

REPORT

For NORTHERN MIDLANDS COUNCIL

Traffic Study

Wellington Street and Marlborough Street Intersection, Longford

October 2020



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- As project scope becomes better defined it is strongly recommended that estimates are updated.

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Appendix A - No Right Turn out of Wellington St at Marlborough Street

Appendix B - No North Bound Entrance into Wellington Street at High Street

Appendix C - Barrier Protecting Sticky Beaks Café Building

1. Introduction

The Northern Midlands Council commissioned Johnstone McGee and Gandy Pty Ltd (JMG) to provide a Traffic Options Analysis and associated Report for the traffic issues identified in the Northern Midlands Report, *Traffic Concerns at the Wellington and Marlborough Streets Longford*. That Report requested an analysis based on the following Northern Midlands Council's options:

- Do nothing and continue to monitor the safety at the intersection.
- Consider changes to the kerb alignment at the intersection as part of the Longford Main Street upgrade plan currently being developed by Lange Design.
- Install bollards to provide protection for pedestrians - investigate whether Vulnerable Road User or Blackspot funding is available for these works.
- Continue to discuss the possibility of raised intersection treatment with the Department of State Growth subject to the outcome of the Austroads report on Raised Safety Platforms.

The Northern Midlands Council then provided a scope requirement in their email to JMG dated 23 July 2020 with the following requirements:

- The possibility of making this intersection one way and closing it to north bound traffic either at the intersection or further south.
- Heavy vehicle issues if this intersection is closed to northbound traffic.

JMG provided a Proposal to the Northern Midlands Council dated 28 July 2020 agreeing to deliver an option analysis and associated report on three alternatives as:

- No Right Turn out of Wellington St at Marlborough Street.
- No North bound Entrance into Wellington Street at High Street. Entrance only available at the Marlborough-Wellington Street Intersection.
- An option that can be pursued that does not require a redirection of traffic but will protect patrons of the adjoining café and the café building itself, and any pedestrians.

2. Existing Infrastructure

Figure 1 is a LISTmap extract showing the Marlborough and Wellington Street intersection.

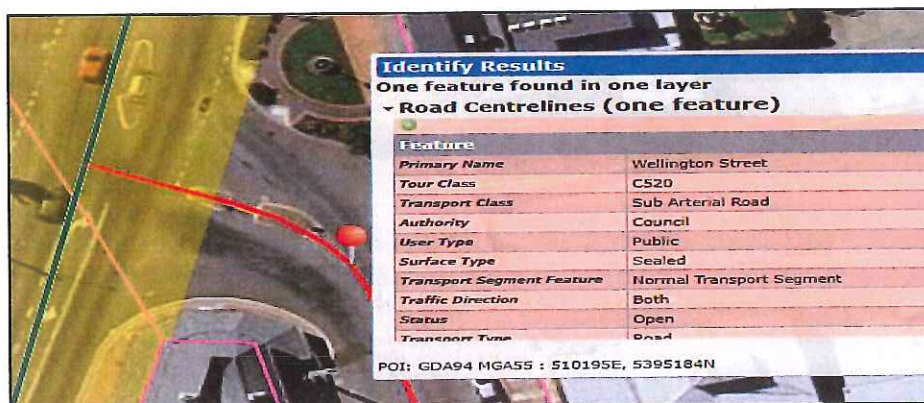


Figure 1. LISTmap extract showing road ownership and property boundaries

The shaded area in Figure 1 shows the Department of State Growth casement for Marlborough Street and Wellington Street north of the intersection. LISTmap shows Marlborough Street

and Wellington Street north of the intersection as an Arterial Road controlled by the Department of State Growth. Figure 1 also shows Wellington Street south of the intersection as a Sub-Arterial Road controlled by Northern Midland Council. Figure 1 also shows property boundaries as described by LISTmap. The complexity of this traffic problem is that it occurs at the interface between two road management jurisdictions. All options considered in this Report must consider the requirements of both Road Managers during the option's assessment.

Figure 2 is a LISTmap extract showing selected traffic movements at the Marlborough Street and Wellington Street intersection. Also shown are the adjoining landowners as key stakeholders.

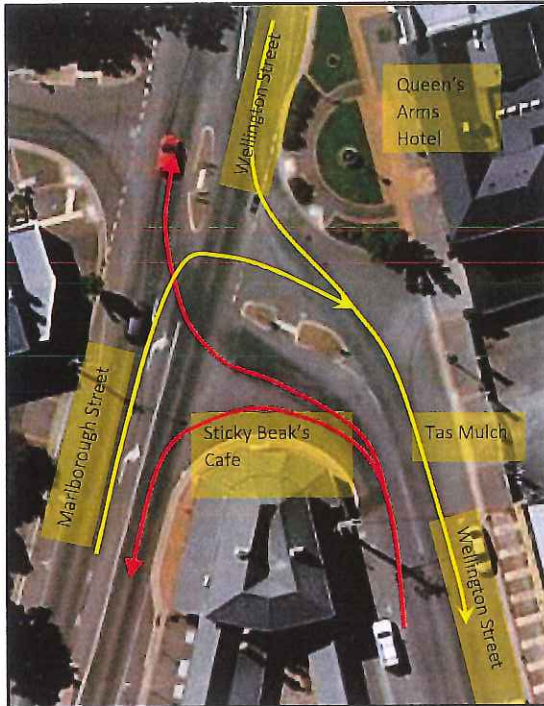


Figure 2. LISTmap extract showing traffic movements and adjoining properties

Figure 3 summarises the traffic counts for Wellington Street as provided by Northern Midlands Council.

