs of traffic management can vary considerably and largely depend on the extent and design of devices. The main components that typically influence construction costs are the materials used, need for kerb reconstruction, impact on existing drainage, telecommunications pits, and discovery of other underground services e.g. gas, water, possible relocation of power poles, and degree and type of landscaping.

In the case of these works, while staging the construction of works is generally necessary due to funding constraints, the staging of works needs careful consideration to minimise the interim impact of treatments on surrounding streets.

In staging the works, Council should have regard to the following considerations:

- > The benefits should be immediate and obvious to residents. The staging should appear logical to residents to ensure acceptance of plan;
- > Locations where crash problems have been identified should be given a priority;
- > Maximum effort should be made to avoid transferring traffic impacts, regardless of their duration;
- > Installation should be delayed for treatments which may not be required or may need to be modified depending on the effects of earlier stages; and
- > Possible cost savings from grouping devices into a single stage or focusing on one location should be considered, where possible.

The priority of each treatment has been derived using a number of factors to create a priority ranking tool. Factors were allocated a score between 0 and 2, resulting in a priority score for each treatment out of 10 (with 10 representing the highest priority). This was combined with the second community consultation regarding the timing of the treatment, to determine a recommended time of implementation for each treatment where:

- > **High** – Should be actioned in the short term (1 – 2 years)
- > **Medium** – Should be actioned in a medium-term (2 – 5 years)
- > **Low** – Should be actioned in the long-term (5+ years)

The key factors and its ranking criteria are outlined below:

1. **Cost** – The cost of each treatment has been approximated based on the cost of construction / implementation only, and thus provides a general assessment of the cost comparison between each treatment. Given the approximated costs the treatments were given a cost score as follows:
  - > A score of 0 was given for any treatment costing more than \$200,000;
  - > A score of 0.5 was given for any treatment costing between \$50,000 and \$200,000;
  - > A score of 1.0 was given for any treatment costing between \$20,000 and \$50,000;
  - > A score of 1.5 was given for any treatment costing between \$10,000 and \$20,000; and
  - > A score of 2.0 was given for any treatment costing less than \$10,000.
2. **Importance** – The importance of each treatment was based on the community's priority ranking received via the online interactive map.
3. **Volume** – The score for volume was assessed similarly to cost. For locations where traffic volumes were unknown, volumes were projected from known nearby traffic volumes. The volume score was determined as follows:
  - > A score of 0.5 was given at locations with volumes less than 5,000 vpd;
  - > A score of 1.0 was given at locations with volumes between 5,000 and 10,000 vpd;
  - > A score of 1.5 was given at locations with volumes between 10,000 and 20,000 vpd; and
  - > A score of 2.0 was given at locations with volumes greater than 20,000 vpd.
4. **Speed / Safety** – The score for speed / safety aspects of each treatment was assessed based on the existing speed and safety issues at the location of each treatment. As such, locations where safety was flagged as a serious issue in combination with high speeds were given a high score, and locations where

speed and/or safety were not a major concern were given a lower score. All scores were assessed with consideration to the impact the proposed treatment would have in addressing speed and/or safety concerns.

5. Overall community feedback – The score for community feedback was assessed based on the overall community discussions and survey results regarding each treatment and issue that had been collated through the entire LATM study. The score was weighted towards the level of support received in the community workshops and online interactive map responses. At locations where a small number of responses were received, additional consideration was given to written feedback.

