

11.2 Endorsement of Local Area Traffic Management Plan for Cowandilla, Hilton, Richmond, Parts of Torrensville and Mile End

Brief

To provide Council with a report detailing the Local Area Traffic Management (LATM) investigations that have been undertaken in Precinct 12 and 16, which consist of Cowandilla, Richmond, Hilton and parts of Torrensville and Mile End; and to seek approval to progress the work, including notification of the proposals in the LATM report to the stakeholders in the study areas.

RECOMMENDATION(S)

The Committee recommends to Council that:

1. Council endorse the LATM Plan and its recommended road works for Precinct 12 and 16, which consist of Cowandilla, Richmond, Hilton and parts of Torrensville and Mile End.
2. Notification of the scheme endorsement by Council be provided to properties in the study areas with information on the report.
3. Funds to be allocated within the Council's 2022/2023 budget for the commencement of traffic control device installation as part of the LATM road works recommendation.

Introduction

Precinct 12 and 16 (Cowandilla, Richmond, Hilton and parts of Torrensville and Mile End) were approved by Council for investigations, as part of the forward planning program for Local Area Traffic Management in the City. The investigations have reached the stage where Council endorsement of the proposed scheme, community notification and more detailed planning and design work need to be formalised by Council.

Discussion

Council Administration has completed a LATM Plan (refer to **Attachment 1**) for the above precincts with the aim to better manage the traffic and parking in local streets and improve road safety, by identifying transport and parking issues and thus developing improvements in the study area. The LATM plan considers all users of the road network including pedestrians, cyclists, public transport, private vehicles and commercial vehicles.

The LATM includes simple, low cost measures such as line-marking and signage through to major works such as road humps, roundabouts and vehicle turning restrictions. Treatments are tailored to address problems such as dangerous intersections, high traffic volumes, high traffic speeds, pedestrian safety around schools, improving cycling facilities, supporting public transport and addressing parking issues.

Considerable work has since been undertaken on the LATM project, including detailed and extensive community consultation, collection of traffic and parking data, assessment of issues and possible traffic management and parking solutions.

The LATM Working Party also provided guidance and direction for the LATM project throughout this process. The Working Party met on several occasions, with the latest meeting being held on 24 June 2021.

Following the presentation and discussions which followed, the Working Party endorsed the key LATM recommended actions detailed in the report, which is summarised in the Table 1:

Table 1 - Recommended LATM Road Projects

Item	Recommended Road Projects	Cost Estimate (\$) (+/- 25%)
1	Speed humps along entire length of Elizabeth Street	180,000
2	Line marking and Pavement bars on Tarragon Street approach	2,500
3	Roundabouts at Hounslow Avenue/Thomas Street & Hounslow Avenue/Wilson Street	320,000
4	No right turn from Bagot Avenue into Roebuck Street (7am - 9 am, Monday to Friday)	1,000
*5	Speed humps along entire length of Jenkins Street (Subject to local road access and safety improvements from the upcoming Marion Road / Sir Donald Bradman Drive Intersection upgrade)	270,000
6	Indented parking bay fronting Cowandilla Primary School	100,000
7	Roundabout at Chambers Avenue / Craig Street	205,000
8	Roundabout at Chambers Avenue / Shierlaw Street	205,000
9	Roundabout at Chambers Avenue / Lane Street	205,000
10	Roundabout at Chambers Avenue / Bickford Street	205,000
11	Roundabout at Chambers Avenue / Lucas Street	205,000
12	Brooker Terrace delineation improvement	10,000
13	Pavement bars at Marion Road / Craig Street	2,500
14	Pavement bars at Marion Road / Shierlaw Street	2,500
15	Pavement bars at Marion Road / Lane Street	2,500
16	Pavement bars at Marion Road / Bickford Street	2,500
17	Pavement bars at Marion Road / Lucas Street	2,500
18	Install missing link bicycle lane at Kingston Avenue at junction with Deacon Avenue	3,000
19	Sharrow line marking on the entire length of Roebuck Street	5,000
20	Sharrow line marking on Bagot Avenue (between Hounslow Avenue and Henley Beach Road)	2,500
21	Line marking delineation at Ebor Avenue / Halifax Street / Darebin Street	5,000
*22	Half Road Closure on Bagot Avenue and No Right Turn to Henley Beach Road from Bagot Avenue - peak periods only (Subject to further consultation with residents of adjacent streets)	10,000
23	Roundabout at Milner Road / Davenport Terrace	240,000
TOTAL COST		2,186,500

The cost estimates of the identified projects are based on unit rates and previous projects that Council have previously undertaken. Cost may vary +/- 25% depending on detailed designs for road construction.

If the recommendations are approved by Council, it would enable the Administration to progress the LATM projects for Precinct 12 and 16 (Cowandilla, Richmond, Hilton and parts of Torrensville and Mile End).

Project number *5

The Australian and South Australian governments have recently announced joint funding of \$45 million for an upgrade of the intersection of Marion Road and Sir Donald Bradman Drive. The project will improve congestion and safety for all road users and cater for future traffic demands including the expected demand during construction of the North-South Corridor.

This project is expected to start construction in late 2022 and be operational in 2024. Across the life of the project, community engagement will form an important component and Council will work closely with the State Government to minimise adverse traffic impacts on local streets, such as reducing cut through traffic and speeding.

Council will work closely with the Department to preserve local traffic on Jenkins Street and depending on the outcomes of community consultation and access preference, the needs to install speed humps on Jenkins Street will be determined at such time.

Project number *22

While from the broader consultation there was strong support not to proceed with the half road closure on Bagot Avenue, there are a number of factors which warrant further consideration:

- The narrow width of the road and verge makes local access to and from the residential properties difficult due to the high traffic volumes.
- The on-street parking further restricts the traffic flows on this section of the road.
- Approximately 71 per cent of the responses received from residents of Bagot Avenue, between Henley Beach Road and Hounslow Avenue, who would be most affected by the high traffic flows and narrow road width, supported the half road closure proposal.
- A previous half road closure trial (similar to the proposal) undertaken by Council in the early 2000's showed that adverse and unacceptable traffic diversion did not arise from the redistribution of the traffic flows to adjacent streets.

Following detailed discussion at the recent Working Party meeting, the Working Party did not reach agreement to proceed with this proposal at the present time, due to concerns about traffic diversion and impact on accessibility for residents.

The Working Party also requested that a NO RIGHT TURN from Bagot Avenue onto Henley Beach Road be implemented at peak times, due to safety concerns.

The Working Party agreed to defer this proposal for further discussion and consideration without holding back the progress of the rest of the LATM proposals. As the next action, Council staff will undertake further consultation with the residents of adjacent streets that may be impacted by the proposed road closure and turning restriction on Bagot Avenue. The results of the consultation will be used to determine whether this project should proceed.

Climate Impact Considerations

(Assessment of likely positive or negative implications of this decision will assist Council and the West Torrens Community to build resilience and adapt to the challenges created by a changing climate.)

There is no direct environmental impact in relation to this report.

Conclusion

The LATM Plan for Precinct 12 and 16 (Cowandilla, Richmond, Hilton and parts of Torrensville and Mile End) has been developed based on evidence based investigations and community consultation.

At the most recent meeting of the Local Traffic Management Plan Working Party on 24 June 2021, the Working Party has endorsed the key LATM recommendations and it is proposed that notification of the scheme be distributed to residents in the study area and that funds are allocated in 2022/23 Budget to commence the installation of the proposed traffic management devices.

Attachments

- 1. Final LATM report (Precinct 12 and 16)**

LOCAL AREA TRAFFIC MANAGEMENT PLAN

Cowandilla / Hilton / Richmond / Parts of Torrensville & Mile End (2021)



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1 Introduction

The City of West Torrens is located between the Central Business District of Adelaide and the coast with diverse and changing land-use. The Adelaide Airport precinct is located at the core surrounded by increasing development of residential and non-residential land which has intensified transport demands, and in certain locations, exceeding the capacity of the arterial network. The consequence has been that the Council road network is subject to increasing intrusion by through traffic.

To meet the growing transport needs of the City, Council adopted the City of West Torrens Transport Strategy "Transportation for the next Generation 2025". A key recommendation of the Transport Strategy was to implement a LATM Plan program to address traffic management proactively and strategically. The LATM Plans form a key mechanism for Council to address transport related issues in conjunction with Blackspot projects.

The LATM study is a formal strategic approach to investigating traffic, parking, freight, pedestrian, cycling, public transport and amenity issues within a study area. The Austroads explain the LATM approach in the context of modifying streets and networks which were designed in ways that are no longer considered appropriate to the current needs and involves using physical devices and street scaping treatments to influence vehicle operation. The broad objectives of the LATM Plan include:

- Improving road safety;
- Improving amenity; and
- Reduce environmental impact of traffic.

Whilst aiming to achieve the objectives, the LATM study must also consider maintaining access through the City (especially for public transport and emergency services) and ensure that impact on other streets, such as traffic and parking migration, is minimised. To achieve the broad objectives, the LATM Plan must focus on:

- Reducing speeds;
- Reducing volumes;
- Reducing through traffic;
- Reducing commercial/heavy vehicles on local streets.

1.1 LATM Priority

The Transport Strategy identified 24 precincts and 5 sub-precincts across the Council area which were delineated based on land use, natural and artificial environmental barriers as illustrated in Figure 1. These precincts were prioritised for LATM investigation through literature review and technical analysis as detailed in the Transport Strategy. The priority forms a forward program to review all precincts where the highest ranked areas forming the first 10 year LATM program. The rating system and priority list were both adopted for implementation by Council.

Figure 1 below shows the status and progress of LATM studies in the overall Council area:

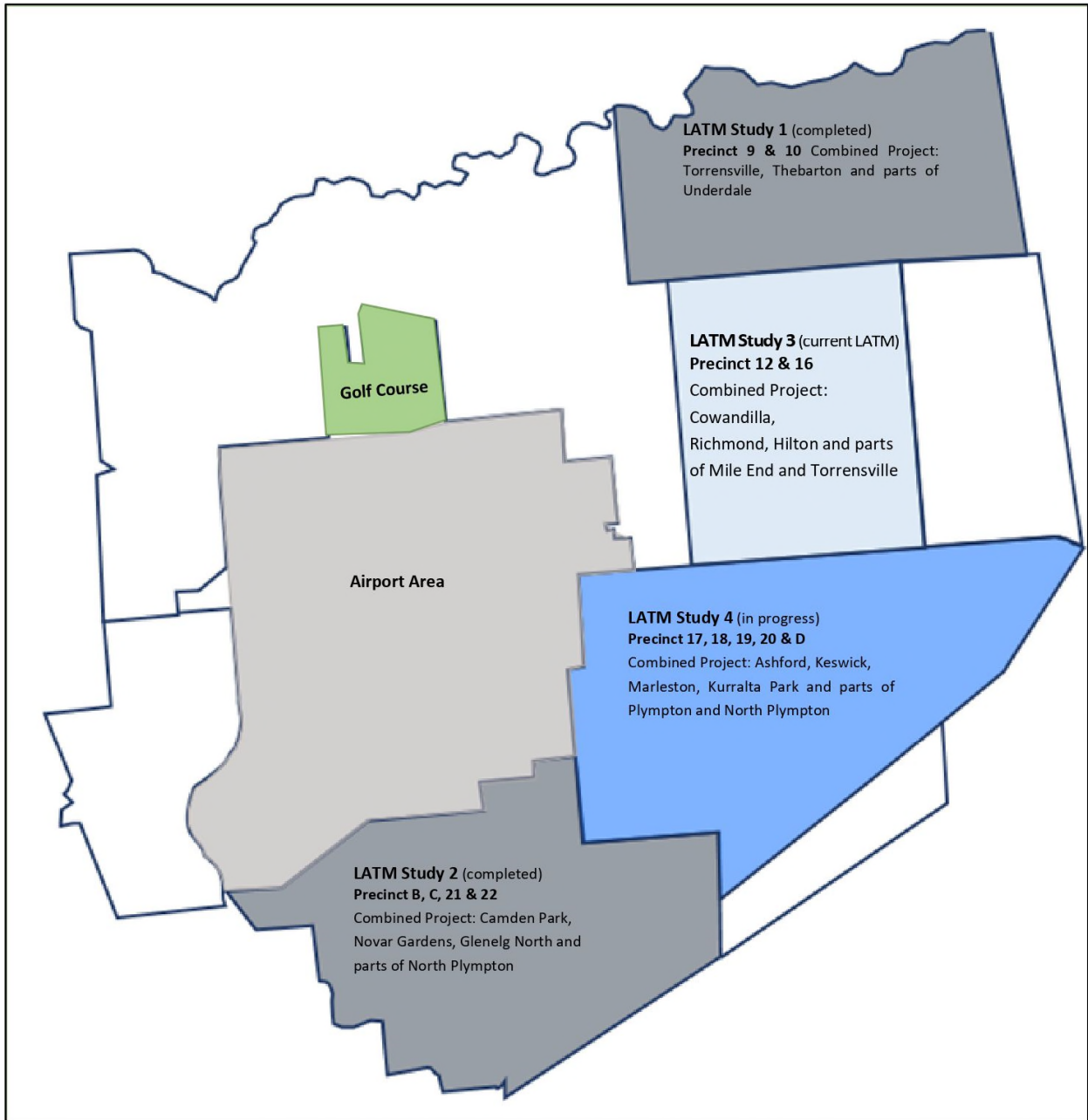


Figure 1: Local Area Traffic Management Study Areas

1.2 Study Area

For this LATM study, the precincts 12 and 16 were combined, as illustrated in **Figure 2** to help streamline the process given that the two areas share several similarities such as being influenced by:

- North-South traffic along the South Road and Marion Road,
- East-West and Airport related traffic along Sir Donald Bradman Drive, and;
- Similar land use contained within the precincts.

The study area is bounded by the Henley Beach Road, South Road, Richmond Road and Marion Road, as shown in **Figure 2** below:

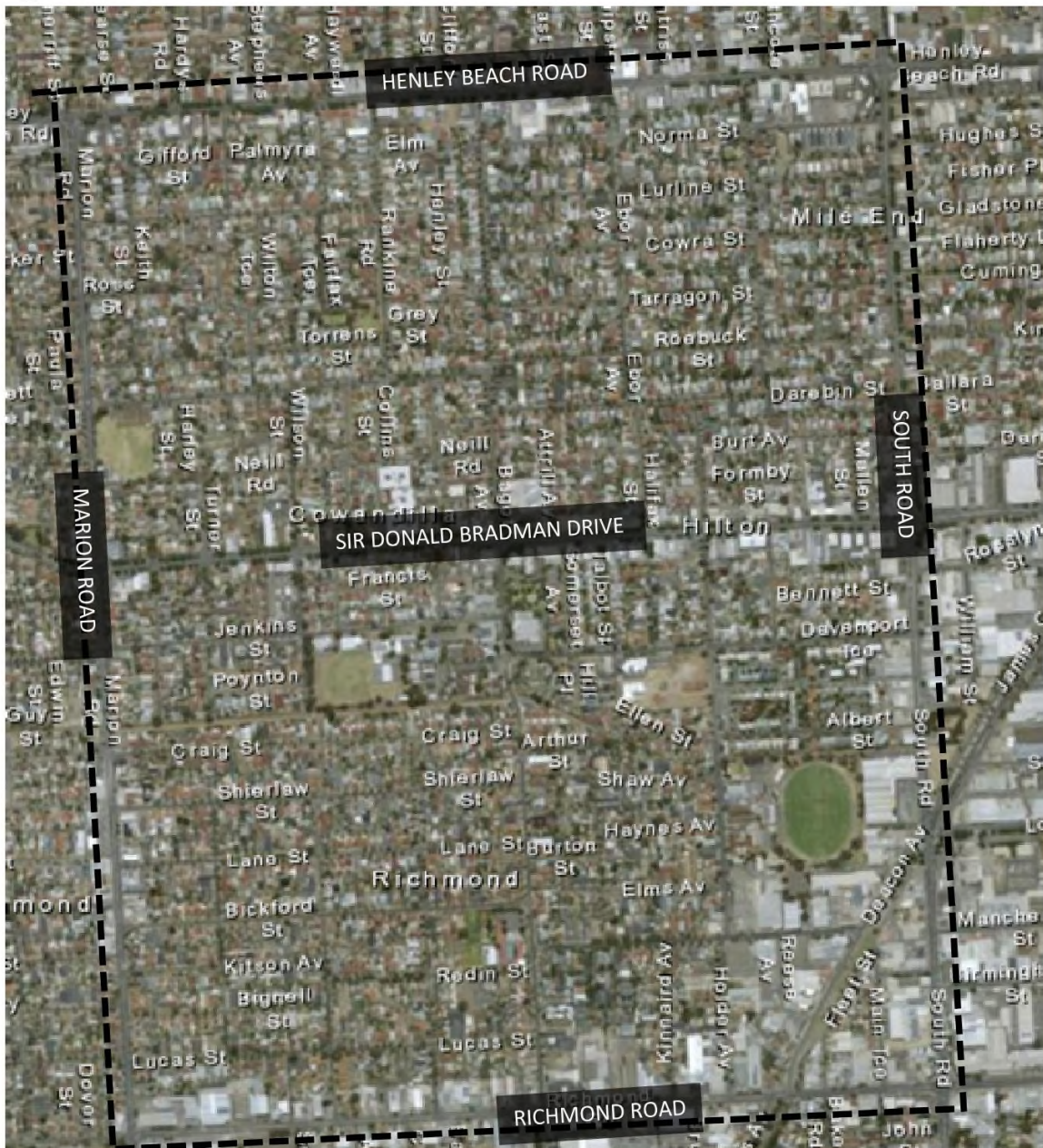


Figure 2: LATM Precinct 12 and 16 Study Area

2 Methodology

The methodology adopted for delivering this Local Area Traffic Management (LATM) Plan is based on the broad suggested process in Section 2.1 of the Austroads Guidelines to Local Area Traffic Management, the broad process suggested in Section 5.0 of the Transport Strategy and building on past experience from the LATM Plan. This LATM study process is focussed on ensuring a consistent, logical and effective approach to strategic decision making and is illustrated in **Figure 3** which highlights the broad phases and the key deliverables within each phase. The study process follows a problem-solution-monitor structure.