| Austroads Vehicle Classification | Classification Description | Traffic Counts 8 August 2020 to 14 August 2020 (Vehicles/6 days) | | | | Average Daily Traffic Counts (Vehicles/day) | | | | | |
|----------------------------------|---|--|------|------------------------------|------|---|------|------|------------------------------|------|--------|
| | | 8662 | 8829 | Light Vehicles (Class 1 - 2) | 8829 | 95.4% | 1444 | 1472 | Light Vehicles (Class 1 - 2) | 1472 | 95.3% |
| 1 | Short | | | | | | | | | | |
| 2 | Short - Towing | 167 | | | | | 28 | | | | |
| 3 | Two Axle Truck or Bus | 294 | | | | | 49 | | | | |
| 4 | Three Axle Truck or Bus | 29 | | | | | 5 | | | | |
| 5 | Four Axle Truck | 12 | 335 | | | | 2 | 56 | | | |
| 6 | Three Axle Articulated or Rigid Vehicle and Trailer | 2 | | | | | 1 | | | | |
| 7 | Four Axle Articulated or Rigid Vehicle and Trailer | 16 | | | | | 3 | | | | |
| 8 | Five Axle Articulated or Rigid Vehicle and Trailer | 17 | | | | | 3 | | | | |
| 9 | Six Axle Articulated or Rigid Vehicle and Trailer | 41 | 76 | | | | 7 | 14 | | | |
| 10 | B Double or Heavy Truck and Trailer | 11 | 11 | B-Doubles (Class 10) | 422 | 4.6% | 2 | 2 | B-Doubles (Class 10) | 72 | 4.7% |
| Totals | | 9251 | 9251 | | 9251 | 100.0% | 1544 | 1544 | | 1544 | 100.0% |

Figure 3. Traffic counts for Wellington Street south of Sticky Beaks Cafe

Figure 3 shows an approximate Annual Average Daily Traffic of 1,544 vehicles with 4.7% of that count heavy vehicles. Of significance is the 16 heavy articulated vehicles in the traffic count for Wellington Street south of Sticky Beaks Café. The traffic split provided by the Northern Midlands Council is approximately 55% south and 45% north at the traffic count site. Based on this information, approximately seven articulated heavy vehicles negotiate the intersection from the south to the north according to the red path as detailed in Figure 2. Otherwise, vehicles are registering at the traffic counter and moving to one of the businesses prior to entering the intersection.

Figure 4 is a table showing traffic counts for Poatina Main Road, locally named Marlborough Street and Wellington Street north of the intersection. Figure 4 provides data for the traffic count station A1604100 located at the northern entrance to Longford and the traffic count station A1604120 located in Longford south of the intersection. The difference between the counts from both stations is 6,086 vehicles. These vehicles have either Longford surrounds north of the traffic count station A1604120 as their origin / destination or they move along Wellington Street south.

| Station | Location | Year | AADT | %HV |
|----------|--|------|------|------|
| A1604100 | Poatina Main Road, 370 metres south of Illawarra Main Road | 2018 | 9255 | 10.2 |
| A1604120 | Poatina Main Road, 190 metres South of Cracroft Street | 2018 | 3169 | 14.3 |
| | Difference | | 6086 | |

Figure 4. Marlborough Street Traffic Counts

The traffic count data described in Figure 3 occurred during restrictions imposed due to the COVID-19. Considering both the content of Figure 3 and Figure 4, the traffic count for Wellington Street south could be considerably higher.

3. Problem Definition

JMG understands the problem for the Northern Midlands Council as errant vehicle mounting the footpath outside Sticky Beaks Café and causing building damage. There is also potential for an errant vehicle causing injury to people occupying the footpath. With reference to the *Submission to Council* for Northern Midlands Council meeting on 20 July 2020 by Gregory Howlett, a vehicle accident occurred at the intersection of Marlborough Street and Wellington Street where an errant motor vehicle caused significant damage to Sticky Beaks Café building. The *Submission to Council* proposed a solution to reduce similar vehicle accidents by removing the right turn movements for traffic moving from Wellington Street south to Wellington Street north through the intersection with Marlborough Street.

JMG understands the vehicle accident involved a light truck turning right from Wellington Street south into Wellington Street north. For some reason, the truck failed to give way to a small light vehicle travelling south on Wellington Street north. The light vehicle collided with the front of the truck causing the light vehicle to veer into the Sticky Beaks Café building. The cause appears to be a failing to give way by the truck. A similar accident may also occur if the truck was turning left from Wellington Street south to Marlborough Street.

Restricting right turn movement from Wellington Street south is a solution but, similar vehicle accidents could occur with vehicles moving north along Marlborough Street and turning right into Wellington Street south, impacting southbound vehicles on Wellington Street north. As previously mentioned, similar vehicle accidents could occur with vehicles turning left from Wellington Street south to Marlborough Street.

A roundabout at the junctions of William Street, Marlborough Street, Wellington Street south and Wellington Street north is an acceptable traffic management solution that would

significantly reduce the risk of collisions at the Marlborough Street and Wellington Street intersection. This solution would address the cause and significantly reduce the consequence of the effect.

Based on Table 3.10 'Key traffic management considerations in the selection of roundabout', from the Austroads *Guide to Traffic Management Part 6: Intersections, Interchanges and Crossings Management*, roundabouts:

- are generally much safer than traffic signals in terms of crash severity,
- create less delay than traffic signals during the off-peak periods, leading to less overall delay to traffic throughout the day,
- readily caters for heavy right-turns,
- can be used in local streets,
- controls vehicle speeds as a traffic calming measure,
- assist in providing access for important minor roads,
- need to consider footprint and therefore possible land acquisition.

The decision to place a roundabout at the intersection is therefore outside the scope of this Report. To progress a roundabout alternative, the option would require a full intersection analysis to determine suitability. If requested, JMG could provide this service.