Table 4-1 Treatment Priority and Cost Summary Table

Treatment ID	Treatment	Location	Cost (Estimate Only)	Total Score	Priority	Timeframe
T016	Line Marking & No Standing Signage	Clarinda Street	\$1,600.00	7.2	High	1-2 Years
T014	Parking Precinct Plan	Bacchus Marsh Hospital	\$15,000.00	7.1	High	1-2 Years
T015	Raised Pedestrian Crossing	Clarinda Street	\$15,000.00	7.1	High	1-2 Years
T021**	Roundabout	Waddell Street	\$25,000.00	7.1	High	1-2 Years
T025 (LATM Stage 1)	Signalised Intersection	Main Street / Grant Street	\$4,500,000.00	7.0	Medium	2-5 Years
T008***	Pedestrian Refuge Crossing	Main Street / Water Channel	\$5,000.00	6.7	Medium	2-5 Years
T012	Modified T-Intersection	Margaret Drive	\$15,000.00	6.7	Medium	2-5 Years
T018	Raised Intersection	Pilmer Street / Standfield Street	\$18,000.00	6.7	Medium	2-5 Years
T019	Raised Intersection	Sydney Street / Standfield Street	\$18,000.00	6.7	Medium	2-5 Years
T011	Centre Blisters	Madden Drive (x2)	\$24,000.00	6.6	Medium	2-5 Years
T026 (LATM Stage 1)	Signalised Intersection	Main Street / Young Street	\$500,000.00	6.4	Medium	2-5 Years
T007	Splitter Island	Connor Street	\$4,000.00	6.3	Medium	2-5 Years
T009***	Shared Path	Water Channel	\$140,000.00	6.1	Medium	2-5 Years
T020	Centre Blisters	Graham Street (x2)	\$24,000.00	5.9	Medium	2-5 Years
T001	Footpath	Underbank Boulevard	\$170,000.00	5.9	Medium	2-5 Years
T006	Splitter Island	Gothic Drive	\$4,000.00	5.8	Medium	2-5 Years
T003	Shared Path	Halletts Way (North)	\$71,000.00	5.7	Medium	2-5 Years
T005	Threshold Treatment & Shared Path Marking	O'Hagan Place	\$10,000.00	5.5	Medium	2-5 Years
T023	Threshold Treatments (x2)	Simpson Street, McGrath Street	\$14,000.00	5.5	Medium	2-5 Years
T024	Signalised Intersection	Main Street / Fiskin Street	\$500,000.00	5.3	Medium	2-5 Years
T013	Centre Blister	Margaret Drive	\$12,000.00	5.2	Medium	2-5 Years
T022	Footpath	Simpson Street, Lord Street, McGrath Street	\$63,000.00	5.2	Medium	2-5 Years
T017	Threshold Treatments (x5)	Millbank Street, Turner Street, Waddell Street, Pilmer Street, Sydney Street	\$35,000.00	5.0	Low	5+ Years
T010	Threshold Treatments (x6)	Watson Street, Muir Street, McBride Street, Wilson Place, Queens Court, King Street	\$40,000.00	4.5	Low	5+ Years
T004	Threshold Treatments (x5)	Tulloch Court, Peter Pan Place, Gunsynd Court, Earl Street, Cosgrove Street	\$35,000.00	4.1	Low	5+ Years
T002	Shared Path	Gothic Drive to Halletts Way	\$37,000.00	3.9	Low	5+ Years
TOTAL (Excl. VicRoads Project)			\$699,600.00			
TOTAL (VicRoads Projects)			\$5,500,000.00			
TOTAL: (Developer Projects)			\$96,000.0			
TOTAL			\$6,295,600.00			

\*Cost estimates do not include costs associated with replacing existing drainage infrastructure.

\*\*T021 is subject to development of land to the east of Waddell Street, and the formation of a connection between Waddell Street and Simpson Street.

\*\*\*Both T008 and T009 are subject to Council receiving access to Southern Rural Water land.

Please refer to Appendix C for additional information regarding the priority ranking and cost estimates of these treatments.

## 5 Summary and Conclusions

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The objective of this study was to prepare a Local Area Traffic Management (LATM) plan for the Bacchus Marsh area, which addresses the main traffic issues in the area and reflects the requirements and expectations of the local community.

The LATM Study involved extensive consultation with the local community to identify local traffic issues and possible improvements, in conjunction with engineering investigations. Other components of the study have included the collection of traffic volume and speed information, as well as investigation of publically available crash data.

The community consultation component of the study included two (2) rounds of community engagement via letter drop surveys, an online interactive map and two community workshops, in order to understand the community's thoughts regarding necessary areas for improvement, as well as the suitability of proposed treatments.

Information collected from the various consultation media was used in conjunction with data obtained from surveys and bodies such as VicRoads to provide the basis for formulating traffic management recommendations for Bacchus Marsh.

The key issues identified in the study generally related to traffic concerns such as heavy vehicle volumes, parking, pedestrian and cyclist safety, traffic speed, irresponsible driving and traffic volumes.

