TraffixGroup

Traffic Engineers and Transport Planners

Amendment C231 of the Yarra Planning Scheme

Planning Panels Victoria

Date of Hearing: Starting 12th August, 2019

Date of Statement: 2nd August, 2019
Date of Inspection: 28th July, 2019

Prepared for: Yarra City Council
Instructed By: Maddocks Lawyers

STATEMENT TO THE PLANNING PANEL APPOINTED BY THE MINISTER FOR PLANNING FOR THE AMENDMENT C231 OF THE YARRA PLANNING SCHEME BY CHARMAINE DUNSTAN, TRAFFIC ENGINEER

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Amendment C231 of the Yarra Planning Scheme

Our Reference: 26233A-01

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Executive Summary

Amendment C231 has been prepared by the City of Yarra, which proposes to introduce permanent built-form controls for the Queens Parade Activity Centre by way of Schedule 16 to the Design and Development Overlay (DDO16).

The Amendment introduces the following changes:

1. Introduces a Design and Development Overlay DDO16 on a permanent basis to provide permanent built form controls to 5 precincts along Queens Parade.
2. Rezones land at 660-668 Smith Street and 1-41 Queens Parade from Commercial 2 Zone (C2Z) to Commercial 1 Zone (C1Z) and applies the Environmental Audit Overlay to land.
3. Applies the Heritage Overlay to a number of properties and amends the heritage gradings and the Incorporated Document *City of Yarra Review of Heritage Overlay Areas 2007, Appendix 8, Revised December, 2017.*

For this report, I have had regard to two versions of the DDO, specifically:

- The 'exhibited controls', advertised under Amendment C231, and
- The 'preferred controls', dated 28th May, 2019.

The preferred controls were prepared by Council in response to submissions of the exhibited controls.

Traffix Group has prepared a Traffic Engineering Review of the Queens Parade Activity Centre. This report includes a review of the transport implications of Amendment C231 and the additional development possible by properties within the precincts.

A strong focus of the proposed DDO is the direction to use laneways for vehicle access to development sites, in preference to access to Queens Parade. The Traffic Engineering Review assesses each laneway within the Activity Centre in detail, reviews the possible traffic impacts of new development and makes recommendations in regards to modifications and management of the laneways.

I have reviewed the Traffic Engineering Review in detail and I am satisfied with its conclusions and recommendations. This report is attached at Appendix A of this statement.

I recommend that the following changes are incorporated into the final DDO:

a) The Council 'preferred' DDO should explicitly recognise that vehicle access should be to laneways, where possible (this was acknowledged in the exhibited DDO but removed from the preferred DDO).

b) At Section 5 - Application Requirements, the requirement to provide a cumulative traffic and parking assessment should include specific reference to an assessment of abutting laneways.

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1 Introduction

Amendment C231 has been prepared by Yarra City Council, which proposes to introduce permanent built-form controls for the Queens Parade Activity Centre by way of Schedule 16 to the Design and Development Overlay (DDO16).

The Amendment introduces the following changes:

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3. Applies the Heritage Overlay to a number of properties and amends the heritage gradings and the Incorporated Document *City of Yarra Review of Heritage Overlay Areas 2007, Appendix 8, Revised December, 2017.*

For this report, I have had regard to two versions of the DDO, specifically:

- The 'exhibited controls', advertised under Amendment C231, and
- The 'preferred controls', dated 28th May, 2019.

I have been instructed by Maddock Lawyers, on behalf of Yarra City Council, to provide expert evidence in relation to traffic issues related to the above proposal. My instructions specifically are to independently review the traffic engineering implications of the amendment, relevant supporting background documents including a traffic engineering review prepared by Traffix Group and provide my opinion on the same.

I have also considered the issues raised in submissions to the amendment.

2 Statement of Witness

2.1 Qualifications and Experience

My name is Charmaine Chalmers Dunstan. I am a Director of Traffix Group Pty Ltd practicing from Suite 8, 431 Burke Road, Glen Iris.

My qualifications and membership of professional associations are as follows:

- Bachelor of Civil Engineering (honours), Monash University, Clayton
- Masters of Traffic, Monash University
- Member, Engineers Australia (IEAUST)
- Fellow, Victorian Planning & Environmental Law Association

I have over 20 years' experience as a Traffic Engineering and Transport Planning consultant with Traffix Group Pty Ltd and formerly Turnbull Fenner Pty Ltd. My experience also includes a number of local government appointments which involved acting in the role of Council's Transport Co-ordinator or Senior Traffic Engineer.

I have experience and expertise in traffic management, transportation planning, road safety planning and engineering, parking management and strategy development, and development impact assessment of a broad range of land-use developments within established metropolitan, regional and growth areas.

2.2 Project Team

Leigh Furness (Senior Associate, Traffix Group) assisted with site inspections, review and analysis of the amendment material and the preparation of this statement.

2.3 Scope of Work

This report specifically reviews the traffic engineering implications of the proposed Amendment C231 to the Yarra Planning Scheme.

My specific instructions are to review the supporting/background material and in particular the Traffic Report prepared by Traffix Group (dated 31st July, 2019).

As part of my review, I have had regard to submissions by third parties.

2.4 Key Tasks

Based on the exhibited documents and planning history of the area, the scope of my engagement has included the following tasks:

- review of the site location and the surrounding transportation network,
- review of supporting documentation and planning history,
- review of Council policies and other relevant documents,

- review of the traffic and parking impacts of the amendment, in particular the Traffic Engineering Review of Amendment C231 prepared by Traffix Group,
- review of third party submissions, and
- preparation and giving of Expert Evidence in accordance with Planning Panels Victoria – Guide to Expert Evidence.

2.4.1 Experiments

I have visited the site to observe traffic and parking activity within the nearby area.

2.4.2 Reference Documents

The following key documents have been relied upon when preparing this report:

- Various Amendment documentation, including the exhibited plans and other material.
- Various Council reports related to Amendment C231.
- Traffic Engineering Review prepared by Traffix Group for Yarra City Council (dated August, 2019).
- Relevant sections of the Yarra Planning Scheme.
- Endorsed development plans for:
  - 26-54 Queens Parade
  - 81-89 Queens Parade
  - 137 Queens Parade
  - 141-147 Queens Parade
  - Rear 304-308 Queens Parade
  - Rear 312, 316-318 Queens Parade
  - 388-390 Queens Parade
- Application plans for 390A Queens Parade.
- Relevant Australian Standards in relation to off-street parking and loading for commercial vehicles.
- MFB Guidelines (GL-27).
- Third party submissions.

The planning permits and applications for Precinct 5 have not been reviewed as these were not the focus of the traffic engineering study.

3 Proposal

The City of Yarra has requested Amendment C231 to guide the future development along Queens Parade in Clifton Hill and Fitzroy. The explanatory report states that:

> *The scale and density of development approved and currently being proposed along Queens Parade has increased significantly in recent years and Council wants to introduce built form controls to manage change along Queens Parade and guide the scale of future buildings to provide certainty about development outcomes.*

The Amendment applies to land in five precincts along Brunswick Street and Queens Parade, Fitzroy North and Clifton Hill between Alexandra Parade and Hoddle Street.

Precinct 1 - Brunswick Street	460-494 Brunswick Street 8-24 Queens Parade
Precinct 2 - Boulevard	26-88 Queens Parade 67-81 Queens Parade 472-484 Napier Street 157-177 Alexandra Parade 537-541 George Street
Precinct 3 - St John's	1-87 Queens Parade 652-668 Smith Street
Precinct 4 - Activity Centre	89-197 Queens Parade 272-428 Queens Parade
Precinct 5 - North Eastern	199-271 Queens Parade 2-12 Dummett Crescent 501-513 Hoddle Street

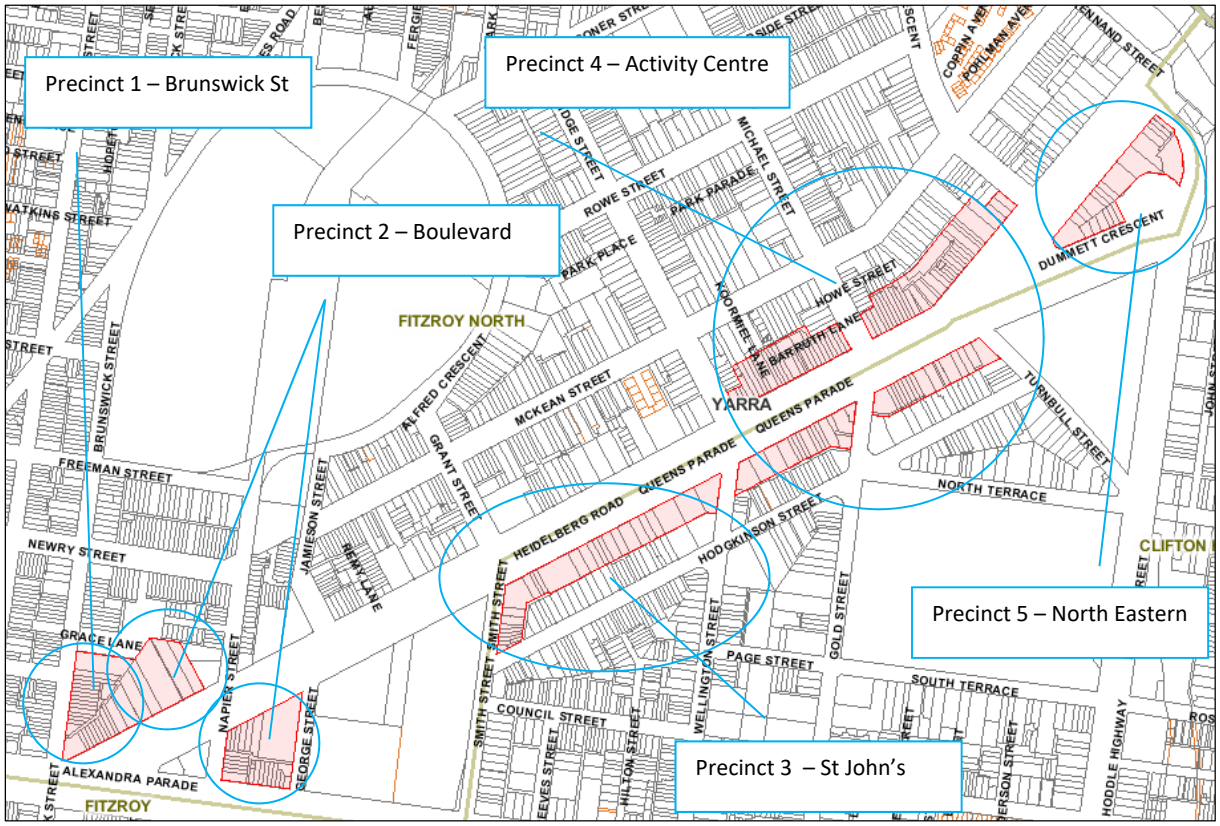

Figure 1: Land affected by proposed Amendment (shown in red)[1]

The Amendment introduces the following changes:

1. *Introduces a Design and Development Overlay DDO16 to provide permanent built form controls along Queens Parade. These would replace the two interim controls that are currently in place along Queens Parade (DDO16 and DDO20);*
2. *Rezones land at 660-668 Smith Street and 1-41 Queens Parade from Commercial 2 Zone (C2Z) to Commercial 1 Zone (C1Z)*
3. *Applies the Environmental Audit Overlay to land at 660-668 Smith Street and 1-41 Queens Parade*
4. *Introduces a new reference document into Clause 22.02 of the Yarra Planning Scheme called Yarra High Streets: Statements of Significance by GJM Heritage, October 2017 (updated November 2017)*
5. *Makes a number of updates to the Heritage Overlay which are detailed below*
6. *Updates the Incorporated Document called Appendix 8 (which is the list of heritage gradings) to reflect the changes made to the heritage overlay.*

For this report, I have had regard to two versions of the DDO, specifically:

- The 'exhibited controls', advertised under Amendment C231, and
- The 'preferred controls', dated 28 May, 2019.

[1] Precinct 1 does not include the Aquila Building (error in the original explanatory report, where this figure is sourced from).

4 Review of Traffic Assessment

Traffix Group prepared a Traffic Engineering Review of the Queens Parade Activity Centre (dated July, 2019). I was not directly involved with the project at this time.

I have reviewed this report in detail and it forms a key part of my opinion on the traffic issues associated with the amendment. This report is attached at Appendix A of my statement.

The purpose of the study was to assess the transport implications of Amendment C231 on Queens Parade and the study area. The following presents an outline of the report, a summary of my views on its contents and conclusions and the implications for Amendment C231.

4.1.1 High Level review of Traffic Impacts

I am satisfied that at a high level, the additional traffic generated by additional development within the area (vehicular, public transport, walking and cycling demand) can be accommodated by the nearby transport network.

The Traffic Engineering Review presents a case study of Victoria Street, Richmond. This case study illustrates how as inner areas densify and change, this does not necessarily lead to an increase in traffic movements on the arterial road network. Instead, there is a significant increase in the use of alternative transport modes such as public transport, cycling and walking for mobility. This modal change is not limited to residents within the area, but also employees travelling into the area. These benefits are a key reason as to why increased development within inner areas are important for the growth of Melbourne and are in accordance with the objectives of Plan Melbourne.

The proposed amendment focuses on how the built form controls can assist in managing the impacts of vehicle access to new developments within the precinct. I am supportive of this approach and the direction of the controls generally. This is discussed further in the following section.

4.1.2 The use of Laneways for Access

A key objective of the amendment is to encourage the use of laneways for vehicle access to abutting properties and minimise vehicle crossovers to Queens Parade, in particular within the Activity Centre. Minimising vehicle access to Queens Parade has a number of key benefits in the context of the study area (including, but not limited to):

- It reduces impacts on pedestrians along the main footpaths of the Activity Centre, both from vehicles crossing the footpath and also from propping on it while waiting to turn out. This increases pedestrian amenity and safety.
- It potentially reduces the number of conflict with cyclists travelling along the roads from vehicles entering/exiting private property.
- It has non-traffic engineering benefits including the urban design of buildings, increased active building frontages and minimises impacts on heritage streetscapes.

In my view, the primary purpose of the laneways in the study area should be to provide rear vehicle access to abutting properties. Given the dead-end nature of most the laneways in the study area, this

means that they are not connective and most pedestrians and cyclists (aside from those specifically accessing properties) should be travelling via the higher order road network.

4.1.3 Review of Existing Laneways

The Traffic Engineering Review comprehensively assesses all laneways within the study area.

The laneway network within the study area is not extensive and it does not service all properties fronting the arterial roads. Many of the laneways have some form of physical limitation in their current form. In general, the laneways within the Activity Centre exhibit the following characteristics:

- The laneways are generally relatively short (well under 100m in length).
- Most are 3m wide, which provides a single traffic lane for two-way traffic.
- Many are irregularly shaped and include one or more bends of various angles. This impacts on vehicle access, as the provision of splays to facilitate vehicle access around bends is not common within the study area.
- Most laneways are dead-ends or otherwise not highly connected. This means that drivers only have one route in and out of the laneway, which is a capacity constraint. This constraint also eliminates the easiest way to increase the capacity of the laneway, which is to make it operate in a one-way only manner.

In comparison, a short, straight laneway that connects at both ends has higher practical capacity to accommodate vehicular traffic than many of the laneways within the study area.

4.1.4 Impact of New Development on the Laneway Network

As a consequence of the above, the laneways within the study area are limited to some degree in their ability to accommodate additional vehicle traffic in comparison to other laneway types.

The limitations of the existing laneway network do not mean that they are inappropriate to use for new development or cannot accommodate some form of increased vehicle access. When assessing the potential of a laneway to accommodate additional development traffic, it is necessary to consider the likely future traffic volumes within the laneways might be. For instance, a short 3m wide, dead-end laneway may not have capacity constraints if it services only a handful of properties with a low development potential.

The Traffic Report makes a high-level assessment on the future volumes within the laneway network based on development yields provided to Traffix Group by Yarra City Council. The Council provided information on total floor space and dwelling numbers, which the report uses to estimate future volumes within the laneways. The assessment is highly conservative in that it assumes:

- Full build out of all properties (which is highly unlikely in any scenario, particularly in the short-medium term).
- All developments provide car parking at levels consistent with current practice. It does not attempt to estimate how many car spaces individual sites might provide.

It important to recognise that many sites within the study area will not be able to provide a high level of car parking. This is due to a variety of reasons, the most important of which is the fine-grained nature of the subdivision pattern along Queens Parade within the study area. Many blocks are well

under 10m wide, which precludes basement car parking or an efficient carpark layout for more than a handful of car spaces. For instance, to provide a central carpark aisle with parking on both sides typically requires a site to be at least 16m wide which does not exist on most sites.

I expect that many developments along Queens Parade will provide only a low level of car parking and require significant car parking reductions (under the current Clause 52.06-5 controls). However, this is entirely consistent with Yarra City Council's current practice and sustainable transport objectives and fully supportable in my view.

For practical reasons, many properties along the laneways will need to setback from the laneway in order to facilitate vehicle access into the property. Typically for a 3m laneway, a further 3m setback is required (for a 6m wide aisle). Provided this setback extends the full length of the property frontage to the laneway (i.e. does not incorporate walls at each side of the property which extend to the ROW), there is the opportunity to functionally widen the laneways over time to 6m, wide enough for two-way traffic flow. While this setback would not necessarily be consistent and would only occur over time, even short sections with this greater setback provides an opportunity for vehicles to pass within the laneway and improves its operation and capacity.

In many cases, when the development potential of land abutting the laneways is considered, the existing laneways are acceptable in their current form or require only minimal changes. The report makes recommendations in regards to areas where improvements are required to laneways or particular development sites where alternative access might be required (i.e. direct access to other roads) to relieve pressure on the laneway network.

The Traffic Engineering Review makes a series of general and specific recommendations in regards to the future management of laneways (detailed in the executive summary). The general recommendations are copied below:

- *Developments accessing laneways should be required to provide supporting traffic assessments to assess laneway conditions. The preferred DDO requires "A Traffic and Parking Assessment Report which includes an assessment of the cumulative impacts of traffic and parking in the Precinct". In our view, this should be modified to include a specific reference to laneways.*
- *Council should encourage low parking rates for developments using laneways for access. This includes reducing car parking to zero in appropriate circumstances.*
- *Council should be aware of key properties on bends on the laneway during the development application process and consider the need for improved splays, with a 3m x 3m splay being the minimum required to facilitate access by the B99 design car.*
- *When setbacks from a laneway are provided, encourage side walls to be setback as well, so that the laneway naturally widens over time from a functional perspective. Setbacks from laneways should provide a clear 6m wide trafficable area (i.e. laneway + setback to equal 6m minimum).*
- *It needs to be recognised that in some instances, the use of the rear laneway for vehicle access will not be practically possible.*

I agree with these recommendations. It will be important for Council to implement these, in particular to be aware of opportunities to incorporate suitable splays at bends in laneways to improve vehicle access within the laneway network.

Based on my detailed review of this report, I am satisfied that the transport implications of the proposed amendment are acceptable and can be accommodated by the nearby area.

4.1.5 Loading, Waste Collection and Emergency Vehicle Access

Almost all of the existing laneways with the study area are incapable of accommodating truck movements in their current form due to their width, lack of splays and dead-end nature.

As discussed in the previous section, the narrow subdivision pattern along Queens Parade means that providing a high level of car parking for many sites will be impractical. This also has implications for loading and waste collection access. The narrow lot sizes and narrow laneway network means that in many cases, providing on-site loading and waste collection may not be possible, as a truck will not be able to turn into/out of a property into the laneway. Not providing on-site loading where it is an impractical possibility is an acceptable outcome. It is likely that many commercial uses within the Activity Centre (smaller shops, restaurants, cafes, entertainment venues) that will require loading will not need access by large trucks and these can be catered for on-street.

None of the laneways within the study area are suitable for emergency vehicle access. In particular, it is not possible to access the laneways with fire appliances. Fires would need to be fought from other street frontages and this limitation would be taken into account with the detailed design of new buildings (by fire engineers). I am satisfied that this outcome is acceptable.

4.1.6 Review of the proposed DDO Controls

The Traffic Engineering Review includes a detailed review of the exhibited and preferred DDO controls at Section 8. I have reviewed the proposed controls and the comments made by the Traffic Report and agree with its opinions and recommendations.

The DDO controls preferred by Council need to strike an appropriate balance between encouraging vehicle access via laneways (which the controls do in my view) and also allowing specific developments to use alternative streets for access, where appropriate (which is not explicitly included in the preferred controls, but was present in the exhibited controls).

There are potential development sites, which due to their size or location relative to the laneway network, where vehicle access via the laneway may not be a practical possibility. The exhibited controls recognised this limitation with sentences such as *"Future vehicle access and services must be provided from a rear laneway or side street where possible"*, which have been removed from Council's preferred controls. In my view, this requirement needs to be reincorporated.

The DDO requires future planning permit applications to provide Traffic and Parking Assessment Reports on the cumulative impacts of traffic and parking within the precinct. In my view, the wording of the requirement should be slightly changed to specifically include a reference to the cumulative traffic impact of development within the laneway used to access the property. It will be important for Council to assess the growth of traffic within these laneways on a case-by-case basis as the area develops. Over time, some laneways may improve significantly due to the provision of splays or setbacks which increase their capacity to accommodate additional traffic.

5 Consideration of Third-Party Submissions

The following table sets out my comments in relation to the traffic engineering related issues raised by third party submitters relating to this amendment.

My instructions were to specifically review submissions 11, 50, 135, 209, 252, 266, 310 and 399 from the original submissions received as these specifically raised traffic engineering issues.

I have also had specific regard to submissions 403 and 405 (received later in May/June, 2019).

Table 1: Consideration of Third Party Submissions

Submission No.	Traffic Engineering Matter Raised	Response
11	The Local Planning Policy Framework specifies the provision for vehicle access from rear laneways as a general design requirement, as well as encouraging amenity and safety of laneways for pedestrian access. These requirements may well be at odds with each other, as increased automobile movements are unlikely to enhance pedestrian safety. Suggested that the following changes might mitigate impact on laneways: 1. Provide for re-imagining of the dwelling-commercial zone interface focussing on redesign of the laneways themselves (for example, conversion into linear shared garden space; or building over the vehicular access route to separate pedestrian access to the buildings. 2. Require laneway upgrades to be integrated with new building projects for example, lighting, draining, pavement maintenance as well as redesign to align to new needs.	The Traffic Report prepared by Traffix Group comprehensively reviews the laneway network. In my view, these laneways are primarily for vehicle access, rather than pedestrians or cyclists. Most laneways are dead ends and have minimal attraction as through-pedestrian routes. It needs to be recognised that one of the key reasons to use laneways, instead of Queens Parade, for vehicle access is to minimise crossovers and pedestrian conflicts along the public footpath and higher-trafficked pedestrian areas within the Activity Centre. Buildings abutting the laneway will provide some improvements such as lighting. However, it is important to recognise that as existing assets, the maintenance of the laneways is Council's responsibility. If laneways do need to be reconstructed as a result of redevelopment, this will be determined at the planning application stage of each project.

Submission No.	Traffic Engineering Matter Raised	Response
	Transport The amendment does not consider whether there is capacity of the existing transport network to accommodate the new development. There is no mention of the need to improve non-automobile options such as shared cars or cycling. There should be some reference to transport planning in the proposed amendment, even if it is where this is being considered elsewhere. There also should be some direction as to the types of transport modes that will be most affected by the framework.	The capacity of the transport network and various strategies to improve it (for all transport modes) are largely outside the scope of the amendment. Section 6.1 of the Traffic Report reviews the transport implications of increased development along Queens Parade via analysis of a case study of Victoria Street, Richmond. This study found that rather than an increase in vehicle traffic, increased densification results increased use of alternative transport modes other than private car. This is a highly desirable outcome and accords with the objectives of Plan Melbourne. The transport network will naturally improve over time through various initiatives by the State Government and Yarra City Council.
50	Concerns about large developments using laneways for access instead of service streets.	The Traffic Study completed comprehensively reviews the traffic implications of the amendment on the laneways within the amendment area and I am satisfied that the findings and recommendations of this study address this issue.
	Parking is already a problem in Hodgkinson Street and larger developments will make this worse.	Most on-street parking in the area is already controlled by short-term or permit zone restrictions, including Hodgkinson Street. As the area develops, I expect parking restrictions will evolve further to protect existing residents. Notably none of the new developments envisioned will be eligible for parking permits under Council's existing policy.
135	The vehicle traffic along Queens Parade, and in the streets that cross it such as Michael and Delbridge Streets, does flow along but is congested in rush hours. Further residences in the area of the shops would increase traffic to an unacceptable level.	Section 6.1 of the Traffic Report reviews the likely impacts to traffic volumes along Queens Parade as the area develops. I am satisfied that the additional traffic generated (by all transport modes) can be accommodated.
	It would not be safe to use the cobbled back lanes for large numbers of moving vehicles, as is proposed for the new housing.	The traffic study completed comprehensively reviews the traffic implications of the amendment on the laneways. I am satisfied that vehicle speeds and volumes will remain at low and acceptable levels within the laneways.

Submission No.	Traffic Engineering Matter Raised	Response
209	It is the submitters observations that: • Existing congestion along laneways, especially for residents who have a garage facing the laneway. The corners of many laneways are inadequate turning circles for larger vehicles and quite frequently laneways are blocked by stationary vehicles (unloading, construction, etc.)	My observations and those of the project team that completed the Traffic Report were that existing activity in the majority of laneways was minimal and this is one of the factors that encourages drivers to block the laneways. It is correct that most laneway corners are currently inadequate for truck access.
	• Clashes of pedestrian, cyclist and vehicle use.	This was not observed during the site inspections.
	• Difficult or impossible for emergency vehicles (fire engines for example), delivery vans and rubbish collection vehicles.	For most laneways, access by emergency vehicles and other trucks is not practically possible. The access requirements of these vehicles will generally need to occur from other road frontages and this is an acceptable outcome.
	• Perceived personal safety issues at night, especially for pedestrians and cyclists. These issues need to be addressed before allowing further residences from the laneways.	The increased development accessed from laneways offers the opportunity to increase active and passive surveillance of the laneways, including improved lighting.
	The current laneway configuration across Precincts 1-4 will only allow for very limited development. These conditions are at odds with Yarra Planning Scheme's General Design Requirement that 'vehicle access and services must be provided from a rear laneway or side street where possible'.	The Traffic Report completed includes a high-level review of all laneways within the amendment area. I am satisfied that the level of development proposed can be largely accommodated by the existing laneway network. The Traffic Report makes some key recommendations to address identified deficiencies with some laneways. I am satisfied that this issue has been addressed in detail.
	Safety issues for pedestrians and vehicles within the laneways.	The low speeds and volumes within the laneways does not pose an unacceptable risk to pedestrians and vehicles within the laneways.
	Monitoring and modelling of laneway traffic patterns (for motorists, pedestrians and cyclists) needs to be undertaken before any proposed development is approved.	The Traffic Report completed includes a high-level analysis of the potential impact on new development for every laneway within the study area. The Council preferred DDO includes an application requirement for a cumulative traffic and parking assessment for new developments. This is the appropriate time for the traffic impacts of each

Submission No.	Traffic Engineering Matter Raised	Response
		individual application and its impact on the laneway network to be thoroughly assessed.
252	The Council has not adequately assessed the impact on and capability of the laneways in Precinct 4 to accommodate addition dwellings. Issues cited include: • The laneways are not designed to accommodate the increased traffic. • The laneways are 3m wide and single lane. Most are dead ends and constructed with rough bluestone. Most have corners that further restrict vehicle movement. • Large emergency vehicles will not be able to access the laneways.	The submission is largely correct in the broad characterisation that most laneways in the amendment area have some physical limitations. Notwithstanding the existing limitations, most laneways are capable of accommodating additional development traffic in their current form. The Traffic Report comprehensively reviews the configuration of every laneway and assesses the likely traffic impacts of new development. It also makes recommendations to address existing deficiencies. In many cases, the expected development intensity is manageable within the laneways with only minor improvements. Large emergency services vehicles will not be able to use the laneways and would access the buildings from other street frontages – as they do at present.
	There is a shortage of on-street parking that makes reductions in car parking difficult to justify.	The active management of on-street parking by Council to prioritise existing residents, together with Council's Resident Permit Scheme, in my view adequately protects residents' access to on-street parking.
266	The case studies put forward in Appendix A of the Built Form review do not address requirements for car parking and access via narrow rear laneways.	I agree that the Built Form reviews do not specifically review car parking access. For the purposes of the built-form review, in my view it strictly does not need to. What is readily evident from the Built Form review is that the provision of car parking on individual sites is likely to be limited due to the narrow widths of lots. Section 7.1.1 of the Traffic Report reviews this issue in detail. Many of the lots geometrically cannot accommodate a high level of car parking. The built form review does not show additional setbacks at ground level to facilitate vehicle access to lots from the laneways. These setbacks would only need to be at ground level and upper floors could potentially cantilever over the setback at the upper floors (subject to other planning requirements). This would be determined by the project team preparing the future development application for individual sites.