JMG will also examine an option that exclusively addresses the effect of an errant vehicle. This option proposes a physical barrier to reduce the risk of errant vehicles colliding with any part of the Sticky Beaks Café building.

JMG confirms that the three options for analysis will address the problem with the options as:

- No Right Turn out of Wellington St at Marlborough Street.
- No North bound Entrance into Wellington Street at High Street. Entrance only available at the Marlborough-Wellington Street Intersection.
- An option that can be pursued that does not require a redirection of traffic but will protect patrons of the adjoining café and the café building itself, and any pedestrians.

JMG also considered an alternative to fully close the intersection of Wellington and Marlborough, that would remove all turns at Marlborough Street.

JMG will also provide additional commentary in the Options Analysis regarding:

- Movement of pedestrians at the Wellington Street and Marlborough Street intersection.
- Raised intersection treatment such as the Raised Safety Platforms.

4. Option Assessment

4.1 No Right Turn out of Wellington St at Marlborough Street

This Option was proposed in the *Submission to Council* for Northern Midlands Council meeting on 20 July 2020 by Gregory Howlett. Appendix A of this Report provides a concept plan of this option. An extract from the *Submission to Council* regarding this option follows:

A simple and inexpensive solution (raised by two Councilors) would be to disallow right hand turns from Wellington Street (south) at the Sticky Beaks intersection into Wellington Street (north). As this would not involve any change to the intersection bar the placement of appropriate signage, it is hoped that the Department would be amenable to this solution. If implemented, regular northbound traffic on Wellington Street (south) would in time redistribute itself amongst the various cross streets running between

Wellington Street and Marlborough Street. This would just occur naturally. There would also be minimal disruption to affected businesses and residents.

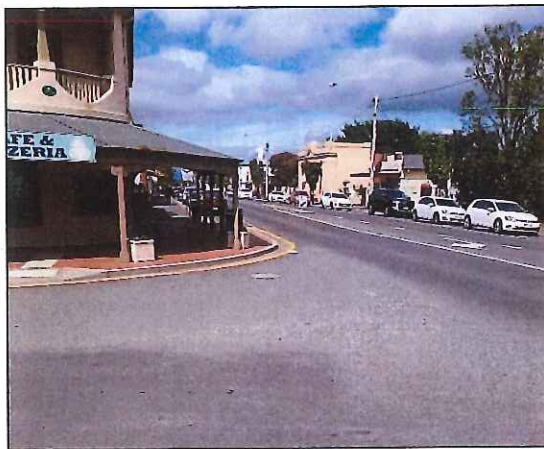
JMG considers that passive control measures such as traffic signage, to not allow right turns from Wellington Street south into Wellington Street north, would be ineffective and require enforcement measures to ensure compliance. Both passive signage and active control measures such as traffic island restricting the right turns from Wellington Street south into Wellington Street north would result in a better solution for this option. This option would allow left turns from Wellington Street south into Marlborough Street. This option would also allow two-way access for all businesses and residents located on Wellington Street south. Should any vehicle from businesses or residents located on Wellington Street south plan a destination north of the intersection, they would require a possible travel path through the Wellington Street south and High Street intersection then through the High Street Marlborough Street intersection.

This option will not reduce the access to businesses and residents located on Wellington Street south, but it will reduce the through traffic travelling to Wellington Street north. Photograph 1 shows the intersection from the landscaped area outside the Queens Arms Hotel with a view down Wellington Street south. It also shows the south bound lane of Wellington Street south. This option allows vehicle to move along Wellington Street north and turn left into Wellington Street south.



Photograph 1. Wellington Street

Photograph 2 is a view from the traffic island south along Marlborough Street. Due to the constrained nature of the intersection, heavy articulated vehicles turning left from Wellington Street must obstruct the northbound right turn lane on Marlborough Street. This option allows vehicle to move along Wellington Street south and turn left into Marlborough Street.



Photograph 2. View from the traffic island south along Marlborough Street

This option will not remove the risk of vehicle collisions for vehicle movements from Wellington Street south turning left into Marlborough Street or from Marlborough Street turning right into Wellington Street south. The consequence of an accident during either of these traffic movement may result in errant vehicle mounting the footpath and colliding with the Sticky Beaks Café building.

Photograph 3 shows the raised traffic island on the centreline of Wellington Street south at the approach to the intersection with Marlborough Street. This option will not reduce the access to businesses and residents located on Wellington Street south.



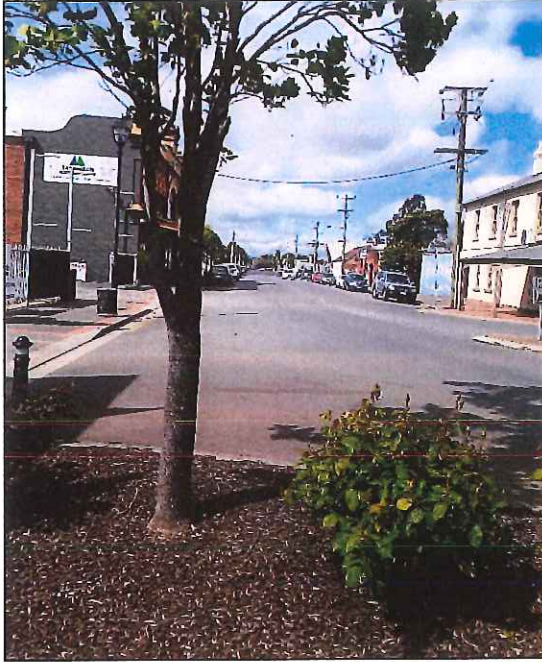
Photograph 3. Traffic island on the centreline of Wellington Street south

Photograph 4 shows the traffic signage from Wellington Street south turning right into Wellington Street north as a Give Way control. This option will require a similar raised traffic island and signage to restrict right turns. The new raised island would extend to the left of existing island shown to prohibit right turn movements.