Based on the preceding assessment undertaken by Cardno and community feedback on the proposed Local Area Traffic Management Plan, the next steps area as follows:

- > The traffic treatments programs are to be listed in the Capital Work's Program to obtain funding from the Council;
- > Council will distribute a letter to the local community advising of the outcomes of the study and including the adopted Final Local Area Traffic Management Plan;
- > The implementation of traffic management measures will commence in the next 1-2 years. The order of implementation will be based off available funding, resource availability and the priority order outlined within this Final LATM Plan;
- > Where necessary, Council will consult with property owners abutting the device locations at the design stage regarding exact locations and design; and
- > Following installation, Council will continue to monitor safety and performance, to ensure that any effects caused by the imposed LATM measures are discovered and mitigated against.



Bacchus Marsh Local Area Traffic  
Management Study – Area 2

APPENDIX

A

COMMUNITY CONSULTATION MATERIALS

TO THE RESIDENT  
33 WILSON PLACE  
BACCHUS MARSH VIC 3340

19 September 2018  
Ref: JM:ld  
RN: 16/03/005

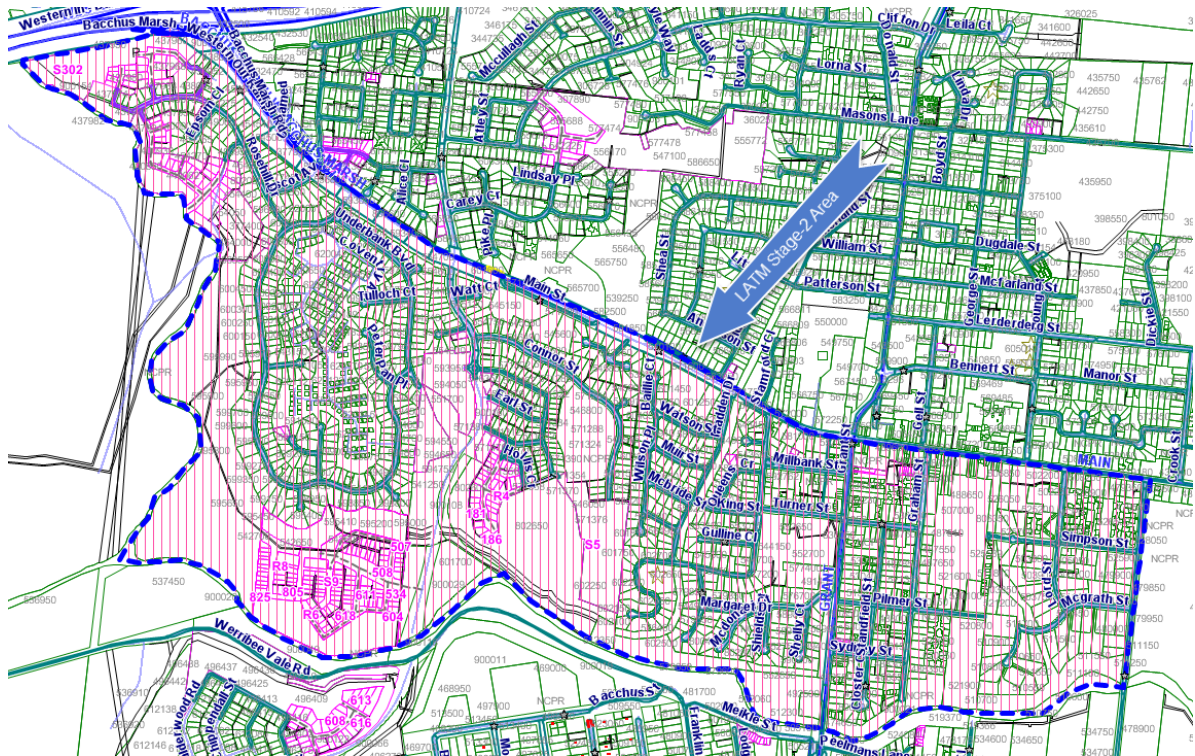
## Bacchus Marsh Local Area Traffic Management Study (Stage 2)

Following the adoption of the Stage 1 Plan, Moorabool Shire Council is now undertaking a Local Area Traffic Management (LATM) study within a further precinct of Bacchus Marsh, to improve traffic management and road safety within that area.

The Bacchus Marsh Integrated Transport Strategy (BMITS) presents the vision for the transport network for Bacchus Marsh, and identifies the need to undertake LATM studies in order to manage the traffic impacts on local roads.

Council has engaged Cardno, a multi-disciplinary engineering consultancy firm, to undertake a review of the traffic, parking and safety issues within the area and assist with the study. Community participation is essential in identifying and addressing issues of this nature and in preparing a LATM Plan. As such, Council is seeking your input regarding traffic issues in your area.