Phase 1 of the study is to collect traffic data and stakeholder concerns which can then be analysed to support the problem identification. Traffic volumes, speeds and vehicle classifications are collected through the implementation of traffic counts through the area. Since Council has an existing database from ongoing "spot counts", traffic counters are not installed for all streets. Traffic volumes are also obtained from the DIT for signalised intersections that bound the study area such as the Sir Donald Bradman Drive and Brooker Terrace intersection and these can help illustrate the volumes of vehicles moving to and from the arterial network. Crash data is also obtained through the DIT and, in accordance with Blackspot analysis, only crashes occurring within the last 5 years of available crash data are included. Stakeholder concerns and transport use data is obtained through a broad survey that was mailed to all the residents.

In Phase 2, the problem identification involves review and analysis of the data collected in phase 1. The traffic data is compared to the target criteria specified in the Transport Strategy to help prioritise transport issues. The traffic data assessment is combined with an analysis of the stakeholder concerns. Issues that are raised by stakeholders and supported by the traffic data collected are prioritised. As part of the problem identification phase, a working party is established that consists of the elected representatives and administration staff to discuss in an informal workshop environment the issues identified and potential treatments. This also provides the elected members an opportunity to voice any concerns on behalf of their constituents. These treatments are then further developed into concept plans.

Phase 3 of the study is to consult with stakeholders on the concept plans of traffic management to address the concerns raised by the community to determine whether there is broad public support for the proposed projects.

Once this feedback is reviewed, amendments to the plans, where possible, are made. The feedback is also discussed in another informal workshop with the working party, during which the working party would then make recommendations on the traffic management options for the LATM study.

At the implementation stage, further localised consultation is conducted for each individual proposed project and only stakeholders within the vicinity of each project are consulted to determine any localised concerns.

In summary, based on the traffic data and feedback received through all the preceding phases and with respect to the Strategic Transport documents, the LATM plan is developed with recommendations regarding traffic treatments to be adopted and how to stage the adopted traffic treatments which is based on the priority and significance.

Once the LATM plan is endorsed by the elected Council, the community is notified of the adopted LATM plan. Traffic Impact Statements and external approvals, where necessary, are then prepared and the individual projects are programmed into Council's budget for construction over the coming years. Once detailed design and construction is

complete, Council will continue to implement a monitoring schedule to further review and assess the impact of the traffic treatments.

Figure 3 below summarises the LATM process outlined above.

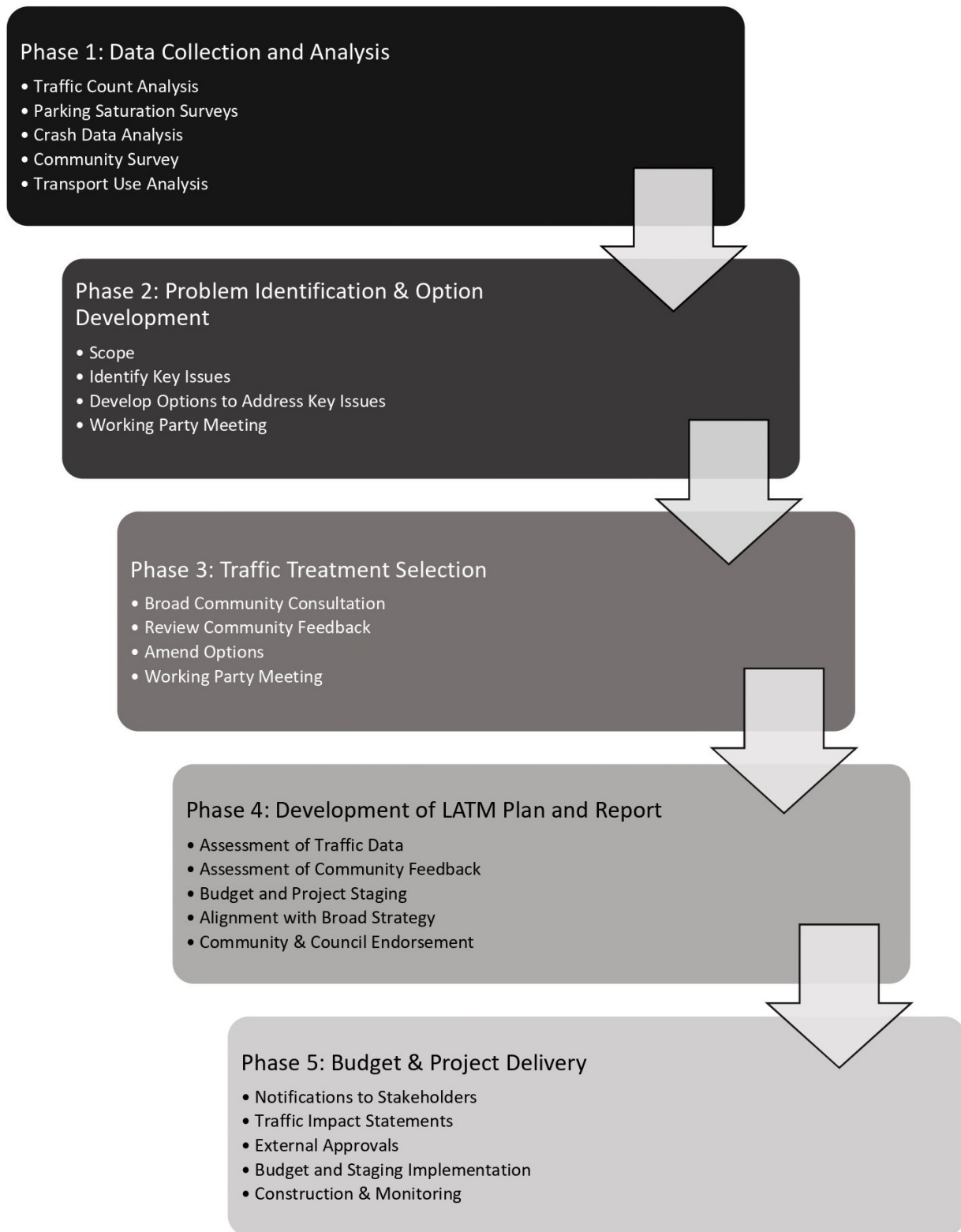


Figure 3: LATM Study Process

3 Strategic Context

The LATM Plan is a forward planning and local strategic document and thus consideration must be given to other higher level strategic plans to ensure that proposed changes to the local network are aligned with achieving and supporting broader objectives for the Council and State. In addition, considerations for other high level strategic plans may also help ensure resources are not wasted as a result of changes to the broader road network, managed by the Department for Infrastructure and Transport (DIT), impacting the local road network. CWT strategic plans include the CWT Transport Strategy whilst the LATM must also be viewed in light of the State planning policies including the Integrated Transport and Land Use Plans (ITLUP) and 30 Year Plan for Greater Adelaide.

Council is also working closely with DIT with regards to the South Road upgrade project, specifically the Torrens to Darlington (T2D) Project. The 10.5 km T2D Project is the final piece of the North-South Corridor, the most significant infrastructure project ever undertaken in South Australia. Council will work together with DIT to ensure that adverse impacts to the local road network are mitigated.

3.1 Existing Land Use

3.1.1 Overview

The LATM area consists predominantly of existing residential suburbs, with commercial development primarily concentrated along Henley Beach Road, Marion Road and South Road. Richmond Road and the area around Deacon Avenue is home to considerable light industry/ employment land uses. Into the future the LATM area is facing incremental infill with land divisions supporting multiple new allotments in place of one existing allotment. Urban Corridor Zone also supports increased heights and densities on land within one suburban block on the southern side of Henley Beach Road in Mile End and Torrensville.

Several substantial residential developments have been proposed or are expected in the coming years in line with the type of development envisaged in Planning and Design Code which superseded the Development Plan in 2021.

The following map provides an overview of the existing land use of the study area:

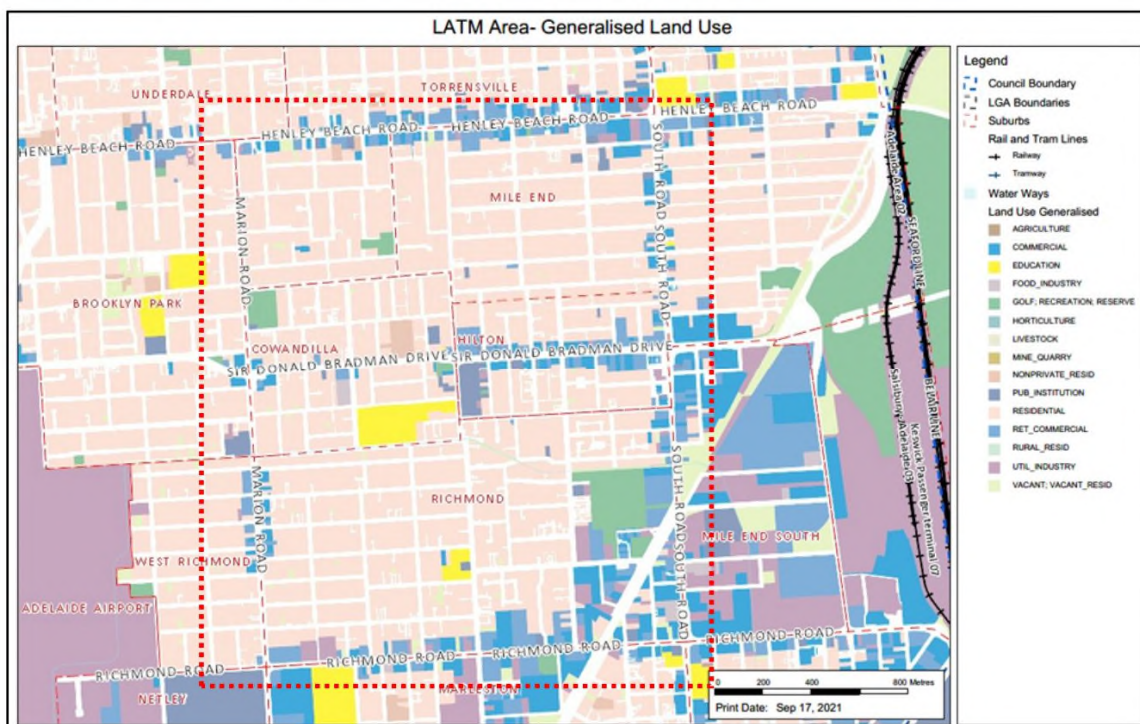


Figure 4: Land Use Map

3.1.2 Northern part of the LATM area

Land along Henley Beach Road between South Road and Marion Road, and extending back one suburban block to Norma Street and (west of Bagot Avenue) Gifford Street is zoned as Urban Corridor and land uses along the road reflect the desired character of the zone.

Commercial business along Henley Beach Road are primarily restaurants and other retail, but also include services such as Centrelink and Medicare, Physiotherapists and the like, with a car wash and fast food restaurant (KFC) located at the most western corner of the subject LATM area.

The balance of land that is south of Henley Beach Road as far as Sir Donald Bradman Drive, within the LATM area, is zoned Established Neighbourhood which, should mean comparatively fewer medium density developments than in the Housing Diversity Neighbourhood Zone that is more prevalent in the South Western portion of the LATM area.

Changes to the function of east west connections across South Road, as a result of the South Road tunnel extension, will impact traffic movement in the area over a 5 year horizon.

3.1.3 South Western part of the LATM area

South west of the LATM Area is predominantly General Neighbourhood Zone which is lower density residential development, with a few hammerhead allotments. There are a couple of pockets just south of Sir Donald Bradman Drive and north of the stormwater drain that are Established Neighbourhood- which reflects the regular pattern and character of large allotments for homes in the area.

3.1.4 South Eastern part of the LATM area

South East of the subject LATM area includes Employment Zone along South Road, and a mix of Recreation Zone around the Richmond Oval; Strategic Employment and Employment close to Richmond Road, and a small pocket of Established Neighbourhood north of Richmond Oval. The balance of this part of the LATM area is Housing Diversity Neighbourhood Zone which could see increased residential densities. This area also includes a portion of the Westside bikeway which is a considerable asset for residential development and also recognised as a tourism asset in the Western Region Tourism Destination Action Plan.

3.1.5 West of LATM subject area

The most recent Airport Masterplan includes a vision to increase cold storage land uses on the eastern side of the Airport, with proposals to provide access for certain traffic types via Richmond Road. It is yet to be known how this may be affected by the South Road extension tunnel project because the road design is yet to be finalised.

3.2 Existing Road Network

The City of West Torrens road network includes urban arterial roads, major collector roads, minor collector roads and local streets. The functions of each road class are further defined below:

Arterial roads are major roads that carry high volumes of through traffic. These roads under the care and control of the Department for Infrastructure and Transport (DIT).

Major collector roads are higher order streets which generally serves a sub-arterial function, carrying higher volumes than a local collector road but lesser traffic volumes than an arterial road. They generally provide convenient and more direct connection between arterial roads, area generally without traffic control devices and carry more significant volumes of commercial traffic and through traffic. These roads are under the care and control of Council.

Minor collector roads are higher order streets which “collect” traffic from local streets and distribute the traffic to other higher order streets such as arterial roads. By their nature and function, they are expected to carry higher volumes of traffic and speeds tend to be higher. They also frequently form part of a public transport route. The desirable aim is to limit

traffic volume and speed, while still being able to provide relatively unhindered access. Some through traffic usage can be expected.

Local Streets provide local access to properties. Generally resident access tend to dominate the characteristics of these streets with lower speed and traffic volume being the desirable aim.