Photograph 4. Traffic signage from Wellington Street turning right

Photograph 5 shows the intersection from the landscaped area outside the Queens Arms Hotel with the entrance to the Queens Arms Hotel and Tas Mulch on the left side of Wellington Street south. Wellington Street south is a sub arterial road with adequate width and parallel parking on both sides of the street.



Photograph 5. Entrance to the Queens Arms Hotel and Tas Mulch

During the traffic analysis JMG approached selected business operators on Wellington Street south. The business operator at Tas Mulch had the following comments regarding this option:

- They operate truck and dog heavy vehicle configurations and currently avoid the intersection where possible.
- Trucks leaving Tas Mulch attempting to turn right at the Wellington Street and Marlborough intersection will block the traffic travelling south along Wellington Street south causing traffic congestion.
- Truck drivers travelling north move along Wellington Street south then through the Wellington Street south and High Street intersection then through the High Street Marlborough Street intersection.
- Truck drivers rarely turn left into Marlborough Street from Wellington Street south because they must obstruct the right turn lane from Marlborough Street.
- Business operator would be amenable to no right turns from Wellington Street south to Wellington Street north.

The business operator at Longford Mower and Chainsaw Centre had the following comments regarding this option:

- Opposed to any option that would reduce the number of traffic movement past the business as passing trade generates a large part of his business.
- Provided a simple concept as a possible option, see Figure 5.

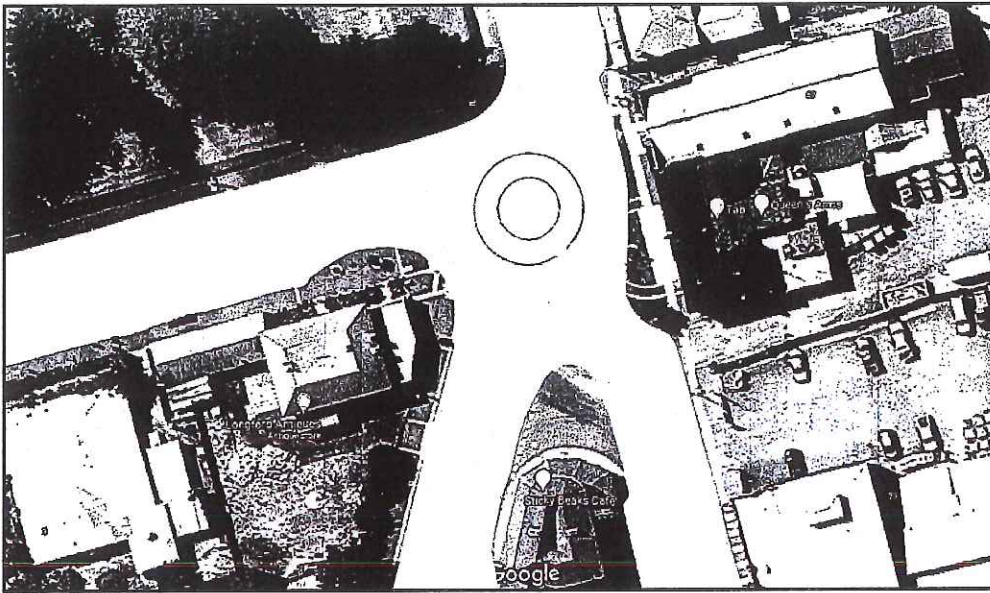
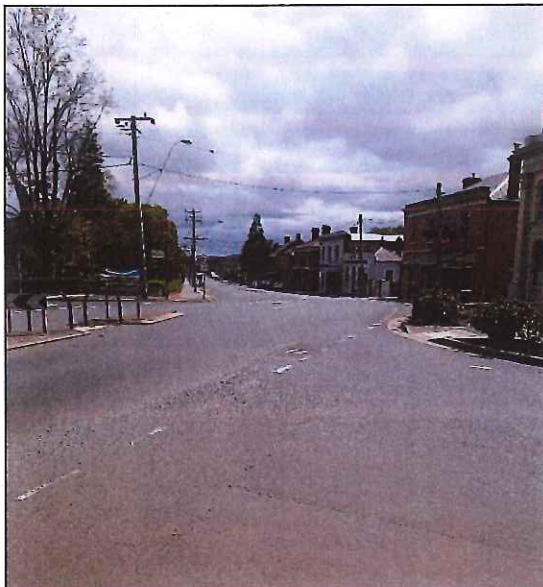


Figure 5. Simple concept provided by Longford Mower and Chainsaw Centre

The business operator at Sticky Beaks Café had the following comments regarding this option:

- Prefers this option to reduce the risk of vehicles impacting the at Sticky Beaks Café building.
- Agrees that a roundabout option would be the best solution.
- Claims that there is restricted sight distance north along Wellington Street north when giving way at the intersection.
- Vehicles turning right from Wellington Street south to Wellington Street north must also consider vehicles entering and exiting William Street.

Photograph 6 is a view of Wellington Street north from the traffic island to the north showing very good sight distances.



Photograph 6. Wellington Street north from the traffic island to the north

4.2 No North bound Entrance into Wellington Street at High Street

This option prohibits traffic entering from the south to the section of Wellington Street south, from the Wellington Street south and High Street intersection. Vehicles will continue to move south on Wellington Street south and can also turn right into High Street from Wellington Street south. Figure 6 is a marked-up image showing the concept of the No Entry into Wellington Street south at High Street. Appendix B of this Report provides a concept plan of this option.