Submission No.	Traffic Engineering Matter Raised	Response
310	The MFB guidelines for access by emergency services vehicle within laneways are not considered by the proposed amendment. Clause 22.07 of the Yarra Planning Scheme requires that laneways meet emergency services access requirements. City of Yarra should incorporate these guidelines into their planning process (as Port Phillip, Moreland and Banyule have done).	The purpose of the MFB Guidelines is set out below (copied from Section 1 of GL-27): *The purpose of this guideline is to identify the minimum access requirements for emergency vehicles (fire and ambulance) for new road networks, road network upgrades as well as property developments that incorporate streets and common access ways.* *This document is a self-assessment guideline that provides assistance to property developers, design engineers, municipalities and planning authorities who are involved in preparing and evaluating applications pertaining to the subdivision or development of land within the Metropolitan District.* The existing laneway network is not a new road network. It is largely incapable of accommodating fire appliance access in its current form. It is not necessary in my view for laneways to be upgraded for fire access (and it is impractical to do so). Fire appliances will need to access properties from other street frontages. It is also highly unlikely that it would be possible to achieve an operational width necessary for the purposes of fighting a fire. The 3.5m width specified for fire appliance access is for truck access, not for fire fighters to access the truck's equipment to fight a fire. Firefighting requirements of the MFB are considered by fire engineers at the detailed design stage of each new development. This is the appropriate time for these to be resolved.
399	Issues around the impacts of the increased development on on-street car parking for customers within the activity centre.	The area is already managed to balance the needs of traders and residents. This active management will continue as the area developments. The increased development along Queens Parade will naturally lead to an increased catchment of customers for the Activity Centre, who will walk rather than drive to access the centre.
	Ground floors need to be sufficiently high to be adaptable spaces (4m), not lowered for car parking.	This is not strictly a traffic engineering matter. In my experience, the ground level of commercial buildings is dictated by other requirements (such as retail needs), not the car parking.

Submission No.	Traffic Engineering Matter Raised	Response
	How will wide and obstructed access be maintained for deliveries when resident passageways, lifts, fire stairs, cupboards and ducts will be needed to service the upper levels.	This concern seems to be related more to the internal design of the building (rather than external laneway impacts). Through the normal planning application process, Council would ensure that existing laneways are not impacted or encroached upon by new buildings.
403	The laneways between Hodgkinson Street and Queens Parade are too narrow and not suitable for frequent use.	The Traffic Report completed includes a high-level review of all laneways within the amendment area. I am satisfied that the level of development proposed can be largely accommodated by the existing laneway network. The Traffic Report makes some key recommendations to address identified deficiencies with some laneways. I am satisfied that this issue has been addressed in detail.
405	New development must maintain service access to shops from rear laneways.	I agree.
	The impact of MFB Guideline GL-27 on accessibility of the laneways for emergency vehicle access must be considered.	See my response to submission 310.

6 Conclusions

This report reviews the changes proposed by Amendment C231, the Traffic Engineering Review of Amendment C231 and the submissions by third parties regarding the Amendment. My opinions are set out as follows:

a) The traffic impacts of the development facilitated by the DDO will be able to be accommodated by the surrounding transport network.

b) The laneway network serving the properties affected by the DDO is generally suitable for use by new developments. The Traffic Report makes detailed recommendations in regards to the management and upgrade of the laneways within the study area and I agree with its conclusions.

c) I recommend that the following two changes are incorporated into the final DDO:

   i) The Council 'preferred' DDO should explicitly recognise that vehicle access should be to laneways, where possible (this was acknowledged in the exhibited DDO but removed from the preferred DDO).

   ii) At Section 5 - Application Requirements, the requirement to provide a cumulative traffic and parking assessment should include specific reference to an assessment of abutting laneways.

d) Having reviewed the relevant background material, I am satisfied that there are no reasons why the proposed amendment should not proceed, subject to appropriate conditions.

I have made all inquiries that I believe are desirable and appropriate and there are no matters of significance which I regard as relevant which, to the best of my knowledge, have been withheld from the Panel.

CHARMAINE CHALMERS DUNSTAN

B.E. (Civil) Hons., Masters of Traffic, M.IEAust., F.V.P.E.L.A

Appendix A
Traffic Engineering Review by Traffix Group

TraffixGroup

Traffic Engineers and Transport Planners

Traffic Engineering Review: Amendment C231 of the Yarra Planning Scheme

Queens Parade Activity Centre, Clifton Hill

Prepared For

City of Yarra

August, 2019
G26233R-01E

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Traffic Engineering Review

Queens Parade Activity Centre, Clifton Hill

Our Reference: G26233R-01E

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Executive Summary

The purpose of this study is to assess the traffic implications of Amendment C231. This amendment includes controls that encourage the use of laneways for vehicle access to new development sites in preference to other road frontages and in particular avoiding the use of Queens Parade.

The broad transport implications of the additional development contemplated by the amendment has been reviewed at a high level by reviewing the case study of Victoria Street in Richmond. This case study is relevant in many ways to Queens Parade, in particular it illustrates the changing nature of development and transport along an inner-city arterial road corridor. This case study found that while the level of development along Victoria Street has been substantial over the last 10 years, this has not led to an increase in daily traffic volumes along Victoria Street. Instead, there has been significant increase in the use of alternative transport modes (walking, cycling and public transport) over private car use.

The key transport implication of the built form controls is the directive to use laneways for vehicle access to new developments wherever possible. There are a number of benefits to using laneways for access instead of other frontages. In the context of the study area, the key ones are:

- It reduces impacts on pedestrians along the main footpaths of the Activity Centre, both from vehicles crossing the footpath and also from propping on it while waiting to turn out. This increases pedestrian amenity and safety.
- It reduces conflict with cyclists travelling along the roads from vehicles entering/exiting private property.
- It has non-traffic engineering benefits including the urban design of building, increased active building frontages and minimises impacts on heritage streetscapes.

This report reviews each of the laneways in detail in two parts:

- A review of the physical characteristics of the laneways (width, length, geometry, connectivity, etc.).
- An assessment of the possible traffic impacts of new development within the laneways.

Most of the laneways within the study area have some limitations as to their functionality and capacity. In general, the laneways within the Activity Centre exhibit the following characteristics:

- Width – most are 3m wide and provides a single-width traffic lane for two-way vehicle flow.
- Length – some are quite long, increasing the chance of vehicle conflict and complicating driver's ability to manage any conflicts that arise.
- Bends that block sight distance – complicating driver's ability to manage any conflicts.
- Lack of suitable splays at bends in the laneway – limiting vehicle access around bends.
- Many terminate in dead ends – reducing drivers' options to manage any conflicts and it eliminates the possibility of a one-way arrangement (the easiest way to increase the capacity of a laneway as it does not require physical changes).

When considering the potential of a laneway to accommodate additional traffic, the physical layout of the laneway is one factor, with the second being the level of additional traffic anticipated. When this

is taken into consideration, many laneways in the area are fit for purpose in their current configuration or within minimal changes. However, specific recommendations have been provided for selected laneways to manage potential traffic growth as a result of increased development.

The laneway assessment classified all laneways within the study area by their potential to accommodate additional traffic. Laneways have initially been classified at three levels:

- **Unconstrained** – these laneways have very few, if any, development constraints. As a result, they are well suited to accommodating additional traffic. Changing the laneway to operate one-way (where possible) has not been considered as a constraint.
- **Partially Constrained** – these laneways have some potential constraints that limit their capacity to accommodate traffic, however they are generally easily addressed. Common issues include insufficient width, long length and lack of splays at critical locations.
- **Highly Constrained** – these laneways have fundamental issues that cannot be easily resolved. This usually relates to a combination of factors and may also include very narrow laneways or heritage constraints that limit the opportunities to alter the laneways.

Figure 1 summarises our classification of each laneway.

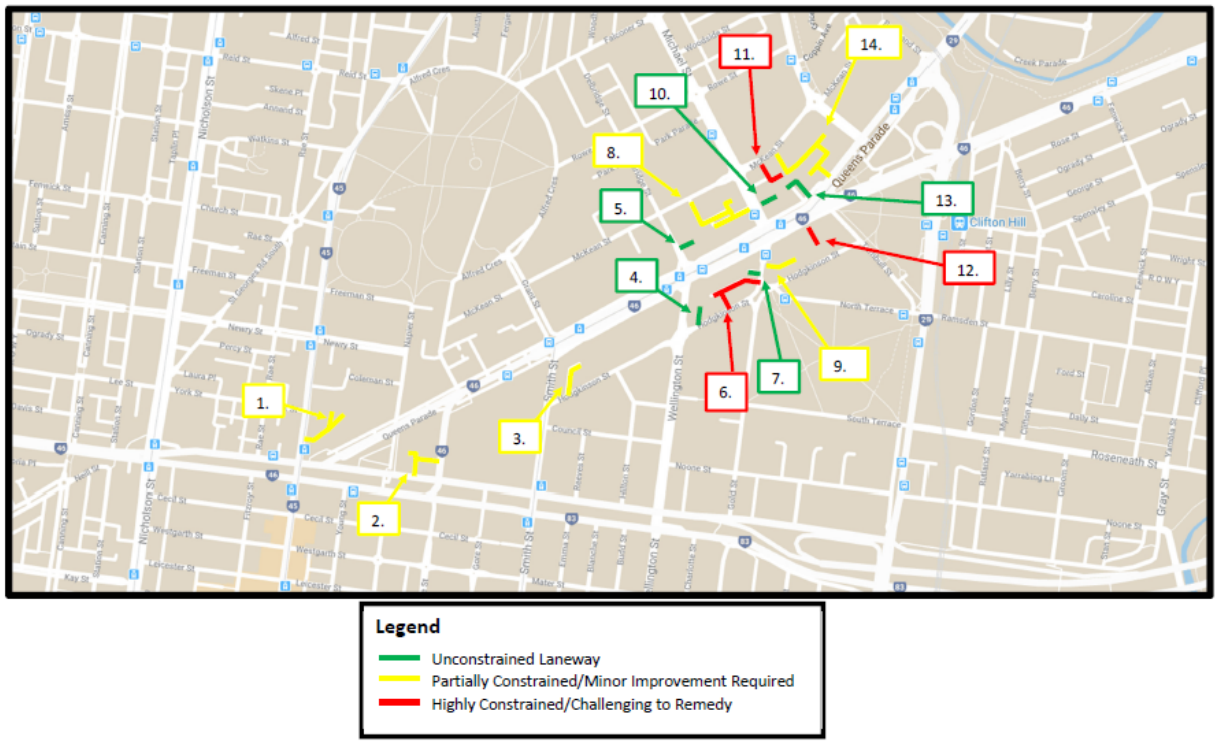

Figure 1: Laneway Classifications

This report makes specific and general recommendations as to the changes required to accommodate additional traffic within the laneways. The following general recommendations apply to the management of all laneways within the study area:

- Developments accessing laneways should be required to provide supporting traffic assessments to assess laneway conditions. The preferred DDO requires *"A Traffic and Parking Assessment Report which includes an assessment of the cumulative impacts of traffic and parking in the Precinct*". In our view, this should be modified to include a specific reference to laneways.
- Council should encourage low parking rates for developments using laneways for access. This includes reducing car parking to zero in appropriate circumstances.
- Council should be aware of key properties on bends on the laneway during the development application process and consider the need for improved splays, with a 3m x 3m splay being the minimum required to facilitate access by the B99 design car.
- When setbacks from a laneway are provided, encourage side walls to be setback as well, so that the laneway naturally widens over time from a functional perspective. Setbacks from laneways should provide a clear 6m wide trafficable area (i.e. laneway + setback to equal 6m minimum).
- It needs to be recognised that in some instances, the use of the rear laneway for vehicle access will not be practically possible.

The figure below summarises the specific changes recommended to the laneways within the study area.

We are satisfied that the controls outlined in the DDO are generally appropriate. However, two changes are recommended:

- It needs to be recognised that under the general design requirements of DD016, vehicle access to the rear laneway or side street is to be provided <u>where possible.</u> This was explicitly stated in the exhibited DDO, but not the preferred DDO controls.
- The requirement for a cumulative traffic and parking assessment at Section 5.0 of the DDO should be expanded to specifically include laneways, as follows:

  A Traffic and Parking Assessment Report which includes an assessment of the cumulative impacts of traffic and parking in the Precinct. This includes an assessment of any laneways being used for vehicle access.

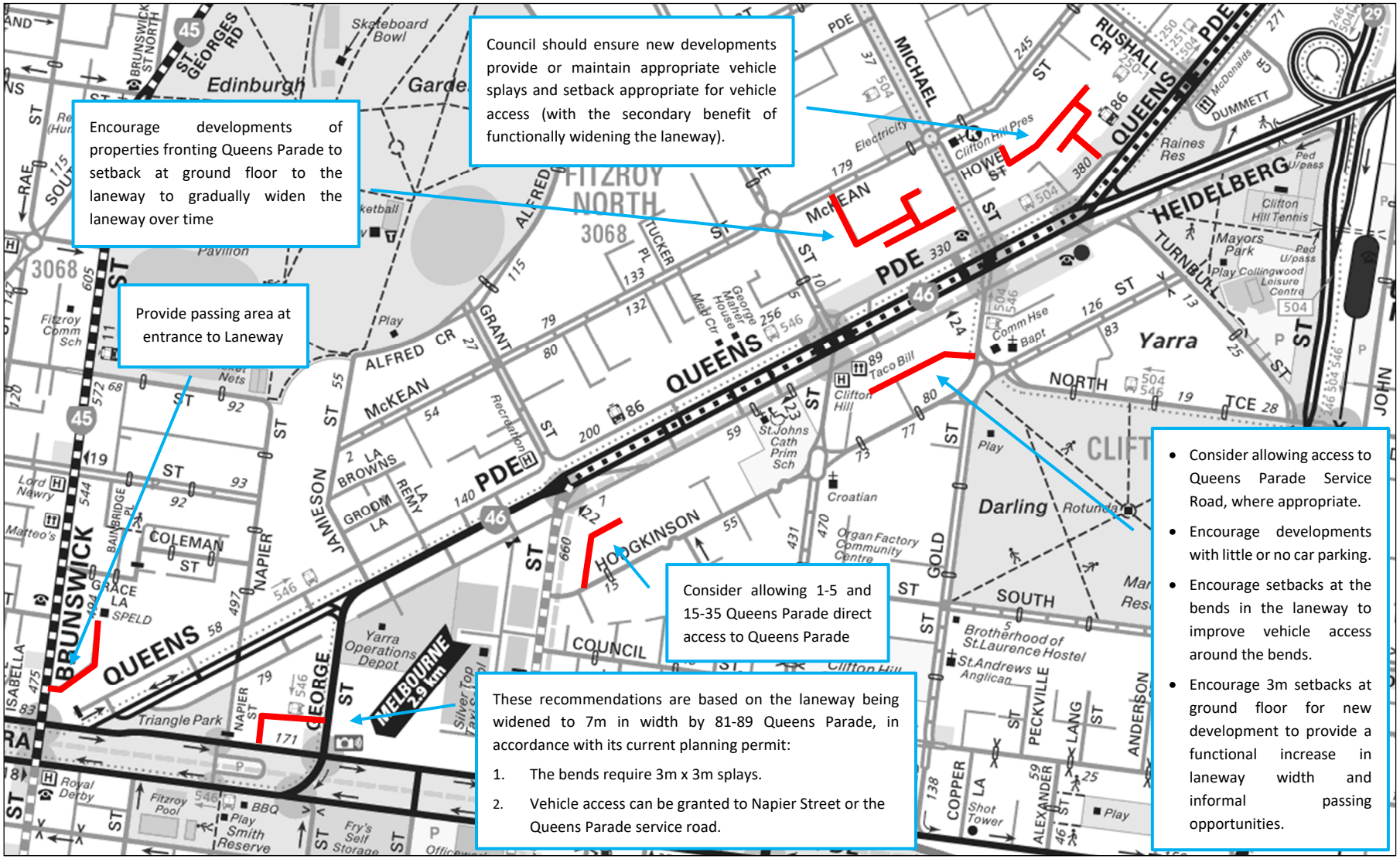

Figure 2: Summary of recommended laneway changes

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1 Introduction

Yarra City Council has completed a Built Form Framework study for the Queens Parade Activity Centre. This Built Form Framework defines the preferred future built form character of the precincts and include principles, guidelines and requirements to guide future development and to manage the level of change. Importantly, this framework has informed the preparation of Design and Development Overlay (DDO) controls and policy for the area.

Yarra City Council has initiated Amendment C231 to implement the built form controls and manage development within the study area. This increase in development has the potential to pose transport challenges for all modes along the Queens Parade corridor and immediate areas.

While the traffic impacts of this growth on this constrained road network this is acknowledged as a consideration, there is strong and committed strategic policy support to facilitate increased commercial and residential development in the Queens Parade Activity Centre. In considering the planning of similar centres across Melbourne, previous Planning Panels report have acknowledged that "future congestion should not stifle development"[1] and the "challenge of managing the road network should not prevent the Amendment from progressing"[2].

In particular, a number of traffic engineering related issues been raised through submissions, in particular the suitability of narrow laneways or Right-of-Ways (ROWs) to provide appropriate access to new development and movement opportunities for people, cyclists, cars and service vehicles.

The terms 'laneway' and 'ROW' are used interchangeably in this report.

Traffix Group has been engaged by Yarra City Council to undertake an assessment of the Design and Development Overlay and the controls intent of facilitating appropriate access and movement throughout the Activity Centre. The objectives of this study are to:

- Ensure appropriately managed vehicle access is provided to properties within the Activity Centre.
- Minimise the potential for vehicle conflicts within laneways, ensuring appropriate treatments are put into place to maximise the capacity of laneways and local roads.
- Provide a high-quality pedestrian environment along Queens Parade.
- Minimise where possible the number of vehicle access points directly to arterial roads.
- Provide appropriate vehicle access to properties, including loading and waste collection considerations.

[1] Panel Report for Moreland Amendment C123

[2] Panel Report for Moreland Amendment C134

2 Scope & Methodology

The adopted methodology for undertaking this study was as follows:

- Undertake thorough site inspections of the entire study area to document and map:
  - existing access arrangements for each individual property,
  - existing traffic management treatments for all arterial and local roads and rear laneways within the study area,
  - existing configuration of each road and laneway within the study area (including carriageway width and road reservation width), and
  - foreseeable access constraints to each individual property should development occur.
- Review and categorisation of laneways into 3 categories (unconstrained, partially constrained or highly constrained) in order to better understand their potential to currently accommodate additional traffic under their existing conditions and configuration. Key factors include laneway width, laneway length, laneway connections (i.e. continuous or dead-end) and physical layout (i.e. bends within the laneway network).
- High level review of the developmental changes possible under the Amendment in regards to traffic impacts, in particular the intensity of traffic movements and vehicle circulation within the laneway network of the Queens Parade Activity Centre.
- Review of the capacity for laneways and local roads to accommodate the forecast level of traffic based on development potential and their existing configuration.
- Review of what configuration or adjustments may be necessary to laneways in order to accommodate this increase in vehicle movements.
- Review the proposed Design and Development Overlay, which sets out design objectives and outcomes, permit application requirements, and decision guidelines for assessing future planning permit applications, based on the desired access outcomes for future development.

3 Proposed Controls

The City of Yarra has requested Amendment C231 to guide the future development along Queens Parade. The explanatory report states that:

> *The scale and density of development approved and currently being proposed along Queens Parade has increased significantly in recent years and Council wants to introduce built form controls to manage change along Queens Parade and guide the scale of future buildings to provide certainty about development outcomes.*

The Amendment applies to land in five precincts along Brunswick Street and Queens Parade, Fitzroy North and Clifton Hill between Alexandra Parade and Hoddle Street.

Precinct 1 - Brunswick Street	460-494 Brunswick Street 8-24 Queens Parade
Precinct 2 - Boulevard	26-88 Queens Parade 67-81 Queens Parade 472-484 Napier Street 157-177 Alexandra Parade 537-541 George Street
Precinct 3 - St John's	1-87 Queens Parade 652-668 Smith Street
Precinct 4 - Activity Centre	89-197 Queens Parade 272-428 Queens Parade
Precinct 5 - North Eastern	199-271 Queens Parade 2-12 Dummett Crescent 501-513 Hoddle Street

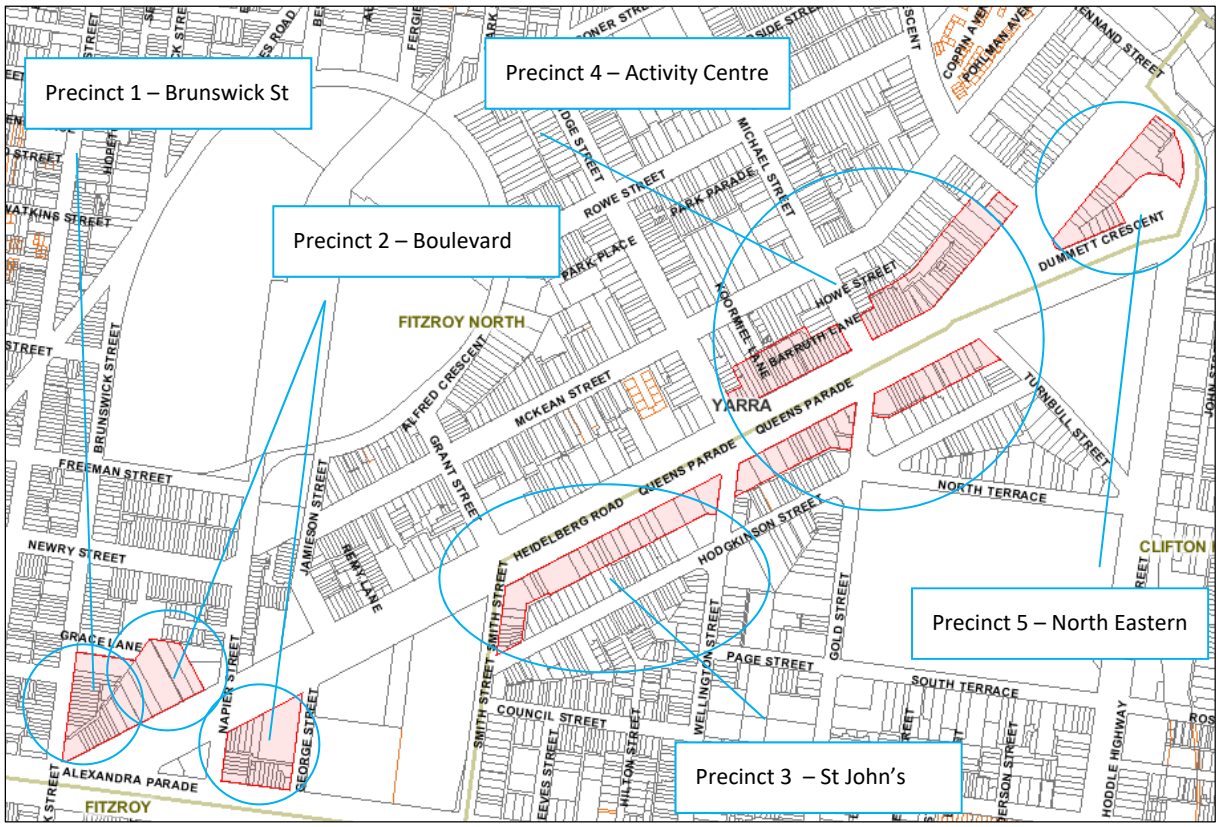


Figure 3: Land affected by proposed Amendment (shown in red)[3]

The Amendment introduces the following changes:

1. *Introduces a Design and Development Overlay DDO16 to provide permanent built form controls along Queens Parade. These would replace the two interim controls that are currently in place along Queens Parade (DDO16 and DDO20);*
2. *Rezones land at 660-668 Smith Street and 1-41 Queens Parade from Commercial 2 Zone (C2Z) to Commercial 1 Zone (C1Z)*
3. *Applies the Environmental Audit Overlay to land at 660-668 Smith Street and 1-41 Queens Parade*
4. *Introduces a new reference document into Clause 22.02 of the Yarra Planning Scheme called Yarra High Streets: Statements of Significance by GJM Heritage October 2017 (updated November 2017)*
5. *Makes a number of updates to the Heritage Overlay which are detailed below*
6. *Updates the Incorporated Document called Appendix 8 (which is the list of heritage gradings) to reflect the changes made to the heritage overlay.*

For this report, we have had regard to two versions of the DDO, specifically:

- The 'exhibited controls', advertised under Amendment C231, and
- The 'preferred controls', dated 28 May, 2019.

The exhibited controls are attached at Appendix A.

[3] Precinct 1 does not include the Aquila Building (error in the original explanatory report, were this figure is sourced from).

This report focuses on responding to Councils preferred controls (dated 28 May, 2019).

Apart from guiding increased development density within the area, Schedule 16 to Clause 43.02 also introduces some specific design requirements that are directly related to traffic engineering matters. These are reproduced below (only those sections directly related to traffic engineering matters are included).

SCHEDULE 16 TO CLAUSE 43.02 DESIGN AND DEVELOPMENT OVERLAY

2.7 Vehicular access, car parking, and loading areas requirements

- New vehicle crossovers onto Queens Parade must be avoided
- Vehicle ingress and egress into development, including loading facilities and building servicing, must be designed to ensure a high quality pedestrian amenity and limit potential conflict between vehicle movements and pedestrian activity.
- Development on a laneway must include a rear setback, at ground floor, to facilitate the ongoing function of the laneway and allow for building services and car park access.

2.9.1 Precinct 1 – Brunswick Street

Shown on the planning scheme map as **DDO16-1**

The design requirements for Precinct 1 are as follows:

- Development must:
  - provide for vehicular access off the laneway

Figure 4: Map of Precinct 1 – Brunswick Street

2.4.1 Precinct 2 – Boulevard Precinct

Shown on the planning scheme map as **DDO16-2**

The design requirements for Precinct 2 are as follows:

- Development in Precincts 2C and 2D must also:
  - provide vehicular access from laneways

Figure 5: Map of Precinct 2 – Boulevard Precinct

Precinct 4 – Activity Centre Precinct

Shown on the planning scheme map as **DDO16-4**

- Development must:
  - enhance the amenity and safety of laneways that provide pedestrian and vehicular access to buildings.
  - maintain service access from the laneways in order to facilitate commercial use of the properties fronting Queens Parade.

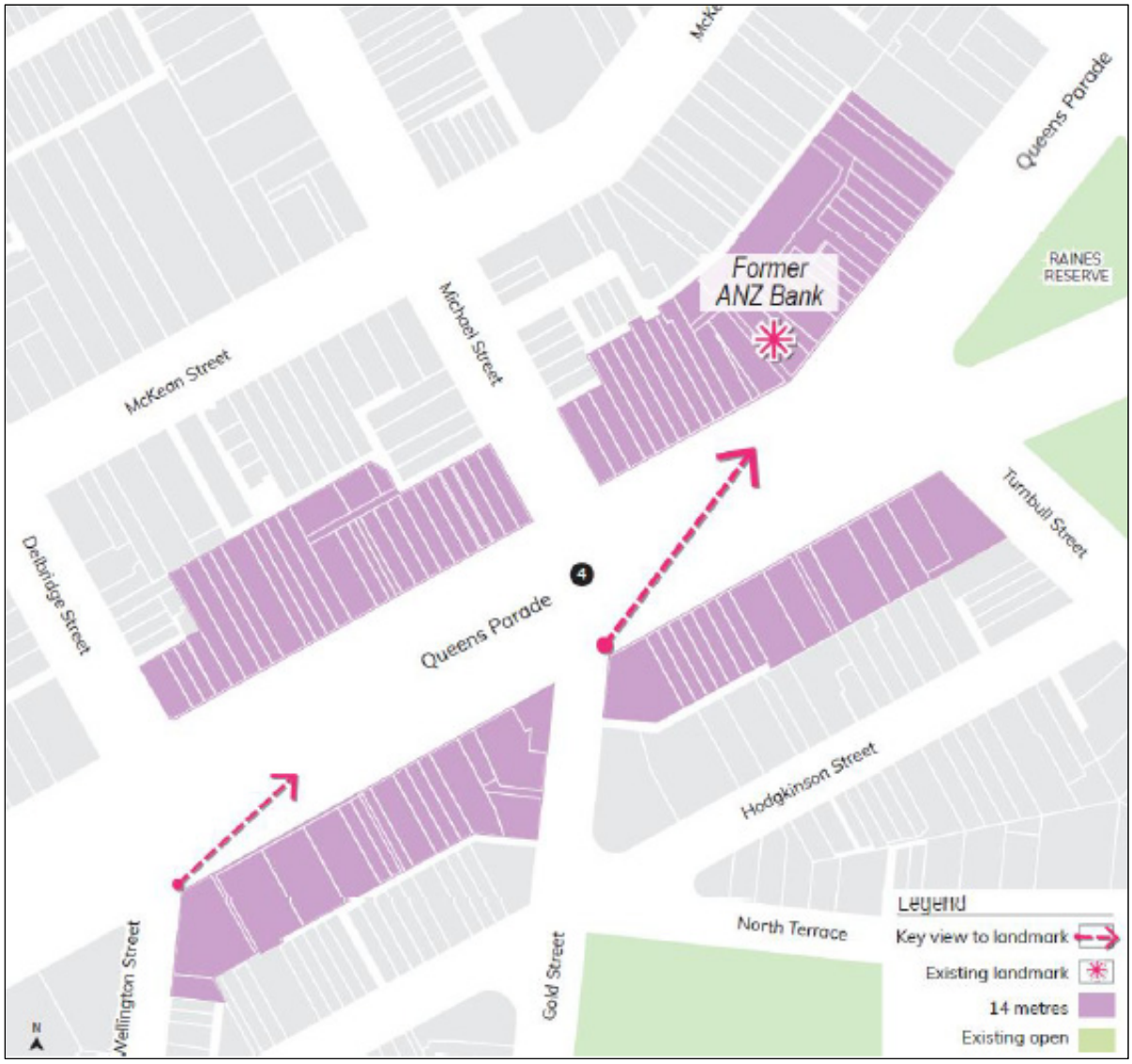


Figure 6: Map of Precinct 4 – Activity Centre Precinct

Clause 43.02 – Schedule 16 does not include any further specific design requirements directly related to transport engineering matters for Precincts 3 and 5. Maps of these precincts are shown in the follow two figures for completeness.