The study area for Stage 2 is bound by Main and Fiskin Streets and the Werribee River and Korkuperrimul Creek, as highlighted below.



The LATM study will examine the existing traffic, parking and road safety issues, together with information received through the attached survey questionnaire, discussions with Council officers and the collection of traffic volume and speed data.

As part of the study, Council is seeking feedback from the Bacchus Marsh community on traffic and parking issues in your local neighbourhood, including:

- Traffic speed and irresponsible driving
  - Concerns on general speeding
  - Dangerous driver behaviour and reckless driving
  - Vehicles observed to not give way to pedestrians on pedestrian crossings
- Lack of traffic calming devices/infrastructure
  - Inadequate traffic calming treatments
  - Lack of pedestrian crossings
- Increased through traffic
  - Increases in traffic volumes
  - Vehicles using local streets as shortcuts to avoid traffic/traffic lights on Gisborne Road or Main Street/Bacchus Marsh Road
- Pedestrian/cyclist safety
  - Pedestrians not feeling safe crossing local streets due to dangerous driver behaviour
  - Lack of dedicated bicycle facilities in parts of Bacchus Marsh causing danger to cyclists
- Parking
  - Overflowing car parks within the Bacchus Marsh town centre placing strain on surrounding resident parking
- Heavy vehicles
  - Increase in the number of heavy vehicles using local streets in Bacchus Marsh

If you feel that there are traffic issues that need to be addressed and/or if you have any suggestions as to what traffic control measures would be suitable to address the issues, you are strongly encouraged to complete the community questionnaire and provide feedback on the interactive maps available at [www.moorabool.vic.gov.au/consultations](http://www.moorabool.vic.gov.au/consultations) by **22 October 2018**.

Your input will assist Council in identifying the key traffic issues within your area, as well as validating some of the issues previously raised, so that an effective traffic management scheme can be developed.

Should you have any queries in relation to the above, please contact Hugo Nicholls (Cardno) on 8415 7777.

Yours sincerely,



**John Miller**  
Manager Assets

# COMMUNITY QUESTIONNAIRE

## BACCHUS MARSH LOCAL AREA TRAFFIC MANAGEMENT STUDY (STAGE 2)

Please complete and return this questionnaire to Council by 22 October 2018. Please feel free to attach additional sheets if required. Alternatively, you can visit Council's website [www.moorabool.vic.gov.au/consultations](http://www.moorabool.vic.gov.au/consultations) to view project information, complete the survey and add your feedback to the interactive map.

### Contact Details

Name	
Address	
Phone number	

### What are the age groups that reside at this address?

0 – 17 years	18 – 25 years	26 – 45 years	46 – 64 years	65+ years

### Are there any traffic issues in your street?

Street	
--------	--

Please tick one box for each of the issues outlined below.

Issues	Not an issue	Minor issue	Major issue
Traffic speed			
Traffic volume (number of vehicles)			
Through traffic (traffic from other areas)			
Truck/heavy vehicle traffic			
Parking issues			
Pedestrian facilities/safety			
Bicycle facilities/safety			
Irresponsible driving (hooning)			

### Do any of these issues occur at a particular time of day?

Please tick one box for when each of the issues outlined above occur.

Issues	All times	Peak times	Day times	Night times
Traffic speed				
Traffic volume (number of vehicles)				
Through traffic (traffic from other areas)				
Truck/heavy vehicle traffic				
Parking issues				
Pedestrian facilities/safety				
Bicycle facilities/safety				
Irresponsible driving (hooning)				



## COMMUNITY QUESTIONNAIRE

# BACCHUS MARSH LOCAL AREA TRAFFIC MANAGEMENT STUDY (STAGE 2)

**Please provide any suggestions to overcome the traffic issues which you have indicated in question 3.**

--

**Have you noticed any traffic issues in other streets within the study area?**

Street name	
Traffic issues	
Suggestions to overcome traffic issues	

**Do you have any other transport related issues which you have encountered whilst walking, cycling or driving in the streets within the study area?**

Location of issue/s	
Description of issue/s	
Suggestions to overcome issue/s	

**Please feel free to provide any additional feedback that you feel is relevant to the LATM study area.**

--

Thank you for taking the time to complete this survey, community participation is essential in identifying and addressing issues of this nature to help inform the preparation of the LATM Plan.