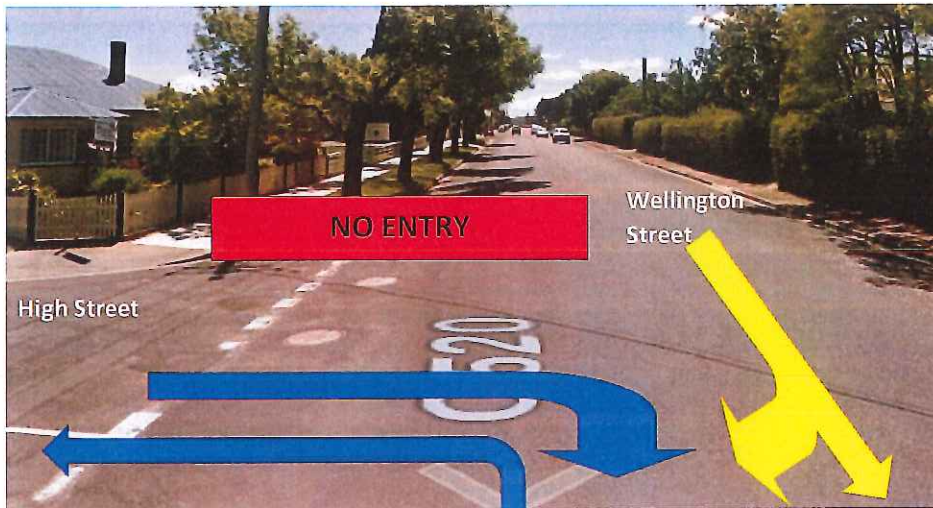


Figure 6. Concept of the No Entry into Wellington Street south at High Street

Through traffic proceeding along Wellington Street south with a destination in Wellington Street south, north of the No Entry restriction, must turn left at the Wellington Street south and High Street intersection, right at the High Street Marlborough Street intersection then right into Wellington Street south at the Marlborough Street and Wellington Street intersection. This option would not alter the current configuration of the Wellington Street and Marlborough Street intersection. Also, through traffic proceeding south along Wellington Street south would be unaffected.

Photograph 7 is an image of the High Street and Wellington Street intersection. This option will prohibit left turn movements from High Street into Wellington Street south. All traffic will turn right into Wellington Street south. Both passive signage and active control measures such as traffic island restricting the left turns from High Street into Wellington Street south and through north bound traffic on Wellington Street south would enable this option.



Photograph 7. High Street and Wellington Street intersection

Photograph 8 is an image of High Street. This option would in effect direct onto the left lane of High Street shown in Photograph 8, all traffic, including heavy vehicles, that currently move north along Wellington Street south between High Street and the Wellington Street and Marlborough Street intersection.



Photograph 8. High Street

A consequence of this option is that the left lane of High Street, as shown on the left side of Photograph 8, would receive accelerated pavement and bituminous seal degradation due to expected increase in heavy vehicles.

Photograph 9 is an image showing the High Street and Marlborough Street intersection.



Photograph 9. High Street and Marlborough Street intersection

This option may result in a larger traffic volume, including heavy vehicles turning right from High Street into Marlborough Street. This analysis examined the vehicle turning templates to ensure that the heavy vehicles such as rigid trucks, can safely move through the intersections.

During the traffic analysis JMG approached selected business operators on Wellington Street south. The business operator at Tas Mulch had the following comments regarding this option:

- Business operator would be amenable to this option.
- Tas Mulch indicated that this option could receive considerable resistance from other business owners with accesses along Wellington Street south.

The business operator at Longford Mower and Chainsaw Centre had the following comments regarding this option:

- Vehemently opposed to any option that would reduce the number of traffic movement past the business as passing trade generates a large part of his business.

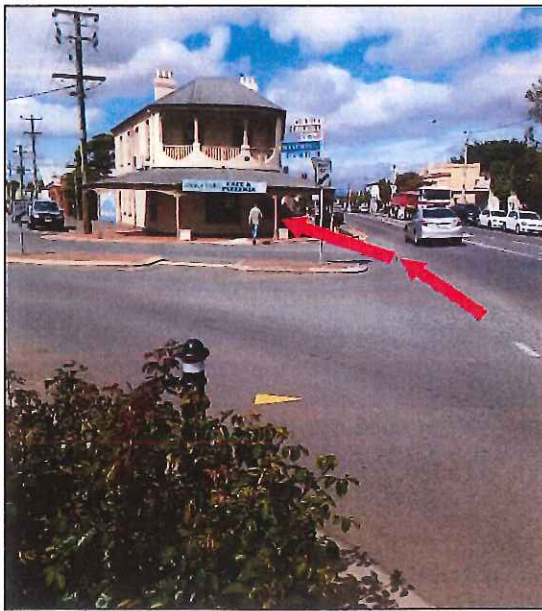
The business operator at Sticky Beaks Café had the following comments regarding this option:

- Prefers the option to prohibit right turns at the Marlborough Street and Wellington Street intersection.

4.3 Barrier protecting Sticky Beaks Café building

This option will not remove the risk of vehicle collisions. Appendix C of this Report provides a concept plan of this option. This option would reduce the impact of an errant vehicle, following a collision, mounting the footpath and colliding with the Sticky Beaks Café building. As detailed previously, the critical vehicle movements that could result in errant vehicles colliding the building front include vehicle movements; from Wellington Street south turning left into Marlborough Street, from Marlborough Street turning right into Wellington Street south and from Wellington Street south turning right into Wellington Street north.