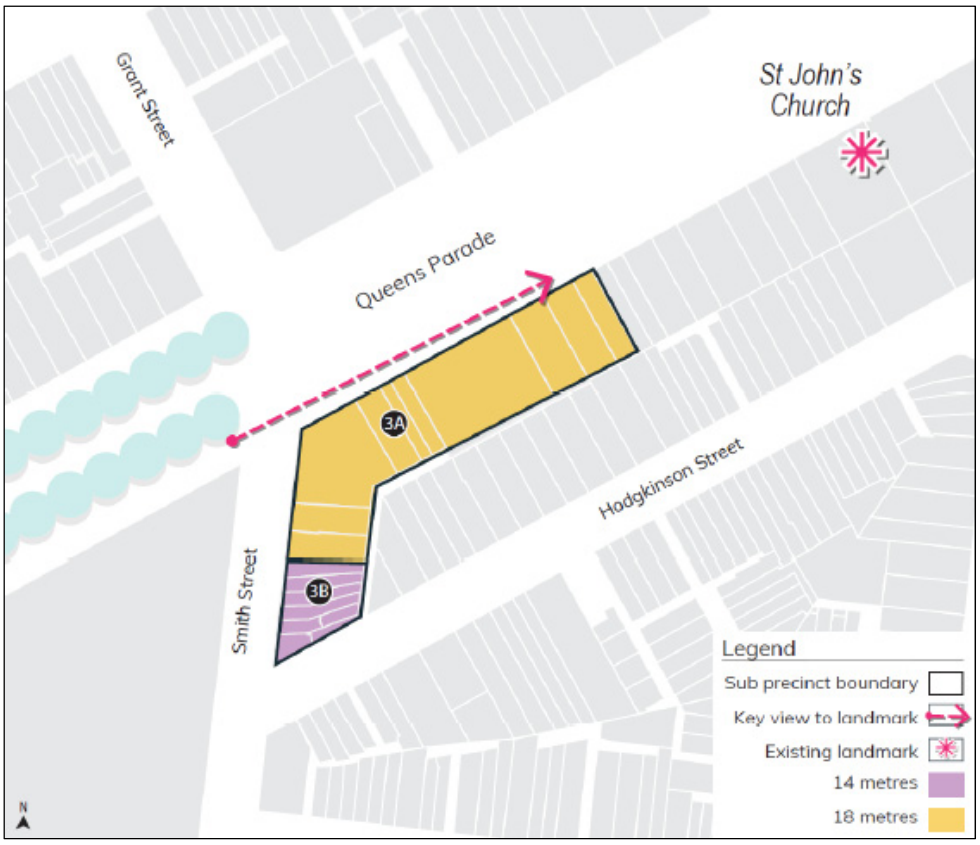


Figure 7: Map of Precinct 3 – St John's Precinct

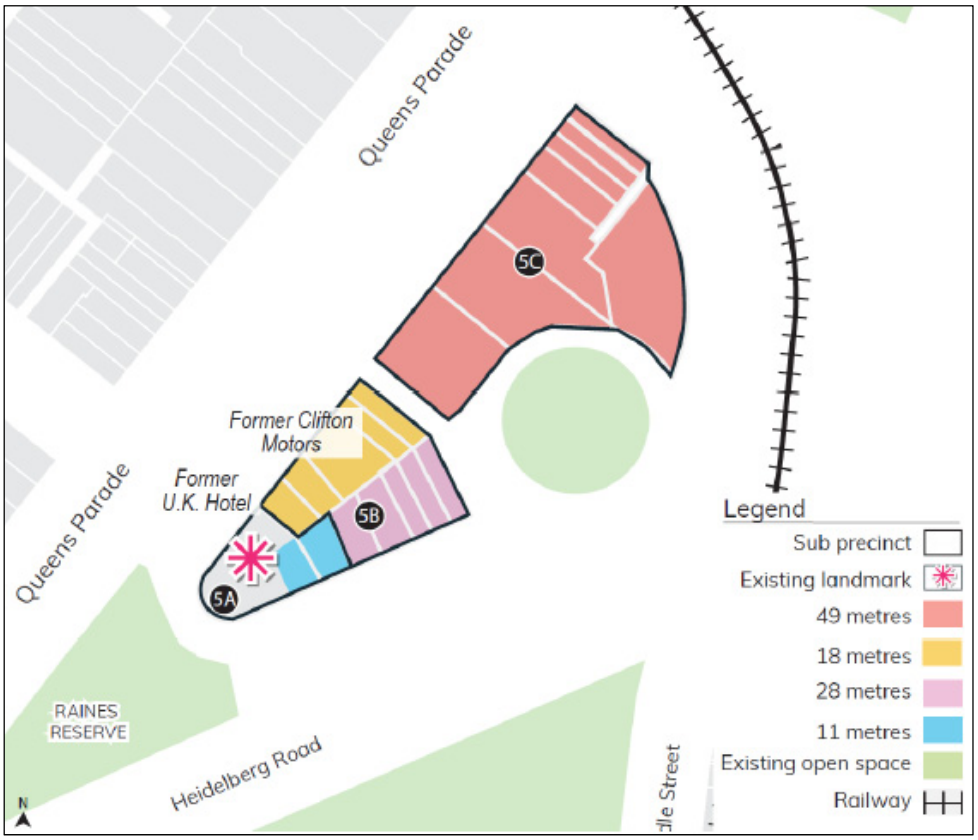


Figure 8: Map of Precinct 5 – North East Precinct

5.0 Application requirements

The following application requirements apply to an application for a permit under Clause 43.02, in addition to those specified elsewhere in the scheme and must accompany an application, as appropriate, to the satisfaction of the responsible authority:

- A Traffic and Parking Assessment Report which includes an assessment of the cumulative impacts of traffic and parking in the Precinct.

4 Policy Context

4.1 Plan Melbourne 2017-2050

Plan Melbourne is the State Government plan that will guide the growth of Melbourne city for the next 35 years. It sets the strategy for supporting jobs, housing and transport, while building on Melbourne's legacy of distinctiveness, liveability and sustainability.

The plan includes a number of key transport and urban planning objectives that the proposed changes will assist to facilitate. The most relevant objectives are listed in the table below.

Table 1: Key Objectives of Plan Melbourne in relation to Queens Parade

Outcome	Directions	Policy
Outcome 2 Melbourne provides housing choice in locations close to jobs and services.	Manage the supply of new housing in the right locations to meet population growth and create a sustainable city.	Facilitate an increased percentage of new housing in established areas to create a city of 20-minute neighbourhoods close to existing services, jobs and public transport.
	Deliver more housing closer to jobs and public transport.	Facilitate well-designed, high-density residential developments that support a vibrant public realm in Melbourne's central city. Direct new housing and mixed-use development to urban renewal precincts and sites across Melbourne. Support new housing in activity centres and other places that offer good access to jobs, services and public transport Provide support and guidance for greyfield areas to deliver more housing choice and diversity.
Outcome 3 Melbourne has an integrated transport system that connects people to jobs and services and goods to market.	Transform Melbourne's transport system to support a productive city.	Provide high-quality public transport access to job-rich areas. Improve arterial road connections across Melbourne for all road users. Provide guidance and certainty for land use and transport development through the Principal Public Transport Network and the Principal Freight Network. Improve the efficiency of the motorway network. Support cycling for commuting.
	Improve local travel options to support 20-minute neighbourhoods.	Create pedestrian-friendly neighbourhoods. Create a network of cycling links for local trips. Improve local transport choices.
Outcome 5 Melbourne is a city of inclusive, vibrant and healthy neighbourhoods.	Create a city of 20-minute neighbourhoods.	Create mixed-use neighbourhoods at varying densities. Support a network of vibrant neighbourhood activity centres.
	Create neighbourhoods that support safe communities and healthy lifestyles.	Improve neighbourhoods to enable walking and cycling as a part of daily life.

4.2 Planning Policy Framework (SPPF)

Clause 18 of the SPPF details state-wide and relevant regional objectives, strategies and policy guidelines relating to transport, including land use and transport planning, the transport system, walking, cycling, the principal public transport network, management of the road system, car parking ports, airports and freights.

The SPPF Transport objectives that are relevant to Yarra are set out in Table 2 below.

Table 2: SPPF Transport Objectives

Clause	Objectives
18.01-1 Integrated Transport	To create a safe and sustainable transport system by integrating land-use and transport.
18.01-2S Transport System	To coordinate development of all transport modes to provide a comprehensive transport system.
18.02-1S Sustainable Personal Transport	To promote the use of sustainable personal transport.
18.02-2S Public Transport	To facilitate greater use of public transport and promote increased development close to high-quality public transport routes.
18.02-2R Principal Public Transport Network	To upgrade and develop the Principal Public Transport Network and local public transport services in Metropolitan Melbourne to connect activity centres, link activities in employment corridors and link Melbourne to the regional cities.
18.02-3S Road System	To manage the road system to achieve integration, choice and balance by developing an efficient and safe network and making the most of existing infrastructure.
18.02-4S Car Parking	To ensure an adequate supply of car parking that is appropriately design and located.

A copy of Clause 18 of the Planning Scheme is attached at Appendix B, and details the strategies and policy guidelines relating to each of the objectives listed in Table 2.

Detailed state-wide requirements in relation to car parking, loading and bicycle parking are set out at Clause 52.06, 65.01 and 52.34 of the Planning Scheme respectively.

4.3 Local Planning Policy Framework

While Clause 18 sets out the state-wide planning policy in relation to transport, each Council also sets its own local policies at Clauses 20, 21 and 22 of the Planning Scheme.

Clause 21 sets out the Municipal Strategic Statement (MSS).

Clause 21.03 sets out the vision for the municipality, as follows:

Land Use

- *The City will accommodate a diverse range of people, including families, the aged, the disabled, and those who are socially or economically disadvantaged.*
- *Yarra will have increased opportunities for employment.*
- *There will be an increased provision of public open space.*
- *The complex land use mix characteristic of the inner City will provide for a range of activities to meet the needs of the community.*
- *Yarra's exciting retail strip shopping centres will provide for the needs of local residents, and attract people from across Melbourne.*

Built Form

- *Yarra's historic fabric which demonstrates the development of metropolitan Melbourne will be internationally recognised.*
- *Yarra will have a distinctive identity as a low-rise urban form, with areas of higher development and highly valued landmarks.*
- *People will safely get together and socialise in public spaces across the City.*
- *All new development will demonstrate design excellence.*

Transport

- *Local streets will be dominated by walkers and cyclists.*
- *Most people will walk, cycle and use public transport for the journey to work.*

Environmental sustainability

- *Buildings throughout the City will adopt state-of the-art environmental design.*
- *Our natural environment will support additional species of flora and fauna.*

This vision is pursued by the objectives and strategies set out in the land use, built form, transport, environmental sustainability and neighbourhood sections under Clauses 21.04- 21.08.

Clause 21.06 sets out Yarra's detailed local Transport policy. The preamble states the following:

> *Yarra needs to reduce car dependence by promoting walking, cycling and public transport use as viable and preferable alternatives. This is also a key message of Melbourne 2030 and fundamental to the health and well-being of the community.*

While the scope of the planning scheme in managing an integrated transport system is limited, Council will work towards improving the quality of walking and cycling infrastructure as a priority. Note that the term "walking" includes people who use wheelchairs.

Parking availability is important for many people, however in Yarra unrestricted car use and parking is neither practical nor achievable. Car parking will be managed to optimise its use and to encourage sustainable transport options.

The specific objectives and strategies for Transport management in Yarra are detailed in Table 3 below.

Table 3: LPPF Transport Objectives & Strategies

Clause	Objective	Strategies
21.06-1 Walking & Cycling	To provide safe and convenient pedestrian and bicycle environments.	30.1 Improve pedestrian and cycling links in association with new development where possible. 30.2 Minimise vehicle crossovers on street frontages. 30.3 Use rear laneway access to reduce vehicle crossovers.
21.06-2 Public Transport	To facilitate public transport usage.	31.1 Require new development that generates high numbers of trips to be easily accessible by public transport.
21.06-3 The Road System & Parking	To reduce the reliance on the private motor car.	32.1 Provide efficient shared parking facilities in activity centres. 32.2 Require all new large developments to prepare and implement integrated transport plans to reduce the use of private cars and to encourage walking, cycling and public transport.
	To reduce the impact of traffic.	33.1 ensure access arrangements maintain the safety and efficiency of the arterial and local road networks. 33.2 Ensure the level of service needed for new industrial and commercial operations does not prejudice the reasonable needs of existing industrial and commercial operations to access Yarra's roads.

The City of Yarra is currently undertaking a review of a number of Municipal Strategic Statement (MSS) policy themes, including Transport.

Yarra's Planning Scheme Review – Report on Findings (October 2014) sets out the following in relation to the current Transport policy in the Planning Scheme:

An effective and efficient transport network is at the heart of a vibrant, equitable and prosperous municipality. In inner city environments, the management of the limited road and transport space and resources can require balancing of a number of objectives. This is a particular challenge in Yarra, due to the travel demands generated by:

- *the strategic location of the municipality on the edge of the central city*
- *the significant and growing mobile population, and*
- *the presence and proximity of major event attractors.*

Transport is currently addressed separately in the Context and Vision provisions of the Scheme as well as in strategy at Clause 21.06. It is also addressed in some specific policies such as the parking, access and traffic provisions of Built Form and Design Policy (Clause 22.10).

The current policy expresses a preference to reduce car dependency and encourage walking, cycling and public transport use. This appears to have had some success, with Yarra having a higher bicycle use rate than other parts of Melbourne.

There are still, however, inconsistencies regarding the requirement for Green Travel Plans, the use of car share schemes and reductions or waiving of on-site car parking.

Carparking was considered a particularly contested political issue in the initial consultation; any position or strategy regarding carparking is unlikely to satisfy all stakeholders. The Parking Strategy and Local Area Transport Management Policy provides a framework for the development of local area traffic management schemes.

The Scheme would be assisted with clear direction about how Council seeks to facilitate greater use of public transport, walking and cycling, and how and in what circumstances this will translate into reduced car parking, car sharing schemes and the like. The approach should include consideration of car parking in activity centres on a precinct wide basis (rather than site-by-site) as well as strategies relating to visitor car parking and increased bicycle parking.

Relevant additional policies and studies are summarised below.

4.3.1 Clause 22.07 – Development Abutting Laneways

The City of Yarra has a specific policy in relation to development abutting laneways.

The local policy identifies the need to retain existing laneways and enhance their amenity. It also states that, where appropriate, laneway access for vehicles is to be used in preference to street frontages to reduce vehicle crossovers.

Objectives

- *To provide an environment which has a feeling of safety for users of the laneway.*
- *To ensure that development along a laneway acknowledges the unique character of the laneway.*
- *To ensure that where development is accessed off a laneway, all services can be provided to the development.*
- *To ensure that development along a laneway is provided with safe pedestrian and vehicular access.*

Policy

It is policy that:

- *Where vehicular movement in the laneway is expected to cause a material traffic impact, a traffic impact assessment report be provided to demonstrate that the laneway can safely accommodate the increased traffic.*
- *Where alternative street frontage is available, pedestrian access from the street be provided.*

- *Pedestrian entries be separate from vehicle entries.*
- *Pedestrian entries be well lit to foster a sense of safety and address to a development. Existing lights may need to be realigned, or have brackets or shields attached or additional lighting may be required.*
- *Lighting be designed to avoid light spill into adjacent private open space and habitable rooms.*
- *Vehicle access be provided to ensure ingress and egress does not require multiple vehicular movements.*
- *Windows and balconies overlook laneways but do not unreasonably overlook private open space or habitable rooms on the opposite side of the laneway.*
- *Development respect the scale of the surrounding built form*
- *Development not obstruct existing access to other properties in the laneway.*
- *Doors to car storage areas (garages) not protrude into the laneway.*
- *The laneway not be used for refuse storage.*
- *All laneway upgradings which provide improved access to the development be funded by the developer.*
- *The laneway meet emergency services access requirements.*

4.3.2 Council Transport Statement 2006

City of Yarra's Strategic Transport Statement 2006 sets out a clear desire to reduce car dependence in the City of Yarra by promoting walking, cycling and public transport use as viable and preferable alternatives.

The Strategic Transport Statement sets out the following hierarchy of transport modes which forms the basis for decision making and actions related to transport in the City:

1. Pedestrians (including wheelchairs and walking with prams)
2. Cyclists
3. Tram
4. Bus/train
5. Taxi users/car sharers
6. Freight vehicles
7. Motorcyclists
8. Multiple occupants local traffic
9. Single occupants local traffic
10. Multiple occupants through traffic
11. Single occupants through traffic

The vision of Council's Transport Statement 2006 is … *"to create a city which is accessible to everyone irrespective of levels of personal mobility and where a fulfilling life can be had without the need for a car"*.

There are seven key Strategic Transport Objectives (STO) to achieve this vision.

4.3.3 Transport Statement Review 2012

The City of Yarra's Strategic Transport Statement was reviewed in 2012.

Relevant key actions include the following:

- *Develop guidelines for assessing planning permit applications for car parking dispensation.*
- *Develop guidelines for car share operators that address the issues of location, number of bays and signage so that operators are clear as to the process and responsibilities.*

4.3.4 Yarra Parking Management Strategy 2013-2015

The Yarra Parking Management Strategy provides the framework around Yarra's policies for parking permit schemes, parking enforcement, the provision of disability access parking, managing parking around shopping strips, signage and all other parking-related issues and topics.

Council's website states that the fundamental aims of the Strategy are:

- *to reduce the number of cars parking in Yarra,*
- *to promote public transport as an alternative to driving, and*
- *to ensure visitors contribute to the cost of providing Yarra's parking infrastructure.*

The stated overall goals of the City of Yarra Parking Strategy are to:

1. *Reduce the number of cars needing to park in residential streets;*
2. *Enable a reduction in the road pavement space used for parking where a community benefit can be achieved particularly where pedestrians, cyclists, public transport and persons waiting for public transport will benefit; and*
3. *Plan and manage transport and urban development to minimise the need for people to have to drive cars so that the demand for parking is contained and managed effectively.*

A key aim underpinning this strategy is Council's desire to promote sustainable travel, such as cycling, walking and public transport.

Action Area 4 of Council's Parking Management Strategy is an integrated approach for Municipal Parking Strategy and in particular identifies a need to further develop Yarra's policy to provide a disincentive to car ownership and use by working with other sections of Council to promote behaviour change, sustainable transport and introduce more sustainable transport infrastructure.

4.3.5 Liveable Yarra Project

In 2015 Council undertook an extensive community engagement process known as the "Liveable Yarra Project". The consultation consisted of a number of elements including a People's Panel, Advisory Committees, and Targeted Community Workshops, and covered a range of topics, one of which was "Access and Movement".

The "engagement summary" document prepared by Capire Consulting Group (January 2016) summarised the consultation in relation to access and movement as follows:

> *"Access and movement received the highest number of priority votes at 64. Actions around the improvement of cycling, walking and non-automotive transport modes were strongly supported.*

Panel members suggested trialling street closures to "reclaim" street share for cyclists and pedestrians. The trade-off of busier arterials was seen as largely acceptable pending the trials. Panel members were very supportive of Council efforts to lobby for public transport upgrades."

The specific Access and Movement recommendations which were summarised in the "engagement summary" document are as set out in Table 4 below.

Table 4: Summary of Parking Recommendations from Liveable Yarra Project

Action No.	Action	Support from People's Panel
1	Articulate targets for street share. Develop a municipality wide plan for transport and access.	86% support 12% not sure 2% disagree
2	Close local (residential) streets to through traffic including living streets.	36% support 48% not sure 16% disagree
3	Increase space for pedestrians and bikes, dedicated lanes/corridors. Decrease car space on the streets.	63% support 22% not sure 15% disagree
4	Require better bicycle parking as part of major development.	76% support 14% not sure 10% disagree
5	Reduce barriers that discourage riding, improve safety, connections, lighting. Council to provide additional cycling infrastructure – a comprehensive network that consistently provides a good level of service.	75% support 18% not sure 7% disagree
6	Move away from a "predict and provide" approach to providing car parking in new development.	86% support 12% not sure 2% disagree
7	Continue to work with State Government to improve performance of current public transport infrastructure assets.	36% support 48% not sure 16% disagree
8	Continue lobbying for improved public transport (new infrastructure and services).	63% support 22% not sure 15% disagree

5 Existing Conditions

5.1 Study Area

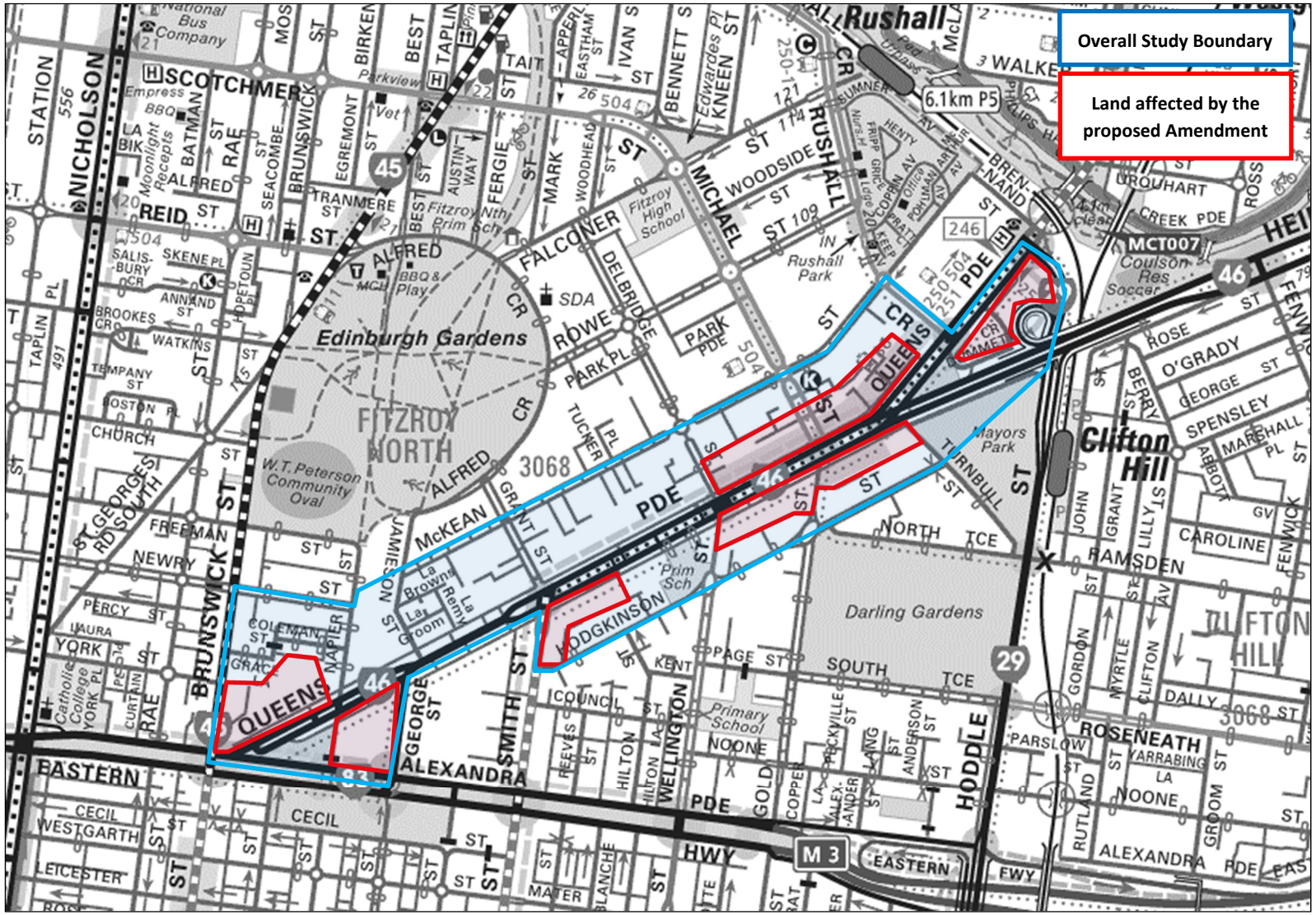
The wider study areas extend for approximately 1.5km along Queens Parade, between Hoddle Street and the Alexandra Parade as shown in the locality plan provided on the following page at Figure 9. This figure also illustrates the area affected by the proposed amendment, which is the focus of this report.

The focus of this study is on the land zoned 'Commercial 1 Zone' and 'Mixed Use Zone' at the eastern end and 'Mixed Use Zone' and 'Commercial 2 Zone' at the western end. There is also a large amount of residential zoned land in between the two ends.

Significant land uses within the study area and immediate surrounds includes:

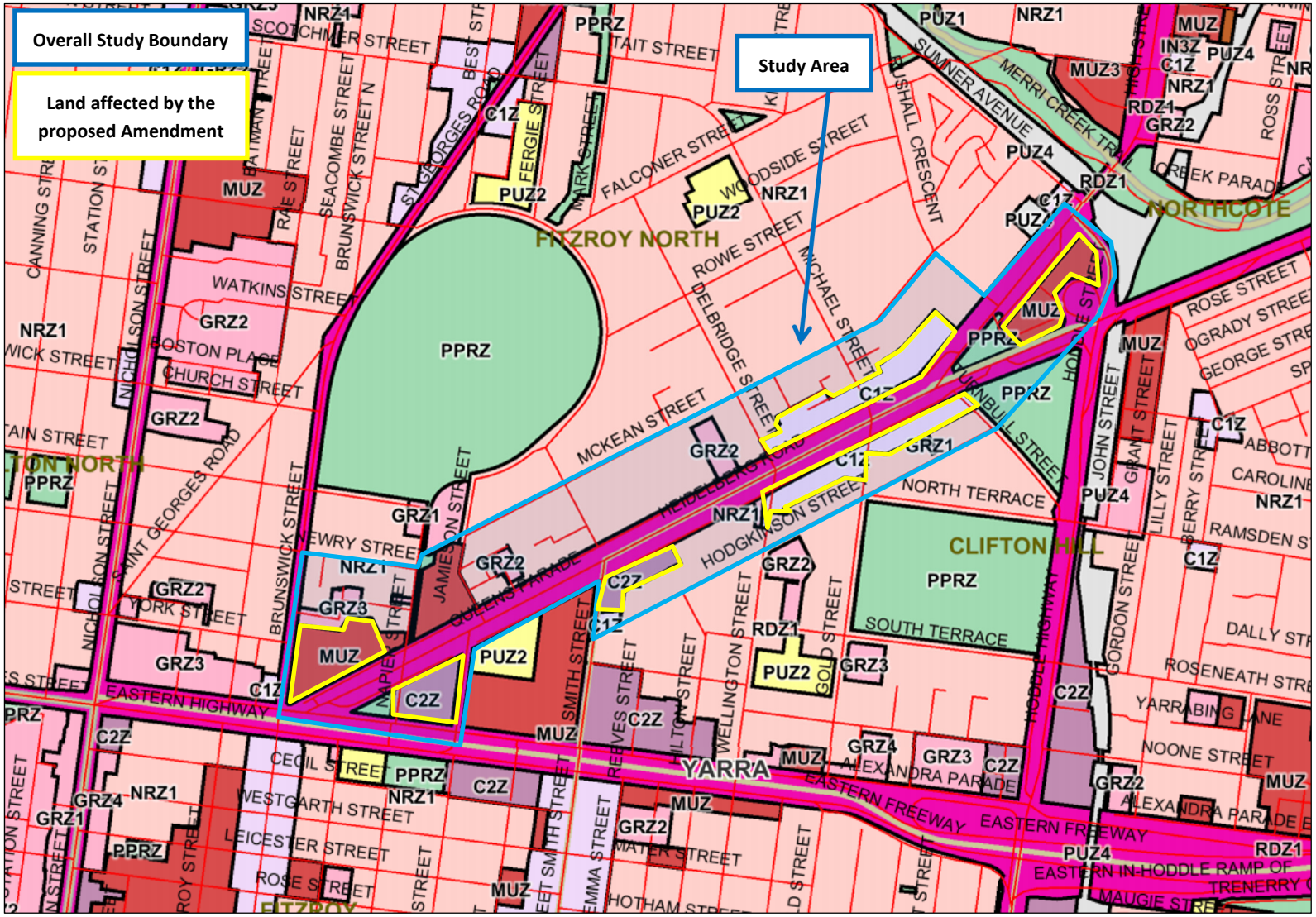
- Clifton Hill railway station and bus interchange, located on Hoddle Street to the east.
- Mayors Park and Collingwood Leisure Centre, located on Heidelberg Road, between Hoddle Street and Turnbull Street.
- St John's Primary School, located on Queens Parade, between Smith Street and Wellington Street.
- Darling Gardens, located south of Queens Parade, between Gold Street and Hoddle Street.
- Clifton Hill Primary School, located south of Queens Parade, between Wellington Street and Gold Street.
- Gasworks redevelopment, which is likely to include around 1,100 apartments, a new community facility, sports courts, a new 650 place senior high school and public open space.
- A shopping strip located in Precinct 4, generally between Delbridge Street and Rushall Crescent.