TO THE RESIDENT  
15 CLARINDA STREET  
BACCHUS MARSH VIC 3340

17 December 2018

Ref: JM:ld  
RN: 16/03/005

### **Bacchus Marsh Local Area Traffic Management Study (Stage 2)**

As you would be aware, Moorabool Shire Council is undertaking a Local Area Traffic Management (LATM) study within a precinct of Bacchus Marsh, to improve traffic management and road safety within your area.

Council recently asked residents for their input, to assist in identifying the key traffic issues being experienced within the study area, as well as validating some of the issues previously raised. From the extensive feedback received, a draft LATM plan has been prepared and has been endorsed by Council for a further round of community consultation.

A copy of the draft plan is available to view at [www.moorabool.vic.gov.au/consultations](http://www.moorabool.vic.gov.au/consultations) and residents are able to provide comments on the proposed treatments via the link to the interactive map until **5.00pm Tuesday 5 February 2019**.

In addition to this, a number of drop-in sessions will be held, to allow residents to view the plan, ask questions and have conversations around the recommendations. Bookings are not required and residents can attend at any time during the sessions.

#### **Session 1: Tuesday 22 January 2019**

4.00pm – 7.00pm  
Lerderderg Library  
215 Main Street, Bacchus Marsh

#### **Session 2: Tuesday 29 January 2019**

4.00pm – 7.00pm  
Lerderderg Library  
215 Main Street, Bacchus Marsh

We look forward to receiving your feedback on the draft plan. Should you have any queries in relation to the above, please contact Hugo Nicholls (Cardno) on 8415 7777.

Yours sincerely,



**John Miller**  
Manager Assets

## COMMUNITY CONSULTATION

# BACCHUS MARSH LOCAL AREA TRAFFIC MANAGEMENT STUDY (STAGE 2)

### Community Consultation; The Draft LATM Plan

Council recently asked residents for their input, to assist in identifying the key traffic issues being experienced within the study area, as well as validating some of the issues previously raised. Over 200 responses were received from the community, along with multiple other engagements, as part of this initial phase of consultation.

This feedback, along with data collected by an independent traffic engineering consultant, has been translated into a series of proposed treatments that aim to address the key traffic issues raised. The draft LATM plan has been endorsed by Council for phase 2 of the consultation process and we now invite the community to provide further feedback on the plan **until 5.00pm, Tuesday 5 February 2019**.

Visit [www.moorabool.vic.gov.au/consultations](http://www.moorabool.vic.gov.au/consultations) to view the draft document and provide feedback on the proposed treatments or drop in to one of our information sessions to find out more:

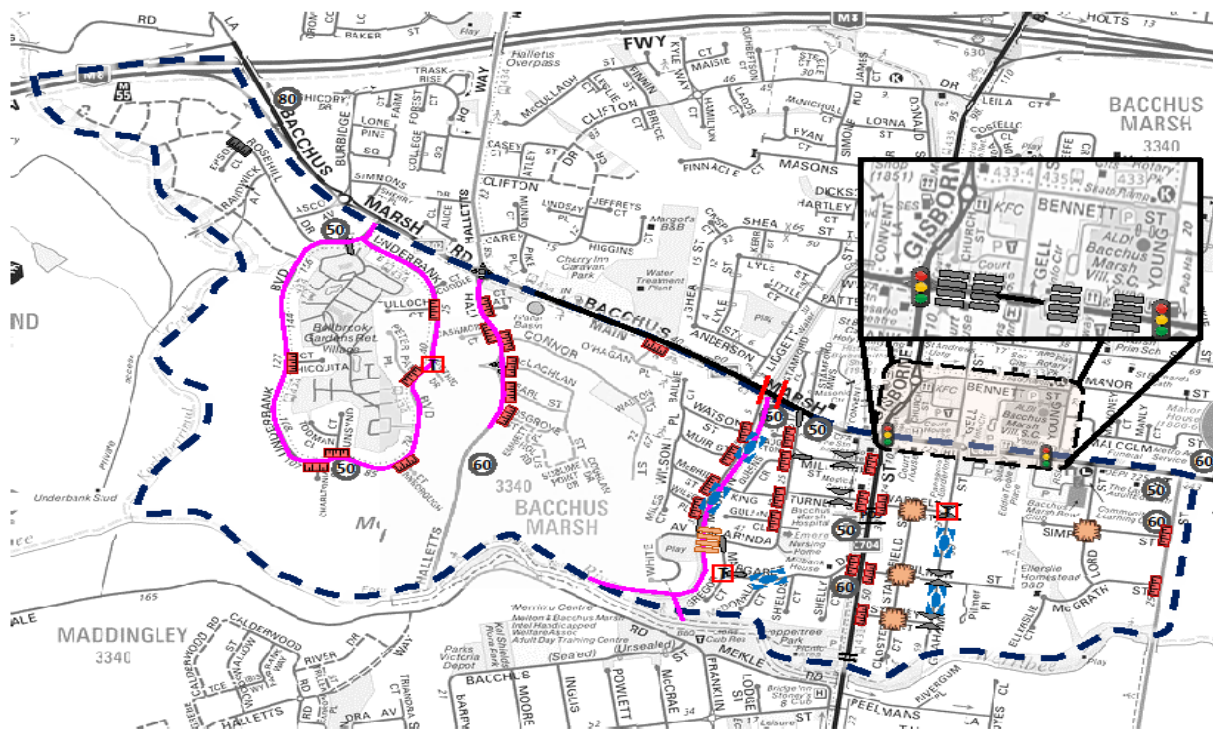
#### Drop in Session 1

Tuesday 22 January 2019  
4.00pm – 7.00pm  
Lerderderg Library  
215 Main Street, Bacchus Marsh

#### Drop in Session 2

Tuesday 29 January 2019  
4.00pm – 7.00pm  
Lerderderg Library  
215 Main Street, Bacchus Marsh

Bookings for the sessions are not required and residents can attend at any time during the sessions. If you have any queries or require any further information, please contact Hugo Nicholls (Cardno) on 8415 7777 or Council on 5366 7100.