Photograph 10 shows the Sticky Beaks Café and the intersection from the perspective of a motor vehicle travelling south along Wellington Street north and turning left into Wellington Street south. A traffic island on the centerline of Wellington Street south also acts as a refuge for pedestrians crossing Wellington Street. The red arrows in Photograph 10 show the approximate path of an errant vehicle that impacted the cafe building causing significant damage.



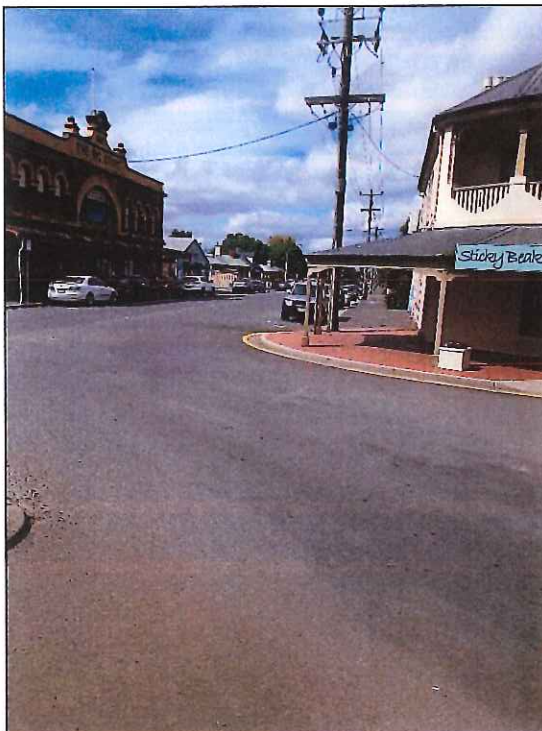
Photograph 10. Sticky Beaks Café and the intersection

Photograph 11 shows the intersection from the landscaped area outside the Queens Arms Hotel. This option would involve placing a suitable barrier between the Sticky Beaks Café building awning supports and the roadway. Photograph 10 indicates that vehicles travelling south along Wellington Street north could collide with propped turning vehicles resulting in the through vehicle deviating its path and colliding with the building. The impact area and the point of need should be between the existing pedestrian crossing outside the Sticky Beaks Café and the tangent point of the curve along Marlborough Street.



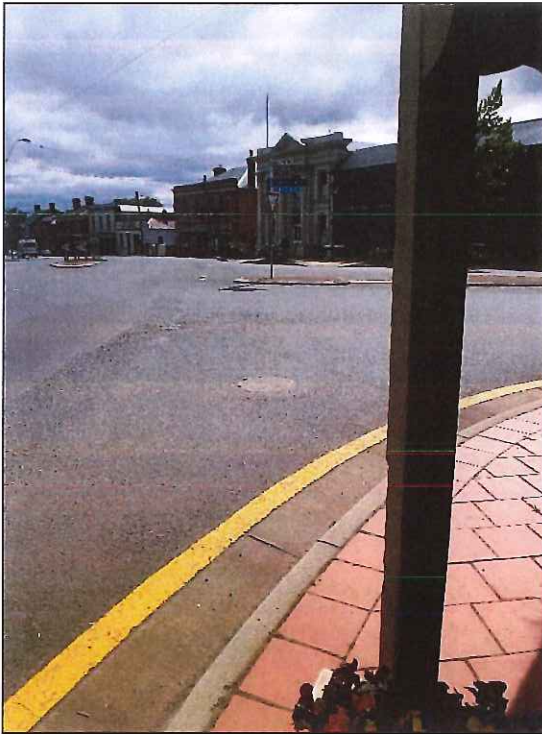
Photograph 11. Intersection from the landscaped area outside the Queens Arms Hotel

Photograph 12 shows Wellington Street south from the traffic island. There appears to be adequate lane width in Wellington Street for heavy vehicles moving along Wellington Street to the south as well as maintain the turning movement from Wellington Street south to Marlborough Street.



Photograph 12. Wellington Street from the traffic island

Photograph 13 shows the intersection and Wellington Street north from the footpath at Sticky Beaks Café viewing to the north. The errant vehicle that collided with the Sticky Beaks Café building passed to the right of the building awning column in Photograph 13.



Photograph 13. Intersection from the footpath at Sticky Beaks Café

This option proposes a raised island that will accommodate a suitable vehicular barrier in front of the Sticky Beaks Café building awning supports. The suitable vehicular barrier would be a product capable of dissipating the kinetic energy generated by an errant light motor vehicle striking the barrier. The intent of the proposed barrier placement would be to protect the pedestrians and building including the awning columns.

During the traffic analysis JMG approached selected business operators on Wellington Street south. The business operator at Tas Mulch had the following comments regarding this option:

- Business operator would be amenable to this option.

The business operator at Longford Mower and Chainsaw Centre had the following comments regarding this option:

- Business operator would be amenable to this option.

The business operator at Sticky Beaks Café had the following comments regarding this option:

- Business operator would be amenable to this option.
- Prefers the option to prohibit right turns at the Marlborough Street and Wellington Street intersection.

5. Additional Commentary

5.1 *Movement of pedestrians at the Wellington Street and Marlborough Street intersection*

During the assessment of the traffic options for the issue at the Wellington Street and Marlborough Street intersection, there appeared to be issues regarding the pedestrian crossing movements from the Sticky Beaks Café footpath. Photograph 14 shows the pedestrian crossing outside Sticky Beaks Café. Also shown is the access to the Queens Arms Hotel and the Tas Mulch landscape supplier.