All of these areas are readily accessible from the study area via walking, cycling or a short public transport trip.



Source: Melway

Figure 9: Locality Map



Source: Planning Schemes Online

Figure 10: Land Use Zoning Map

5.2 Road Network

The following section describes the higher order roads within the study areas. This study has also reviewed the local roads and laneways within the study area.

A detailed review of the existing traffic management measures on arterial and local roads within the study areas is provided at Appendix C.

A detailed review of the physical layout of the laneways is included at Appendix D of this report.

A map of existing vehicle access points to properties within the study area is included at Appendix E of this report.

While detailed traffic counts have not been undertaken of each laneway, it is evident from the site inspections and the limited number of car spaces accessed from each laneway, that the current volume of traffic using most laneways in the area is low.

A map of the predominate car parking restrictions is included at Appendix F.

The following provides a summary of the key arterial and local roads within the study area.

Queens Parade is a VicRoads declared arterial road and Road Zone Category 1 which extends in a north-east to south-west direction for approximately 1.5km between Alexandra Parade/Brunswick Street in the west and Hoddle Street in the east (where it continues on as High Street).

Within the study area, Queens Parade has a carriageway width of 60m and typically provides with two or three through traffic lanes in each direction. A central tram fairway is provided from Hoddle Street to Smith Street. On-road cycling lanes are inconsistently provided along the main carriageway. A service road is also provided along both sides of the road for most the study area.

On-street parking is generally provided within the service road, however there is a section of parking provided on the south side of the main carriageway between Gold Street and Wellington Street. AM and PM Clearway restrictions apply to the south and north side of Queens Parade, respectively.

A posted speed limit of 60km/h applies to Queens Parade.

Photographs of Queens Parade, depicting the typical cross section of Queens Parade are presented in Figure 11 and Figure 12.

Figure 11: Queens Parade - View North-East

Figure 12: Queens Parade - View South-West

Alexandra Parade is a VicRoads declared arterial road and Road Zone Category 1 which extends in an east-west direction for approximately 2.2km between Lygon Street in the west and Hoddle Street in the west (where it merges into the Eastern Freeway).

Abutting the study area, Alexandra Parade typically provides three through traffic lanes in each direction separated by a central median. A kerbside parking lane is also provided in each direction. A 60km/h speed limit applies to Alexandra Parade.

Photographs of Alexandra Parade, west of Smith Street, are presented in Figure 13 and Figure 14.

Figure 13: Alexandra Parade - View East

Figure 14: Alexandra Parade - View West

Brunswick Street is VicRoads declared arterial road and Road Zone Category 1. Brunswick Street extends in a north-south direction for approximately 2.5km from Victoria Parade to Edinburgh Gardens where it continues at St Georges Road.

Abutting the study area, Brunswick Street typically provides two through traffic lanes in each direction, with tram lines running within the central traffic lane. The kerbside lane is generally used for kerbside parking. AM and PM Clearway restrictions apply to the east and west side of Brunswick Street, respectively and at these times a kerbside bicycle lane is available. A posted speed limit of 60km/h applies to Brunswick Street.

Photographs of Brunswick Street are presented in Figure 15 and Figure 16.

Figure 15: Brunswick Street - View North

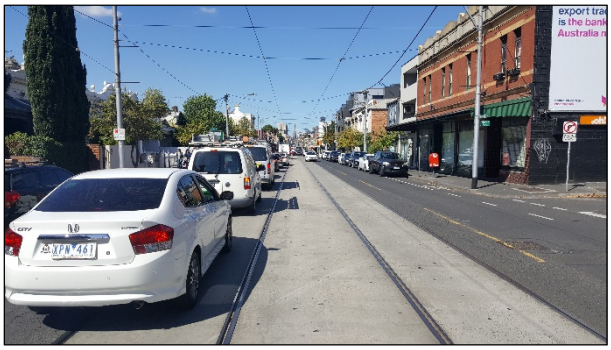


Figure 16: Brunswick Street - View South

Smith Street is a Council operated road which is functionally an arterial road. Smith Street extends in a north-south direction for approximately 3km between Queens Parade in the north and Victoria Parade in the south.

Within the study area, Smith Street typically provides two through traffic lanes in each direction, with tram lines running within the central traffic lane. The kerbside lane is generally used for kerbside parking. AM and PM 'No Stopping' parking restrictions apply to the east and west side of Smith Street, respectively. During the AM and PM peak, only trams are permitted in the centre lanes of the east and west side of the road, respectively. A northbound cycle lane is provided during the PM clearway. A posted speed limit of 40km/h applies to Smith Street.

Photographs of Smith Street are presented in Figure 17 and Figure 18.

Figure 17: Smith Street - View North

Figure 18: Smith Street - View South

Wellington Street is a Council operated road which is functionally a lower order arterial road or higher order collector road. Wellington Road extends in a north-south direction between Queens Parade in the north (where it continues on as Delbridge Street) and Victoria Parade in the south.

Within the study area, Wellington Street provides a traffic lane, bicycle lane and kerbside parking lane in each direction, separated by a dividing median. A 40km/h speed limits to Wellington Street in the study area.

Photographs of Wellington Street, are presented in Figure 19 and Figure 20 below.

Figure 19: Wellington Street - View North

Figure 20: Wellington Street - View South

Michael Street functions as a Collector Road managed by Council. Michael Street provides a north-south link between Falconer Street and Queens Parade. Within the study area, Michael Street provides a traffic lane, bicycle lane and kerbside parking lane in each direction, separated by a dividing median. A 40km/h speed limits to Michael Street in the study area.

Photographs of Michael Street, are presented in Figure 21 and Figure 22.

Figure 21: Michael Street - View North

Figure 22: Michael Street - View South

5.2.1 Arterial Road Traffic Volumes

The following table sets out the Average Annual Daily Traffic Volumes of the arterial roads within the study area. This information is sourced from the VicRoads Arterial Road Database (April, 2018).

Table 5: Arterial Road Traffic Volumes (Source: VicRoads Arterial Road Database – April 2018)

Road Name	Average Annual Daily Traffic Volume (two-way)
Queens Parade	
Btw Alexandra/George	12,800
Btw George/Smith	12,800
Btw Smith/Gold	33,000
Btw Gold/Heidelberg	38,000
Btw Heidelberg/Rushall	10,200
Btw Rushall/Hoddle	12,100
Brunswick Street	
Btw Alexandra/St Georges	14,300
Alexandra Parade	
Btw Queens/George	71,000

5.2.2 SmartRoads

VicRoads has developed the SmartRoads tool in order to better manage competing interests for limited road space by giving priority use of the road to different transport modes at particular times of the day.

Under SmartRoads, all road users continue to have access to all roads, but over time the Smartroads plan aims to change how roads are managed in order to:

- facilitate good pedestrian access into and within activity centres in periods of high demand,
- prioritise trams and buses on key public transport routes that link activity centres during morning and afternoon peak periods,
- encourage cars to use alternative routes around activity centres to reduce the level of 'through' traffic,
- encourage bicycles through further developing the bicycle network, and
- prioritise trucks on important transport routes that link freight hubs and at times that reduce conflict with other transport modes.

The SmartRoads Plan for the Queens Parade Activity Centre and immediate surrounds is provided at Figure 23.

Table 6 summarises the function of Queens Parade and key intersecting arterial roads within the study area.

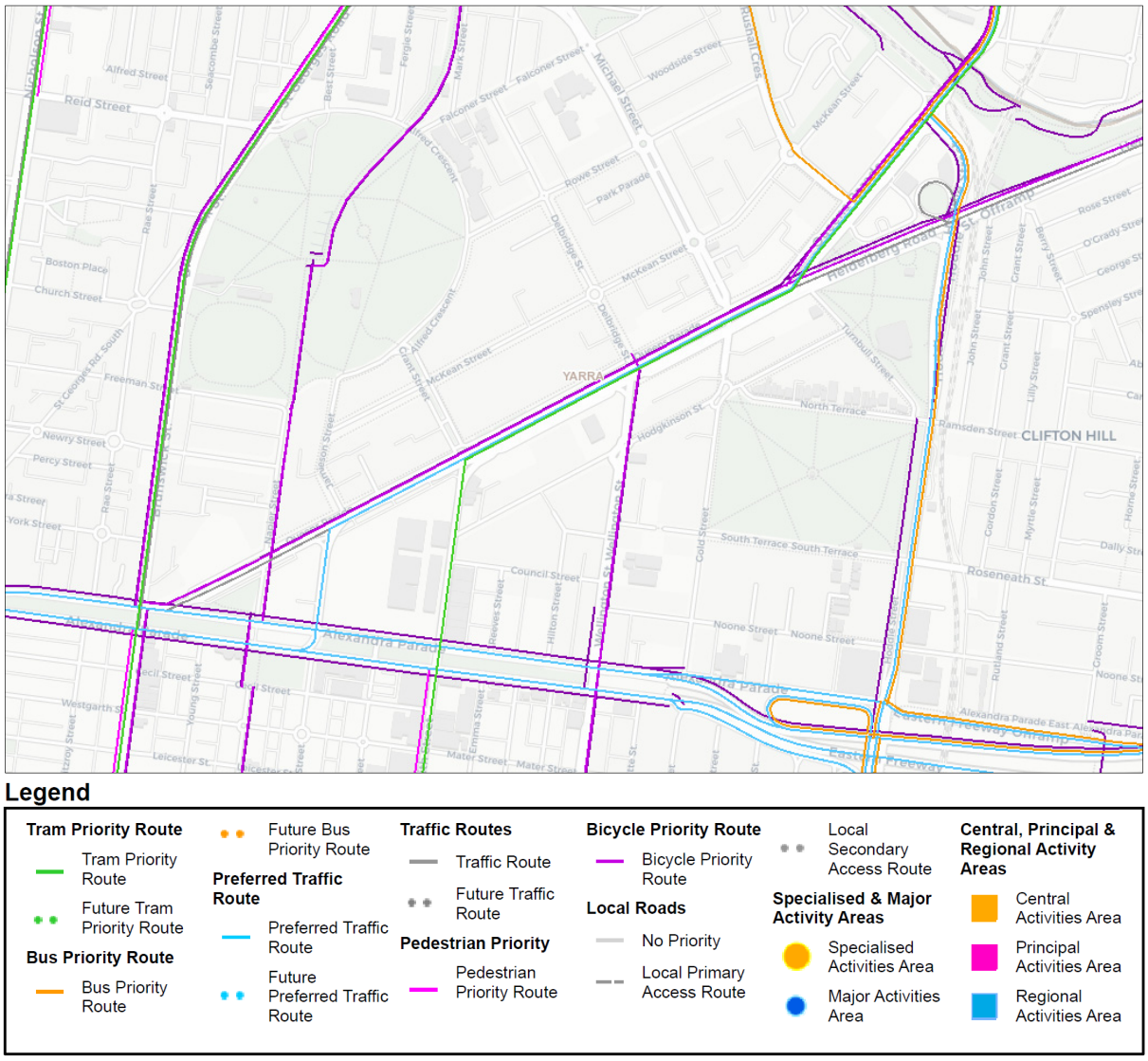


Figure 23: SmartRoads Map

Table 6: Summary of SmartRoads Review

Road	Tram Priority Route	Bus Priority Route	Preferred Traffic Route	Traffic Route	Pedestrian Priority Route	Bicycle Priority Route
Queens Parade	Y – Partially	Y – Partially	Y*	Y – Partially	N	Y
Alexandra Parade	N	N	Y	N	N	N
Brunswick Street	Y	N	N	N	N	Y
Smith Street	Y	N	N	N	N	N
Wellington Street	N	N	N	N	N	Y
Michael Street	N	N	N	N	N	N

*Note: except for the link between Alexandra Parade and George St

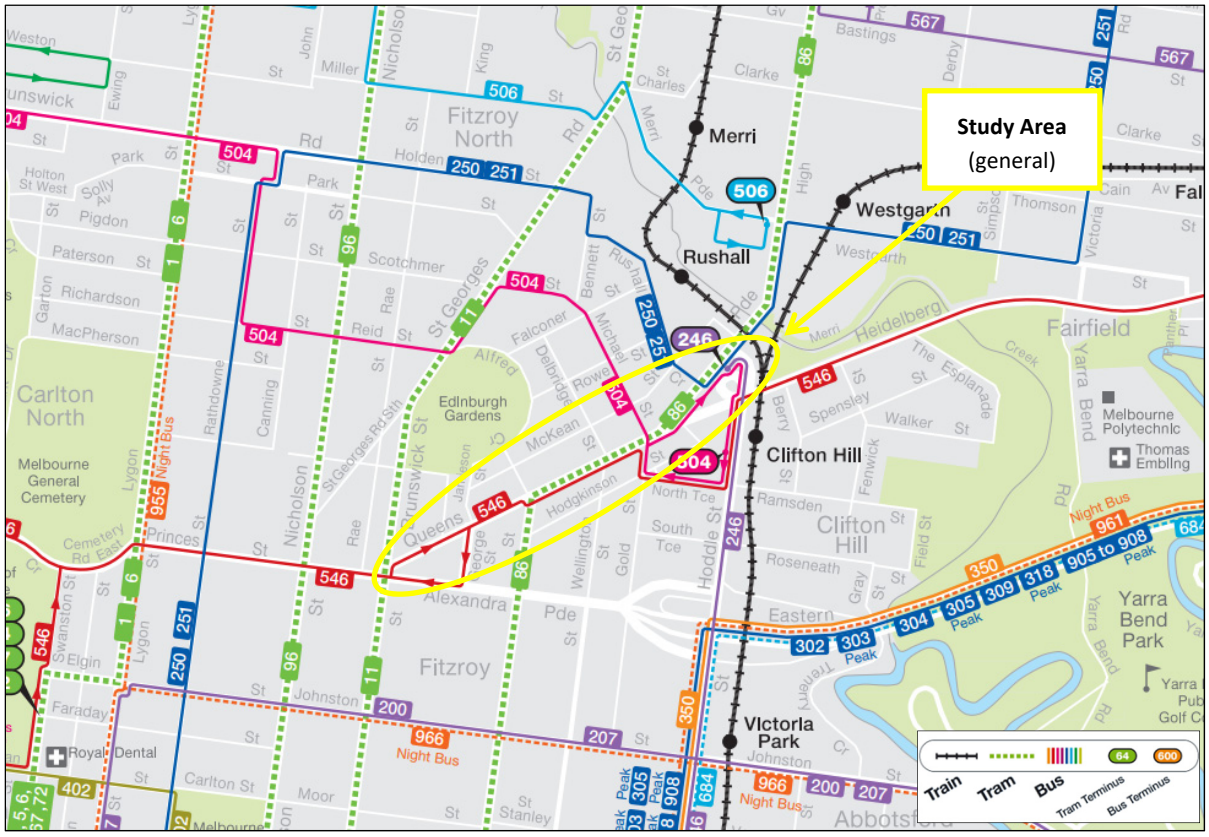
The SmartRoads plan clearly sets out that sustainable transport modes are the key priorities for Queens Parade into the future. This includes tram services, bus services and cycling. At the same time, Queens Parade is also considered a preferred traffic route.

5.3 Public Transport

The subject site is located in an area that is well serviced by rail and tram services as follows:

- Rushall Railway Station and Clifton Hill Railway Station are located at the eastern end of the study area and provides access to the Mernda and Hurstbridge Lines. Clifton Hill Station is approximately 350m east of the Queens Parade/Heidelberg Road Junction.
- Tram Route 11 operates between West Preston and Docklands via Northcote, Fitzroy and the City and runs along Brunswick Street at the western boundary of the study area.
- Bus Route 504 operates between Moonee Ponds and Clifton Hill via East Brunswick and runs along Queens Parade.
- Bus Route 546 operates between Heidelberg Station and Melbourne University via Clifton Hill and runs along Queens Parade.
- Tram Route 86 operates between Bundoora RMIT and Docklands via Preston, Northcote, Collingwood and the City and runs along Queens Parade.
- Bus Route 246 operates between Elsternwick and Clifton Hill via St Kilda and runs along Hoddle Street, at the eastern boundary of the study area.
- Bus Route 250 operates between the City and La Trobe University and runs along Rushall Crescent and Highway Street, at the eastern boundary of the study area.
- Bus Route 251 operates between the City and Northland Shopping Centre and runs along Rushall Crescent and Highway Street, at the eastern boundary of the study area.

These public transport services are shown on the Public Transport Map at Figure 24 below.



Source: Public Transport Victoria

Figure 24: Public Transport Map

5.4 Sustainable Travel Modes

The study area is well served by alternative transport modes. Figure 25 below shows the Travel Smart Map for the study area.

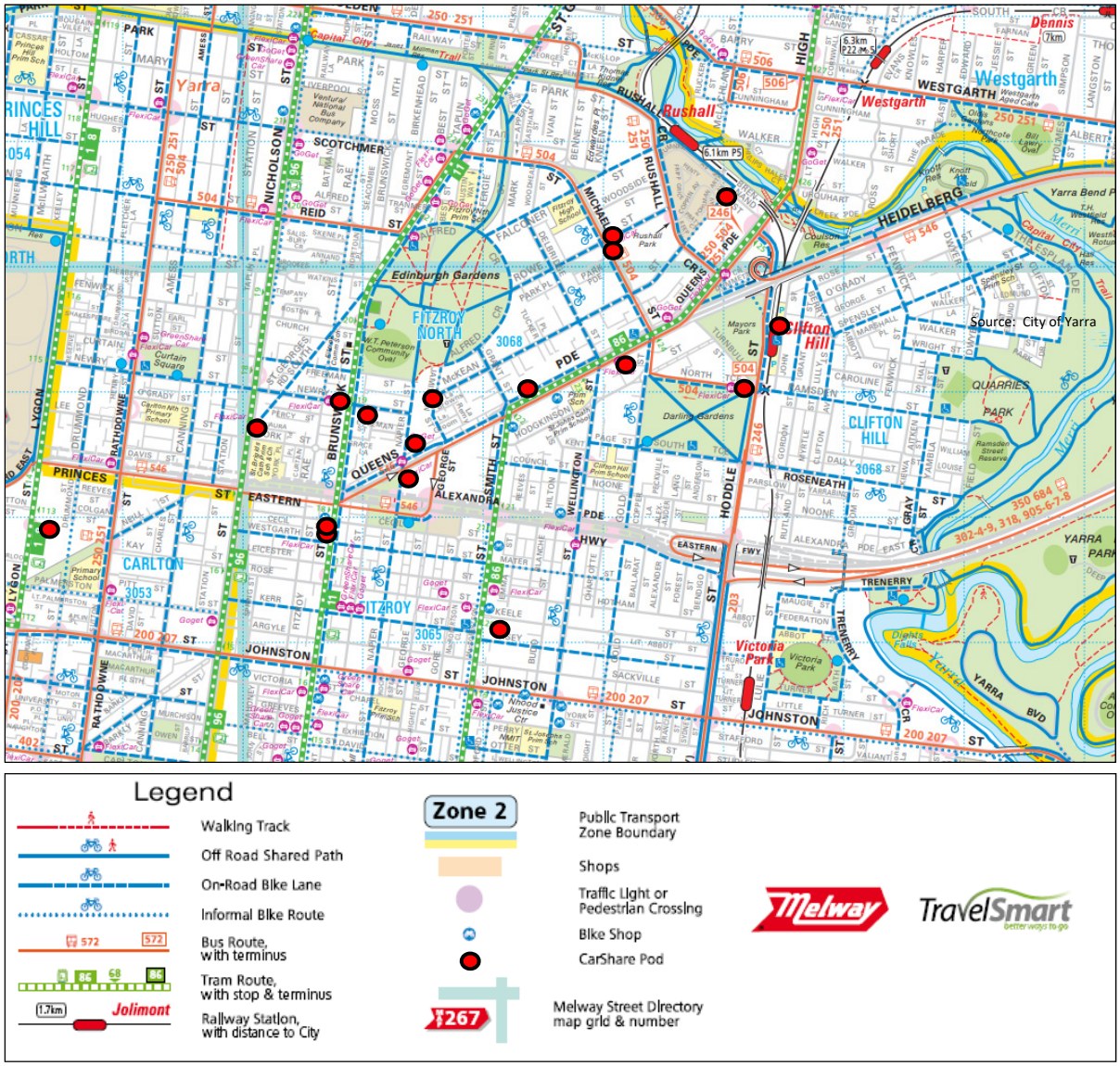


Figure 25: Travel Smart Map

5.4.1 Cycling

Queens Parade provides on-road bicycle lanes between Brunswick Street and Wellington Street. In the vicinity of the study area Queens Parade (although not consistently), Brunswick Street (during 'Clearway' times), Smith Street (northbound during 'Clearway' times), Wellington Street, Gold Street, Michael Street, Heidelberg Road and Napier Street all provide on-road bicycle lanes.

Key off-road bicycle routes include the Capital City Trail to the north-east of the study area.

The high level of bicycle infrastructure within and surrounding the study area provides cyclists with convenient access to the surrounding suburbs.

5.4.2 Walking

The study area is highly walkable with many everyday services and destinations within convenient walking distance. The Walkscore[4] map for Queens Parade is below, with most areas of Clifton Hill scoring well over 85 (classified as a 'Very Walkable'). The Brunswick Street and Smith Street Activity Centres are all within a walkable distance from the study area.

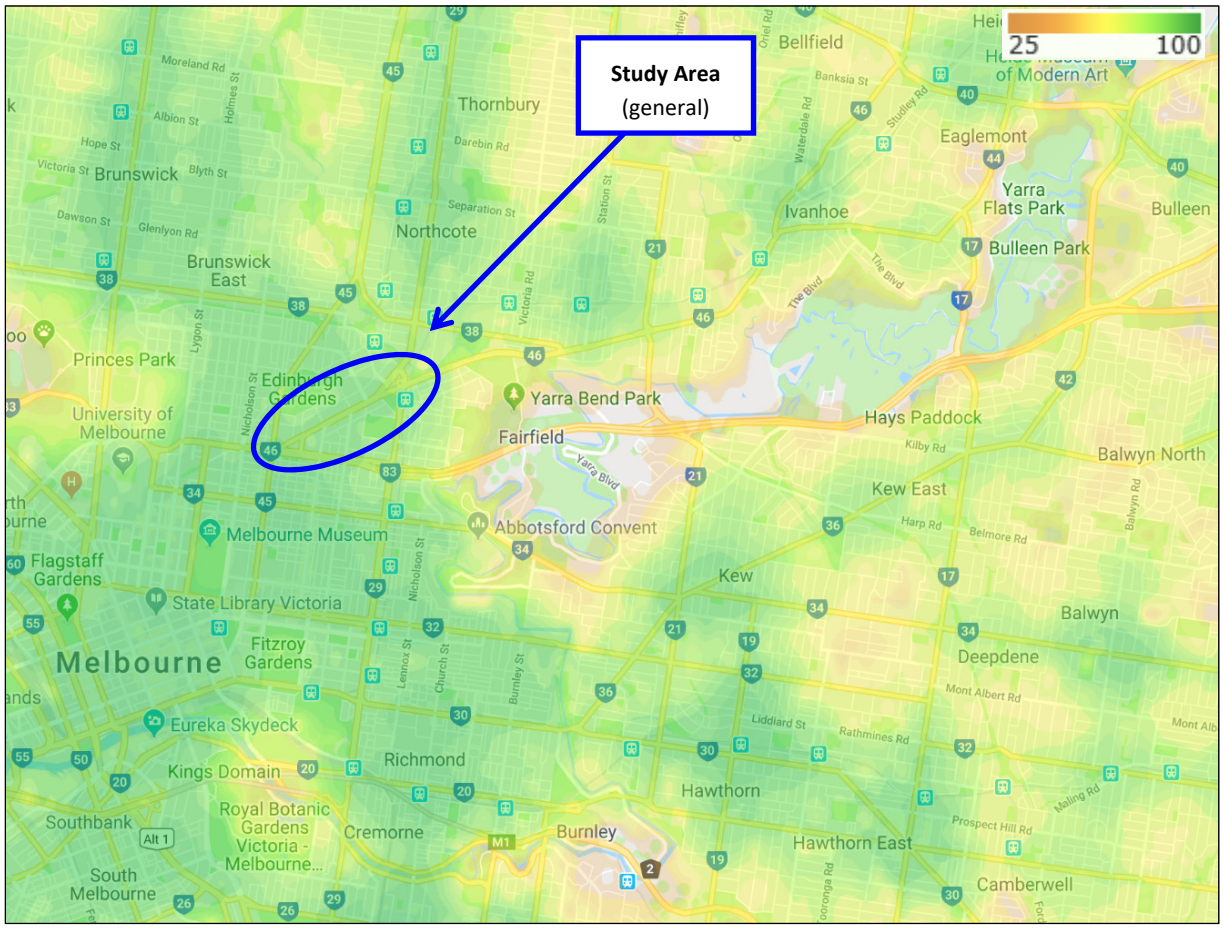


Figure 26: Walkscore Map – Queens Parade

5.4.3 Car Share

As shown on the TravelSmart map at Figure 25, there are a number of car share vehicles located within the study area and surrounding streets.

The provision of these car share vehicles provides drivers with a viable alternative to owning their own personal vehicle and actively encourages the use of alternative transport modes. Residents within Clifton Hill do not need a car for everyday trips as they have convenient access to public transport and are within convenient walking and cycling distance of many activities within the nearby Activity Centres. Car share vehicles provide a car on demand for those trips that specifically require a vehicle.

[4] https://www.walkscore.com/score/

5.5 Demographics

5.5.1 Car Ownership Statistics

The majority of new dwellings within the study area will be apartment style dwellings. A review of car ownership statistics for 'flats units and apartments' within the suburbs of Fitzroy North and Clifton Hill and the City of Yarra highlights the following average car ownership statistics. This data was recorded by the Australian Bureau of Statistics (ABS) in the 2016 census.

These statistics indicate that the parking requirements for dwellings set out under Clause 52.06-5 of the Planning Scheme are generally higher than the car ownership statistics for one and three-apartments in this locality.

Table 7: ABS car ownership statistics (2016) – Apartments

Type of Dwelling	Number of Cars	Fitzroy North Suburb	Clifton Hill Suburb	Yarra LGA
Studio/Bedsit Flat/Unit/Apartment in one or more storey block	**Average no. of cars per dwelling**	**0.1**	**None**	**0.3**
	0 cars	90%		73%
	1 car	10%		25%
	2 or more cars	0%		3%
1 bedroom Flat/Unit/Apartment in one or more storey block	**Average no. of cars per dwelling**	**0.6**	**0.8**	**0.7**
	0 cars	46%	29%	38%
	1 car	52%	65%	55%
	2 or more cars	2%	7%	7%
2 bedroom Flat/Unit/Apartment in one or more storey block	**Average no. of cars per dwelling**	**1.0**	**1.1**	**0.9**
	0 cars	22%	14%	26%
	1 car	61%	62%	56%
	2 or more cars	17%	24%	19%
3 bedroom Flat/Unit/Apartment in one or more storey block	**Average no. of cars per dwelling**	**1.3**	**1.5**	**1.2**
	0 cars	14%	9%	20%
	1 car	46%	47%	48%
	2 or more cars	40%	27%	25%

5.5.2 Journey to Work Data

A review of Journey to Work data for the suburbs of Fitzroy North and Clifton Hill, the City of Yarra and the Greater Melbourne highlights the following statistics. This data was recorded by the Australian Bureau of Statistics (ABS) in the 2016 Census.

This data highlights a much stronger reliance on public transport, walking and cycling for those living (in particular) and working within the study area compared with the Melbourne metropolitan area.