In this study area, the functions of each road are shown in **Figure 5**:

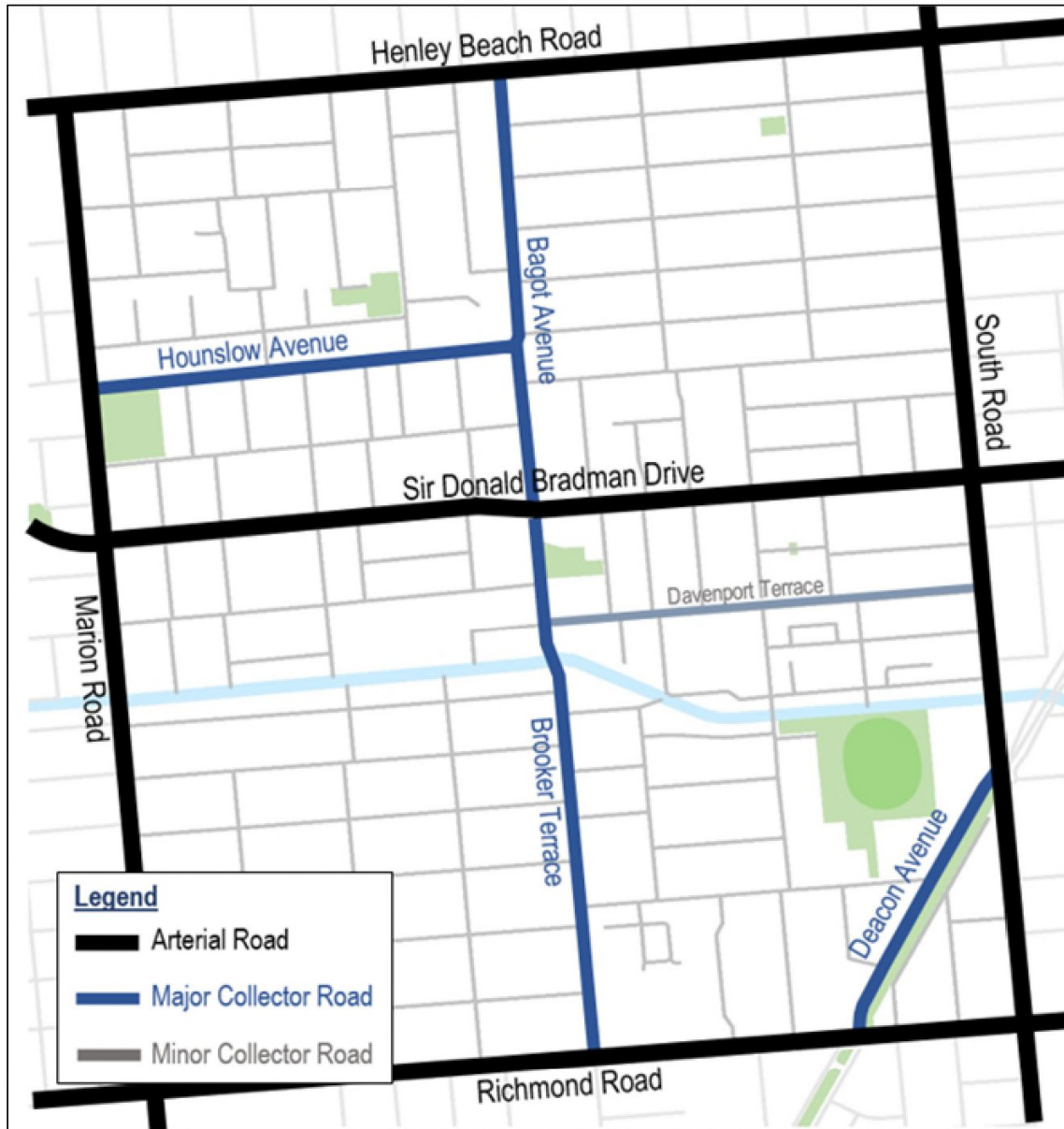


Figure 5: Road Class and Function

It is imperative that the function and integrity of the individual road class are preserved to optimise road safety and efficiencies for the community and road users.

3.3 Public Transport Routes

Another aspect to consider is the impact of public transport routes within the affected area (bordered in red boundary), illustrated in Figure 6:



Figure 6: Public Transport Routes through the Study Area

As can be seen in Figure 6, the road sections of Henley Beach Road, Marion Road, Sir Donald Bradman Drive and South Road contained within the study area are major public transport corridors. Some local parking issues caused by commuter parking that are associated with the public transport routes have been addressed over time through parking controls located in front of the residential properties.

Whilst there are currently no reactive requests to address commuter parking issues along these corridors, Council will continue to monitor parking capacity and symptoms of commuter parking in this vicinity. If the parking controls criteria are met, Council will consult with affected residents and implement suitable parking controls as necessary.

There are no bus routes and stops located on local roads within the study area. With this in consideration, implementation of physical traffic control devices such as raised pavement humps and slow points on roads with high traffic and speeding issues will not be restricted.

3.4 Cycling and Active Transport

3.4.1 Cycling network

Cycling and active transport routes also have an impact on the road network and must also be considered. The existing state of cycling and active transport facilities in this study area is illustrated in **Figure 7** (Bike direct network).

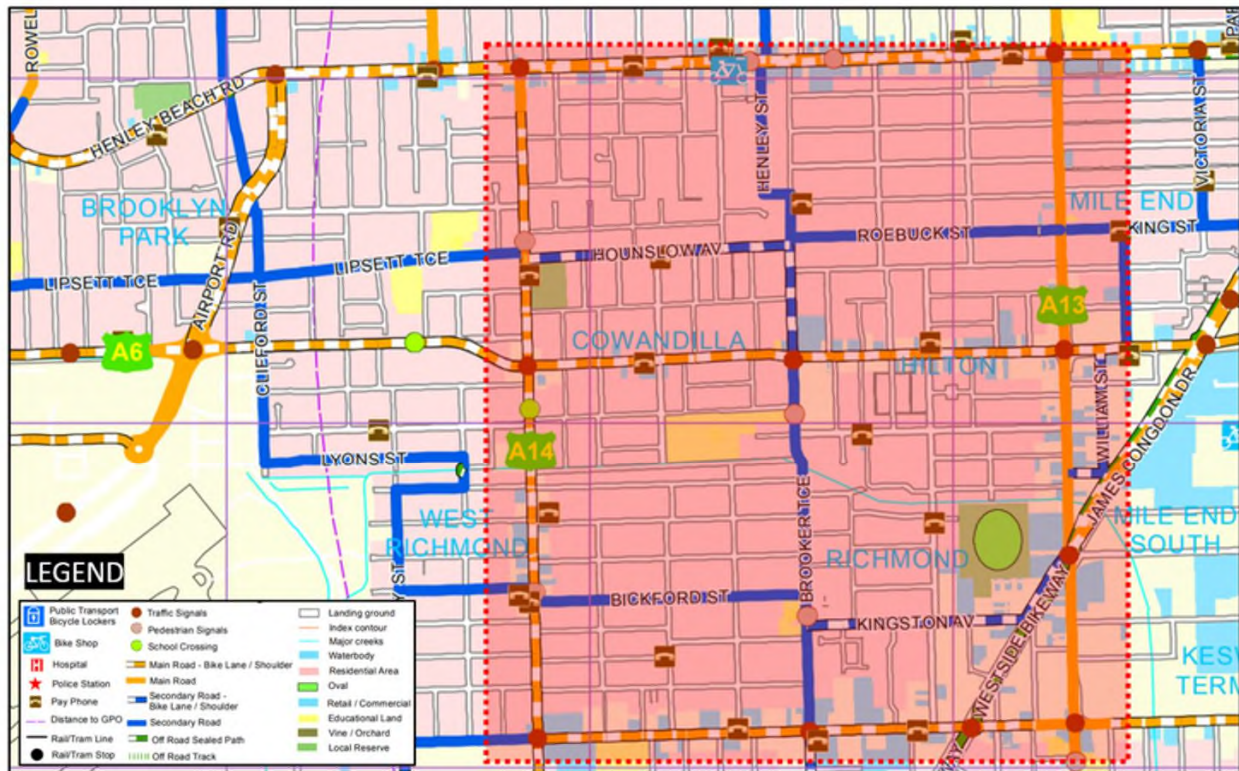


Figure 7: Bike Direct Network

The main cycling routes on main roads are Sir Donald Bradman Drive, Marion Road, Henley Beach Road and Richmond Road. These main roads have bicycle lanes on both sides, except South Road. It should be noted that DIT is currently investigating options to improve the crossing of South Road at Roebuck Street. Council will work together with DIT to achieve a safe and desirable design for cyclist movements at this location.

A minor section of Westside bikeway is contained in this LATM study area. The Westside Bikeway is a shared walking and cycling route through the western suburbs of Adelaide following the former Holdfast Bay railway line. It provides a connection from Glenelg to the various trails and paths in the Adelaide Parklands. Currently, Kingston Ave and Bickford Street form the other east-west route connecting into the Westside Bikeway. Kingston Avenue currently has a bike lane only on the northern side that disappears at the intersections with Deacon Avenue. This missing link will be reinstated. Bickford street is also a cycling network therefore it should be line marked with sharrow to improve safety and way finding for cyclists.

Henley Street - Bagot Avenue - Brooker Terrace corridor, as shown in **Figure 7** is a local bike network where high movements of cyclists are seen and recorded. There are bicycle lanes along the mid-section of Bagot Avenue between Hounslow Avenue and Sir Donald Bradman Drive. Bicycle lanes cannot be achieved on the remaining section of Bagot Avenue and Henley Street (between Hounslow Avenue and Henley Beach Road) due to the narrow road widths. This section will be treated with sharrow line markings instead.

Hounslow Avenue and Roebuck Street are part of the Airport Bikeway corridor. Hounslow Avenue currently have bicycle lanes on both sides of the road. Roebuck Street will be treated with sharrow line marking to improve safety for cyclists along the Roebuck Street.

3.4.2 What are sharrows?

A sharrow or shared-lane marking is an innovative road treatment consisting of a bike logo and two arrows that advise bike riders where to ride and motorists where to expect people riding on low traffic streets. The figure below shows an example of a sharrow line marking:

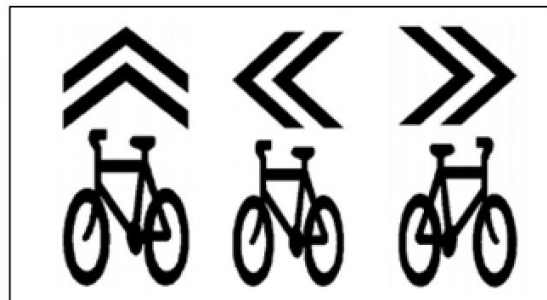


Figure 8: Sharrow line marking

Sharrows are low cost treatment that can be installed on low traffic streets where bike lanes are not warranted and bikes and motor vehicles share the same lane. The treatment can assist bike riders navigate cycling routes and alerts other road users that they are sharing the road with bike riders.

Sharrows also reduce the number of cyclists riding on footpaths, which is safer for pedestrians. It leads them to give slightly more space passing parked cars (meaning less risk of being hit by someone opening a car door), and encourages car users to give them more space (an average of 60cm in trials). Sharrows do not designate a particular part of the street for the exclusive use of people riding bikes, nor do they affect parking or vehicle access.

The trial found sharrows to be effective in encouraging bike riders to position themselves at a safe distance from parked cars. A survey found that most riders felt safer after the installation of the sharrows. Application of sharrows on local streets can be seen in the figure below:



Figure 9: Sharrow Line Marking on a Local Street

4 Traffic Data Assessment

4.1 Crash Assessment

The LATM study considers and addresses road safety issues as the key priority. A widely-accepted indicator for road safety is crash history which can highlight problems with the road and road-side infrastructure. Three factors to consider when assessing road safety are crash numbers, crash type and the "apparent error" (which can be subjective due to it being based on police reports).

The crash history criteria is specified in the Transport Strategy, for local roads, as being less than 1 crash per year (in the last 5 years of available data) and, for higher order roads, as being in compliance with the Blackspot criteria. The Blackspot criteria target is set at less than 3 casualty crashes (in the last 5 years of available data). If the crash criteria for the roads assessed are met, the road in question should be assessed and addressed with viable road safety solutions.

Table 1 below further defines each cases of crash severity.

Crash Severity	Definition
Non-injury (or Property Damage Only)	A crash resulting in property damage in which no person is injured or dies within 30 days of the crash.
Minor Injury	A person who sustains injuries requiring medical treatment, either by a doctor or in a hospital, who does not die as a result of those injuries within 30 days of the crash.
Serious Injury	A person who sustains injuries and is admitted to hospital for a duration of at least 24 hours and does not die as a result of those injuries within 30 days of the crash.
Fatality	A crash for which there is at least one fatality.

Table 1: Crash Severity Definitions

4.1.1 Crash maps

Crash map, based on the recent crash data supplied by DIT (2016 - 2020) have been prepared as part of this study to show location and patterns of crashes within the study area. The purpose of showing casualty crashes only map is to achieve a clear view of serious crashes, particularly if any location meets the Black Spot criteria. Only casualty crashes (up to 3 casualty crashes in the recent 5 years) warrant a Black Spot nomination for Federal Government funding. As can be seen in figure 9, there are no Black Spot location within the local road network that warrants a submission to the Commonwealth Government for funding consideration.

For a major collector and minor collector road, a minimum of 3 casualty crashes, in the recent 5 years are required to undertake detailed assessment of a particular site that may often be an intersection, or a mid-block section (i.e. a road section between junction/intersections).

For a local street, a minimum of 1 crash per annum (any crash) is required to undertake detailed assessment of an intersection. Overall, the criteria for crash investigations are summarised in **Table 2**.

Road Classification	Local Street	Local Collector	Major Collector
Crash History (Last 5 Available Years of Data)	1 per year	< 3 injury crashes in last 5 years (DIT Blackspot Criteria)	< 3 injury crashes in last 5 years (DIT Blackspot Criteria)

Table 2: Crash Criteria for Investigations

Figure 10 below shows the number of casualty crashes in the recent 5 years (2016-2020) within the study area:



Figure 10: Casualty Crash Map

4.1.2 Crash analysis

From an assessment of the current crash records and data, all of the local streets, minor collector road and major collector roads within the study area do not meet the criteria for investigations. Nevertheless, the maps of Precinct 12 and 16 below highlights the sites that almost meet the target criteria for investigations. These locations, even though do not meet the criteria, are still assessed for improvements.

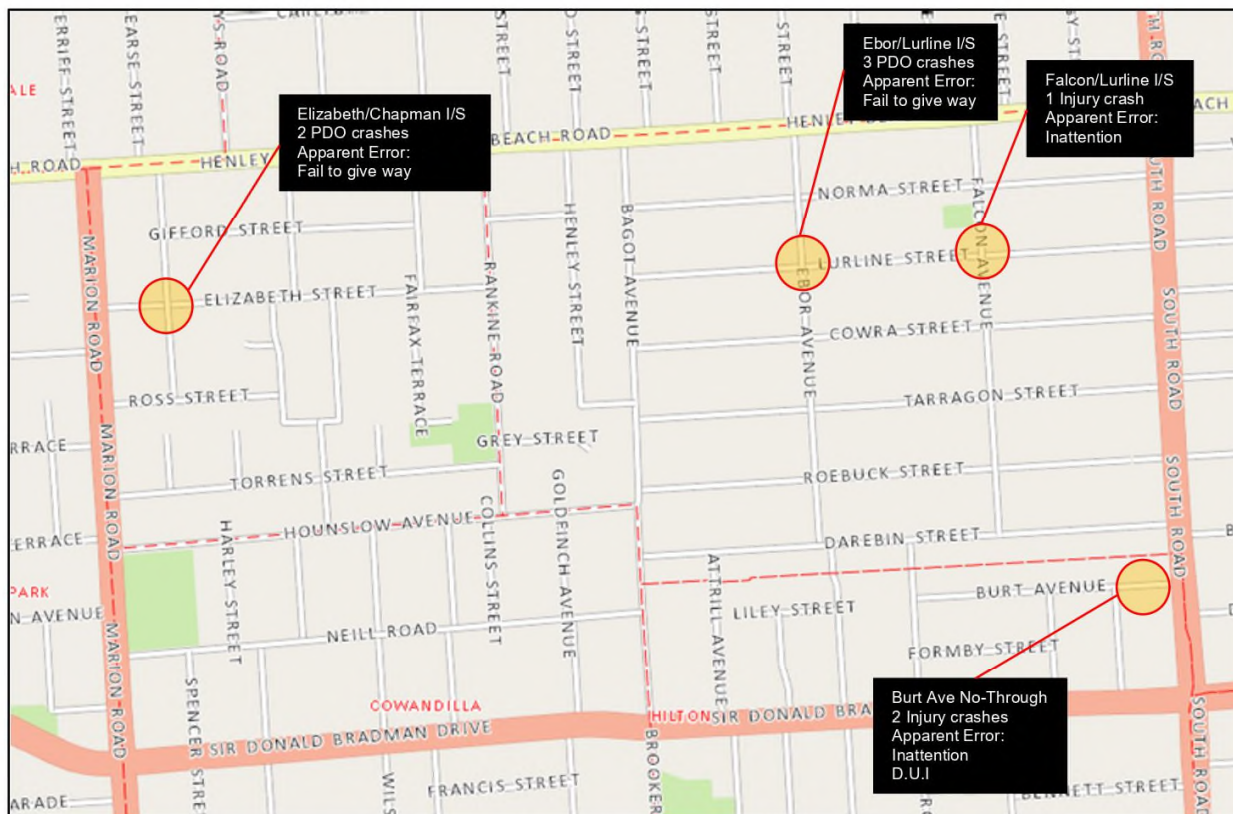


Figure 11: Precinct 12 Crash Records 2016 - 2020

Elizabeth Street/ Chapman Street intersection

Elizabeth Street and Chapman Street is a four-way intersection. The layout of the road is appropriate, well lit and signed appropriately. Given the low traffic volumes at this intersection and property damage only crashes, it is recommended that the crash occurrence at the intersection is monitored at this stage. If crashes continue to occur with severity, a mini-roundabout can be considered that this intersection in the future.