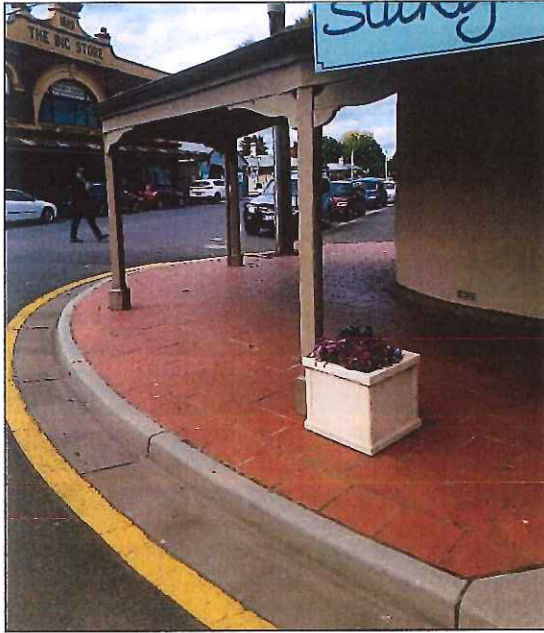
Photograph 14. Pedestrian crossing outside Sticky Beaks Café

Photograph 15 shows the sight distance from the pedestrian crossing outside Sticky Beaks Café back along Wellington Street south. The sight distance is restricted by a parked vehicle and the building wall.



Photograph 15. Sight distance from the pedestrian crossing along Wellington Street

Photograph 16 shows the improved sight distance outside Sticky Beaks Café back along Wellington Street south. The sight distance remains restricted by a parked vehicle.



Photograph 16. Improved sight distance from the pedestrian crossing

The solution to resolve the traffic management issue at the Wellington Street and Marlborough Street intersection proposes to also improve the pedestrian safety by any of the following:

- Providing an extended raised island to project a pedestrian further into the intersection to increase the sight distance south on Wellington Street south.
- Restricting traffic movements.

5.2 Raised Safety Platforms

The Vic Roads Road Design Note RDN 03-07 Raised Safety Platforms dated December 2019, claims that Raised Safety Platforms are a speed management treatments capable of reducing the maximum comfortable operating speed for a vehicle, thus lowering the overall speed of vehicles to a Safe System collision speed (i.e. should a collision occur, impact forces are within human tolerances). Figure 7 is a plan of a raised safety platform.

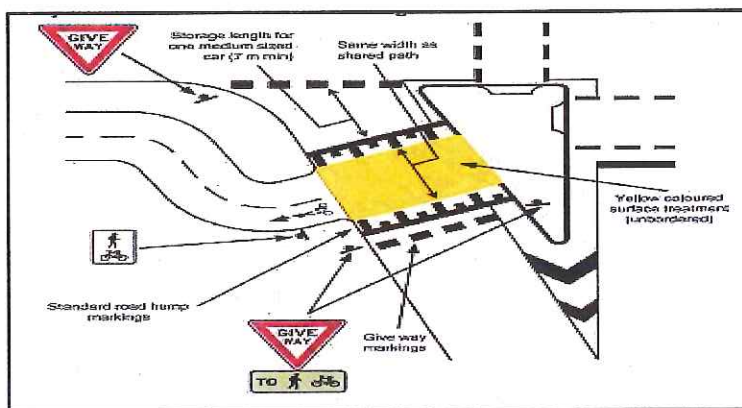


Figure 7. Raised safety platform from VicRoads

For this device to be effective, it should be placed on Wellington Street north to reduce the vehicle speed resulting in lower speed collisions. A lower speed collision would result in a reduction in the incidence of an errant vehicle colliding with the Sticky Beaks Café building.

This device will not be discussed further as it will involve discussions between Northern Midlands Council and the Department of State Growth.

6. Option Analysis

6.1 *No Right Turn out of Wellington St at Marlborough Street*

Advantages

- Reduction in the traffic using the Wellington Street and Marlborough Street intersection.
- Based on the three vehicle conflicts, Marlborough Street turning right into Wellington Street south, Wellington Street south turning left into Marlborough Street, Wellington Street south turning right into Wellington Street north, this option eliminates conflicts for the Wellington Street South turning right into Wellington Street north movement.

Disadvantages

- Based on the three possible vehicle conflicts, two conflicts remain as Marlborough Street turning right into Wellington Street south and Wellington Street south turning left into Marlborough Street.
- Reduction in the traffic passing businesses in Wellington Street south with the perceived loss of trade.
- Sub arterial traffic moved to and impacting on local residential streets.
- No reduction in the impact of vehicle collisions on building components such as the awning columns.

Planning Estimate of Cost

- Project estimate \$26,000.
- Remove existing traffic islands.
- New traffic islands.
- Traffic signage.
- Linemarking.
- Setout and traffic management.
- Design and procurement.
- Supervision.

6.2 *No North bound Entrance into Wellington Street at High Street*

Advantages

- Reduction in the traffic using the Wellington Street and Marlborough Street intersection.
- Based on the three possible vehicle conflicts, Marlborough Street turning right into Wellington Street south, Wellington Street south turning left into Marlborough Street, Wellington Street South turning right into Wellington Street north, this option reduces but does not prohibit all conflicts.

Disadvantages

- Reduction in the traffic passing businesses in Wellington Street south with the perceived loss of trade.
- Increased traffic turning movements at the Wellington Street and High Street intersection.
- Increased traffic turning movements at the High Street and Marlborough Street intersection.
- Sub arterial traffic moved to and impacting on local residential streets.

Planning Estimate of Cost

- Project estimate \$42,000.
- New traffic islands.
- Traffic signage.
- Linemarking.
- Setout and traffic management.
- Design and procurement.
- Supervision.

6.3 Barrier Protecting Sticky Beaks Café BuildingAdvantages

- Reduction in the impact of vehicle collisions on building components such as the awning columns at the Sticky Beaks Café creating a safer environment for pedestrians.
- Provision of a safer pedestrian crossing from the Sticky Beaks Café footpath due to projected raised traffic islands allowing greater pedestrian sight distance down Wellington Street south.