Table 8: Journey to Work Data: 2016 Census, ABS

% mode of travel for 'journey to work' trip	Live within the area (i.e. place of residence)				Work within the area (i.e. place of work)			
	Fitzroy North	Clifton Hill	City of Yarra	Greater Melb.	Fitzroy North SA2	Yarra North SA2*	City of Yarra	Greater Melb.
Car as driver	31%	38%	33%	61%	51%	61%	49%	61%
Public Transport	27%	27%	28%	15%	13%	8%	24%	14%
Walking	8%	5%	12%	3%	5%	4%	6%	3%
Cycling	14%	11%	9%	1%	6%	5%	4%	2%
Other (car passenger, motorcycle, etc.)	5%	4%	5%	6%	6%	3%	4%	5%
Other Data (worked at home, did not go to work, mode not stated)	15%	15%	13%	14%	19%	19%	13%	15%

*Note:

SA2 includes Clifton Hill and Alphington. Alphington is a substantially different area in transport terms than Clifton Hill

6 Transport Impacts

The primary purpose of this study is to review the traffic engineering implications of the implementation of Amendment C231, which introduces a range of built form controls to the Yarra Planning Scheme. This amendment is required to implement the recommendations of the Queens Parade Clifton Hill Built Form Review prepared by Hansen Partnership and Queens Parade Built Form Heritage Analysis and Recommendations prepared by GJM.

The key transport engineering impact of the proposed controls is the direction to use rear laneways for vehicle access to new developments wherever possible and avoid new crossovers to Queens Parade. As a result, the use of the laneways with the study area will increase, in some cases substantially. This study reviews the potential impacts of new development and makes recommendations to manage the increased use of these laneways.

The following sections provide:

- An overview of the likely traffic impacts of increased development along Queens Parade, by reviewing a case study of Victoria Street, Richmond.
- A description of why laneways should be used for vehicle access.
- An outline of the methodology behind our categorisation of laneways within the study area.
- A description of laneway characteristics and how these affect the capacity of laneways to accommodate vehicles, pedestrians and cyclists.
- A detailed description for each of the options considered to improve the laneway network.
- Analysis of the potential capacity of each laneway to accommodate additional traffic and recommendations to improve individual laneways.

6.1 Traffic impacts along Queens Parade

In order to assess the likely traffic impacts of increased development along Queens Parade, we have undertaken a case study and review of Victoria Street, Richmond. The review generally covers the period between 2006 and 2016.

Victoria Street is similar to Queens in that is a key arterial road and transport link through Melbourne's inner suburbs and the CBD.

In April, 2010, Yarra City Council adopted the Victoria Street Structure Plan, a document that built on planning work that occurred between 2002 and 2010. Since that time, significant redevelopment has occurred, particularly within the eastern and western precincts identified by this structure plan.

The following reviews the changes to Victoria Street and the changes in transport along Victoria Street as a model for how Queens Parade may evolve over time.

6.1.1 Increase in Activity along Victoria Street

The number of people living within the Richmond Statistical Local Area has increased from 23,797 people in in 2001 to 26,121 in 2011[5], which is a 9.7% increase over that time period.

Yarra City Council has provided data on the increased development that has occurred directly adjacent to Victoria Street in the last 10 years. This data was sourced from the valuation and permit information data by Council and Housing Dwelling Development data provided by the State Government.

Table 9 sets out the change in dwelling numbers along Victoria Street.

Table 10 sets out the change in commercial floor space along Victoria Street.

Table 9: Change in Dwelling Numbers along Victoria Street – 2007-2016

Year	Total Dwellings	Yearly Change	Net Change Since 2007
2007	135		
2008	139	+4	+4
2009	200	+61	+65
2010	254	+54	+119
2011	347	+93	+212
2012	626	+279	+491
2013	1499	+873	+1364
2014	2119	+620	+1984
2015-2016	**2490**	**+371**	**+2355**

The change in dwelling density is highlighted in the following two maps.

[5] 2016 data is not available at the time of writing.

Figure 27: Change in dwelling density – 2007-2016

Table 10: Change in Commercial Floor Space along Victoria Street – 2007-2013

Year	Commercial Floor Space	Yearly Change	Net Change Since 2007
Pre-2007	46,737m^2		
2009	45,006m^2	-1,731m^2	-1,731m^2
2010	46,609m^2	1,603m^2	-128m^2
2013	42,814m^2	-3,795m^2	-3,923m^2

6.1.2 Review of Arterial Road Traffic Volumes

The following presents a review of arterial road traffic volumes over the last 10 years of available data for the three key parallel traffic routes through Richmond, Swan Street, Victoria Street and Bridge Road. This is set out in detail in Table 5.

Table 11: Arterial Road Traffic Volumes (Source: VicRoads Arterial Road Database - Feb 2017)

Road Name	Two-Way Annual Average Daily Traffic Volume[1] by Year					
	2006	2013	2014	2015	2016	Change 2006-2016
Swan Street						
Btw Church/Lennox	18,000	17,800	17,300	17,200	17,200	-800
Btw Coppin/Church	21,000	21,000	20,600	20,300	20,300	-700
Btw Burnley/Coppin	19,600	20,300	20,200	20,300	20,200	+600
Btw Madden/Burnley	15,300	15,600	15,600	15,600	15,200	-100
Victoria Street						
Btw Church/Hoddle	22,700	18,600	18,300	18,200	18,000	-4,700
Btw Burnley/Church	22,000	20,000	18,800	18,500	18,300	-3,700
Btw High/Burnley	24,000	23,000	23,000	23,000	23,000	-1,000
Bridge Road						
Btw Hoddle/Lennox	20,000	18,400	18,300	18,300	17,900	-2,100
Btw Lennox/Church	19,500	18,700	18,500	18,400	18,200	-1,300
Btw Church/Coppin	22,000	20,800	19,500	19,500	18,600	-3,400
Btw Coppin/Burnley	23,000	20,700	20,600	20,600	20,600	-2,400
Btw Burnley/Yarra	27,000	24,000	24,000	23,000	23,000	-4,000

Note: Annual Average Daily Traffic Volume is the sum of all traffic over the year divided by 365

The above illustrates that arterial road traffic volumes have generally fallen between 2006 and 2016. Traffic volumes on Victoria Street in particular have fallen substantially over the last 10 years. There has not been a significant change to the traffic carrying capacity of these streets within this time period[6].

Furthermore, this decrease in traffic volumes is also reflected at key intersections during the commuter peak hours. Table 12 provides a comparison between current and historical data for two key intersections along Victoria Street and illustrates a drop in traffic volumes at these locations during peak hours. The Burnley Street/Victoria Street and Flockhart Street/Victoria Street intersections are the closest signalised intersections to where the highest level of development has occurred.

Table 12: Review of Peak Hour Traffic on Victoria Street

Intersection & Year of Survey	Two-Way Peak Hour Traffic Volume on Victoria Street	
	AM Peak	PM Peak
Flockhart Street (west of)		
2006[1]	2,203	2,267
2015[2]	1,827	1,957
Change	-376 (-21%)	-310 (-16%)
Burnley Street (east of)		
2012[3]	1,933	1,831
2016[4]	1,709	1,649
Change	-224 (-13%)	-182 (-11%)

Notes:

1. Data collected by Grogan Richards dated 11th July, 2006.
2. Data sourced from VicRoads by Cardno, dated 11-15th May, 2015.
3. Data sourced from VicRoads by Traffix Group, dated 7th June, 2012.
4. Data collected by Ratio Consultants dated 14th April, 2016.

[6] Accessible tram stops were installed in Bridge Road in 2013 and Victoria Street in 2016, however these continue to accommodate two traffic lanes during clearway times.

6.1.3 Review of Travel to Work Behaviour

The follow tables review the journey to work data sourced from the Australian Bureau of Statistics for the period from 2001 to 2016. Table 13 presents data for journey to work based on place of residence within the City of Yarra. Table 14 presents data for journey to work for people working within the Richmond Statistical Local Area (workers do not necessarily need to reside within Richmond).

The data indicates a clear trend over time for a decrease in the mode share of private cars. For people living within the City of Yarra, this decrease is realised by an increase in bicycle and walking trips. This is a strong indication of local living and working locally.

For people working within Richmond, the decrease in mode share of cars is higher. The change has resulted in a significant increase in public transport use (an almost 90% increase) and to a lesser extent walking and cycling. This is reflective of residents outside of Richmond travelling further and accordingly cycling and walking in particular are not a suitable mode for these longer trips.

Table 13: Journey to Work Data - Place of Residence within City of Yarra

Mode of Travel	Year				Change 2001-2016
	2001	2006	2011	2016	
Car as Driver	48%	43%	40%	38%	-10%
Car as Passenger	4%	3%	3%	2%	-2%
P/Trans	30%	28%	30%	32%	+2%
Motorcycle	1%	1%	1%	1%	-
Bicycle	5%	8%	10%	10%	+5%
Walked	11%	15%	13%	14%	+3%
Other	1%	2%	3%	3%	+1%
Total	100%	100%	100%	100%	

Table 14: Journey to Work Data - Place of Work within Richmond SLA

Mode of Travel	Year				Change 2001-2016
	2001	2006	2011	2016	
Car as Driver	73%	67%	61%	56%	-12%
Car as Passenger	5%	4%	4%	3%	-1%
P/Trans	15%	19%	24%	28%	+13%
Motorcycle	0%	1%	1%	1%	+1%
Bicycle	1%	2%	3%	4%	+3%
Walked	5%	6%	6%	7%	+1%
Other	1%	1%	1%	1%	-
Total	100%	100%	100%	100%	

6.1.4 Change in Public Transport Services

The key public transport service for Victoria Street is tram services that run the length of the Activity Centre. Victoria Street is currently serviced by the following tram routes:

- Route 109 – service between Box Hill and Port Melbourne via the CBD.
- Route 12 – service between Victoria Gardens and St Kilda. This route commenced operation in July, 2014[7].

The changes in July, 2014 doubled the number of services between Victoria Street, Richmond and the CBD. While Tram Route 24 was removed at the same time, this service only operated during the AM and PM peak periods (approximately 7-9am and 4:30-6:30pm).

On Church Street, the peak hour only service Route 79 was terminated with Route 78 being extended to operate more than 18 hours per day.

Bus Route 684 used to operate along Victoria Street, however this service did not stop along Victoria Street (service between the CBD and Eildon via Healesville).

The key public transport service on Victoria Street is the tram services along Victoria Street and these have significantly improved in frequency over the last 10 years.

6.1.5 Increase in Bicycle Use

As set out above, the mode share of bicycles for journey to work purposes has increased from 5% to 10% by residents of Richmond and increased from 1% to 4% for employees within Richmond.

For Victoria Street, the Super Tuesday bicycle counts undertaken by Bicycle Network illustrate an increase in cycling numbers. The Super Tuesday counts are undertaken on an annual basis over the surveyed two hour, 7-9am commuter peak hour.

For the intersection of Victoria Street/Burnley Street/Walmer Street (which connects to the Capital City Trail along the Yarra River), the number of cyclists increased from 298 to 483 cyclists over the two hour period between 2011 and 2015 (62% increase).

6.1.6 Rise of Car Share

Car sharing schemes provide an alternative to car ownership for residents and actively encourage the use of alternative transport modes. Residents within Richmond do not need a car for everyday trips as they have easy access to public transport and are within convenient walking and cycling distance of many activities within the Melbourne CBD and Activity Centres. Car share vehicles provide a car on demand for those trips that specifically require a vehicle.

A study by Phillip Boyle & Associates (dated 18th June, 2015) was recently completed on behalf of the City of Melbourne, which reviewed car share policy in the City of Melbourne. This review found that car share significantly reduced car ownership and car use by members. The review identified that each new car share vehicle results in residents disposing of 10 privately owned vehicles (a net reduction of nine vehicles).

[7] http://web.archive.org/web/20140726093749/http://www.yarratrams.com.au/media-centre/news/articles/2014/capacity-boost-for-tram-passengers/

The study found that car ownership is reduced by:

- People replacing a private car with a car share membership as it is more cost-effective if you travel low kilometres (less than 15,000km per annum) and use alternative modes for many trips, and
- People who do not own a car, postpone or avoid purchasing a car by using a car share service.

In 2006, car share was in its infancy. The two leading car share company's today in Melbourne are Fleixcar (founded in 2004) and GoGet (arrived in Melbourne in 2004).

There are now multiple car share pods operated by three companies within close proximity of Victoria Street. The availability of these car share pods supports residents who do not own a car and businesses by providing a share car for work based business trips (which allows employees not to drive to work).

6.1.7 Summary of Case Study

Based on the above, the following conclusions can be drawn from the development of Victoria Street over the last 10 years:

- Victoria Street has experienced significant development over the last 10 years, with over 3,000 new dwellings being constructed on properties that directly abut Victoria Street.
- The daily volume of traffic on Victoria Street has decreased, in some sections by up to 25%.
- Sustainable transport modes for journey to work purposes have significantly increased within the City of Yarra and Richmond for both residents and employees in Richmond.
- Public transport services (trams) on Victoria Street have doubled.
- Bicycle usage has increased significantly as a transport mode within Richmond and Victoria Street.
- Alternative transport modes such as car share vehicles have become available over time.

From the review of case study data, a modal shift is certainly occurring and it is modal shift that is accommodating the increased transportation activity within Richmond. While the population and development intensity along Victoria Street has increased, the daily traffic volumes along Victoria Street and parallel traffic routes has reduced over time and been taken up by alternative transport modes.

It is not evident from the arterial road volume data that non-local traffic is dispersing to other routes. The traffic volumes on Victoria Street, Bridge Road and Swan Street have all fallen over the last 10 years. While, locally generated traffic within Richmond would be displacing non-local or through traffic, however the main shift appears to be towards sustainable transport modes.

A key driver of this change is due to:

- Changes in land use over time along Victoria Street with a shift away from manufacturing towards service and professional industries,
- An increasing mix of land uses including a significant increase in dwellings and new mix of commercial uses in place of industrial uses, and
- a change in demographic with the gentrification of Richmond. Residents of Richmond are increasingly younger persons employed in professional industries who live and work locally (including the CBD and nearby Activity Centres). Travel by private car is not necessarily the most convenient mode of travel for many trips to either work or everyday destinations (shopping, etc.).

The increased number of dwellings on Victoria Street are well served for everyday needs by a short walk to Victoria Gardens.

We are satisfied that the transport impacts of the densification of Queens Parade are manageable for the following key reasons:

- The Activity Centre is highly accessible by existing public transport services, which supports both residents and workers within the centre. This reduces reliance on private car travel.
- The Activity Centre benefits from close proximity to a number of other Activity Centres and the Melbourne CBD, all of which are readily accessible by alternative transport modes to a private car.
- The mix of land uses and local services within the Activity Centre support local living by residents.

6.2 Why Use Laneways for Access

The following describes the key reasons to use existing laneways for vehicle access to new developments.

To Maximise the Efficiency of Arterial Roads

Direct vehicle access to an arterial road creates points of conflict between through traffic and vehicles turning to and from an abutting property. This reduces the efficiency and safety of the arterial road.

The AustRoads Guide to Traffic Management Part 5: Road Management states the following in relation to the role of different road types:

- *The primary function or balance of different functions may be reflected in the classification of a road. In its purest form, road classification may consist of two basic road types which have fundamentally different traffic and environmental goals:*
  - *arterial roads, the main function of which is to provide for the safe and efficient movement of people and freight, and*
  - *local roads, which provide direct access to abutting land uses and which contribute to the overall functioning of areas bounded by arterial roads or other barriers. The basic function of a local road is to provide a good environment in which to live or conduct a business and to enable vehicular access to abutting land.*
- *The need for access planning and management arises because vehicle movements generated by abutting properties can potentially create interruptions in the traffic flow along a road. On many roads, these interruptions are of little or no concern. However, on arterial roads carrying high traffic volumes or fast moving traffic, where traffic efficiency is of greater importance, these interruptions can create a greater risk of crashes, inefficiencies and other costs to the community. An effective access management strategy for a road or site contributes to the best outcome for the community by protecting the level of traffic service on important through traffic routes while providing road users with safe and appropriate access to adjacent land.*

Queens Parade is an Arterial Road (Road Zone Category 1) and accordingly, it has an important role in the broader arterial road network context to provide for through traffic. Queens Parade is also a priority tram route (and bus route at its far northern end in the study area) and part of the Principal Public Transport Network (PPTN).

Queens Parade is configured to provide service road access to properties abutting Queens Parade. As such, direct vehicle access to Queens Parade generally does not have a direct impact on the flow of vehicles and public transport services. This is in contrast to other arterial roads within the City of Yarra such as Brunswick Street, where vehicles accessing private property directly impact on the efficiency and safety of traffic flow along the road and public transport services at the access point.

Vehicle access to Queens Parade does have an impact on pedestrians using the footpath. Vehicle crossings, particularly repeated vehicle crossings, degrade the pedestrian experience using a footpath. While not listed as a pedestrian priority area under the VicRoads Smartroads program, as an Activity Centre, there are sections of Queens Parade which experience a higher volume of pedestrians around the retail strips and school in particular.

In our view, it is therefore preferable where possible to take access to rear laneways instead of Queens Parade in order to minimise the impacts on pedestrians.

Safety

Part 13 of the AustRoads Guide to Traffic Management addresses Road Environment Safety, as follows:

- *Managing safety in the road environment means managing the risk that injury will occur, whether it arises from the behaviour of road users, the performance of vehicles or the characteristics of the road environment. Making roads safer means reducing the risk. This applies to all road users – vehicle drivers, riders, passengers, cyclists, and pedestrians.*
- *Safe operation of the road and traffic system is a fundamental goal for road designers and traffic engineers who have a prime responsibility for addressing the safety factors related directly to the road environment itself.*

Fundamental principles for managing safety in road design, traffic management and remedial treatment practice include:

- speed management,
- conflict management,
- hazard management, and
- road user information management.

In the context of managing vehicular access to Queens Parade, conflict management is the primary safety principle which can be influenced.

Notably, it is important to provide a continuous safe environment for pedestrians at-grade along the Queens Parade public realm, and this can be achieved by minimising intermediate private property access points.

Key Benefits of Using Laneways for Access

Using laneways for access over other roads has the following key benefits:

- it improves the operation of the arterial road network (as described above).
- It promotes a safe and friendly pedestrian walking environment, by reducing breaks in the footpath, reducing pedestrian-vehicle conflict points and increasing the amount of active street

frontage along Queens Parade and other roads. It also eliminates instances of vehicles blocking the footpath.

- It limits vehicle access to public road intersections (i.e. traffic accesses the broader road network from a laneway onto a higher order road), where Council and VicRoads have a greater degree of control in the implementation of traffic management measures. This improves the efficiency and safety of the road network for all users.
- The reduced number of conflict points (through reducing the number of vehicle access locations) allows the concentration of effort of traffic management measures and safety improvements at a limited number of locations.

However, the benefits of limiting vehicle access to Laneways need to be tempered against other competing demands, including:

- Depending on development intensity, the laneway may have insufficient capacity to accommodate the development traffic.
- The physical characteristics of the laneway may mean it has limited ability to carry additional traffic. For instance, due to its width, length, connectivity or geometry around bends.
- For some land uses generate a high volume of traffic and truck movements (such as supermarkets). In these cases, convenient and direct access to a higher order road important for the viability of the use and to minimise impact on local roads.
- Access to non-laneway roads for trucks undertaking on-site loading may be a desirable outcome (although any loading facilities should be internal to the building). This includes business deliveries, waste collection and providing a loading bay for residents to move into/out of buildings. These may not be possible from within laneways for some sites and depend on the land use proposed.
- Some sites do not have alternative access options and have existing access points to other roads. It is not possible to deny access to sites that already have access to other roads and do not have reasonable alternatives.

6.3 Categorisation of Laneways

As part of the review process of the current capacity of existing laneways to accommodate additional future development traffic volumes, we have reviewed and categorised laneways within the study areas into 3 categories (unconstrained, partially constrained or highly constrained) in order to better understand their potential to accommodate additional traffic under their existing conditions and configuration.

The following assessment is focused on the ability of laneways to carry vehicles, not pedestrians, cyclists or trucks. It is our view that laneways within the study areas should be used primarily for vehicle access, rather than pedestrian movement. This is discussed in more detail at Section 6.5. It is our view that in most cases, pedestrians within the activity centres should ideally be walking along the footpaths of main roads or other local roads where pedestrian amenity is higher, footpaths are wider and of higher quality and there is more activity along the street. Cyclists are unlikely to use these laneways except for their final stage of their journey.

Section 6.6 reviews issues surrounding truck access for loading and waste collection via the laneways. In our view, this is not a viable option for most laneways due to the narrow widths of the laneways, the many bends in the laneways and the narrow subdivision pattern in the area.

Key factors include laneway width, laneway length, laneway connections (i.e. continuous or dead-end) and physical layout (i.e. bends within the laneway network). These factors are discussed in more detail below.

The laneway assessment classified all laneways within the study area by their potential to accommodate additional traffic. Laneways have initially been classified at three levels:

- **Unconstrained** – these laneways have very few, if any, development constraints. As a result, they are well suited to accommodating additional traffic. Changing the laneway to operate one-way (where possible) has not been considered as a constraint.
- **Partially Constrained** – these laneways have some potential constraints that limit their capacity to accommodate traffic, however they are generally easily addressed. Common issues include insufficient width, long length and lack of splays at critical locations.
- **Highly Constrained** – these laneways have fundamental issues that cannot be easily resolved. This usually relates to a combination of factors and may also include very narrow laneways or heritage constraints that limit the opportunities to alter the laneways.

When assessing the capacity of laneways, a number of factors need to be considered. For most laneways, it is a combination of factors that contribute to its classification.

The key factors that influence the classification of a laneway are outlined below:

- **Laneway width.** This is the single most important factor to the operation and capacity of a laneway. To provide a single traffic lane, a laneway should be at least 3.0m wide. A width slightly less than 3.0m (down to 2.8m) is also functional, although constrained. Laneways less than 2.8m wide are problematic for vehicle access and should be considered as pedestrian only laneways and/or have very limited development potential (it is acknowledged that some narrow laneways within the City of Yarra are in practice used for vehicle access currently).

Laneways become capable of supporting simultaneous two-way traffic at a width of 5.5m if not built up (i.e. 5.5m, not enclosed by walls) or 6.0m wide between building walls. This width removes most capacity constraints of laneways and effectively makes them unconstrained.

- **One-way or two-way operation.** For single width laneways, a one-way laneway has a significantly higher capacity than a single-lane laneway permitting two-way traffic. One-way operation eliminates vehicle conflict within the laneway and can support a high level of access/development from the laneway. Existing one-way laneways are unconstrained in this assessment (although there are none within the study area currently).
- **Continuous.** A continuous laneway can generally be made to operate in a one-way direction. Generally, a continuous, straight laneway would be classified as unconstrained because it can be made one-way to address capacity constraints.

  A dead end laneway has less capacity to handle additional traffic and the laneway cannot be made one-way to manage traffic flow. However, this factor is only relevant for single width laneways, a laneway wide enough for two-way traffic is not constrained just because it has a dead end.
- **Laneway Length.** This factor ties into laneway width and whether it is a continuous laneway or not. A long, single-width (3m up to 6m wide) laneway will experience a high level of vehicle conflict due to higher traffic volumes, higher development potential (more properties accessing it) and more chances of vehicles meeting in the laneway.

  There are no set rules regarding the 'tipping point' for when two-way traffic in a single lane width laneway reaches capacity. It is a combination of factors including traffic volume, configuration and length that contribute to a laneway's capacity. Laneway length is therefore a contributing factor that impacts on laneways in combination with other factors.
- **Physical layout.** A straight laneway has the highest vehicle carrying capacity**.** Bends in laneways may create operational issues, particularly if:
  - There are no splays around the inside corner of the bend to facilitate vehicle access. For instance, a 90° bend between two 3m wide laneways is inaccessible to car-sized vehicles without a splay.
  - Due to a lack of sight distance, vehicles cannot see each other approaching the blind corner. For single lane laneways, this can be a serious issue if drivers meet near the bend, the laneways are long and there are no passing opportunities.
- **Intensity of abutting land uses.** The scale of development possible, number of properties and their frontages are relevant to the potential future traffic conditions of a laneway. There are a number of ways this factor can influence laneways:
  - Short laneways may only serve a limited number of properties and accordingly with a low development potential, a short laneway may effectively be 'unconstrained'.
  - A large number of narrow lots might make widening a laneway problematic.
  - If the number of abutting properties to the laneway is small, a short, narrow laneway is unlikely to be constrained.
- **Heritage constraints.** We are not heritage experts, however properties that have heritage value may create issues in that they may not easily be modified. Heritage properties abutting a laneway may limit options to widen a laneway.

The follow factors were not considered when assessing the development potential of laneways:

- The condition of the laneway (does it need maintenance? Is it in disrepair?).
- The material the laneway is constructed with or type of surface treatment (gravel, asphalt, bluestone, etc.).

As existing Council assets, the condition of the laneway is not especially relevant. It is Council's on-going responsibly to maintain laneways as appropriate.

Some larger developments will warrant upgrading the surface of laneways (for instance, from gravel to asphalt). However, the condition of the laneway is less relevant than its physical configuration. Council also has a number of methods of upgrading the surfaces of laneways, including as permit conditions for significant developments or special charge schemes of abutting properties. These issues are easier to resolve than physical issues with a laneway's configuration.

Summary

From the above, it is apparent that the capacities of laneways are impacted by a large number of factors. In addition, it is challenging to concisely quantify how all the various factors influence each other. There are very few 'hard and fast' rules that define when a laneway is constrained or not and accordingly, this assessment is somewhat subjective and our assessment is based on our engineering judgement and experience.

6.4 Upgrading the Capacity of Laneways

Capacity of a standard 3m wide laneway

Under Clause 56.06 of the Planning Scheme, Table C1 provides an outline of the design of roads, one of which includes an 'Access Lane', which is defined as *a side or rear lane principally providing access to parking on lots with another street frontage.* Table C1 continues on to state that an Access Lane has a traffic volume of up to 300 vehicles per day (vpd) and this is typically adopted as the environmental capacity laneway. This also represents an indicative peak volume of 30 vehicles per peak hour (two-way).

Further guidance can be sought from AS2890.1-2004, the Australian Standard for Off-Street Parking. While not technically applicable to a public road, this standard does suggest that a volume of 30 vehicles per hour is an appropriate trigger point for providing a passing area or accessway with separate traffic lanes in each direction.

For the purposes of our assessments, we have considered a volume of 30 vehicles per hour to be a reasonable guide as to the capacity of a 3.0m wide laneway, subject to consideration of other factors.

The options in terms of increasing the traffic capacity of existing laneways follows:

- **Conversion to one-way operation.** For single-width laneways, a one-way laneway has a significantly higher capacity than a laneway permitting two-way traffic. One-way operation eliminates two-way vehicle conflicts within the laneway and can support a high level of access/development from the laneway. The key advantages of this option are that it is usually easy to implement, requires no physical changes and does not require/rely on additional land. One-way laneways are effectively unconstrained and their environmental capacity is typically

taken as being in the order of 100 vehicles per hour or 1,000 vehicles per day. For the above reasons, one-way operation is generally our preferred solution to upgrading laneways. It should be noted that in the context of the study area along Queens Parade, this is usually not an option due to most laneways being dead ends.

- **Laneway width.** One of the most important factors to the operation and capacity of a laneway. To provide a single traffic lane, a laneway should be at least 3.0m wide. A width slightly less than 3.0m (down to 2.8m) is also functional, although constrained. Laneways less than 2.8m wide are problematic for vehicle access and should be considered as pedestrian only laneways and/or have very limited development potential (it is acknowledged that some narrow laneways within the study area are in practice used for vehicle access currently).

  Laneways become capable of supporting simultaneous two-way traffic at a width of 6.0m, which removes most capacity constraints of laneways and makes them unconstrained. However, widening laneways can be problematic, particularly in situations where a large number of properties front a laneway or the subdivision pattern is finely grained.

  Where we have recommended laneway widening, the minimum road reserve width should be 6.0m. This can be achieved by setting back buildings, which are then able overhang the laneway on the levels above. It is recommended that a height clearance of 3.5m is provided in these circumstances (which is usually achievable with ground floor commercial uses).

- **Splays**. Laneways often incorporate bends and for narrow laneways, splays are essential to facilitate vehicle access. This study recommends a universal splay of 3m x 3m is provided on the inside of all laneway bends and intersections between two laneways. This splay facilitates access by vehicles up to the B99 design car[8] from AS2890.1-2004 (i.e. not trucks), which is appropriate in our view.

  The shape of the splay can vary depending on the width(s) of the intersecting laneways. These arrangements are shown in the figures below.

[8] The B99 design car represents a vehicle that is larger than 99.8% of all other vehicles on the road. It is broadly equivalent in length to a station wagon or large 4-door utility.