Ebor Avenue/ Lurline Street intersection

Ebor Avenue and Lurline Street is a four-way intersection. The northern approach of Ebor Avenue at the intersection has been installed with slow points in the form of a rain garden. This traffic management measure will slow vehicles travelling in the southern direction at this intersection. Given that there is a partial treatment at the intersection at this stage, a solution to improve the intersection is not recommended. If crashes continue to occur with severity, a mini-roundabout can be considered that this intersection in the future.

Falcon Avenue/ Lurline Street intersection

Falcon Avenue and Lurline Street is a four-way intersection. The intersection currently recorded 1 injury crash only. If the crash at the intersection continues to occur with severity, a mini-roundabout can be considered that this intersection in the future.

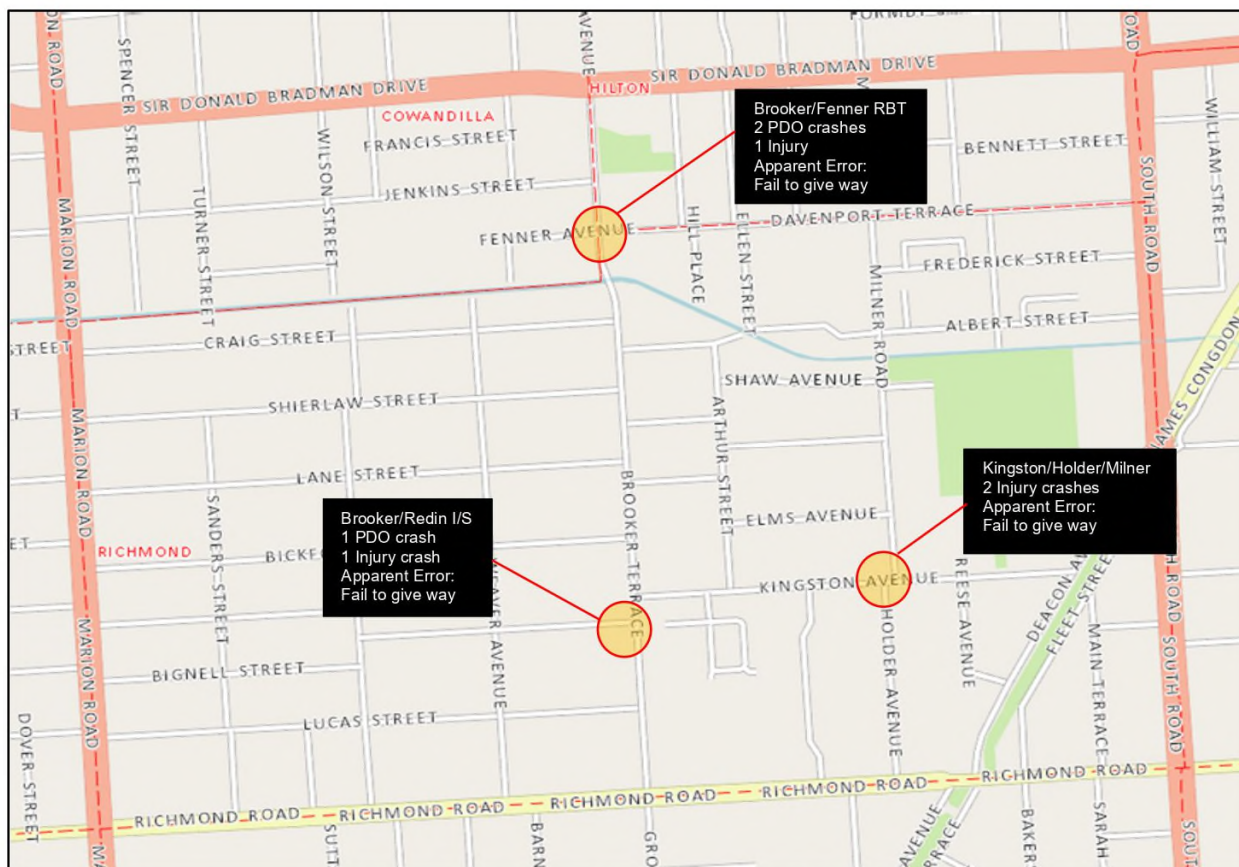


Figure 12: Precinct 16 Crash Records 2016 - 2020

Brooker Terrace/ Redin Street intersection

The intersection of Brooker Terrace/ Redin Street is currently a T - Junction. Both crashes at this intersection appear to be rear end crashes. The junction layout at this intersection is appropriate and sight lines are clear from all approaches at the junction. Additional improvements to the intersection are therefore not required.

Brooker Terrace/ Fenner Avenue roundabout

The intersection of Brooker Terrace and Fenner Avenue is controlled by a roundabout, which is the most desirable form of traffic control device to eliminate all crash types. The line marking and road advisory signs at the roundabout is also appropriately installed. Additional improvements to the intersection are therefore not required.

Kingston Avenue/ Holder Avenue/ Milner Road staggered intersection

Kingston Avenue/ Holder Avenue/ Milner Road is a four way staggered intersection. Given the low crash record at this intersection, it is suggested that the intersection requires only monitoring at this stage.

4.1.3 Summary

In summary, the crash locations at intersection and mid-block sections have been assessed and it has been determined that the implementation of road safety improvements are not justified predominantly due to the low crash records and existing on-site road conditions that are deemed satisfactory. Notwithstanding the crash records, Council administration, will continue to assess and identify appropriate road safety improvements based on community feedback and recorded traffic volumes/speeding data, using proactive approach. A reactive approach means addressing a dangerous site based on proven crash records. A proactive approach means addressing dangerous locations, without crash records that may very well be a location/site waiting for a severe collision/accident to occur.

4.2 Traffic Management Assessment

With an understanding of the road network and hierarchies in the study area, an assessment of the roads in the local network is presented with respect to the criteria targets in the Transport Strategy. In essence, the key traffic management criteria for each local road class are outlined below:

1. Traffic volumes - assessed by the average weekday volumes
2. Traffic speed - assessed by the 85th percentile speed (speed at which 85% of vehicles are travelling at or below)

Road Classification	Local Street	Local Collector	Major Collector
Average Weekday Volumes (vehicles/day or vpd)	< 2000	< 3000	3000 - 12000
85th Percentile Speed (km/h)	< 55	< 55	< 55 (or < 60 for higher speed limit roads)
Commercial/Heavy Vehicles (% of Average Weekday Volumes)	< 4	< 4	< 10

Table 3: Traffic Volumes and Traffic Speed Criteria

If the criteria targets for a road is exceeded in its road classification, investigations of appropriate traffic management measures will be prompted for implementation.

4.2.1 Traffic volumes / Traffic speed data collection

The traffic volumes and speed within the study area are illustrated in **Figures 13 and 14** which uses the average daily traffic volumes. In accordance with the typical process, traffic counts were conducted only during the non-school holiday periods. Due to the LATM process being initiated in early 2020 when preliminary analysis was conducted, data used for this study includes that between 2015 and 2020.

Although some data is less accurate due to having been collected more than a few years ago, which is the typical time frame for relevant traffic data, it is deemed that traffic conditions are not likely to have changed significantly given the few changes to land-use and road conditions within the area. The only source of significant change is the increased urban in-fill however, this is not likely to generate traffic conditions that are beyond the order of magnitude of the existing. Traffic data derived from surveys outside the typically relevant period are highlighted with a blue outline.

The traffic volumes and speeds within the study area are illustrated in **Figures 13 and 14** which indicates the 85th percentile speed. 85th percentile speed means the recorded traffic speed where 85% of the vehicles travel at.

4.2.2 Traffic volumes / Speed analysis

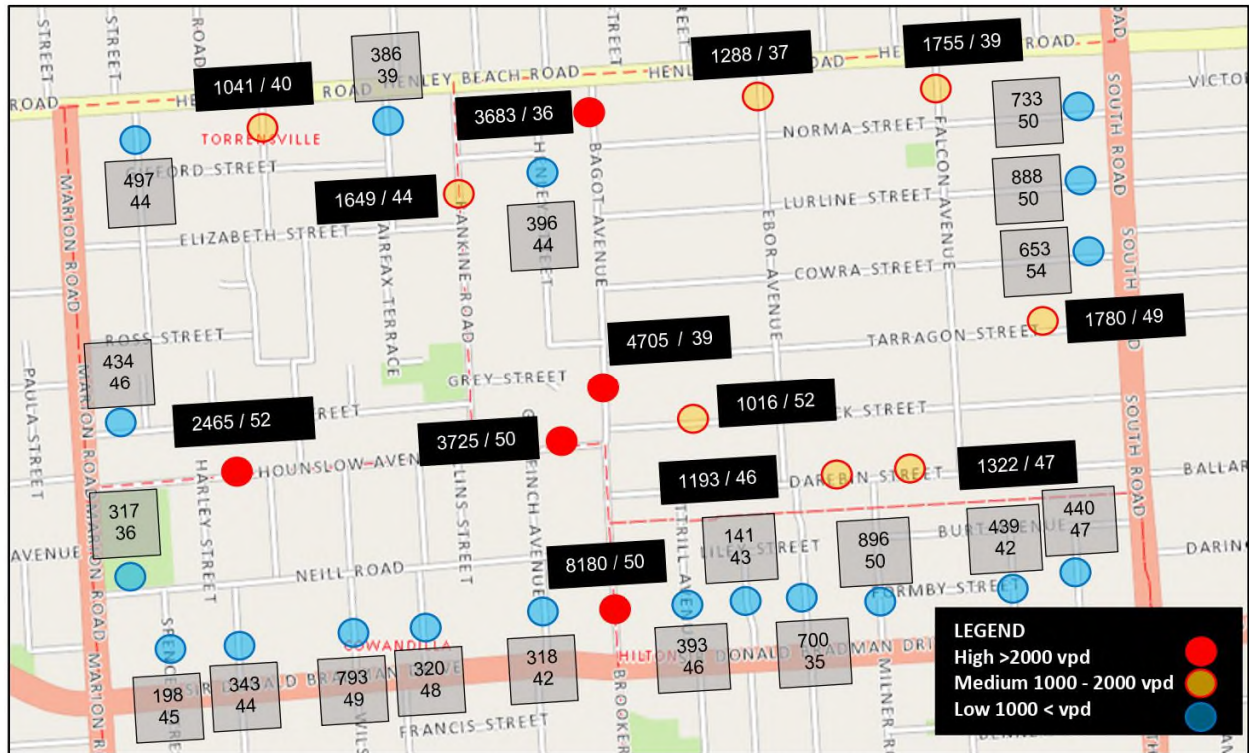


Figure 13: Precinct 12 - Volumes (vehicles/day) / Speed (85% speed)

From the traffic data analysis, it was found that there are no local streets or collectors observed as having traffic volumes that exceeded the criteria of the Transport Strategy. The reasonable 85th percentile speed in a 50 km/h zone of a local street and local roads are 55 km/h. As shown in **Figure 13**, the 85th percentile speed in this area varies between 35 km/h and 54 km/h, and sits well under the acceptable limit of 55 km/h 85th percentile speed.

Major collector roads

In precinct 12, Hounslow Avenue (between Marion Road and Bagot Avenue) and Bagot Avenue (between Henley Beach Road and Sir Donald Bradman Drive) are the designated major collector roads. The traffic volumes recorded on these roads varies between 2465 and 8180 vehicles/day, which are acceptable because major collector roads do carry additional through traffic volumes.

Local streets

The remaining roads in this precinct are local streets. The recommended capacity of a local street is 2000 vehicles/day, in accordance with the Transport Strategy. Whilst the limit of 2000 vehicles/day is not achieved by the local streets in this area, efforts are taken to address existing rat run issues as part of this study. As can be seen in Figure 11, presence of cut through vehicles can be seen with the high volumes of traffic on Oakington Street, Elizabeth Street and Bagot Avenue. Traffic management measures will be considered along these roads, in line with feedback received by the community in this area.

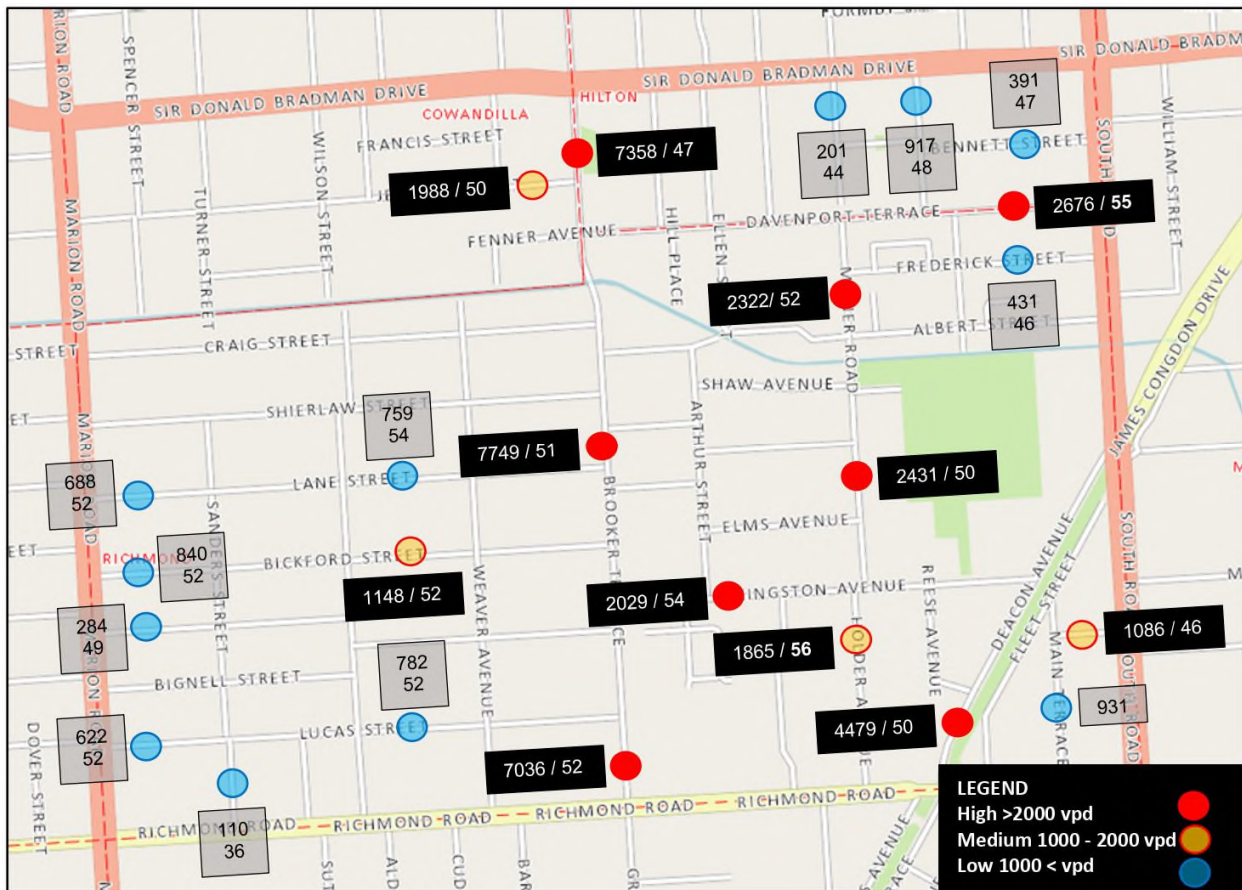


Figure 14: Precinct 16 - Volumes (vehicles/day) / Speed (85% speed)

Major collector roads

In precinct 16, Brooker Terrace (between Sir Donald Bradman Drive and Richmond Road), Deacon Avenue (between South Road and Richmond Road) are major collector roads and Davenport Terrace (between Brooker Terrace and South Road) is a minor collector road. The traffic volumes recorded on these roads varies between 2676 and 7358 vehicles/day, which are acceptable because these roads can carry additional through traffic volumes.

Local streets

The remaining roads in this precinct are local streets. The recommended capacity of a local street is 2000 vehicles/day in accordance with the Transport Strategy. Whilst the limit of 2000 vehicles/day is not achieved by the local streets in this area, efforts are taken to address existing rat run and speeding issues as part of this study.