Draft LATM Plan  
27/11/2018



Bacchus Marsh  
Local Area Traffic Management Study – Stage 2

#### LEGEND

-  Study Area
-  Centre Blister (or similar)
-  Raised Intersection
-  Threshold Treatment
-  Modified T-Intersection
-  Pedestrian Refuge Crossing
-  Raised Pedestrian / Bicycle Crossing
-  Footpath / Shared Path
-  Signalised Intersection



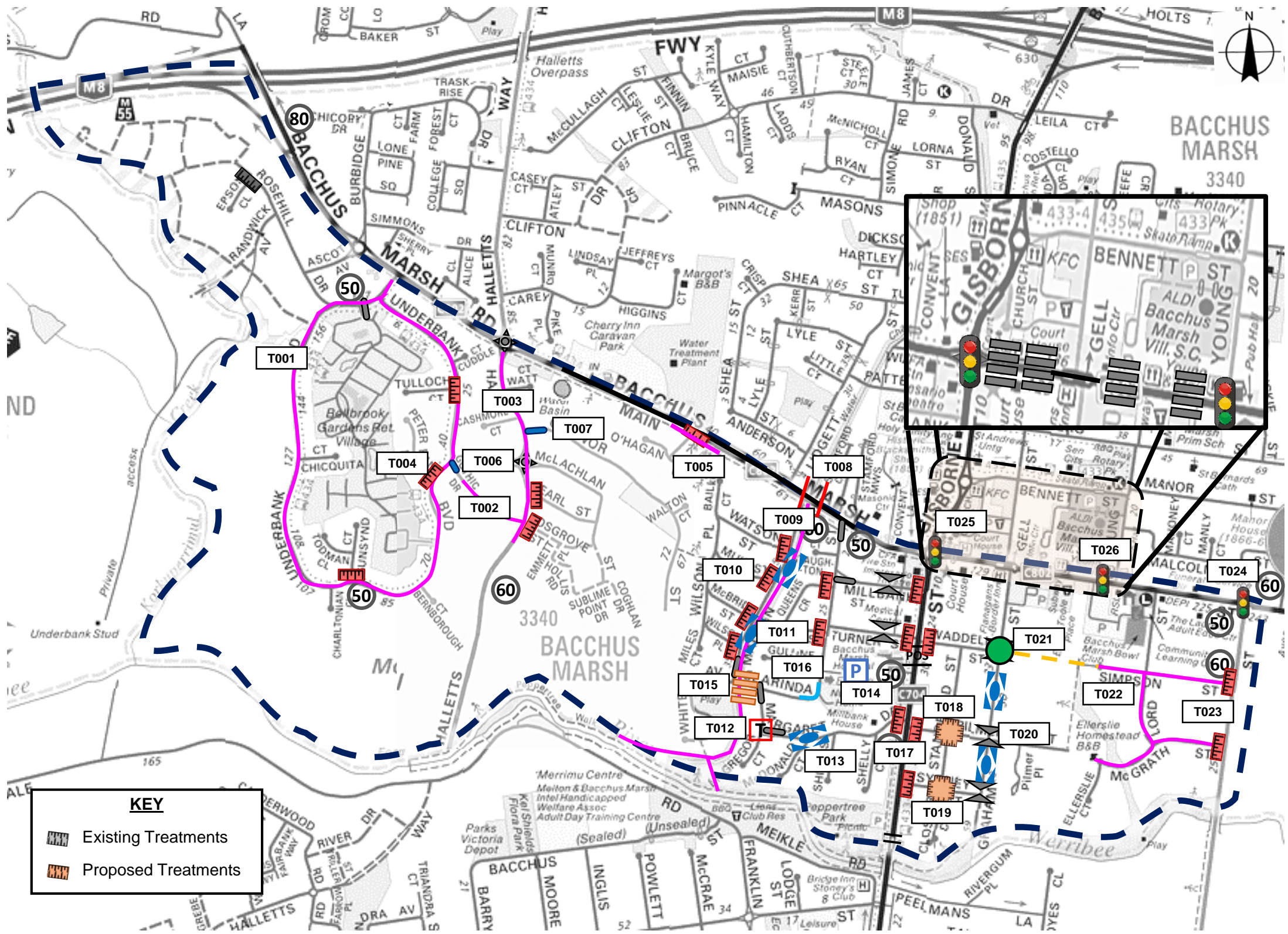
Bacchus Marsh Local Area Traffic  
Management Study – Area 2