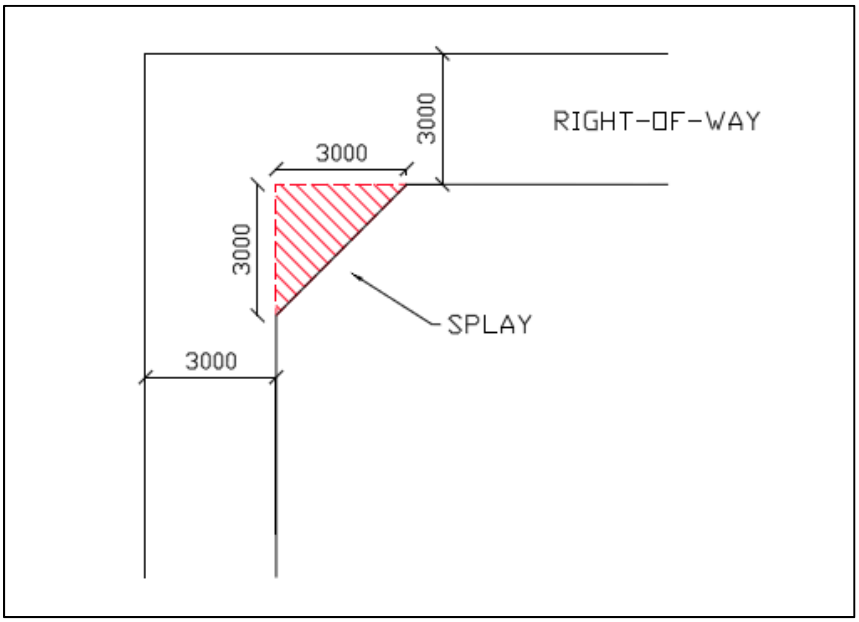


Figure 28: Standard 3m-wide Laneway 90-degree Splay

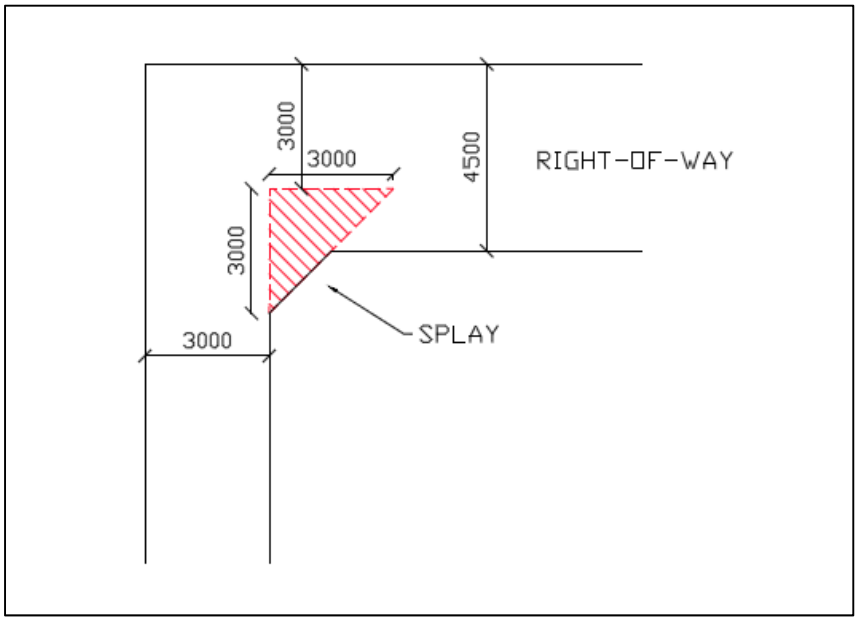


Figure 29: Non-Standard Varied-Width Laneway Splay

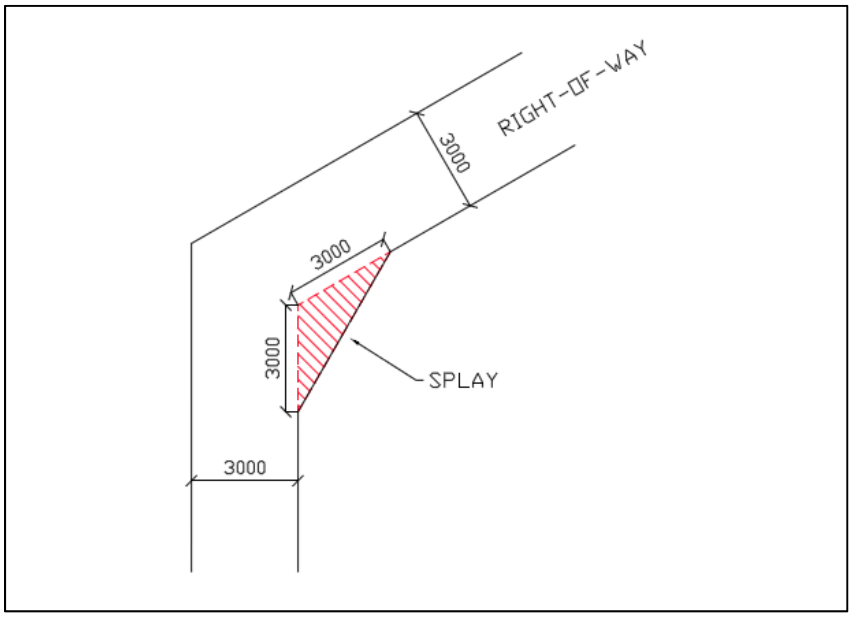


Figure 30: Standard 3m-wide Laneway Non-Right-Angle Splay

Some laneways within the area already have splays of various sizes. However, many are less than 3m x 3m and could be improved.

- **Passing bay at entrance to laneway.** In some situations, it may not be possible to widen laneways or enforce a one-way operation due to varying constraints, including dead end laneways. A potential solution is to provide for a passing bay either at the entrance to the laneway (ideally) or elsewhere along the laneway.

  This passing area allows any conflicting vehicle movements to pass away from the road network and pedestrian footpaths. As a guide, Clause 52.06-9 (which applies to private accessways) requires passing areas to be 6.1m wide for a distance of at least 7m from the major road boundary and could be applied to where a laneway meets a higher order road.

  The width required to achieve this passing area would be required to be taken from one (or more) of the properties located on either side of the entry to the laneway. Alternatively, informal passing areas may be provided within the laneways as a result of buildings setting back their ground floor to facilitate vehicle access to and from their sites (i.e. car spaces or garages that are directly accessed from the laneway). This setback may allow for informal passing opportunities within laneways, thereby increasing the capacity of the laneway.

  A passing area allows drivers to manage vehicle conflicts within laneways more easily and raises the capacity of the laneway above 30 vehicles per hour. If all properties along one side of a laneway (in this case, setting back properties within the DDO) are required to setback to achieve a 6m width (to increase the laneway capacity), over time each setback incrementally increases the capacity of the laneway by providing intermittent passing opportunities and over time achieves a full two-way laneway.

6.5 Use of Laneways to Accommodate Non-Vehicle Users

The sharing of the road space in laneways between pedestrians and vehicles is common practice and acceptable. Accordingly, there is no specific need or requirement to widen laneways to provide separate pedestrian spaces. Generally, issues only arise if laneways carry a high volume of vehicles.

For the most part, it is our view that laneways within the study areas should be used primarily for vehicle access, rather than key pedestrian movement. It is our view that in most cases, pedestrians within the activity centres should ideally be walking along the footpaths of main roads or other local roads where pedestrian amenity is higher, footpaths are wider and of higher quality and there is more activity along the street. Pedestrian use of laneways for through movements is a secondary function.

Within the study area, many of the laneways are dead ends or otherwise convoluted and they offer a poor pedestrian environment (uneven walking surface, minimal passive surveillance). As such, it is our view that pedestrian movements should be encouraged along Queens Parade and other local streets and not within laneways.

There are properties within the study area that may provide some uses accessed directly from laneways. For example, dwellings that only front a laneway and rely on the laneway as their sole pedestrian access point. In these instances, new development should provide a pedestrian refuge area, which could be a separate footpath along the site's frontage or similar separation between the laneway and the building façade. A full pedestrian connection or separate footpath to the nearest road is not required, but a separate area for pedestrians to safely enter/exit a building directly fronting a laneway is necessary. It may also be appropriate that developments with significant reliance on laneways for pedestrian access may need to upgrade the laneway surface.

Cyclists in our experience generally do not use laneways, unless it is the final stage of their journey to a property. Most laneway surfaces can accommodate cyclists, although some bluestone laneways can be uncomfortable to use and cyclists may prefer to walk their bicycles for the final stage of the journey. In our view, there is no need to upgrade laneway surfaces specifically for cyclists.

Shared Zones

Whilst not present within the study area, there is a common laneway typology that has intermediate widths (3-6m wide) with carriageways in the order of 3m wide and narrow footpaths (<1m) on one or both sides of the road. Often these footpaths are obstructed by poles. Although outside the study area, an example would be Tullo Place in Richmond. These laneways would function better if reconfigured as Shared Zones. An example of which is Little Buckingham Street (between Church Street and Lambert Street) in Richmond. The essential feature of the Shared Zones is the removal of separate footpaths and provision of flush, shared surface. This provides an enhanced pedestrian environment and also assists vehicle access to abutting properties.

A shared zone is a road or network of roads where pedestrians, cyclists and vehicles shared the roadway. A shared zone provides improved amenity for pedestrians and an improved streetscape.

The *VicRoads' Supplement to Austroads Guide to Traffic Management Part 8: Local Traffic Area Traffic Management (2008) (dated October, 2015),* provides guidance as to appropriate locations for a shared zone, including design guidelines. A summary of these guidelines is provided below:

Appropriate Locations

- Low volume streets where pedestrians outnumber motor vehicles and where the pedestrian needs are best met by walking on the roadway, and
- Where the street has been constructed or reconstructed to a sufficient degree to ensure significant visual interruption and where speed is physically restrained, and
- Where there is no cross traffic.

Inappropriate Locations

- Not suitable where traffic volumes exceed 200 vehicles in a peak hour, or over 1000 vehicles between 7am and 7pm.
- If there is a history of vehicle speed problems.
- Unprotected locations where approach speeds exceed 40-50km/h.

Design Guidelines

- The road should be discontinuous and any kerb removed to enhance the sense of equality between pedestrians and vehicles.
- Speed reduction devices installed at a spacing of approximately 40m and staggered if possible.
- Straight lengths of no more than 50m without speed reduction devices.
- Maximum design speed of 20km/h – typically either 10km/h or 20km/h.
- Entry and exit points to be clearly signed.
- No provision for traffic to flow across the path.
- Surface texture treatment in order to differentiate between the shared zone and surrounding road network.

An example of a shared zone in a laneway environment is Little Buckingham Street in Richmond. An aerial view of how this treatment has been implemented for part of the laneway (the portion which has been recently developed) and a street level view are shown at Figure 31 and Figure 32, respectively.

Figure 31: Shared Zone Example - Little Buckingham Street, Richmond

Figure 32: Shared Zone Example – Little Buckingham Street, Richmond

Other Considerations

Some consideration should be provided to allowing for 'pedestrian sight triangles' at the exit location of laneways at their intersections with roads. Under Clause 52.06 of the Planning Scheme and AS2890.1-2004, pedestrian sight triangles measuring 2.5m into the property and 2m along the property boundaries are required on both sides of a single-width accessway (i.e. 3m or similar), whilst in cases of widened accessways, a pedestrian sight triangle is only required on the departure side of the laneway. This is shown at Figure 33 below.

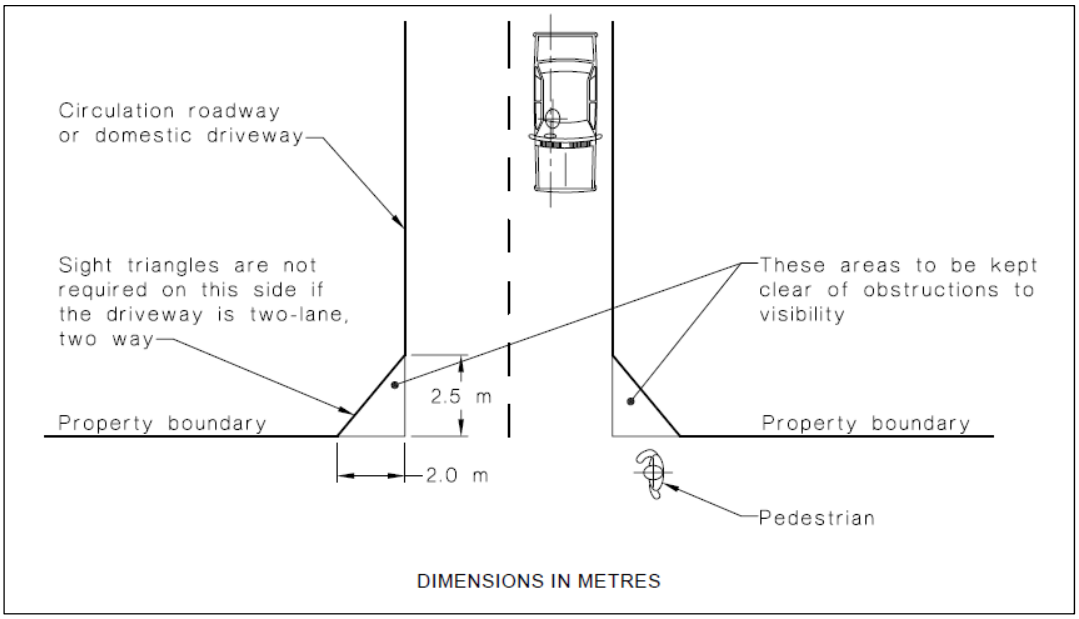


Figure 33: Minimum sight lines for pedestrian safety (Figure 3.3 - AS2890.1-2004)

Both of these standards refer to private driveways (not public roads), however the principle is still valid.

It should be acknowledged that in practice, most laneways in the City of Yarra would not provide pedestrian sight triangles and there are a variety of practical implications and issues with requiring these. Providing sight triangles may be problematic for heritage sites and these splays significantly increase the opening of a laneway (with other consequential impacts on active frontage and other urban design considerations).

For these reasons, we have not specifically recommended splays at every laneway entrance. Splays can be required of individual sites as part of future planning permit conditions.

6.6 Use of the Laneways for Loading and Waste Collection

For the majority of development sites within the study area, the laneways will not be a practical option to facilitate vehicle access by trucks for the purposes of loading and in some cases waste collection.

As discussed above, many laneways have existing splays that are either inadequate or only accommodate the B99 design car. As such, any properties past bends in the laneway will be unable to be reached by a truck from the laneway.

In addition, the fine-grained nature of the subdivision pattern means that many lots will be physically incapable of accommodating a loading bay on-site or provide adequate to space to accommodate these vehicles. Access to many sites within the study area are too narrow to accommodate truck access turning into sites from 3m wide laneways.

Accordingly, it is unlikely that truck access from laneways will be common. Given the relatively small-scale nature of many developments within the area, loading activities are more likely to be accommodated on-street, in a similar manner to many existing businesses along Queens Parade.

Some sites may provide waste collection on-site using the smaller 1.7m wide x 6.4m long waste collection truck. This vehicle is comparable in turning performance to the B99 design car. However, similar to access by other trucks, due to the need to turn this vehicle around to exit the site in a forwards direction, many narrow properties within the area will be unable to accommodate on-site waste collection.

7 Detailed Review of Laneways within Study Area

In general terms, the current usage levels of most of the laneways by vehicles or pedestrians within the study area is modest. This is reflected in Appendix E, where the existing number of access points and approximate number of car spaces provided by accessway are recorded. Observations in the field found minimal use of many of the laneways, which is a reflection of their current configurations.

Appendix D includes a detailed description of each laneway, its physical characteristics and existing constraints. Many of the laneways within the study area are constrained geometrically. The key issues for many of the laneways within the study area are summarised below:

- Narrow width. The laneways are largely only 3m wide, providing a single lane for two-way traffic.
- Inadequate splays at bends within the laneways that are incapable of accommodating the B99 design car from AS2890.1-2004.
- Long length. In combination with the narrow width of the laneways, this means that the chance for vehicle conflict within a laneway increases and ability of drivers to manage conflicts also becomes more challenging.
- Many laneways end in dead ends. It means that these laneways are unable to be made one-way to eliminate vehicle conflicts within them.
- Bends that obstruct sight distance. In particular, drivers are unable to determine if there is a vehicle in the laneway travelling in the opposite direction along its entire length.

As discussed above, it is a combination of one or more of these factors that mean many laneways within the study area have limited ability to carry a high level of traffic in their current form. This does not mean that these laneways are incapable of carrying some level of additional traffic. However, it means that:

- The capacity of these laneways to accommodate additional traffic will need to be monitored over time as the area develops.
- Some improvements may be required to improve the operation of these laneways.

- Some laneways are not practical for vehicle access for large developments and an alternative access arrangement should be considered.

Equally as important as the physical constraint characteristics of the laneway is the level of additional traffic that will use the laneway. As discussed in previous sections, the physical characteristics of laneways are not necessarily a constraint to development (unless the laneway is unnavigable, such as a laneway without splays at the bends), if the volume of traffic using the laneway is low enough.

The following section reviews the potential traffic volumes within each laneway under the proposed built form controls and provides a detailed assessment of the capacity of the laneway and recommendations for future actions to manage the growth of traffic within the laneways.

7.1 Laneway Capacity Analysis

Yarra City Council has provided information to Traffix Group regarding the likely development potential of the land within the study area. The information provided represents a *maximum* development scenario where every lot is developed to its maximum extent possible under the proposed controls. In many ways, this assumption is highly conservative and represents a 'worst case' scenario. In particular, it is highly unlikely that every lot would be redeveloped in the short or medium term. For the purposes of this analysis, the potential development has been broken down into three broad land use types:

- Dwellings – primarily apartment style dwellings, often above levels of retail or commercial uses
- Commercial use – primarily an office use
- Retail use – including shop, café, restaurant, etc.

In order to assess the likely traffic impacts of these redevelopments, we have made the following assumptions:

Car Parking

- Car parking is provided at no more than 1 space per dwelling on average. This implies that some one-bedroom apartments will be provided with no car parking and some three-bedroom dwellings will be provided with 2 car spaces.

  Based on the ABS data presented in Section 5.5.1, an average of 1 car space per apartment is broadly reflective of the current car ownership levels of households occupying apartments and generally in line with the statutory car parking requirements of Column B of Clause 52.06-5.
- Office parking is provided at a rate of 1 space per 100m^2. This rate is lower than the current statutory requirement of 3 spaces per 100m^2 under Clause 52.06-5, however it is consistent with recent planning approvals by the City of Yarra, as shown in the table below.

Development	Yield (Approx.)	Car Parking Rate
20-30 Mollison Street, Abbotsford	12,800m^2	1.10 car space per 100m^2
506-510 Church Street, Cremorne	22,000m^2	1.06 car spaces per 100m^2
484-486 Swan Street, Richmond	18,600m^2	0.82 car spaces per 100m^2
2-16 Northumberland Street, Collingwood	15,500m^2	0.88 car spaces per 100m^2
459-471 Church Street, Richmond	23,500m^2	0.86 car spaces per 100m^2

- Retail uses provide car parking only for staff, with no on-site car parking for customers. Staff parking is provided at a rate of 1 space per 100m^2.

  While this is lower than the current statutory car parking rate under Clause 52.06-5 (3.5 car spaces per 100m^2), this is consistent with current industry practice for retail uses within inner Melbourne. Currently, almost every retail use within the study area does not provide car parking for customers.

It should also be noted that in recent times Yarra City Council has regularly supported developments within the municipality and within the study area with minimal or even zero on-site car parking.

In our view, this should continue in the future. Providing a low level of car parking strongly supported by Yarra City Council's local planning policies and under the car parking reduction decision guidelines of Clause 52.06-5. In particular:

- The area is well serviced by public transport services, including train, tram and bus services.
- The area has good access to cycling infrastructure and many local destinations within easy cycling distance, including the Melbourne CBD and numerous inner-city Activity Centres.
- The area is highly walkable, with many everyday services readily accessible by walking, instead of by private car.
- There are numerous car share pods in the nearby area, providing on-demand access to a car for those trips that specifically require a car.
- There is limited long-term on-street car parking in the nearby area, which will naturally decrease over time as it has with other inner urban Activity Centres. New developments will not be eligible for car parking permits and accordingly constrained from owning cars where no on-site parking is provided.
- Analysis of empirical data indicates that a substantial number of households within apartments do not require car parking in this area, which is reflective of the transport rich nature of the area.
- Reducing car parking, particularly for residents and staff has a positive impact on traffic conditions in the local area. Staff in particular are most likely to travel on the road network during peak hours and contribute the most to traffic congestion.

<u>Traffic Generation</u>

We have adopted the following traffic generation rates for the various land uses in the area:

- 0.3 vehicle trips per peak hour for each dwelling.
- 0.5 vehicle trips per car space, peak hour for commercial and retail uses.

These rates are consistent with Industry Guides (such as the RTA Guide to Traffic Generating Developments) and surveys by Traffix Group and other consultancies and are likely to be on the conservative side.

<u>Other sites</u>

It has been assumed that negligible development occurs to properties outside the study area that may also abut the laneways.

The above assumptions have been applied to forecast the possible level of future traffic within laneways in the study area, as per the following sections.

7.1.1 Provision of Car Parking on Individual sites

It should be noted that there are substantial challenges with providing car parking on many sites within the study area, which may mean the assumptions above are also conservative. Some sites will be unable to provide a substantial level of car parking, leading to lower levels of traffic generation than estimated above.

The subdivision pattern along Queens Parade in many cases is finely grained. Many lots are very narrow, in the order of 5m to 7m wide. This has practical implications for the provision of car parking on these sites.

For lots of this size, car parking can only be arranged length-wise to the site. A 5m wide site only accommodates one car space in width, a second car may be parked in tandem. A 7m wide site might accommodate 2 car spaces side by side. In either case, options of providing additional car parking via car stackers is also limited. There is unlikely to be any significant gain in a 5m wide site. A 7m wide site may increase the car parking from 2 (4 in tandem) to 4 or 5 (up to 8 in tandem).

It needs to be also recognised that for developments with access to 3m wide laneways, an increased setback is required to physically accommodate vehicle access as 3m is too narrow an access aisle for most car parking arrangements. As a general rule, new developments would typically need to setback the car parking approximately 3m from the edge of the laneway to facilitate vehicle access. This setback combined with the laneway effectively provides a 6m wide access aisle.

Sketches of arrangements are shown in the figures below.

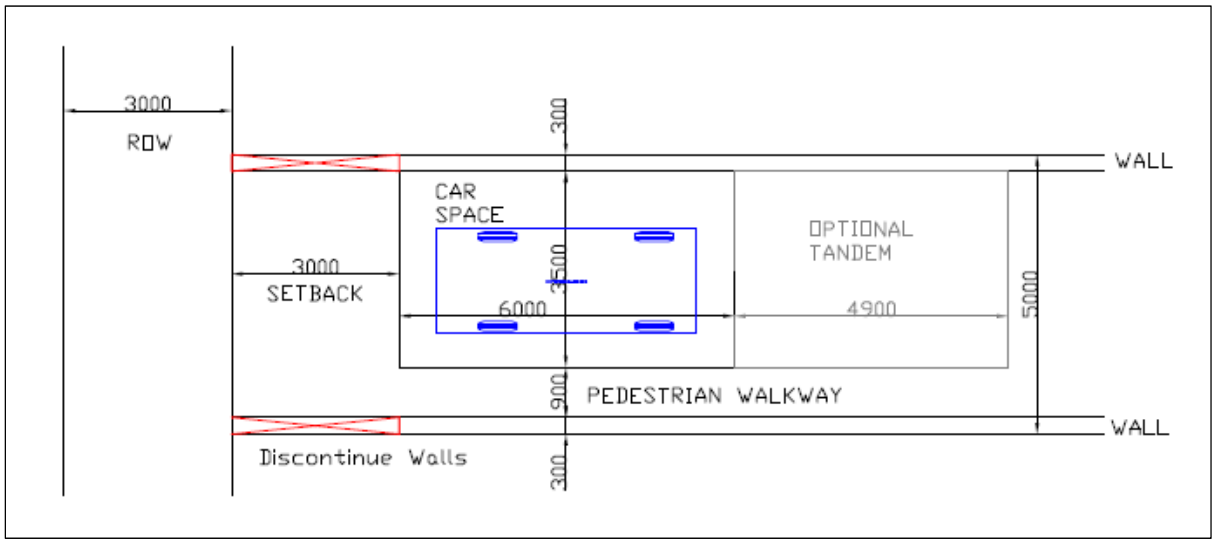


Figure 34: Example layout of a 5m wide side

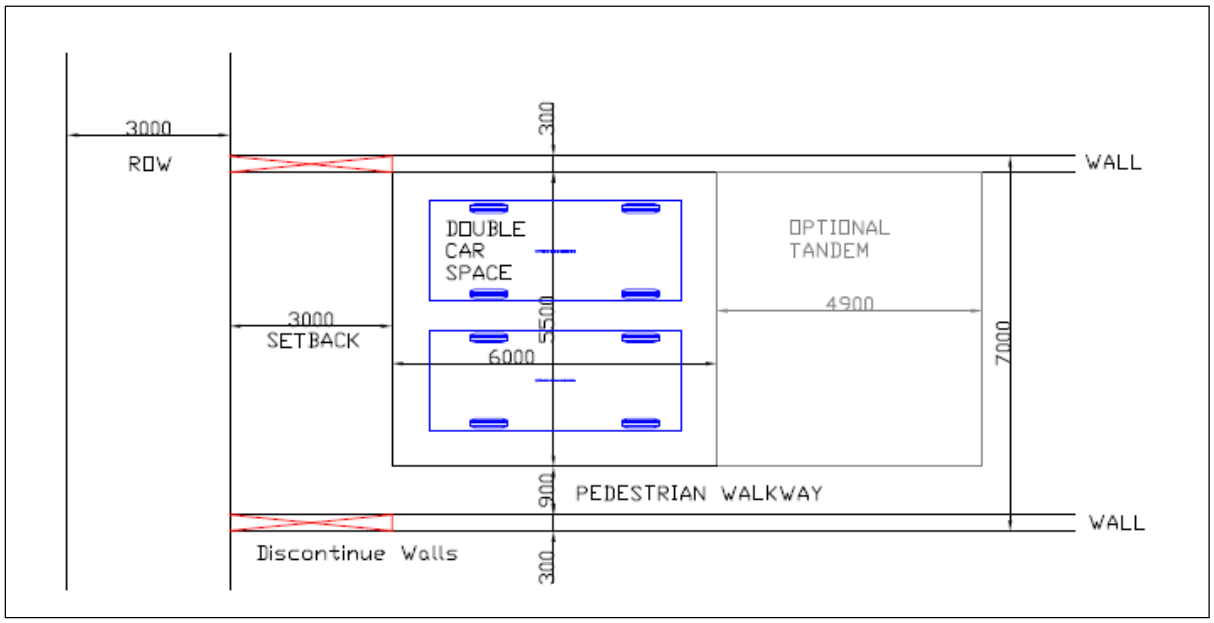


Figure 35: Example layout of 7m wide side

There is an opportunity to effectively widen the functional area of the laneways to 6m in width over time if a consistent 3m setback is applied to new developments (which is likely to be necessary for vehicle access to many individual sites in any event). It means that new developments should avoid constructing side walls out to the laneway within the 3m setback. The building could cantilever over the ground floor setback at upper floors (subject to other planning and structural requirements).

The above two diagrams are an example of commonly seen development types in our experience. Other arrangements are possible, such as a very wide single car garage with minimal setback. However, these examples provide a good illustration as to the type of car parking arrangements likely on the narrow sites common within the Queens Parade Activity Centre.

7.1.2 Precinct 1

The map of precinct 1 is below. Almost all properties within Precinct 1 have access to a laneway extending from Brunswick Street, a VicRoads declared arterial road and tram route.

At Section 2.9.1, DDO16-1 includes a design requirement that development must provide for vehicular access off the laneway.

An aerial photograph of Precinct 1 is provided at Figure 37.

Figure 36: Precinct 1 – Brunswick Street

Figure 37: Aerial Photograph of Precinct 1

Council estimates that up to 100 dwellings may be constructed within Precinct 1[9].

Adopting the traffic generation assumptions listed above, this laneway could accommodate up to 30 vehicle trips per peak hour. This volume is approaching the capacity guidelines of the Planning Scheme and AS2890.1-2004. This volume is conservative however and assumes full build-out of all properties in this precinct, which is unlikely.

In this case, due to the two bends in the laneway, sight lines are limited. Passing opportunities are available at the northern end, but not at the bend closest to the entrance or at its intersection with Brunswick Street. Conflicts at Brunswick Street would have a more detrimental impact on the road network due to Brunswick Street being an arterial road and tram route.

[9] It should be noted that there is a planning permit for the 'wedge' site, to the north of the fork in the laneway network. This site as part of the Gurner development at 26-52 Queens Parade and comprises 3 x three storey townhouses with no parking provided.

Based on the above combination of geometry and future traffic volumes, in our view this laneway is **partially constrained** in its current form. In order to manage traffic growth within the laneway, it is recommended that Council:

- Encourage low parking rates for new dwellings within Precinct 1 to reduce the traffic impacts on the laneway.
- Review opportunities to provide a passing area at the entrance to the laneway from Brunswick Street. This is shown in the figure below.