Traffic management measures will be considered along these roads, in line with feedback received by the community in this area. The focus of the traffic management measures is to slow down speed on local streets, to address direct feedback from the community. The needs and objectives of the treatment will be further defined in Chapter 6 - Traffic intervention recommendations.

4.2.3 Summary

In summary, intersection and mid-block roads that have shown evidence and records of rat runs, speeding and high crash location sites have been selected for traffic management measures. Consideration of traffic management measures also considered feasibility analysis such as:

1. Stormwater infrastructure compatibility
2. Cost effective solutions

3. Affected residents feedback (Chapter 5)
4. Preservation of parking capacity
5. Incorporation of trees and vegetation in road design
6. Fit for purpose

The recommended traffic management measures are further explained and defined in the recommendations section.

5 Community Consultation

In addition to the analysis of traffic data, the problem identification process involves engaging the community stakeholders. Since the LATM plan is primarily for the benefit of the local community, problems identified through traffic data may not necessarily resonate with the local community. As such, Council has used broad community surveys to provide all stakeholders within the community an opportunity to raise their traffic and transport concerns. Approximately 4,400 letters were posted as part of this process in October 2018 to each property within the study area raising awareness of the LATM study and providing each property with a survey form (an online option was also made available). In addition to determining the key concerns of the community, the survey sought to determine transport usage by the community within the study area which would help formulate a priority of addressing transport concerns.

The broad survey received approximately 350 responses from the community which, upon review of the feedback, highlighted several different concerns throughout the area and also the transport use and community transport priority. The survey found that, based on a sample, the dominant transport used by the community within the study area are private vehicles followed by walking.

Overview of Stakeholder Transport Use are defined in **Figure 15**:

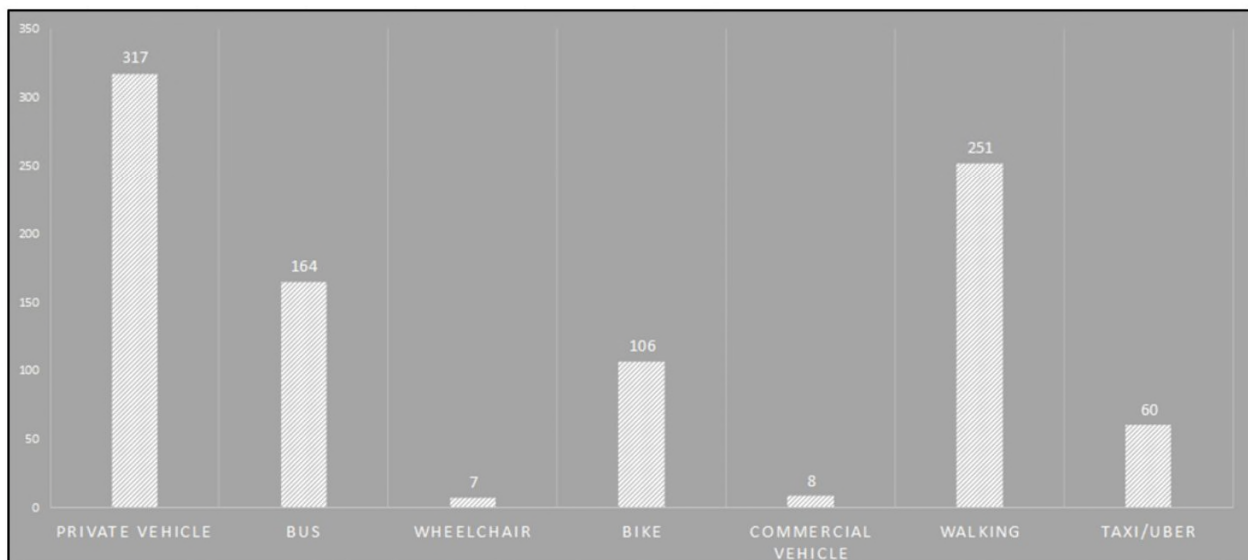


Figure 15: Stakeholder Transport Use

As illustrated in **Figure 15**, 90% of responses received stated the use of private vehicles while 72% of responses stated walking as a mean of transport. The community use of bicycle and public transport were 30% and 47% respectively. For future LATM studies, the transport use section of the survey should be further developed to identify frequency of the transport use. Nonetheless, the results indicate, in light of the issues raised, that vehicle traffic concerns are the priority of the community.

The community were also asked about key road safety and traffic management issues that matters to them within the study area. These issues were registered and assessed in accordance with the traffic data in the study area. Following this, **Figure 16 and 17** summarises the community's top 20 traffic and road safety issues in Precinct 12 and 16.

Stakeholder Top 20 Issues



Figure 16: Precinct 12 - Stakeholder Top 20 Road and Traffic Issues

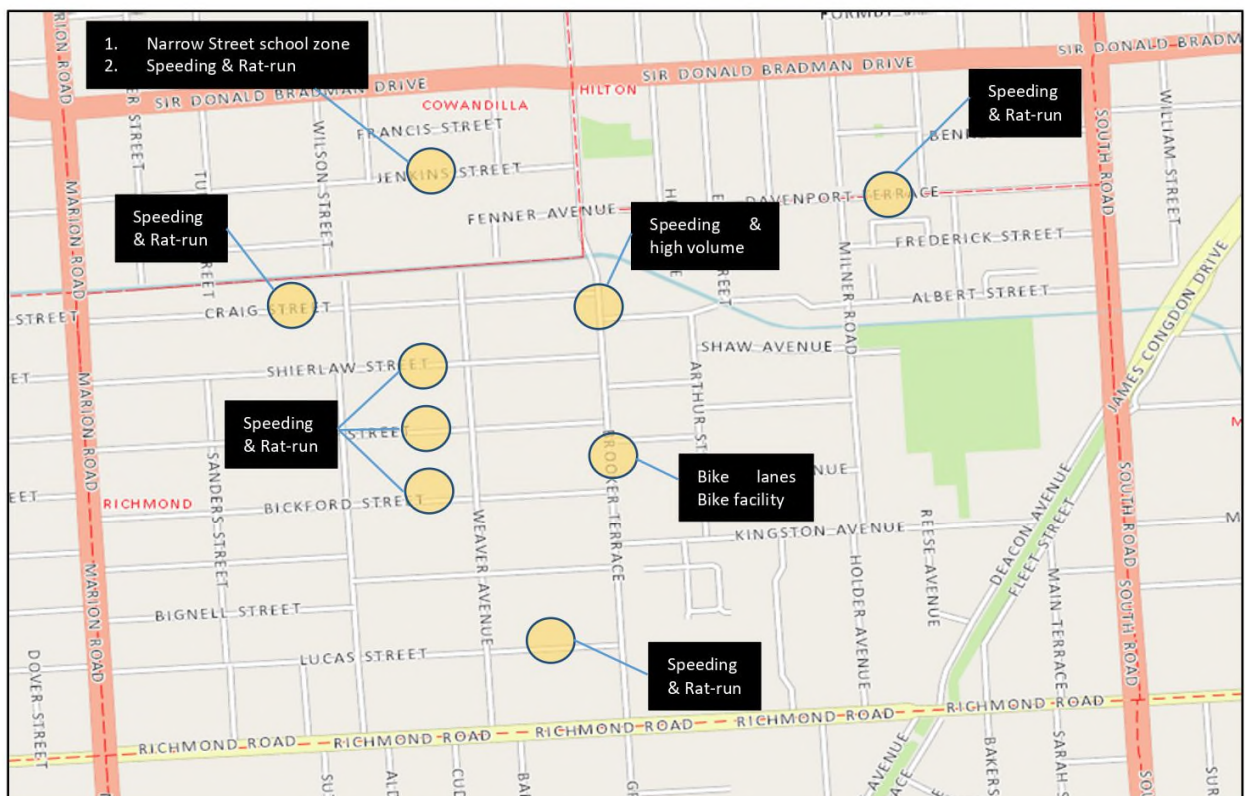


Figure 17: Precinct 16 - Stakeholder Top 20 Road and Traffic Issues

6 Project Proposal and Context

6.1 Table of Recommendations, Maps and Summary

In line with the assessment of crash records, traffic volume and speeding data and community consultation feedback, the traffic management measures were developed for the entire study area. **Table 4** below captures the required traffic management interventions and its objectives, as the final and overall Local Area Traffic Management solutions for Precinct 12 and 16.

6.1.1 Table of recommended traffic management interventions

Item	Recommended Intervention	Objective	Community Support
A	No left turn into Rawlings Avenue, Oakington Street, Chapman Street 4pm - 6pm (Mon - Friday)	Minimise cut through traffic	Do not support 57.6%
B	Speed humps along entire length of Elizabeth Street	Minimise cut through traffic Minimise traffic speed improve road safety	Support 59%
C	Half road closure on Bagot Avenue	Minimise cut through traffic. Further consultation is required with affected residents because of access impact and diversion of rat-run traffic.	Do not support 65.3%
D	Line marking and Pavement bars on Tarragon Street approach	Improve delineation improve road safety	Support 67.8%
E	Roundabouts at Hounslow Avenue/Thomas Street & Hounslow Avenue/Wilson Street	Minimise traffic speeding and improve road safety	Support 58%
F	Roundabout at Bagot Avenue / Hounslow Avenue	Minimise vehicle crashes and improve road safety	Project Status: Construction is currently underway. Completion in November 2021.
G	No right turn from Bagot Avenue into Roebuck Street (7am - 9 am, Monday to Friday)	Minimise cut through traffic	
I	Speed humps along entire length of Jenkins Street	Minimise cut through traffic Minimise traffic speed improve road safety	Support 66.8%
H	<ol style="list-style-type: none"> 1. Removal of parking on Bagot Avenue (Shopping Centre Side) 2. Installation of right turn lane on Bagot Avenue into Shopping Centre 3. Installation of pedestrian refuge next to Shopping Centre driveway access 4. Solid median on Bagot Avenue, at the intersection of Bagot Avenue/Sir Donald Bradman Drive 	<ol style="list-style-type: none"> 1. Improve traffic congestion on Bagot Avenue 2. Improve sight lines for motorists exiting to Bagot Avenue from the shopping centre 3. Improve pedestrian safety 4. Improve road safety 	Project Status: Construction is currently underway. Completion in November 2021.

J	Indented parking bay fronting Cowandilla Primary School	Minimise conflict between passing vehicles. Allow two way traffic movements	Support 90.8%
K	Roundabout at Milner Road / Davenport Terrace	Minimise cut through traffic Minimise traffic speed improve road safety. 3 roundabout options involving additional access have been developed by the working party. Further consultation with residents needs to occur for impact awareness.	Support 77.8%
L	Roundabout at Chambers Avenue / Craig Street	Minimise vehicle crashes, minimise traffic speeding and improve road safety	Support 66.8%
M	Roundabout at Chambers Avenue / Shierlaw Street	Minimise vehicle crashes, minimise traffic speeding and improve road safety	Support 65.8%
N	Roundabout at Chambers Avenue / Lane Street	Minimise vehicle crashes, minimise traffic speeding and improve road safety	Support 66.5%
O	Roundabout at Chambers Avenue / Bickford Street	Minimise vehicle crashes, minimise traffic speeding and improve road safety	Support 69.3%
P	Roundabout at Chambers Avenue / Lucas Street	Minimise vehicle crashes, minimise traffic speeding and improve road safety	Support 67.3%
Q	Brooker Terrace delineation improvement	Improve delineation and reduce potential of vehicle side-swipe crashes	Support 69.8%
R	Pavement bars at Marion Road / Craig Street	Minimise traffic speeding and improve road safety	Support 70.5%
S	Pavement bars at Marion Road / Shierlaw Street	Minimise traffic speeding and improve road safety	Support 69.6%
T	Pavement bars at Marion Road / Lane Street	Minimise traffic speeding and improve road safety	Support 69.5%
U	Pavement bars at Marion Road / Bickford Street	Minimise traffic speeding and improve road safety	Support 66.9%
V	Pavement bars at Marion Road / Lucas Street	Minimise traffic speeding and improve road safety	Support 69.3%
W	Install missing link bicycle lane at Kingston Avenue at junction with Deacon Avenue	Improve safety for cyclists	Support not required because it is a reinstatement of missing link
X	Sharrow line marking on the entire length of Roebuck Street	Improve safety for cyclists	Support not required because it is a supplementary line marking
Y	Sharrow line marking on Bagot Avenue (between Hounslow Avenue and Henley Beach Road)	Improve safety for cyclists	Support not required because it is a supplementary line marking
Z	Staggered intersection delineation	Improve safety for motorists	Support not required because of the minor work nature

Table 4: Table of Recommended Traffic Management Interventions

Item F, G & H upgrade occurred as part of Council's road renewal program and involves major road reconstruction because the road condition has reached the end of life. The Bagot Avenue pavement reconstruction road project, expanded the project scope, to address existing road safety and in-efficiencies by including the following component:

1. Roundabout at Bagot Avenue / Hounslow Avenue
2. Removal of parking on Bagot Avenue (Shopping Centre Side)
3. Installation of right turn lane on Bagot Avenue into Shopping Centre
4. Installation of pedestrian refuge next to Shopping Centre driveway access
5. Solid median on Bagot Avenue, at the intersection of Bagot Avenue/Sir Donald Bradman Drive

The Bagot Avenue road project, between Hounslow Avenue and Sir Donald Bradman Drive was partly funded by the Special Local Roads Program (SLRP). SLRP is a State Government road funding program that provides funding for road upgrade/renewal that can achieve strong economic and safety benefits. The City of West Torrens was successful in this funding application and the project commenced in early 2021. The overall Bagot Avenue project is expected to be completed by November 2021.