APPENDIX

B

FINAL LATM PLAN





Final LATM Plan  
07/03/2019



Bacchus Marsh  
Local Area Traffic Management Study – Stage 2

Bacchus Marsh Local Area Traffic  
Management Study – Area 2

APPENDIX

C

COST ESTIMATES AND PRIORITY RANKING

Appendix C: Cost Estimates & Priority Ranking

Treatment ID	Treatment	Location	Cost (Estimate Only)	Importance	Volume (vpd)	Speed / Safety	Community Feedback (% of support)	Cost Score (2)	Importance Score (2)	Volume Score (2)	Speed / Safety Score (2)	Community Feedback Score (2)	Total Score (10)	Priority	Responsibility
T016	Line Marking & No Standing Signage	Clarinda Street	\$1,600.00	4.0	300.0	3.0	80%	2.0	1.6	0.5	1.5	1.6	7.2	High	Council
T014	Parking Precinct Plan	Bacchus Marsh Hospital	\$15,000.00	4.0	1200.0	3.0	100%	1.5	1.6	0.5	1.5	2.0	7.1	High	Council / Hospital
T015	Raised Pedestrian Crossing	Clarinda Street	\$15,000.00	4.0	600.0	3.0	100%	1.5	1.6	0.5	1.5	2.0	7.1	High	Council
T021	Roundabout	Waddell Street	\$25,000.00	4.0	500.0	4.0	100%	1.0	1.6	0.5	2.0	2.0	7.1	High	Developer
T025 (LATM Stage 1)	Signalised Intersection	Main Street / Grant Street	\$4,500,000.00	4.0	25000.0	4.0	70%	0.0	1.6	2.0	2.0	1.4	7.0	Medium	VicRoads
T008	Pedestrian Refuge Crossing	Main Street / Water Channel	\$5,000.00	3.0	600.0	3.0	75%	2.0	1.2	0.5	1.5	1.5	6.7	Medium	Council
T012	Modified T-Intersection	Margaret Drive	\$15,000.00	3.0	700.0	3.0	100%	1.5	1.2	0.5	1.5	2.0	6.7	Medium	Council
T018	Raised Intersection	Pilmer Street / Standfield Street	\$18,000.00	3.0	500.0	3.0	100%	1.5	1.2	0.5	1.5	2.0	6.7	Medium	Council
T019	Raised Intersection	Sydney Street / Standfield Street	\$18,000.00	3.0	500.0	3.0	100%	1.5	1.2	0.5	1.5	2.0	6.7	Medium	Council
T011	Centre Blisters	Madden Drive (x2)	\$24,000.00	4.0	600.0	3.0	100%	1.0	1.6	0.5	1.5	2.0	6.6	Medium	Council
T026 (LATM Stage 1)	Signalised Intersection	Main Street / Young Street	\$500,000.00	3.0	25000.0	4.0	58%	0.0	1.2	2.0	2.0	1.2	6.4	Medium	VicRoads
T007	Splitter Island	Connor Street	\$4,000.00	3.0	200.0	2.0	80%	2.0	1.2	0.5	1.0	1.6	6.3	Medium	Council
T009	Shared Path	Water Channel	\$140,000.00	4.0	700.0	3.0	100%	0.5	1.6	0.5	1.5	2.0	6.1	Medium	Council
T020	Centre Blisters	Graham Street (x2)	\$24,000.00	3.0	1500.0	3.0	86%	1.0	1.2	0.5	1.5	1.7	5.9	Medium	Council
T001	Footpath	Underbank Boulevard	\$170,000.00	4.0	1000.0	3.0	89%	0.5	1.6	0.5	1.5	1.8	5.9	Medium	Council
T006	Splitter Island	Gothic Drive	\$4,000.00	2.0	100.0	1.0	100%	2.0	0.8	0.5	0.5	2.0	5.8	Medium	Council
T003	Shared Path	Halletts Way (North)	\$71,000.00	3.0	5000.0	3.0	100%	0.5	1.2	0.5	1.5	2.0	5.7	Medium	Developer
T005	Threshold Treatment & Shared Path Marking	O'Hagan Place	\$10,000.00	2.0	100.0	1.0	85%	2.0	0.8	0.5	0.5	1.7	5.5	Medium	Council
T023	Threshold Treatments (x2)	Simpson Street, McGrath Street	\$14,000.00	2.0	200.0	2.0	85%	1.5	0.8	0.5	1.0	1.7	5.5	Medium	Council
T024	Signalised Intersection	Main Street / Fisken Street	\$500,000.00	2.0	8000.0	4.0	75%	0.0	0.8	1.0	2.0	1.5	5.3	Medium	VicRoads
T013	Centre Blister	Margaret Drive	\$12,000.00	3.0	700.0	2.0	50%	1.5	1.2	0.5	1.0	1.0	5.2	Medium	Council
T022	Footpath	Simpson Street, Lord Street, McGrath Street	\$63,000.00	3.0	300.0	2.0	100%	0.5	1.2	0.5	1.0	2.0	5.2	Medium	Council
T017	Threshold Treatments (x5)	Millbank Street, Turner Street, Waddell Street, Pilmer Street, Sydney Street	\$35,000.00	2.0	1000.0	2.0	85%	1.0	0.8	0.5	1.0	1.7	5.0	Low	Council
T010	Threshold Treatments (x6)	Watson Street, Muir Street, McBride Street, Wilson Place, Queens Court, King Street	\$40,000.00	2.0	200.0	1.0	85%	1.0	0.8	0.5	0.5	1.7	4.5	Low	Council
T004	Threshold Treatments (x5)	Tulloch Court, Peter Pan Place, Gunsynd Court, Earl Street, Cosgrove Street	\$35,000.00	1.0	200.0	1.0	85%	1.0	0.4	0.5	0.5	1.7	4.1	Low	Council
T002	Shared Path	Gothic Drive to Halletts Way	\$37,000.00	2.0	0.0	0.0	80%	1.0	0.8	0.5	0.0	1.6	3.9	Low	Council
TOTAL			\$6,295,600.00												
TOTAL (Excl. VicRoads/Developer Funded Projects)			\$699,600.00												
TOTAL (Developer Projects)			\$96,000.00												
TOTAL (VicRoads Projects)			\$5,500,000.00												

ASSUMPTIONS

- Each item is completed separately or with only a few other items. If many of these are bulked together, a discount would be anticipated on a lot of the cost estimates for each treatment.
- Shared paths are 3m wide and standard footpaths are 1.5m. These are 175mm thick concrete footpath with 75mm crushed rock base.
- Centre blisters will be landscaped with either grass or small plants, not concrete island infill. It is estimated that this would increase costs by around 50-60%
- Threshold treatments are assumed to be standard Council 3m wide raised pavements including line marking and signage.