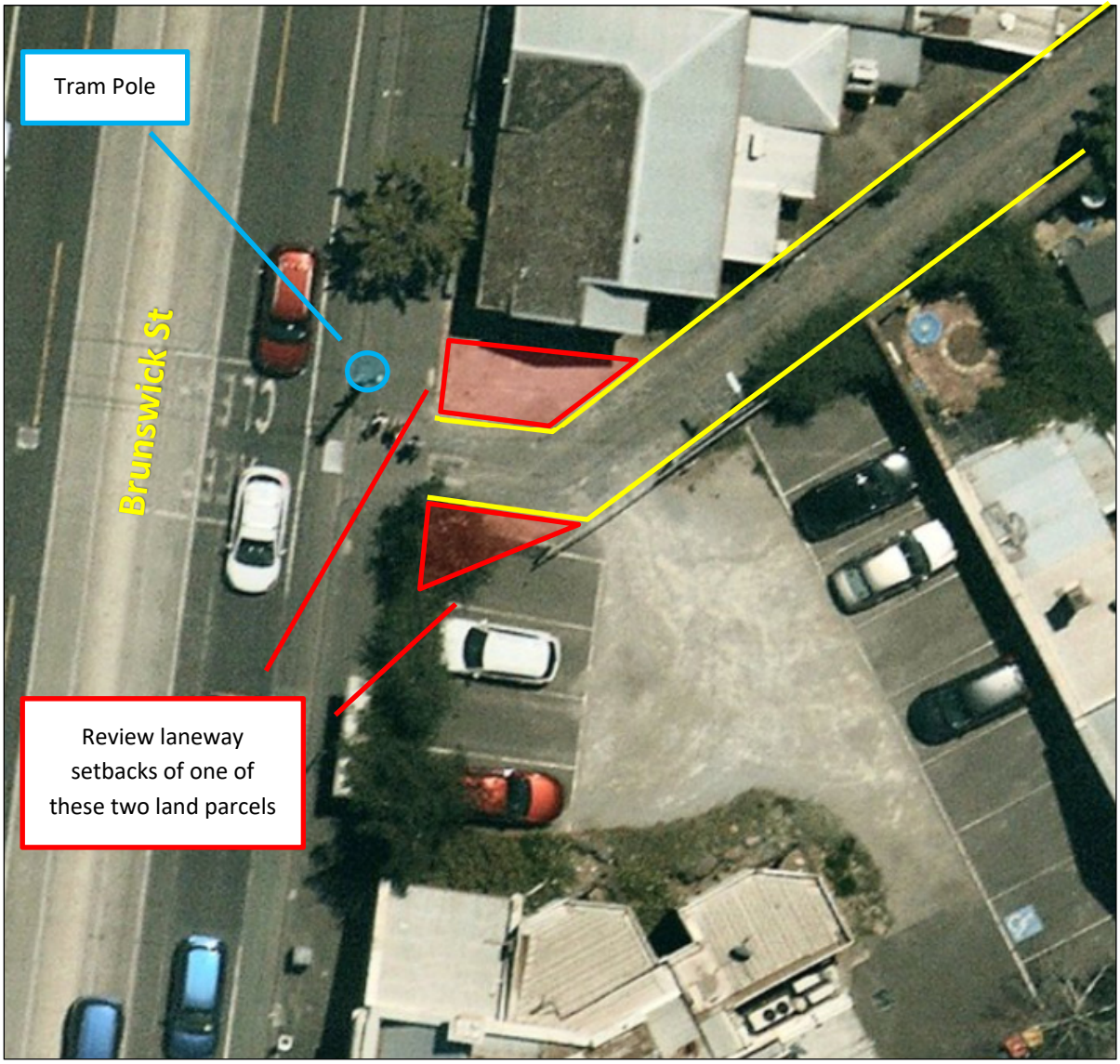


Figure 38: Recommended passing area

Provision of a passing area would minimise the chance of vehicle conflict at the critical point of the laneway, its intersection with Brunswick Street. It means that vehicle passing can occur within the laneway, instead of a vehicle using Brunswick Street to do so (for instance, a driver turning right into the laneway blocking northbound traffic while waiting for a car to exit the laneway).

In our view, this change adequately addresses the key issue identified with this laneway.

7.1.3 Precinct 2

The map of Precinct 2 is provided below.

At Section 2.9.2, DDO16-2 includes a design requirement that developments in Precincts 2B and 2C must provide for vehicular access off the laneway.

Area 2A is a substantial redevelopment site which will have direct access to the Queens Parade service Road and no access to the Brunswick Street laneway or the laneway accessing Coleman Street[10] and accordingly is not especially relevant to this study. Accordingly, this Section focuses on Precincts 2B and 2C.

Figure 39: Map of Precinct 2 - Boulevard

An aerial photograph of Precinct 2 is shown in Figure 40.

One laneway services sub-precincts 2B and 2C. It is L-shaped and connects George Street to Alexandra Parade. The laneway is 3m wide and it is approximately 80m long. There is no splay at the bend in the laneway and accordingly vehicle access around the bend is not possible.

There is one property without access to the laneway, on the corner of Queens Parade and Napier Street. Given the site's corner location and narrow frontage to Queens Parade, any future redevelopment would logically take access to Napier Street.

[10] The 'Gurner Site' at 26-52 Queens Parade – see Planning Permit PLN160434

Figure 40: Aerial Photo of Precinct 2

No. 81-89 Queens Parade has a current permit for a large mixed use development comprising a supermarket (1,400m^2), office space and serviced apartments. The development proposed a basement carpark accessed via the Queens Parade Service Road and a setback from the laneway to functionally widen it along the site's frontage to 7m (up from 3m). An on-site loading bay for the supermarket is proposed off the laneway.

The full build-out of the properties fronting this laneway may yield up to:

- 40 dwellings
- 28,275m^2 of office space

Applying the traffic generation assumptions previously listed results in 153 vehicle trips per peak hour.

The laneway is not capable of accommodating a substantial level of traffic in its current form, however the functional widening of the laneway as per the approval for 81-89 Queens Parade would considerably improve its capacity by facilitating two-way traffic flow along the widened section. Subject to this application acting on its permit, we do not expect significant issues with the ability of this laneway to accommodate additional traffic.

Based on the above, and on the assumption that 81-89 Queens Parade re-develops in accordance with its permit, this laneway is **partially constrained**. For future development applications, Council should also consider:

- The bends in the laneway require 3m x 3m splays in order to make the laneway functional.
- Vehicle access can be granted to Napier Street or the Queens Parade service road for properties abutting these roads. Either of these outcomes would be acceptable from a traffic engineering perspective.

7.1.4 Precinct 3

The map of Precinct 3 is provided below. Section 2.9.3 of the preferred DDO does not include specific traffic-engineering requirements for this precinct. Most of the properties are bordered by a rear laneway, accessed from Hodgkinson Street, a local road.

Figure 41: Map of Precinct 3 – St Johns

An aerial photograph of Precinct 3 is shown in Figure 42.

Figure 42: Precinct 3

The laneway is 3m wide in its north-south section (45m long) and 4m wide in its east-west section (30m long). There is no splay at the bend in the laneway. Access around this bend has been tested for the 85th percentile (B85) and 99th percentile (B99) design cars from AS2890.1-2004. Access is constrained, but possible, for the B99 car during the exit movement (see Appendix G).

The laneway is constrained by the bend, which blocks sight distance and would make resolving vehicle conflicts at the bend in the laneway complicated for the drivers involved. However, in the event of conflict at the laneway entrance, the impact of vehicles temporarily waiting on Hodgkinson Street is low.

The full build-out of the properties fronting this laneway may yield up to:

- 1,787m^2 of retail space
- 1,787m^2 of office space

- 140 dwellings

Applying the traffic generation assumptions previously listed results in 60 vehicle trips per peak hour, which it would exceed its practical capacity.

In our view, this laneway is **partially constrained**. While the combination of the development yield and laneway geometry is potentially problematic, our recommended solution is relatively uncomplicated.

The volume estimate of 60 vehicles per hour is based on the assumption that No. 1-5 and No. 15-33 Queens Parade take vehicle access to the laneway. These two sites are key development sites with potential access to the laneway and each site estimated to provide 50 dwellings, 750m^2 of retail and 750m^2 of office space. Together they provide 100 dwellings and 1,500m^2 of office and 1,500m^2 of commercial space. This represents approximately 70% of the dwellings and 85% of the retail/commercial space estimated within Precinct 3.

In order to manage traffic impacts within the laneway is recommended that:

- No. 15-33 Queens Parade takes vehicle access to the Queens Parade service road.
- No. 1-5 Queens Parade take access to the Queens Parade service road (at its existing vehicle access point to Queens Parade) or the laneway, if the development intensity is low enough. This is to be determined at the time of any future planning application.

Without these two development sites taking access to the laneway, we are satisfied that the laneway is capable of accommodating the development traffic from the other properties within this area without any changes to its current configuration. There would be 40 new dwellings and approximately 287m^2 each of retail and commercial space, resulting in a traffic generation of 15 vehicles per peak hour. This lower volume can readily be accommodated.

7.1.5 Precinct 4

The map of Precinct 4 is provided below.

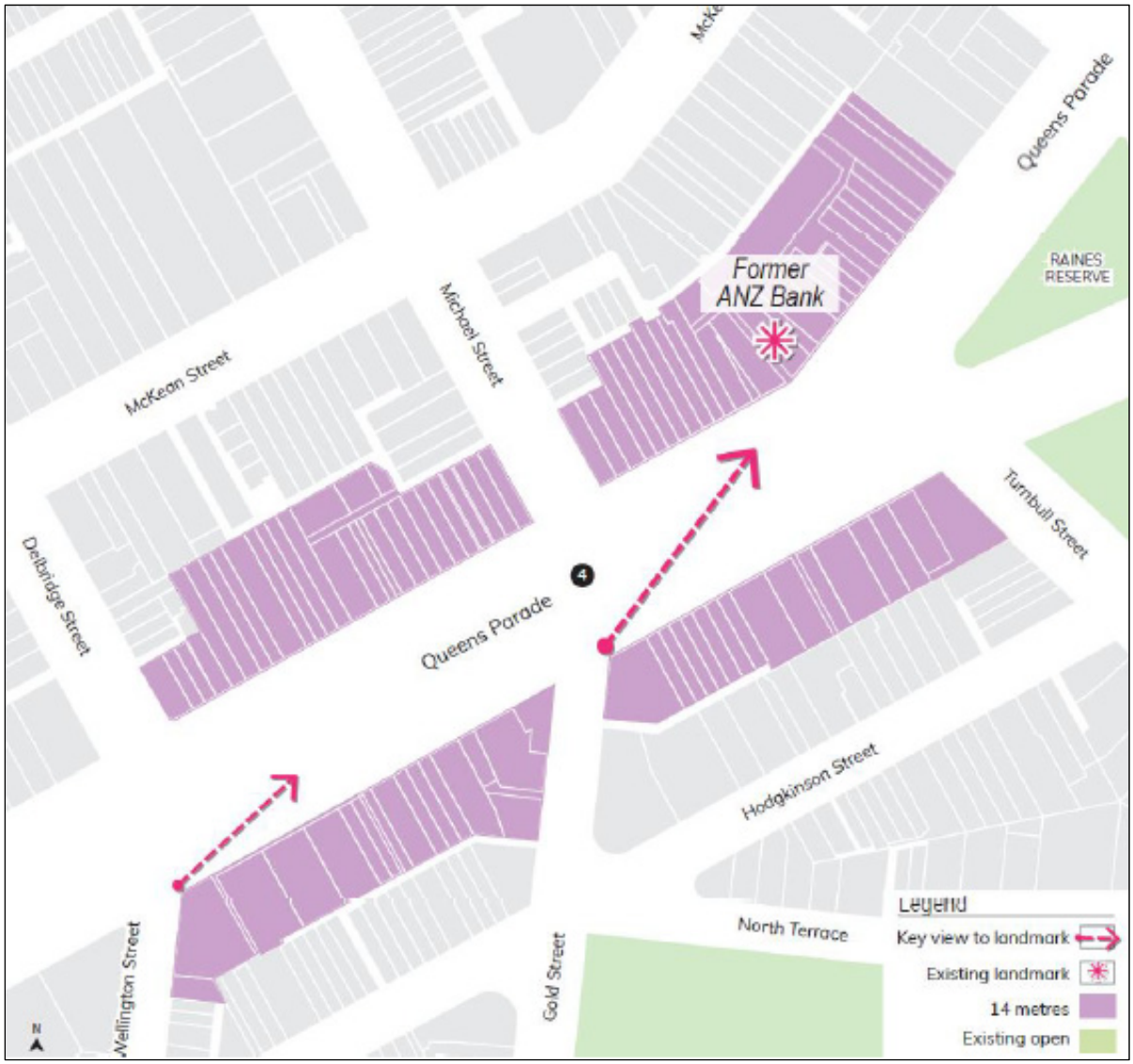


Figure 43: Map of Precinct 4

There are two significant features of this area that impact on traffic and access:

- The majority of the lots form an intact heritage streetscape along Queens Parade, which is a constraint on providing new vehicle access points to Queens Parade.
- The subdivision pattern is finely grained.

This precinct is larger than the preceding 3 areas and effectively forms 4 distinct corners, which are termed the north-east, south-east, south-west and north-west corners. Each of these is discussed separately.

Precinct 4 – North East

An aerial photograph of the Precinct 4 – North East is shown in Figure 44. The precinct is served by 4 laneways, described as follows:

1. Queens Parade-Howe Street
2. Queens Parade laneway
3. Howe Street laneway
4. Michael Street laneway

Each of these laneways is discussed in turn.

Figure 44: Precinct 4 – North-East

1. Queens Parade-Howe Street

This laneway varies in length and width considerably (see Appendix G for more details). It services properties fronting Queens Parade and McKean Street. It also provides sole road frontage to an 'island' site at 390A Queens Parade. It is 5m wide at its connection to Queens Parade and generally 3m wide everywhere else. Some, but not all, bends are provided with splays, however the laneway is traversable (although constrained at some corners) by the B99 design vehicle.

At the time of writing, there is an application before Council for 390A Queens Parade, the island site surrounded by the laneway. If this development proceeds, it will considerably improve the functionality of this laneway network, with the laneway being functionally widened along its frontages to a minimum of 5m in width. A site context plan from this application is shown in the figure below.

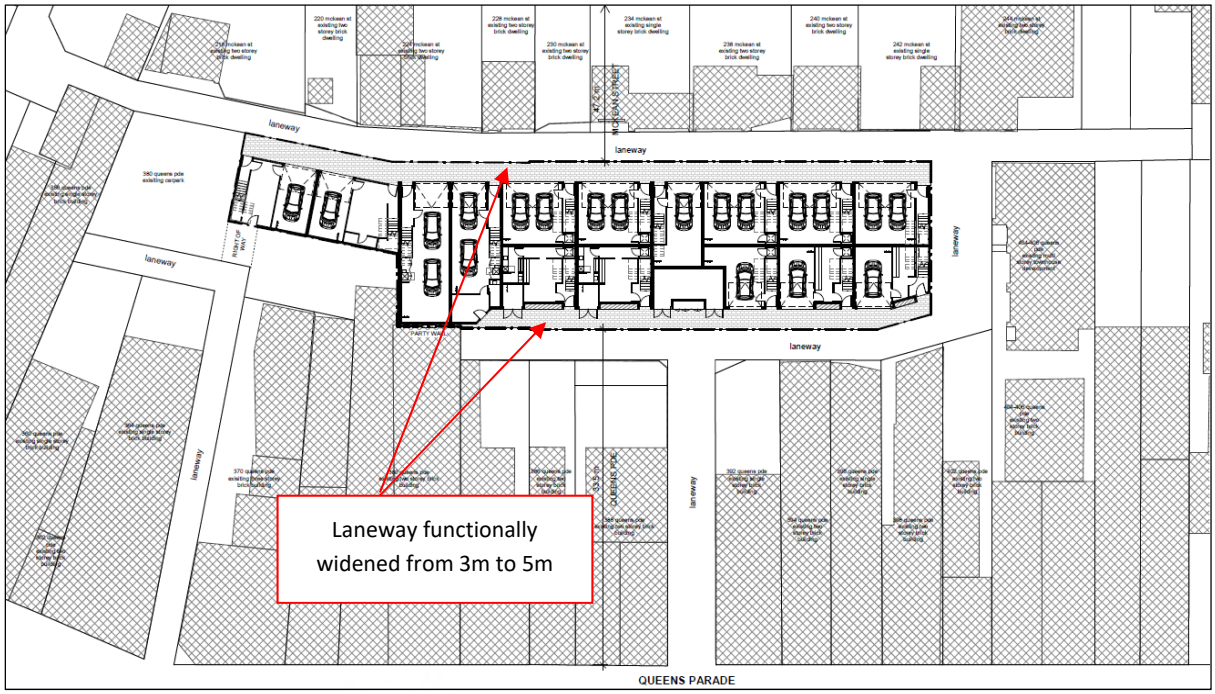


Figure 45: Potential improvements to Queens Parade-Howe Street Laneway

The widened laneway is required for vehicle access to the garages proposed and it also considerably improves vehicle passing opportunities and access around bends. Whilst this development proposal may not be approved or proceed, it does serve as an example of how laneways can progressively improve over time with new development, without requiring specific planning controls.

Based on development yield information provided by Council, the full build-out of the properties fronting the Queens Parade-Howe Street laneway may yield up to:

- 3,300m^2 of retail space
- 110 dwellings

Based on the assumptions previously described, up to 50 vehicles per peak hour could be expected in the laneway. This level of traffic can be accommodated by the laneway in its current form, noting that it has two entrances, such that the traffic in any individual section would be less. It also needs to be remembered that the development yield is highly conservative.

In our view, the laneway is partially constrained by its geometry, however the improvements foreshadowed by the application at 390A Queens Parade mean that in our view this laneway is **partially constrained.**

Based on the above, no specific changes by Council are recommended for this laneway. Council should ensure new developments provide or maintain appropriate vehicle splays and setback appropriate for vehicle access (with the secondary benefit of functionally widening the laneway).

2. Queens Parade

This L-shaped laneway is 3m wide, 50m long with a bend towards its end. Based on development yield information provided by Council, the full build-out of the properties fronting the Howe Street laneway may yield up to:

- 900m^2 of retail space
- 30 dwellings

Based on the assumptions previously described, this leads to a low volume of traffic, 14 vehicles per peak hour. This level of traffic can readily be accommodated by the laneway in its current form and no changes are recommended and this laneway is **unconstrained** in our view.

The bend in the laneway may not be an issue, particularly if the abutting lots develop in a consolidated manner and do not access the laneway at the bend. The issues with this bend can be dealt with at the planning permit stage for individual projects and no changes are recommended to the laneway.

3. Howe Street Laneway

This L-shaped laneway is 3m wide, 35m long, with a 90-degree bend in the middle. There is no splay at the bend, it is currently unnavigable to all cars without relying on private land or building/fence setbacks.

Based on development yield information provided by Council, the full build-out of the properties fronting the Howe Street laneway may yield up to:

- 825m^2 of retail space
- 30 dwellings

Based on the assumptions previously described, this leads to a low volume of traffic, 13 vehicles per peak hour. This level of traffic can readily be accommodated by the laneway (setting aside the issue of the bend) without setting back properties along the section between the bend and Howe Street.

In this instance, it will be up to future land owners of 342 to 348 Queens Parade to setback or develop their properties in a way such that the laneway is functional for vehicles accessing their properties and the bend. An example of how this could be done is shown diagrammatically in the figure below, with each property setting back 3m to facilitate vehicle access.

On the basis that is currently unnavigable and requires the co-operation or consolidation of multiple properties in order to make it functional, this laneway is **highly constrained** in our view. This does not mean that the laneway may not be useable in the future, but it does require some co-operation between impacted land owners. However, no changes by Council are recommended to the configuration of the laneway.

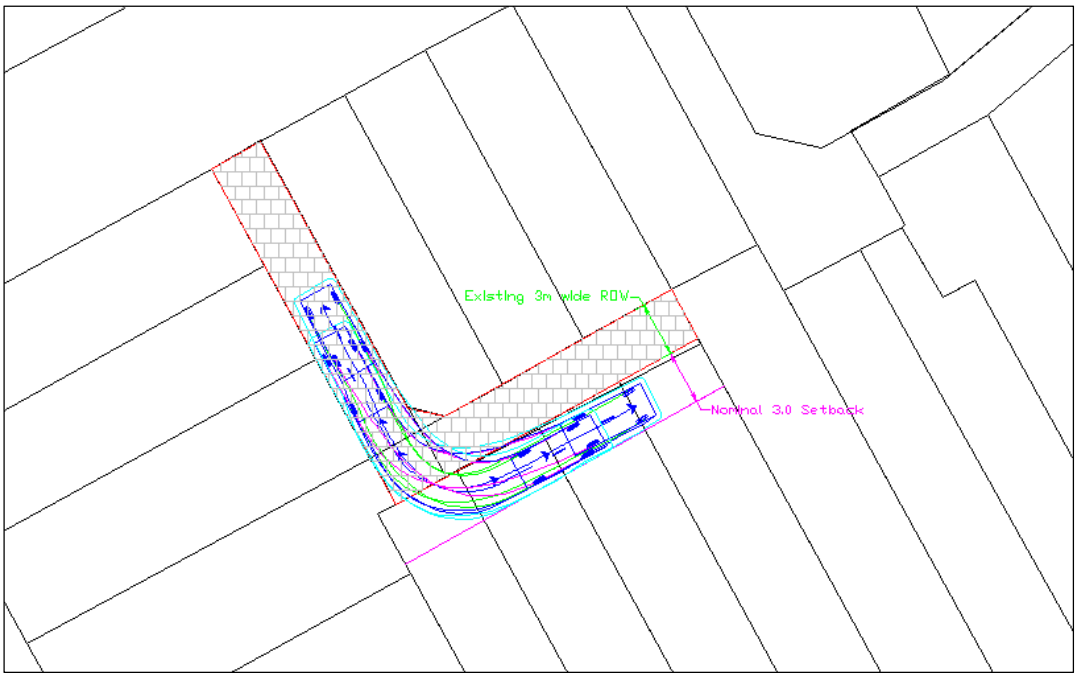


Figure 46: Possible future configuration of Howe Street Laneway

Michael Street laneway

This laneway is 3m wide, but less than 20m long. Based on development yield information provided by Council, the full build-out of the properties fronting the Gold Street laneway may yield up to:

- 450m^2 of retail space
- 20 dwellings

Based on our assumed car parking rates, this leads to a negligible volume of traffic, 8 vehicles per peak hour which can readily be accommodated by the laneway in its current form without any changes.

Accordingly, this laneway is **unconstrained**.

Precinct 4 – South East

An aerial photograph of the Precinct 4 – South East is shown in Figure 47.

The precinct is served by 2 laneways. The laneway accessing Queens Parade Service Road is short and only services two properties. At the present time, this laneway is only 2.5m wide and unsuitable for vehicle access. In its current configuration, it is highly constrained due to its inadequate width. However, when assessed in a scenario where the abutting properties are redeveloped, there are no capacity issues with this laneway given that either property on each side of the laneway would be able to setback from the laneway, if required.

The laneway accessing Gold Street is 3m wide, approximately 70m long and has a bend in it. This laneway is limited due to:

- Access by the B99 car around the bend is constrained, see Appendix G.
- The east-west section is approximately 70m long, without passing opportunities or sight distance to Gold Street due to the bend.

Figure 47: Precinct 4 – South-East

No. 141-147 Queens Parade has a Planning Permit (issued in November, 2018). Development includes retain the existing two storey building, shop ground floor, office level 1, construction of two additional storeys for 5 x three-bedroom apartments and a reduction in car parking. Car parking is to be accommodated in a basement level accessed off Gold Street. An extract of the ground floor plan is provided below.

If this permit is acted upon, it has the following implications for the laneway:

- It eliminates the traffic associated with this development from the laneway.
- The setback along the southern boundary and loading bay provides an informal splay at the bend of the laneway, improving vehicle access by the B99 design car.
- It does not provide a passing area at the laneway entrance from Gold Street.

In our view, in the event that this permit is not acted upon and a new application is submitted, Council should review whether a setback at the entrance to the laneway to provide a passing area is required and also whether view access to this property should be via the laneway.

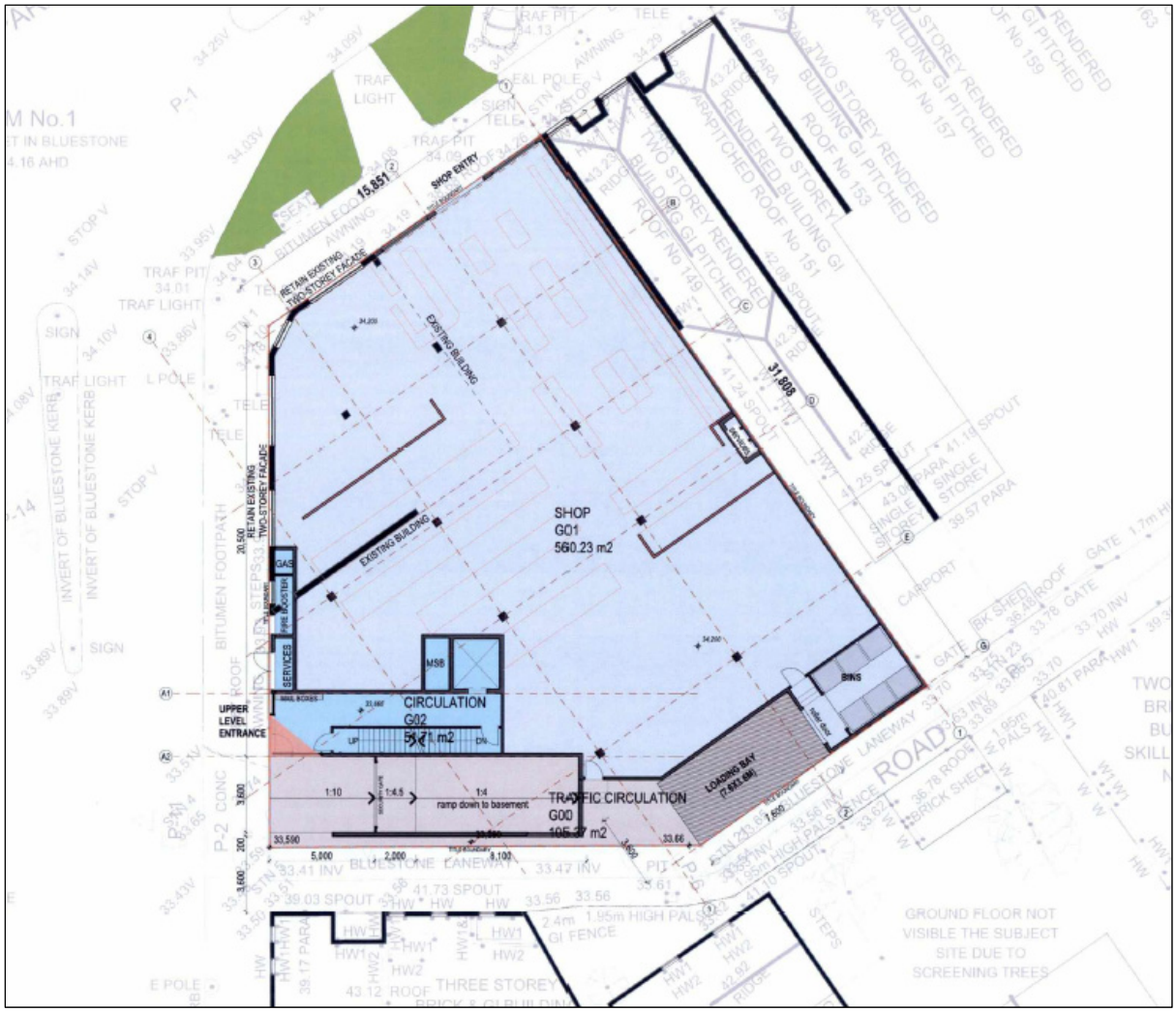


Figure 48: Extract of Ground Floor Plan for 141-147 Queens Parade

Based on development yield information provided by Council, the full build-out of the properties fronting the Gold Street laneway may yield up to:

- 1,650m^2 of retail space
- 50 dwellings

Applying the traffic generation assumptions previously listed results in 23 vehicle trips per peak hour. However, it also assumes that 141-147 Gold Street uses the laneway for access (which is conservative in the context of the current approval).

In our view, this laneway is likely to be able to accommodate the expected level of traffic, particularly in the context that this figure conservatively assumes full build-out of the laneway. The approved development at 141-147 assist the operation of the ROW through its ground floor setback and informal splay at the bend.

In our view, this laneway is **partially constrained** for the reasons above. It is recommended that:

- Permit 169-171 Queens Parade to have direct access to the service road, in the event that development scale and use of the laneway meant use of the laneway was impractical. This should

be assessed at the planning application stage for any redevelopment of this land, via the traffic report (required as under the DDO).

- Council encourage low parking rates within this area.