6.1.2 Maps of recommended traffic management interventions (Precinct 12 and 16)

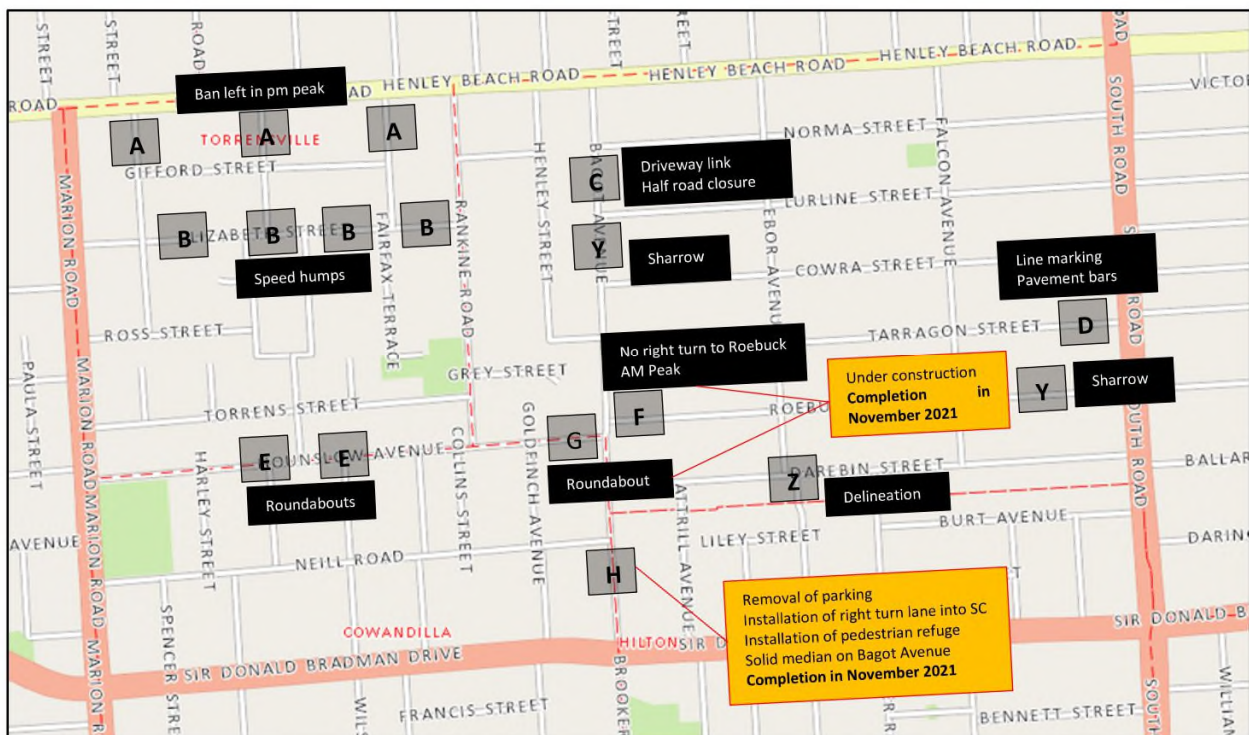


Figure 18: Precinct 12 - Proposed Traffic Management Measures

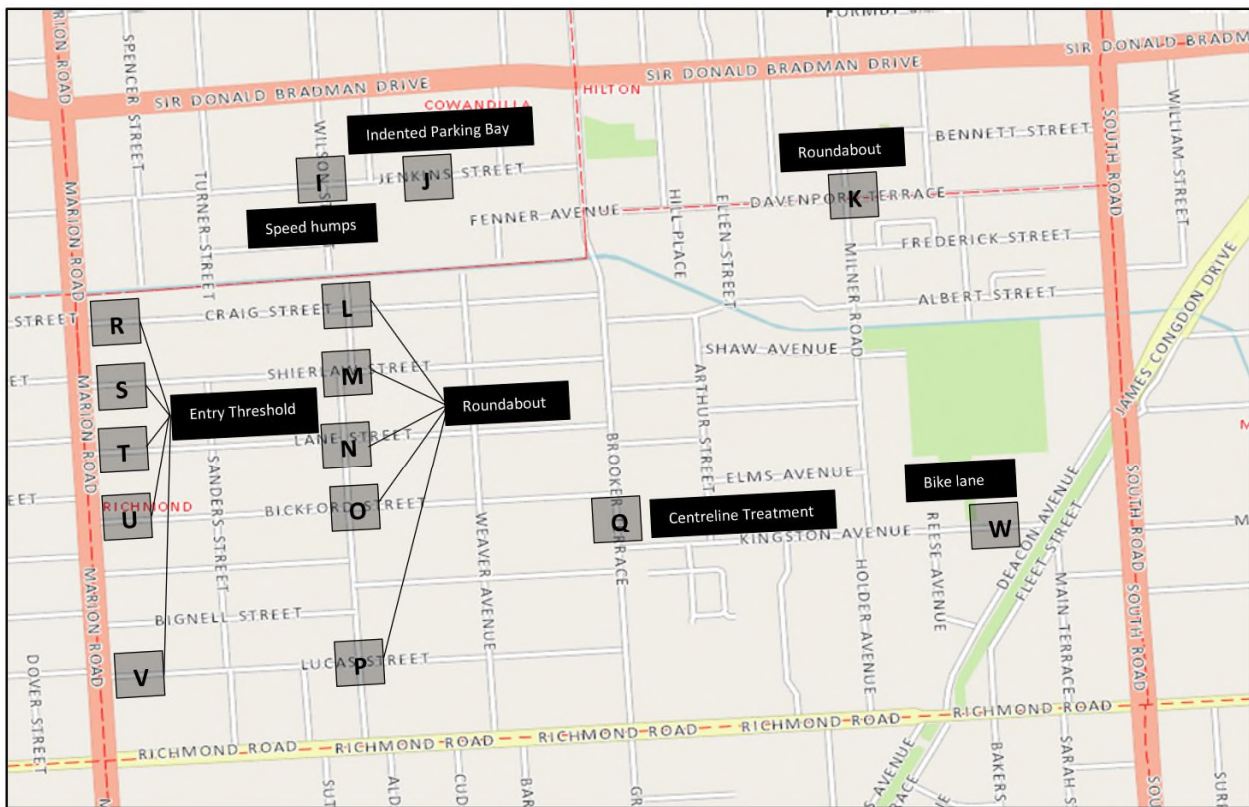


Figure 19: Precinct 16 - Proposed Traffic Management Measures

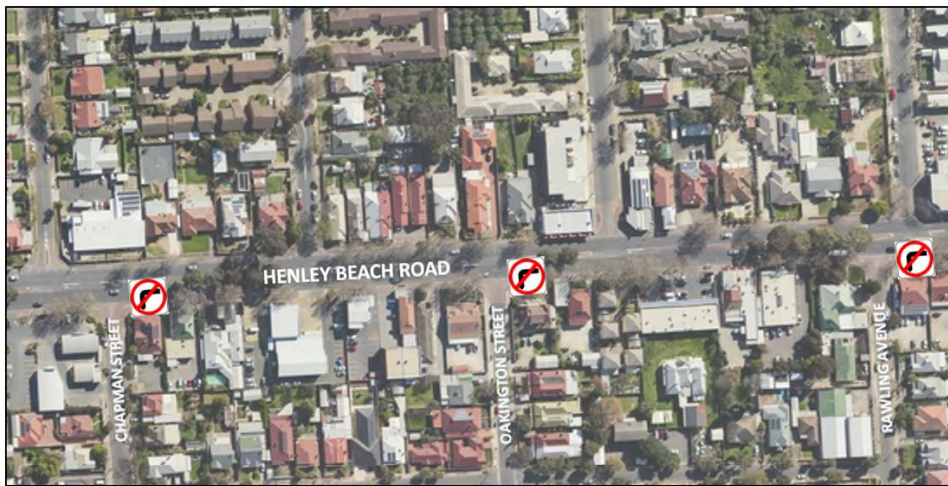
6.2 Concepts of Proposed Traffic Management Solution and its Purpose

6.2.1 No left turn into Rawlings Avenue, Oakington Street, Chapman Street

Context

Oakington Street is observed to be a thoroughfare during pm peak period, from Monday to Friday. To prohibit left turn through traffic, it is recommended that left turn restriction to Oakington Street, Chapman Street and Rawlings Avenue during weekdays (Monday to Friday, 4 to 6 pm) be enforced to restrict rat runs into the local street network, including the parallel road, Chapman Street and Rawlings Avenue. The left turn turning restriction is however not supported by the residents, as noted during the consultation process because this means that access to the residence along these roads will be restricted altogether.

The Working Party agreed not to proceed with this proposal, due to a lack of community support. This project is therefore not included in the final project list for funding allocation and implementation.



6.2.2 Elizabeth Street speed humps

Context

The residents on Elizabeth Street have advised Council of traffic speeding and rat run on the entire length of Elizabeth Street. The 5 year period crash data also shows 2 property damage only crashes at the intersection of Elizabeth Street / Chapman Street. Majority of the affected residents have requested speed humps along Elizabeth Street to eliminate these issues and improve safety along Elizabeth Street. The project is recommended to proceed.





6.2.3 Half road closure on Bagot Avenue

Context

Residents have expressed strong desires to Council for Bagot Avenue, north of Hounslow Avenue to be reshaped to residential access only. This section of Bagot Avenue carries approximately 3683 vehicles/day, which mainly consists of through traffic.

Based on the community feedback, the recommended traffic management measure to minimise cut through traffic is to implement a half road closure on Bagot Avenue near Norma Street intersection. Access to south of Bagot Avenue will be restricted at the Bagot Street/Norma Street intersection.

Nonetheless, Council is also aware of substantial community concerns regarding traffic diversion to adjacent residential street and subsequently through traffic intrusion into adjacent residential streets. Residential accessibility on Bagot Avenue, south of Norma Street will also be affected as a result of this access restriction proposal.

While from the broader consultation there was strong support not to proceed with the half road closure, there are a number of factors which, in this instance, warrant further consideration:

- The narrow width of the road and verge makes local access to and from the residential properties difficult due to the high traffic volumes.
- The on-street parking further restricts the traffic flows on this section of the road.
- Approximately 71% of the responses received from residents of Bagot Avenue, between Henley Beach Road and Hounslow Avenue, who would be most affected by the high traffic flows and narrow road width, supported the half road closure proposal.
- A previous half road closure trial (similar to the proposal) undertaken by Council in the early 2000's showed that adverse and unacceptable traffic diversion did not arise from the redistribution of the traffic flows to adjacent streets.

Following detailed discussion, the Working Party did not reach agreement to proceed with this proposal at the present time, due to concerns about traffic diversion and impact on accessibility for residents. The Working Party also requested that a NO RIGHT TURN from Bagot Avenue onto Henley Beach Road be implemented at peak times, due to safety concerns.

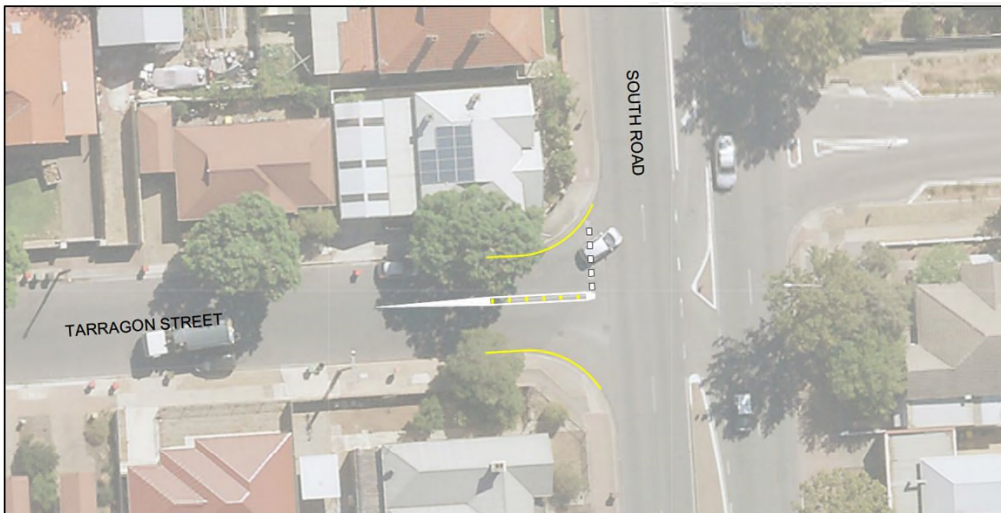
The Working Party agreed to defer this proposal for further discussion and consideration without holding back the progress of the rest of the LATM proposals.



6.2.4 Tarragon Street / South Road intersection delineation

Context

The current junction of Tarragon Street/South Road is poor in condition. The installation of pavement bars on tarragon Street will improve driver awareness and road safety at this junction. This project is recommended to proceed.

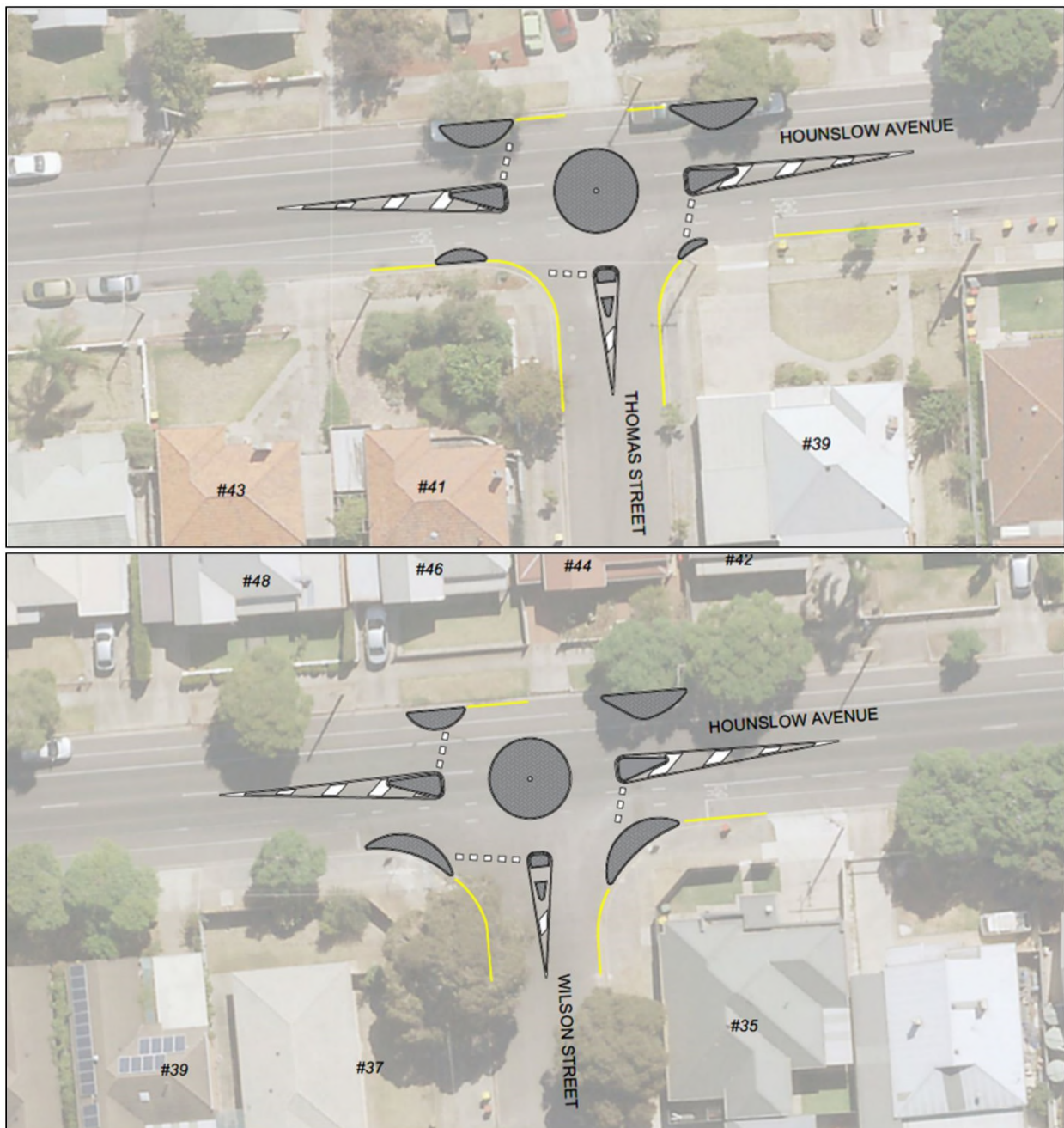


6.2.5 Roundabouts at Hounslow Avenue/Thomas Street & Hounslow Avenue/Wilson Street

Context

Residents along Hounslow Avenue has expressed significant concerns of excessive traffic speeding, predominantly due to wide layout of the road. Hounslow Road is a major collector road and carries high volumes of traffic between 2465 and 3725 vehicles/day. It is also a bike direct network which accommodates high cycling movements along the road. The 85th speed percentile is approximately 51.6 km/h and 50.3km/h, which is considered very reasonable. As a proactive approach to improve road safety for the residents and all road users along the road, the installation of roundabouts is recommended at the current junctions of Thomas Street/ Hounslow Avenue and Wilson Street/Hounslow Avenue to minimise traffic speeding in this location.

This project is recommended to proceed. During the detailed design stage of the roundabouts, accessibility issues will need to be further considered to ensure minimal impact to residents near the two roundabouts.

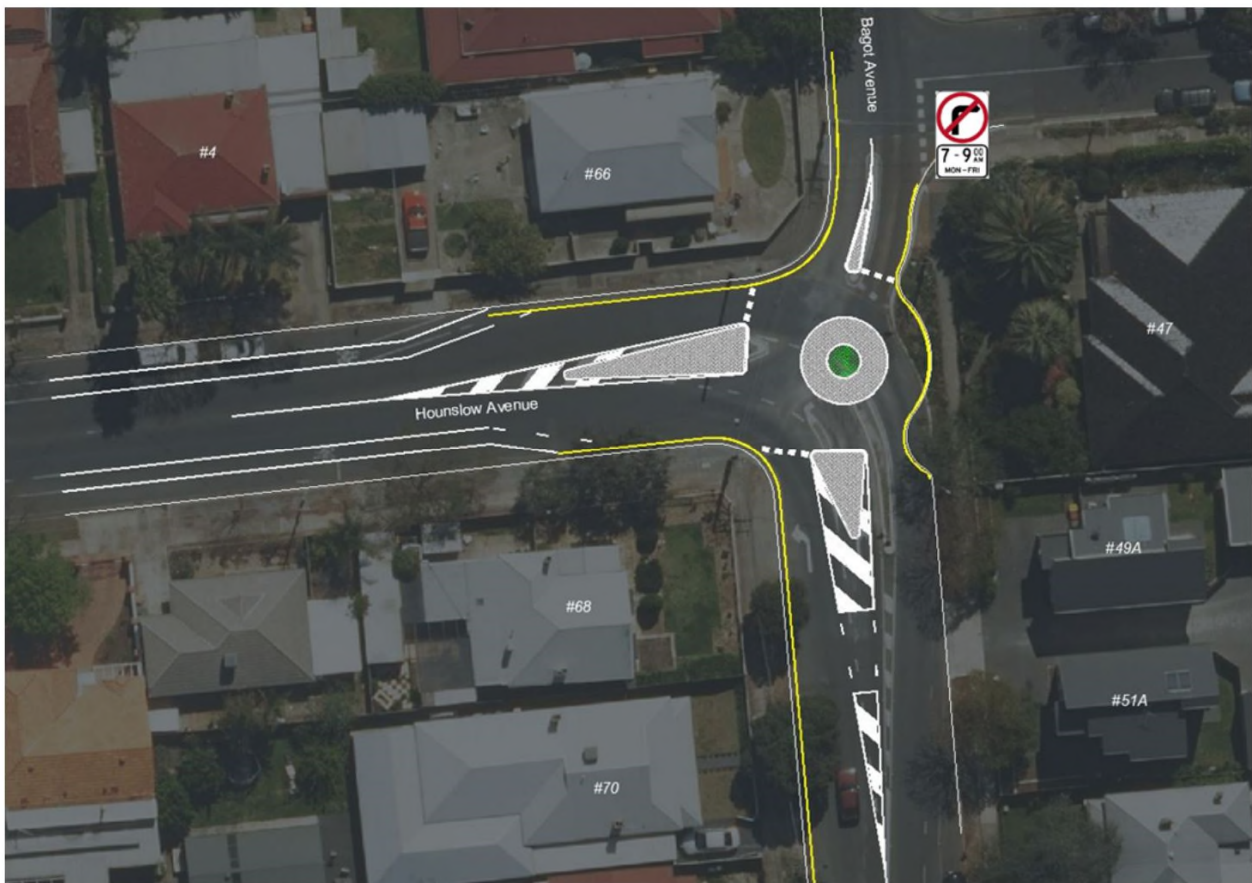


6.2.6 Roundabouts at Hounslow Avenue/Bagot Avenue and no right turn restriction to Roebuck Street

Context

The existing T-junction of Hounslow Avenue and Bagot Avenue appears to be confusing to motorists for right turn traffic movements. Residents and road users have expressed confusion regarding priority of traffic movements given the unusual layout of the junction. As part of the Special Local Roads Program 2020/21, Council has been successful in obtaining funding from the State Government to reconstruct and seal Bagot Avenue and improve road safety along the road. This included the installation of a roundabout at Bagot Avenue and Hounslow Avenue and removal of the T-junction. The road construction has been completed.

A further right turn ban in the morning peak is proposed to be installed on Bagot Avenue to prohibit peak period rat runs into Roebuck Street. Further consultation with adjacent residents will be undertaken prior to installation and enforcement upon completion of the roundabout.



6.2.7 Jenkins Street speed humps & indented parking bay

Context

Cowandilla Primary school and Cowandilla Learning Centre is located on Jenkins Street between Wilson Street and Brooker Terrace.

As a response to constant traffic speeding and rat running traffic at this location, speed humps are proposed at the entire section of Jenkins Street to create a safe road environment for pedestrian and children crossing movements at this location. This project is recommended to proceed.

The road is very congested during peak periods, especially school drop off and pick up periods. The road is narrow and proving difficult of two way traffic movement when cars are parked on both sides of the road. In conjunction with discussions with the school and community feedback, an indented kiss and drop zone is proposed to improve traffic flow and minimise traffic congestion at this area during peak periods. The proposed indented kiss and drop zone proposal is recommended to proceed.

The Australian and South Australian governments have recently announced joint funding of \$45 million for an upgrade of the intersection of Marion Road and Sir Donald Bradman Drive. The project will improve congestion and safety for all road users and cater for future traffic demands including the expected demand during construction of the North-South Corridor.

This project is expected to start construction in late 2022 and be operational in 2024. Across the life of the project, community engagement will form an important component and Council will work closely with the State Government to minimise adverse traffic impacts on local streets, such as reducing cut through traffic and speeding.

Council will work closely with the Department to preserve local traffic on Jenkins Street and depending on the outcomes of community consultation and access preference, the needs to install speed humps on Jenkins Street will be determined at such time.





6.2.8 Roundabout at the junction of Davenport Terrace / Milner Road

Context

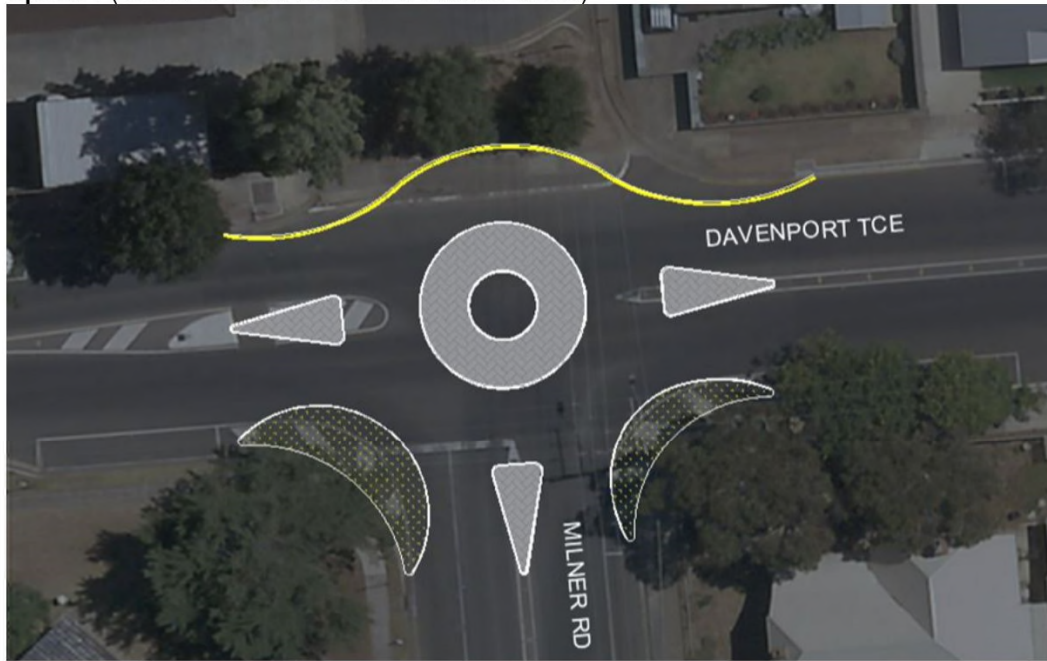
Davenport Terrace is a minor collector road and carries traffic volumes in the vicinity of 2600 to 3000 vehicles per day. As part of the community consultation, the affected residents have expressed concerns with speeding and rat runs along Davenport Terrace. The balanced approach to minimise speeding and improve road safety along Davenport Terrace is to install a roundabout at the intersection Davenport Terrace / Milner Road.

Currently, Milner Road, north of Davenport Terrace is a no through road and access to Davenport Terrace is blocked. The consideration of a roundabout at this junction prompted considerations for partial and full access of Milner Road north to Davenport Terrace. Only Option 1 (no re-opening of the closure) and Option 2 (full re-opening of the closure) were consulted with the community. *Milner Road north refers to Milner Road (between Sir Donald Bradman Drive and Davenport Terrace). The design and access of each roundabout options are shown in the concepts below.

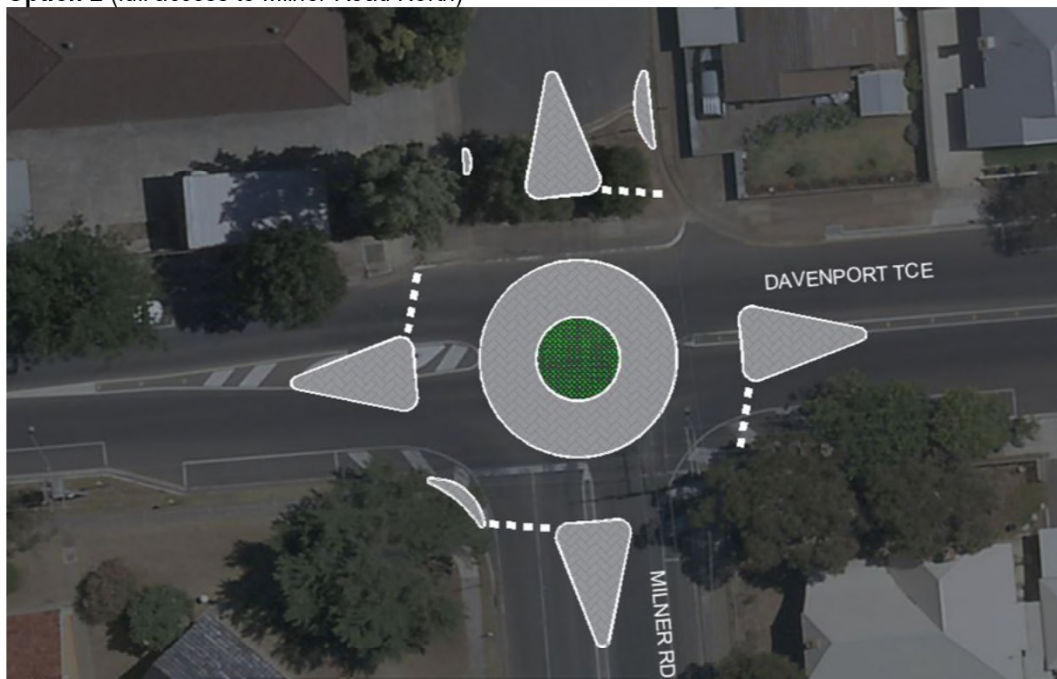
While from the broader consultation, there was strong support to proceed with a roundabout, the Working Party considered that a full re-opening of the road closure in Milner Road north (as shown in Option 2 below) may result in significant traffic diversion concerns. The Working Party also noted that of the responses received from residents of Milner Road north who would be most affected by the re-opening of the road closure (full or part re-opening), all did not support the proposal with the full re-opening of Milner Road north.

The Working Party agreed to consider a third option (half re-opening of the closure to allow vehicles to exit to Milner Road north as shown in Option 3 below) and to present the 3 options to local residents for further consultation without holding back the progress of the rest of the LATM proposals.

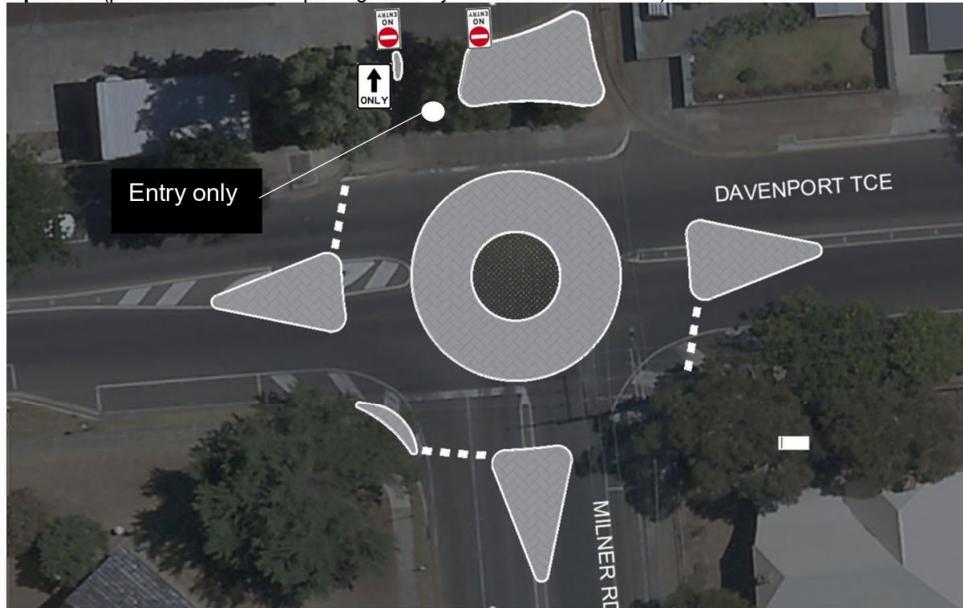
Option 1 (access to Milner Road north remains closed)



Option 2 (full access to Milner Road North)



Option 3 (partial access/half opening - in only to Milner Road North)



The pros and cons of each option are tabled below for further consideration and consultation with affected residents:

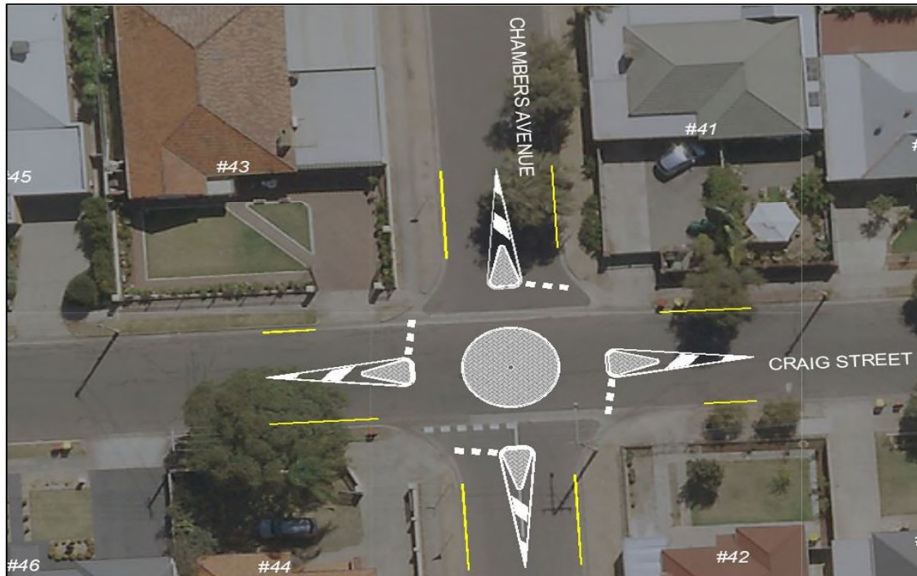
Pros / Cons	Option 1 (access to Milner Road north remains closed)	Option 2 (Full access)	Option 3 (partial access - in only to Milner Road North)
Pros			
Minimise speeding on Davenport Terrace	✓	✓	✓
Improve safety at this intersection	✓	✓	✓
Local traffic maintained, with no rat run traffic to Sir Donald Bradman Drive	✓		
Reduce north south traffic on Brooker Terrace		✓	✓
Minimise vehicle impact and conflict with cyclists Brooker Terrace is a bike direct network with high presence of cycling activity		✓	✓
Neutral			
Minor rat run and traffic intrusion to Milner Road north. This is reasonable considering the current volumes on Milner Road north is 201 vehicles/day, which is very low.			✓
Cons			
Major rat run and traffic intrusion to Milner Road north		✓	
Diverting additional traffic to Milner Road/Sir Donald Bradman Drive intersection that is currently uncontrolled and a four-way intersection. This may increase the queue lengths and number of crashes at the intersection of Milner Road / Sir Donald Bradman Drive.		✓	✓

Table 5: Pros/ Cons of Roundabout Options

6.2.9 Roundabout at the intersection of Chambers Avenue / Craig Street

Context

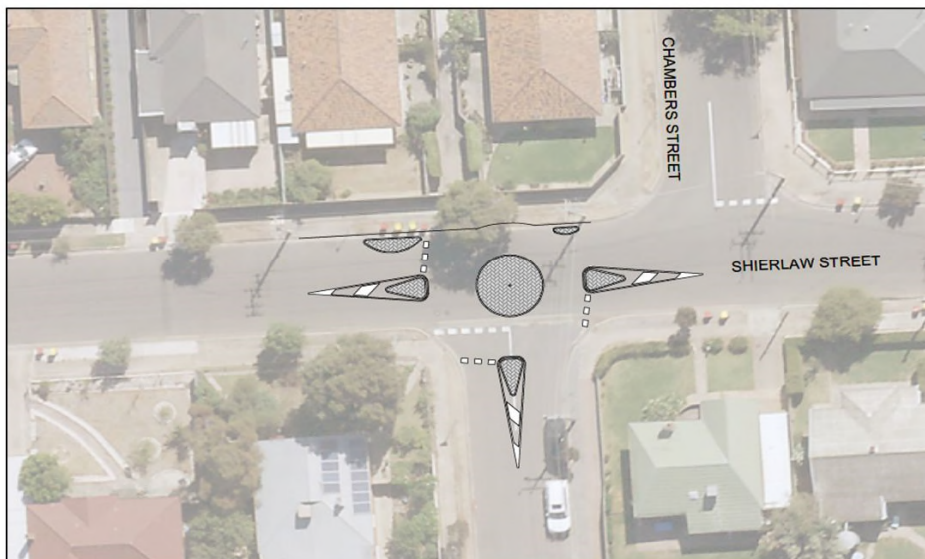
All four ways intersection are unsafe and can be confusing for motorists. The installation of a roundabout at the intersection of Chambers Avenue and Craig Street is a balanced approach to slow traffic speeds and minimise all crash types in this residential area of Richmond. This project is recommended to proceed.