It should also be noted that in our view, access to Queens Parade is not an unacceptable outcome or impediment to redevelopment. The purpose of a service road is to facilitate property access while minimising impact on through traffic. Accordingly, allowing a limited number of vehicle access points to the Queens Parade service road is an acceptable outcome in our view.

Precinct 4 – South West

An aerial photograph of the Precinct 4 – South West is shown in Figure 49. The precinct is served by 3 laneways. The laneways accessing Hodgkinson Street and Gold Street are short and do not service a large number of properties. As a consequence, the capacity of these laneways is not expected to be an issue and both of these laneways are **unconstrained.**

By way of example, the Gold Street laneway only services 3 properties. One of which, 137 Queens Parade (on the north side) is currently being redeveloped with 5 car spaces off this laneway, which is not significant.

The T-shaped laneway stretching between Hodgkinson Street and Gold Street is problematic for two reasons:

- The T-intersection is not traversable by the B85 or B99 design car due to the lack of significant splays on either corner.
- The east-west section is approximately 110m long, without passing opportunities or sight distance to Gold Street due to the bend. This significantly increases the chance of vehicle conflict and the difficulty for drivers to resolve any conflicts.

Figure 49: Precinct 4 – South West

Based on development yield information provided by Council, the full build-out of the properties fronting the T-shaped laneway may yield up to:

- 2,550m^2 of retail space
- 80 dwellings

Applying the traffic generation assumptions previously listed results in 37 vehicle trips per peak hour. In our view, this laneway is unable to accommodate this level of development in its current form.

It is recommended that:

- Council encourage low parking rates within this area. This has already occurred at 101 Queens Parade where Council approved 10 additional dwellings on top of the existing two-storey office building without any car parking provided on the site for any use (there is current no on-site parking).

- It is recognised that this laneway is incapable in its current form of facilitating a significant level of vehicle access from properties fronting Queens Parade. In particular, Schedule 16 to Clause 43.02 of the exhibited controls[11] states that (bold added for emphasis):
  - *Future vehicle access and services must be provided from a rear laneway or side street **where possible.***

  It is our view that in many instances, the use of the laneway for vehicle access will not be practically possible due to the geometric constraints of the laneway in its current form.
- Encourage setbacks around the bend in the ROW to improve vehicle access at the bends.
- Encourage 3m setbacks at the ground level of new developments to provide a functional increase in the laneway width. This will provide some passing opportunities over time in the laneway, improving its capacity. Council will need to assess each new application using this laneway on its merits based on its condition at the time and assess the cumulative impact of increased traffic within the laneway (and as per the DDO).

Based on the above, in particular the severe geometric constraints of this ROW, in our view it is **highly constrained.**

It should also be noted that in our view, access to Queens Parade is not an unacceptable outcome or impediment to redevelopment. The purpose of a service road is to facilitate property access while minimising impact on through traffic. Accordingly, vehicle access to the Queens Parade service road is an acceptable outcome in our view.

Precinct 4 – North West

An aerial photograph of the Precinct 4 – North West is shown in Figure 50.

The precinct is served by 2 laneways. A short, dead end laneway to Delbrigde Street and a network of laneways spanning between Michael Street and McKean Street.

[11] The preferred controls replace requirement with a requirement to avoid the use of Queens Parade.

Figure 50: Precinct 4 – North-West

The laneway accessing Delbridge Street is short at 20m long and only services 4 properties. There are no capacity issues with this laneway on this basis.

The laneway network is complex.

- There are few opportunities to pass a vehicle in the laneway, unless drivers use the dead ends to manage vehicle conflict.
- Access by the B99 car around the bends of the laneway is constrained, as per Appendix G.

Based on development yield information provided by Council, the full build-out of the properties fronting the laneway network may yield up to:

Western end of the Laneway - 294-302 Queens Parade

- 1,050m^2 of retail space
- 30 dwellings

A total of 14 vehicle trips per peak hour.

Eastern end of the Laneway – 304-330 Queens Parade

- 2,175m^2 of retail space
- 70 dwellings

A total of 32 vehicle trips per peak hour.

For the western end of the laneway network, no changes are recommended. A total of 15 vehicle trips is moderate. There is the ability to prop and pass at the bend and at McKean Street. The impact of vehicle waiting temporarily in McKean Street (a local road) is negligible.

The for eastern end of the laneway network, it is recommended that Council monitor traffic movements over time as the area develops. A volume of 32 vehicles per hour within the laneway would be at the effective limit of the laneway's capacity in its current form. However, it needs to be remembered that this assessment is conservative and assumes that every property along the laneway redevelops.

It is likely due to the 3m wide laneway, that future developments fronting Queens Parade will need to setback from the laneway in order to facilitate vehicle access into redeveloped properties and this provides the opportunity for informal passing areas to develop over time. Particularly if walls are not constructed to the boundary (see Section 7.1.1).

The use of the laneway should be encouraged for vehicle access, given the impact direct access would have on the footpath, building frontage and heritage nature of the buildings fronting Queens Parade.

It is recommended that:

- Council encourage developments of properties fronting Queens Parade to setback at ground floor to the laneway to gradually widen the laneway over time (recognising that these setbacks are likely to be required for vehicle access in any event).
- Council encourage low parking rates within this area.

7.1.6 Precinct 5

A map of Precinct 5 is provided below.

There only one laneway within the precinct, a short dead-end laneway connecting to Hoddle Street. With the exception of 501-513 Hoddle Street, every property within this precinct has direct access to a service road or Dummett Crescent.

501-513 Hoddle Street can use this laneway for access and encompassing the whole south side of the laneway, has the ability to modify it (i.e. widen) to suit the access needs of any redevelopment of this site.

Accordingly, there are no recommended changes to laneways within Precinct 5.

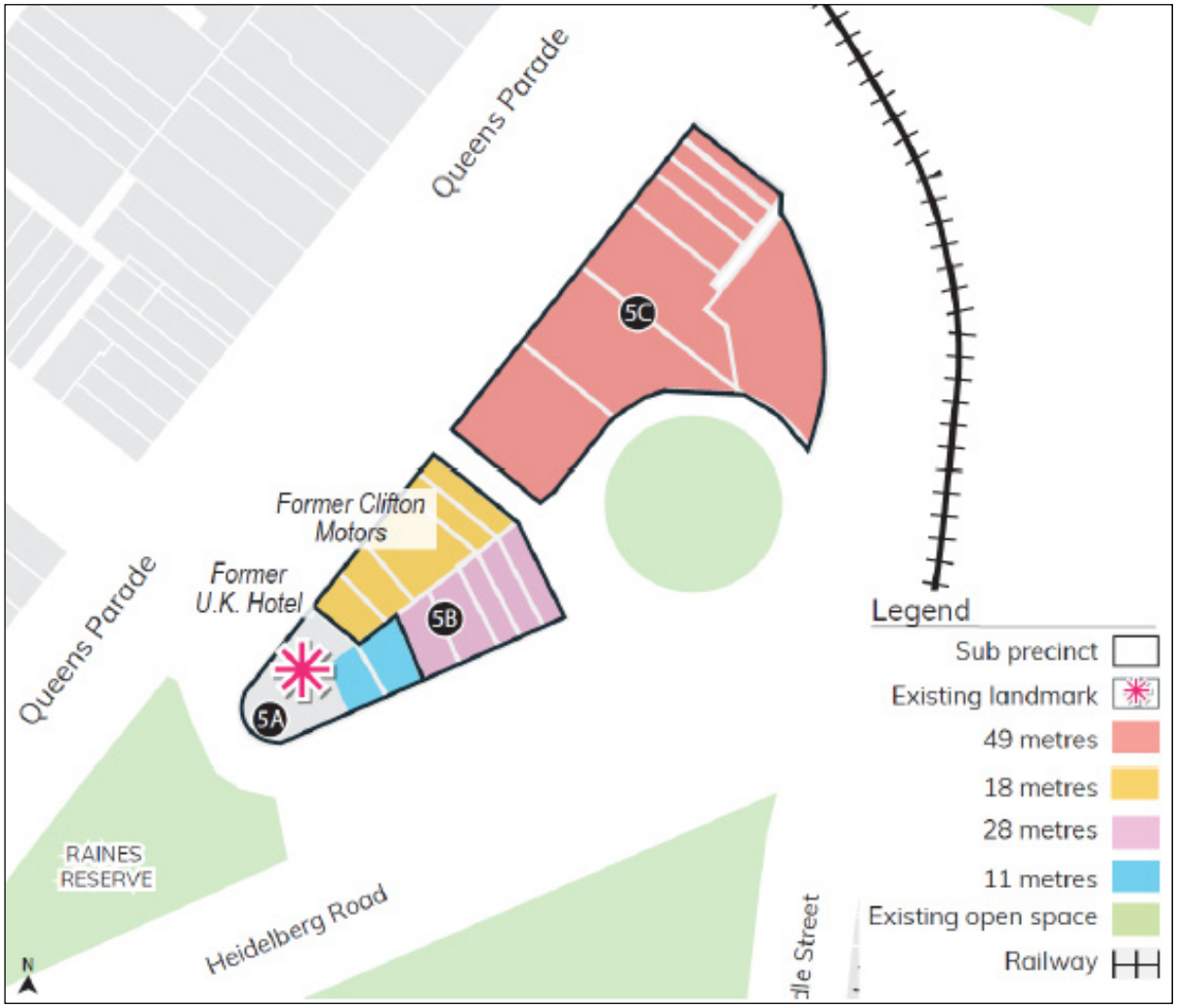


Figure 51: Map of Precinct 5 – North East Precinct

7.2 Summary of Classifications and Recommendations

The table below summarises the classifications, issues and recommendations regarding individual laneways. Figure 52 summarises our classification of each laneway.

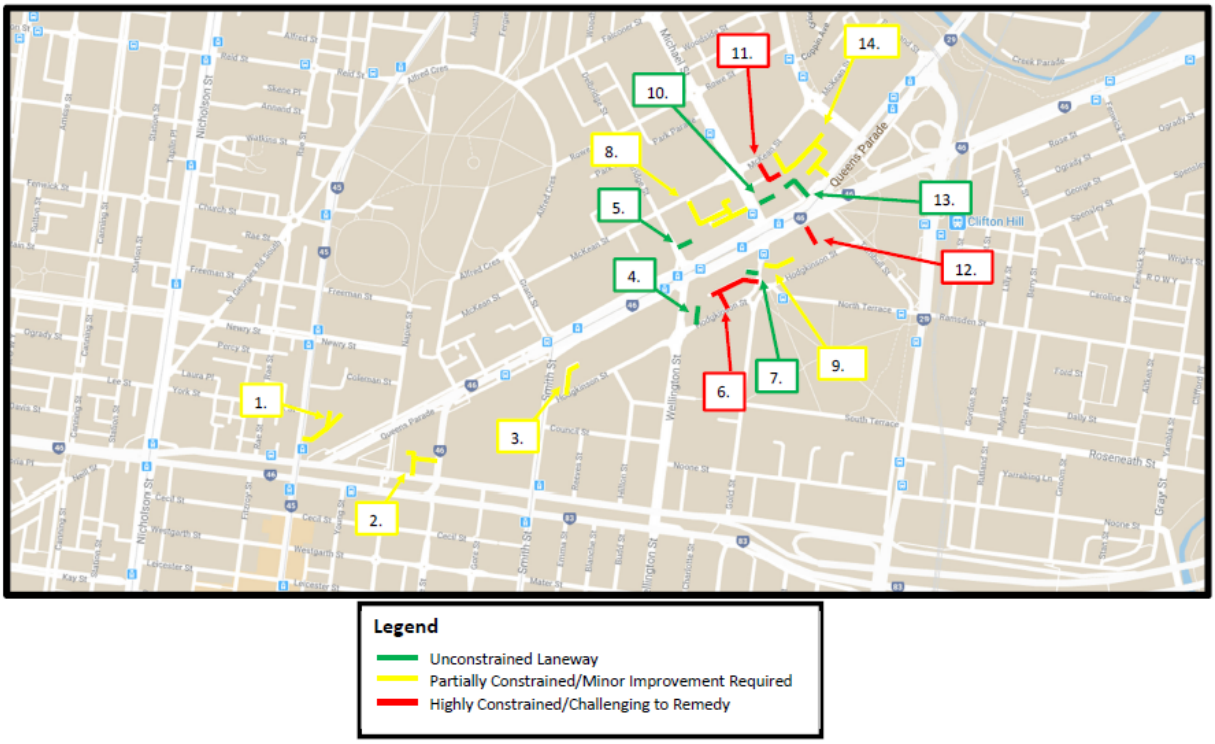


Figure 52: Laneway Classifications

The following recommendations apply to all developments abutting laneways within the study area:

- Council should encourage low parking rates for developments using laneways for access. This includes reducing car parking to zero.
- Council should be aware of key properties on bends on the laneway during the development application process and consider the need for improved splays.
- When setbacks from a laneway are provided, encourage side walls to be setback as well, so that the laneway naturally widens over time.
- Developments accessing laneways should be required to provide supporting traffic assessments to assess laneway conditions.
- It needs to be recognised that in some instances, the use of the laneway will not practically be possible.

Finally, Figure 53 provides a map of the recommended laneway changes/actions for the study area.

Table 15: Summary of Recommendations for Individual Laneways

Laneway	Classification and Reason	Recommendations	Reason
Precinct 1 – Brunswick Street			
1. Brunswick St – dead end	Partially Constrained	• Review opportunities to provide a passing area at the intersection between the laneway and Brunswick Street. This requires a setback of one of the two properties at the entrance to the laneway.	The laneway would be at capacity with full development of all properties abutting it. Providing vehicles an opportunity to pass at this critical location will be adequate to manage the increased traffic and reduce the chances of vehicle conflict impacting on the operation of Brunswick Street.
Precinct 2 – Boulevard			
2. George St - Alexandra Pde	Partially Constrained	These recommendations are based on the laneway being widened to 7m in width by 81-89 Queens Parade, in accordance with its current planning permit: • The bends in the laneway require 3m x 3m splays in order to make the laneway functional. • Vehicle access can be granted to Napier Street or the Queens Parade service road for properties abutting these roads. Either of these outcomes would be acceptable from a traffic engineering perspective.	The laneway is not usable in its current form due to its narrow width and inadequate splays at bends. However, the currently approved development at 81-89 Queens Parade does widen the laneway to 7m in width. If this development proceeds, this does resolve many of the challenge with this laneway.
Precinct 3 – St John's			
3. Hodgkinson St – dead end	Partially Constrained	• Consider allowing 1-5 and 15-35 Queens Parade direct access to Queens Parade.	This laneway would be over capacity at full development. Allowing these two key sites to use their existing access points to Queens Parade would reduce the level of traffic within the laneway to acceptable levels without significant changes to the configuration or the laneway or requiring properties to setback from the laneway.
Precinct 4 – Activity Centre			
4. Hodgkinson St – dead end	Unconstrainted.	• None	The potential scale of the development abutting this laneway is low and no changes are required to accommodate the additional development expected.
5. Delbridge St – end	Unconstrainted.	• None	The potential scale of the development abutting this laneway is low and no changes are required to accommodate the additional development expected.
6. Hodgkinson St – Gold St	Highly Constrained	• Allow access to Queens Parade Service Road where appropriate. • Encourage developments with little or no car parking.	It is our view that in many instances, the use of the laneway for vehicle access will not be practically possible due to the geometric constraints of the laneway in its current form. This is due to its narrow

Laneway	Classification and Reason	Recommendations	Reason
		• Encourage setbacks at the bends in the laneway to improve vehicle access around the bends. • Encourage 3m setbacks at ground floor for new development to provide a functional increase in laneway width and informal passing opportunities.	width (3m), long length (110m), bend obstructing sight distance and constraining vehicle manoeuvrability.
7. Gold St (west wide) – End	Unconstrainted.	• None	The potential scale of the development abutting this laneway is low and no changes are required to accommodate the additional development expected.
8. Koormiel Lane / Barruth Lane	Partially constrained.	• Encourage developments of properties fronting Queens Parade to setback at ground floor to the laneway to gradually widen the laneway over time (recognising that these setbacks are likely to be required for vehicle access in any event). • Council encourage low parking rates within this area.	The east-west link to Michael Street may approach capacity under a full development scenario. Setting back development from the laneway gradually will provide informal passing opportunities.
9. Gold St (east side) – End	Partially constrained.	• Council encourage low parking rates within this area. • Permit 169-171 Queens Parade to have direct access to the service road, in the event that development scale and use of the laneway meant use of the laneway was impractical. • If there is a new planning application 141-147 Queen Street (at the entrance to the laneway) consider allowing for a vehicle passing area at the entrance to the laneway and directly vehicle access to be from the laneway.	The relatively long length, bend and constrained corner limit the capacity of this laneway. Council needs to assess the impact of any future development proposals for the key sites of 169-171 and 141-147 Queens Parade on the laneway in particular. The current planning approval for 141-147 Queens Parade provides a setback which will improve access around the bend in the laneway, but it does not include a passing area at the entrance. This is offset somewhat by this application not using the laneway for access.
10. Michael St – End	Unconstrained	• No specific actions by Council.	The potential scale of the development abutting this laneway is low and no changes are required to accommodate the additional development expected.
11. Howe St – End	Highly Constrained	• No specific actions by Council.	The existing issues with this laneway would be resolved by the abutting land owners providing appropriate setbacks at the time of any future application.
12. Queens Pde - End	Highly Constrained	• No specific actions by Council.	While the laneway is currently 2.5m wide and unusable in its current form for vehicle access, the two properties on either side of the laneway would be able to widen the laneway to accommodate their development traffic, if required.

Laneway	Classification and Reason	Recommendations	Reason
13. Queens Pde - End	Unconstrained	• No specific actions by Council.	The potential scale of the development abutting this laneway is low and no changes are required to accommodate the additional development expected.
14. Queens Pde – Howe St	Partially Constrained	• Ensure new developments provide adequate splays at corners of laneways • Ensure building setbacks from the laneway are unobstructed to functionally widen the laneway.	This laneway is generally functional, but could be improved further with appropriate corner splays. If approved, the development at 390A Queens Parade will improve access within this laneway.
Precinct 5 – North Eastern			
None	-	-	-

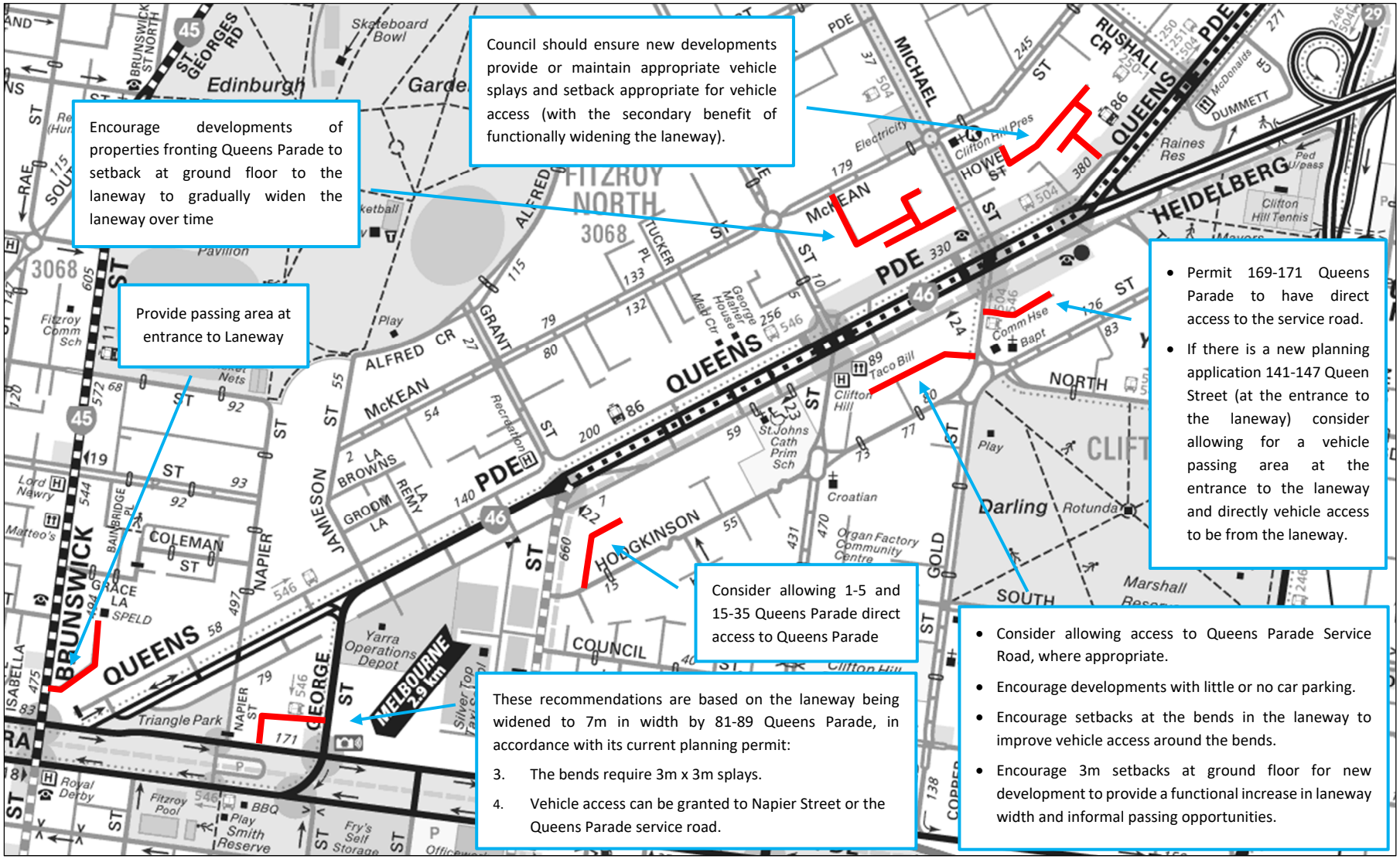


Figure 53: Summary of recommended laneway changes

8 Review of Design and Development Overlay

The table below reviews the proposed planning controls as they relate to traffic engineering matters, in particular vehicle access. This table review both the exhibited controls and Council's preferred controls (dated 28 May, 2019).

Table 16: Review of Proposed Planning Controls as they relate to Traffic Engineering

Exhibited Control	Council's Preferred Controls	Comments
SCHEDULE 16 TO CLAUSE 43.02 DESIGN AND DEVELOPMENT OVERLAY **2.2 General design requirements** The following requirements apply to an application to construct a building or carry out works and must be read in conjunction with the relevant precinct design requirements. • Future vehicle access and services must be provided from a rear laneway or side street where possible.	**SCHEDULE 16 TO CLAUSE 43.02 DESIGN AND DEVELOPMENT OVERLAY** **2.7 Vehicular access, car parking, and loading areas requirements** • New vehicle crossovers onto Queens Parade must be avoided. • Vehicle ingress and egress into development, including loading facilities and building servicing, must be designed to ensure a high quality pedestrian amenity and limit potential conflict between vehicle movements and pedestrian activity. • Development on a laneway must include a rear setback, at ground floor, to facilitate the ongoing function of the laneway and allow for building services and car park access.	In our view, the changes proposed by Council in their preferred controls are generally acceptable, however we recommend that the original control which included the requirement of "*Future vehicle access and services must be provided from a rear laneway or side street where possible"* is retained. There may be instances where the development scale and intensity would be too great for the laneway to accommodate and the development site is unable to suitably upgrade the laneway (for instance, the required change would require land outside the applicant's control), and alternative access to Queens Parade or another roads may be acceptable. Particularly for Queens Parade outside of the Activity Centre precinct, properties accessing Queens Parade would do so to a service road, which is an acceptable traffic engineering outcome as the impact to the arterial road is negligible. Within the Activity Centre precinct, direct access to the Queens Parade service road is less desirable due to its impacts on pedestrians and other non-traffic engineering reasons (such as heritage).
2.4.1 Precinct 1 – Brunswick Street Shown on the planning scheme map as **DDO16-1** The design requirements for Precinct 1 are as follows: • Development must:	Unchanged in Council's preferred controls.	This control states that vehicle access to the laneway is a requirement (i.e. must). Our review found capacity within the laneway to accommodate the additional traffic, however it is recommended that Council review the possibility of a splay or widening at the laneway entrance from Brunswick Street to minimise the impact of development traffic at this critical intersection.

Exhibited Control	Council's Preferred Controls	Comments
○ provide for vehicular access off the laneway		
2.4.1 Precinct 2 – Boulevard Precinct Shown on the planning scheme map as **DDO16-2** The design requirements for Precinct 2 are as follows: • Development in Precincts 2C and 2D must also: ○ provide vehicular access from laneways	Unchanged in Council's preferred controls.	There are no changes between the exhibited and Council preferred controls for this precinct. In our view, the requirement that these precincts must use the laneway is potentially problematic, depending how the area develops. In our view, the word *must* should be tempered to allow some flexibility. The laneway is potentially constrained in its current form and relies on 81-89 Queens Parade to development in accordance with its permit that widens this laneway to 7m in width.
Precinct 3 – St John's Precinct No specific traffic engineering requirements	Unchanged in Council's preferred controls.	N/A
Precinct 4 – Activity Centre Precinct Shown on the planning scheme map as **DDO16-4** • Development must: ○ enhance the amenity and safety of laneways that provide pedestrian and vehicular access to buildings.	**Precinct 4 – Activity Centre Precinct** Shown on the planning scheme map as **DDO16-4** • Development must: ○ enhance the amenity and safety of laneways that provide pedestrian and vehicular access to buildings. ○ maintain service access from the laneways in order to facilitate commercial use of the properties fronting Queens Parade.	Council's preferred controls include and additional requirement about maintaining service vehicle access to laneways to service commercials uses fronting Queens Parade. The first dot point requirement may be applicable to almost all development sites within this precinct (as most may provide some level of pedestrian access to laneways), it is important to recognise that this precinct includes two 'landlocked' sites that only have frontages to a laneway (not a street). This includes: • the rear of 304 to 316 Queens Parade (multiple properties) • 390A Queens Parade We are satisfied that this requirement is appropriate to include in the DDO. In our view, this means that new developments need to consider traffic engineering features such as: • Safe pedestrian entrances to buildings, so that pedestrians are not

Exhibited Control	Council's Preferred Controls	Comments
		stepping directly onto the carriageway. • Suitable lighting • Passive surveillance In our view, it is not strictly necessary to include a requirement specifically about maintaining loading access. The normal planning application process is sufficient to protect this function of the laneway.
Precinct 5 - North East Precinct No specific traffic engineering requirements	Unchanged in Council's preferred controls.	N/A
N/A	**5.0 Application requirements** The following application requirements apply to an application for a permit under Clause 43.02, in addition to those specified elsewhere in the scheme and must accompany an application, as appropriate, to the satisfaction of the responsible authority: • A Traffic and Parking Assessment Report which includes an assessment of the cumulative impacts of traffic and parking in the Precinct.	Council's preferred controls include a new section, Application Requirements, that was not included in the exhibited controls. One of the new requirements is for a Traffic Report to assess cumulative impacts of traffic and parking within the precinct (as appropriate). In our view, there is merit in altering the word of this control to specifically refer to laneways as there are multiple laneways within the area that require close attention as development intensity increases and use of the laneways also increases. This dot point could be reworded as follows: • A Traffic and Parking Assessment Report which includes an assessment of the cumulative impacts of traffic and parking in the Precinct. This includes an assessment of any laneways being used for vehicle access.

9 Conclusions

This study focuses on the traffic implications of Amendment C231 and in particular the impact of the controls which encourage the use of laneways for access to new development sites in preference to other road frontages. There are a number of benefits to using laneways for access instead of other frontages. In the context of the study area, the key ones are:

- the reduced impact on pedestrians on footpaths,
- urban design outcomes, including increased active frontages, and
- minimising heritage impacts, particularly within the Activity Centre Precinct.

We are satisfied that the controls outlined in the DDO are generally appropriate. However, when these requirements are applied to future development applications, it needs to be recognised that under the general design requirements of DD016, vehicle access to the rear laneway or side street is to be provided where possible.

Many of the laneways abutting the development sites affected by the DDO are constrained in their current form. This is due to a number of reasons but the most common ones are:

- Width.
- Length.
- Bends that block sight distance.
- Lack of suitable splays at bends in the laneway.
- Many terminate in dead ends.

When considering the potential of a laneway to accommodate additional traffic, the physical layout of the laneway is one factor, with the second being the level of additional traffic anticipated. When this is taken into consideration many laneways are fit for purpose in their current configuration. However, specific recommendations have been made to selected laneways to manage potential traffic growth.

The following general recommendations apply to the management of all laneways within the study area:

- Developments accessing laneways should be required to provide supporting traffic assessments to assess laneway conditions.
- Council should encourage low parking rates for developments using laneways for access. This includes reducing car parking to zero in appropriate circumstances.
- Council should be aware of key properties on bends on the laneway during the development application process and consider the need for improved splays.
- When setbacks from a laneway is provided, encourage side walls to be setback as well, so that the laneway naturally widens over time.
- It needs to be recognised that in some instances, the use of the rear laneway for vehicle access will not be practically possible.