6.2.10 Roundabout at the intersection of Chambers Avenue / Shierlaw Street

Context

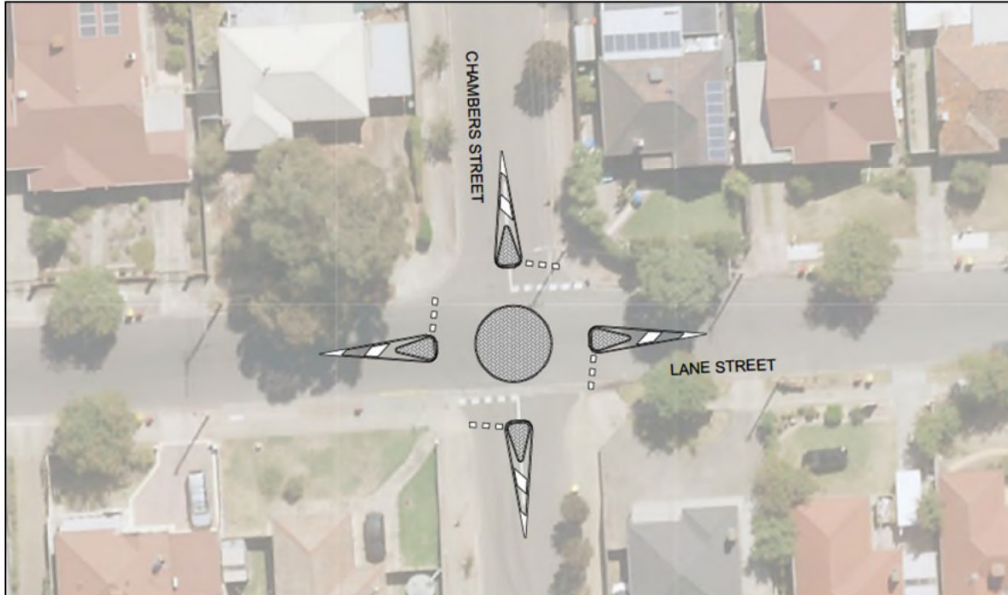
All four ways intersection are unsafe and can be confusing for motorists. The installation of a roundabout at the intersection of Chambers Avenue and Shierlaw Street is a balanced approach to slow traffic speeds and minimise all crash types in this residential area of Richmond. This project is recommended to proceed.



6.2.11 Roundabout at the intersection of Chambers Avenue / Lane Street

Context

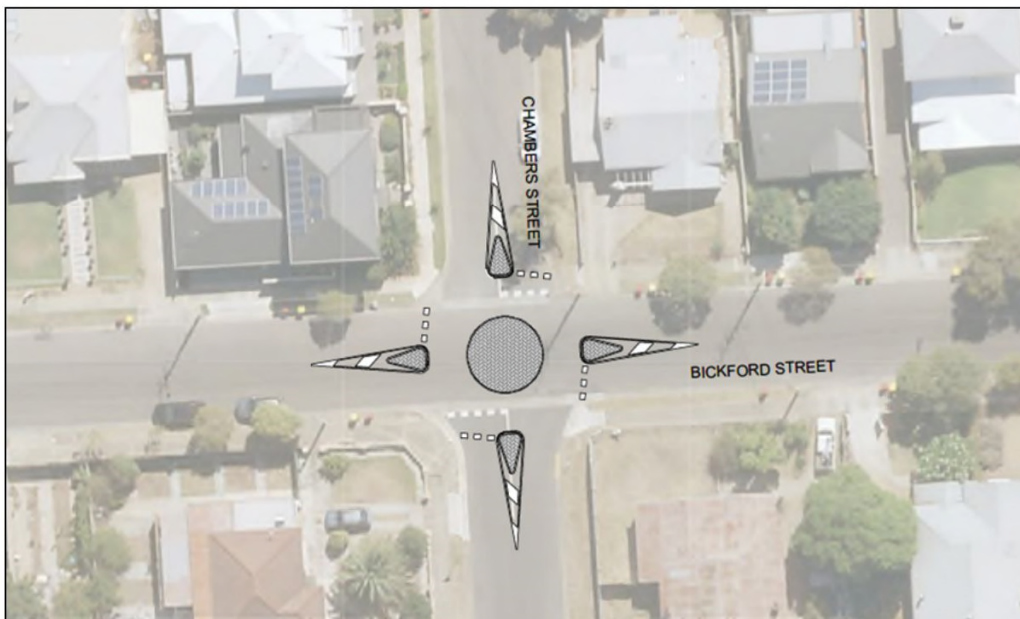
All four ways intersection are unsafe and can be confusing for motorists. The installation of a roundabout at the intersection of Chambers Avenue and Lane Street is a balanced approach to slow traffic speeds and minimise all crash types in this residential area of Richmond. This project is recommended to proceed.



6.2.12 Roundabout at the intersection of Chambers Avenue / Bickford Street

Context

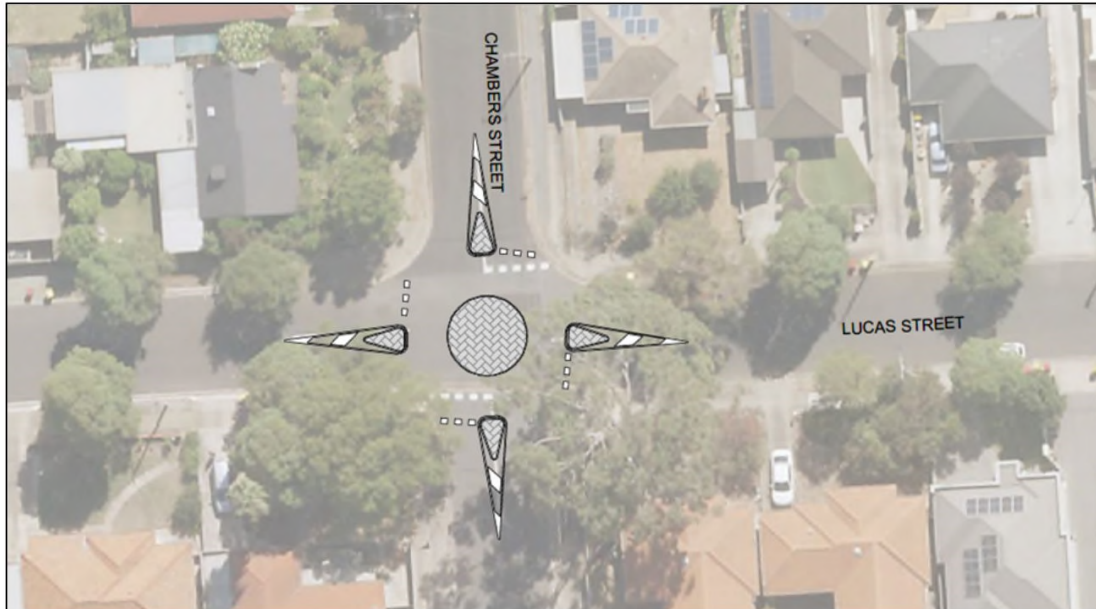
All four ways intersection are unsafe and can be confusing for motorists. The installation of a roundabout at the intersection of Chambers Avenue and Bickford Street is a balanced approach to slow traffic speeds and minimise all crash types in this residential area of Richmond. This project is recommended to proceed.



6.2.13 Roundabout at the intersection of Chambers Avenue / Lucas Street

Context

All four ways intersection are unsafe and can be confusing for motorists. The installation of a roundabout at the intersection of Chambers Avenue and Lucas Street is a balanced approach to slow traffic speeds and minimise all crash types in this residential area of Richmond. This project is recommended to proceed.



6.2.14 Road delineation improvements at Brooker Terrace

Context

Brooker Terrace has recorded a series of non-injury rear end and hit parked vehicle type crashes along the road. There are physical limitations towards the improving safety of the road predominantly due to the tight carriageway along the entire road. The most viable and cost effective road safety improvement along Brooker Terrace is to implement appropriate delineation improvements to raise driver awareness when driving along the road. This can be achieved through the installation of Retroreflective Raised Pavement Markers (RRPMs) along the road.

A retroreflective raised pavement marker is a safety device used on roads. These devices are usually made with plastic, ceramic, thermoplastic paint, glass or occasionally metal, and come in a variety of shapes and colours. Raised reflective markers, such as plastic, ceramic, or metal ones, include a lens or sheeting that enhances their visibility by retro reflecting automotive headlights. Some other names for specific types of raised pavement markers include cat's eyes / road studs. Sometimes they are simply referred to as "reflectors". The figures below show an example of RRPMs on roads. This project is recommended to proceed.



The figures below show an example of what Brooker Terrace may look like once it is retrofitted with RRPMS.



6.2.15 Pavement bars installation at various intersections with Marion Road.

Context

Pavement bars installation are proposed at the Marion Road junction with Craig Street, Shierlaw Street, Lane Street, Bickford Street and Lucas Street to control traffic movement, improve delineation and road safety by reducing traffic speeding. In theory, pavement bars are raised blocks that may be used to augment painted islands and painted median strips to discourage but not prohibit traffic movements across the islands or median strip.

A total of 5 junctions along Marion Road will be line marked and retrofitted with pavement bars to address the road safety concerns by the residents at this location. The implementation of pavement bars will not impact on the existing parking capacity along the specified local roads. The figure below shows an example of retrofitted pavement bars At Milner Road junction with Davenport Terrace. This project is recommended to proceed.

The Working Party noted that when these local roads are upgraded in the future or when DIT upgrade Marion Road, consideration can be given to replace the pavement bars with pavement thresholds (such as raised or distinctive patterns).



6.2.16 Pavement delineation Ebor Avenue/Halifax Street/Darebin Street.

Context

Due to the staggered nature of the two junctions, the Working Party agreed that a central pavement delineation treatment (minor works) be implemented in response to recent resident concern.

7 Recommendation

Figure 20 shows the LATM Plan for Precincts 12 and 16.

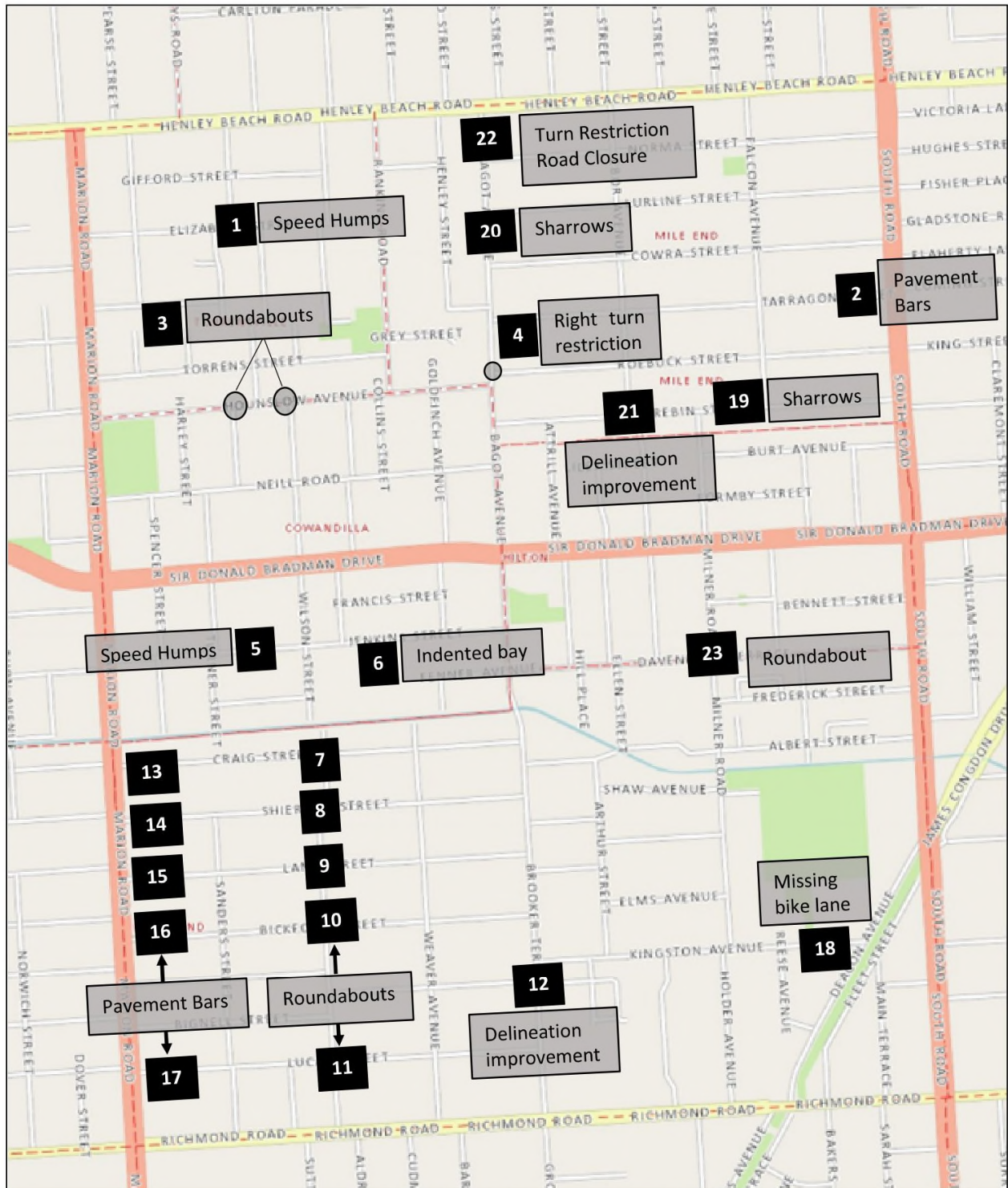


Figure 20 - LATM Plan for Precincts 12 and 16

Table 6 summarises the proposed traffic management measures for the LATM Plan, except for the proposed half road closure on Bagot Avenue and no right turn to Henley Beach Road from Bagot Avenue (Section 6.2.3), which require further consultation with stakeholders:

When the decision on Project number 22 (Half road closure on Bagot Avenue and No Right Turn to Henley Beach Road from Bagot Avenue) is resolved, following further consultation with stakeholders, this project can then be implemented.

Subject to funding allocation, consultation and collaboration with other State Government/Council's infrastructure projects, a Staging Plan can then be prepared to guide the implementation of the LATM Plan.

Item	Recommended Road Projects	Cost Estimate (\$ (+/- 25%))
1	Speed humps along entire length of Elizabeth Street	180,000
2	Line marking and Pavement bars on Tarragon Street approach	2,500
3	Roundabouts at Hounslow Avenue/Thomas Street & Hounslow Avenue/Wilson Street	320,000
4	No right turn from Bagot Avenue into Roebuck Street (7am - 9 am, Monday to Friday)	1,000
5	Speed humps along entire length of Jenkins Street	270,000
6	Indented parking bay fronting Cowandilla Primary School	100,000
7	Roundabout at Chambers Avenue / Craig Street	205,000
8	Roundabout at Chambers Avenue / Shierlaw Street	205,000
9	Roundabout at Chambers Avenue / Lane Street	205,000
10	Roundabout at Chambers Avenue / Bickford Street	205,000
11	Roundabout at Chambers Avenue / Lucas Street	205,000
12	Brooker Terrace delineation improvement	10,000
13	Pavement bars at Marion Road / Craig Street	2,500
14	Pavement bars at Marion Road / Shierlaw Street	2,500
15	Pavement bars at Marion Road / Lane Street	2,500
16	Pavement bars at Marion Road / Bickford Street	2,500
17	Pavement bars at Marion Road / Lucas Street	2,500
18	Install missing link bicycle lane at Kingston Avenue at junction with Deacon Avenue	3,000
19	Sharrow line marking on the entire length of Roebuck Street	5,000
20	Sharrow line marking on Bagot Avenue (between Hounslow Avenue and Henley Beach Road)	2,500
21	Line marking delineation at Ebor Avenue / Halifax Street / Darebin Street	5,000
22	Half Road Closure on Bagot Avenue and No Right Turn to Henley Beach Road from Bagot Avenue (Subject to further consultation with residents of adjacent streets)	10,000
23	Roundabout at Milner Road / Davenport Terrace	240,000
TOTAL COST		2,186,500

Table 6: Recommended LATM Road Projects