Disadvantages

- This option addresses the effect and impact of traffic accidents and not the cause of the traffic accidents.
- Based on the three vehicle conflicts, Marlborough Street turning right into Wellington Street south, Wellington Street south turning left into Marlborough Street, Wellington Street South turning right into Wellington Street north, this option has no reduction on the vehicle conflicts.

Planning Estimate of Cost

- Project estimate \$29,000.
- Traffic barrier.
- New traffic islands including traffic barrier foundation
- Concrete kerb.
- Linemarking.
- Setout and traffic management.
- Design and procurement.
- Supervision.

7. Conclusions

The least expensive option is prohibiting right turns from Wellington Street south into Wellington Street north. This option will reduce one of the three vehicle conflicts as vehicle turning right from Wellington Street south into Wellington Street north. The possibility of two vehicle conflicts will remain. This option does not address the impact of vehicle collisions on building components such as the awning columns at the Sticky Beaks Café. This option will

increase the sub arterial traffic moving to and impacting on the local residential streets. This option will also reduce the traffic passing businesses in Wellington Street south with the perceived loss of trade.

The most expensive option is prohibiting north bound access into Wellington Street south at High Street. This option does not address the impact of vehicle collisions on building components such as the awning columns at the Sticky Beaks Café. This option will increase sub arterial traffic moving to and impacting on local residential streets. This option will also significantly reduce the traffic passing businesses in Wellington Street south with the perceived loss of trade.

For approximately \$3,000 more than the least expensive option, the Northern Midlands Council could provide a traffic barrier protecting Sticky Beaks Café building. This option will not reduce any of the three vehicle conflicts. This option will address the impact of vehicle collisions on building components such as the awning columns at the Sticky Beaks Café creating a safer environment for pedestrians. This option will not increase sub arterial traffic moving to and impacting on local residential streets. This option will not reduce the traffic passing businesses in Wellington Street south with the perceived loss of trade. This option will create a safer pedestrian crossing from the Sticky Beaks Café footpath due to extended raised traffic islands allowing greater pedestrian sight distance down Wellington Street south.

Whilst not treating the cause of the intersection accidents, the proposed traffic barrier protecting Sticky Beaks Café building provides significant safety improvements including pedestrians. The accidents at the intersection have been in a low speed environment with minimal personal injury. However, the risk to pedestrians and building infrastructure is much higher.

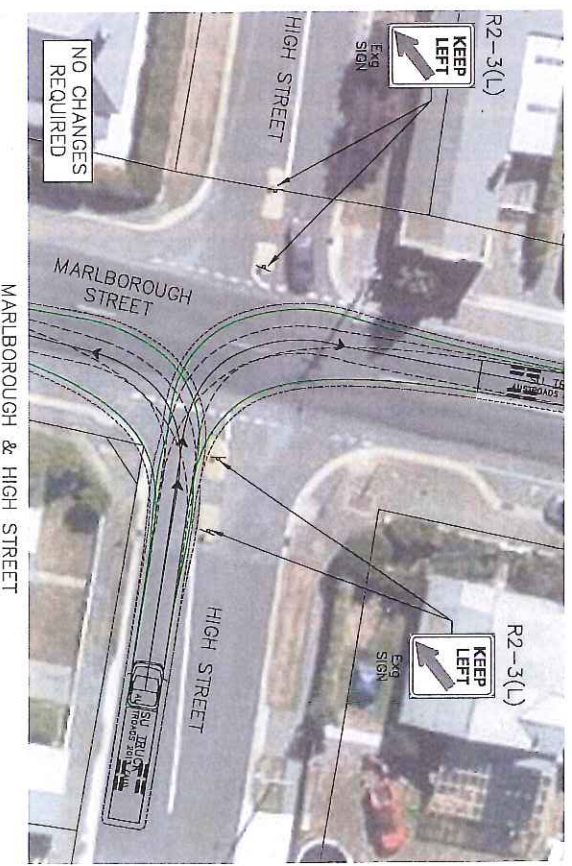
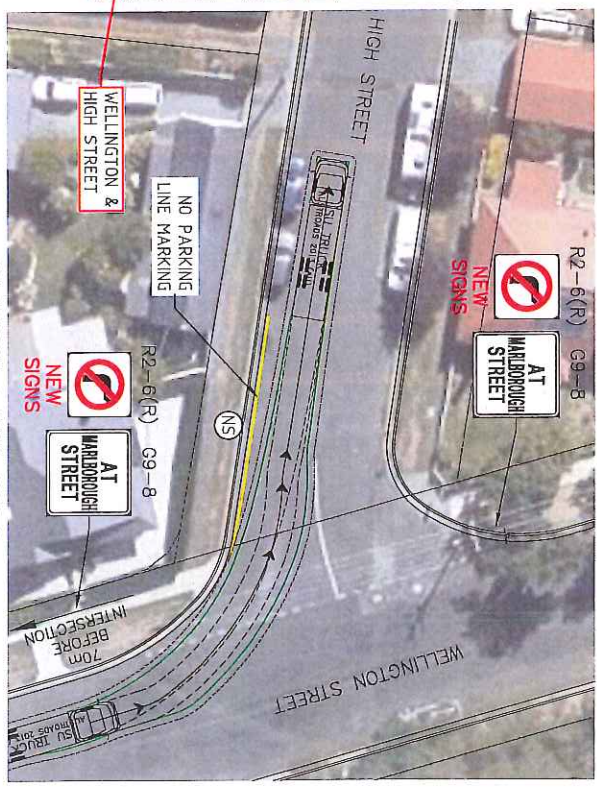
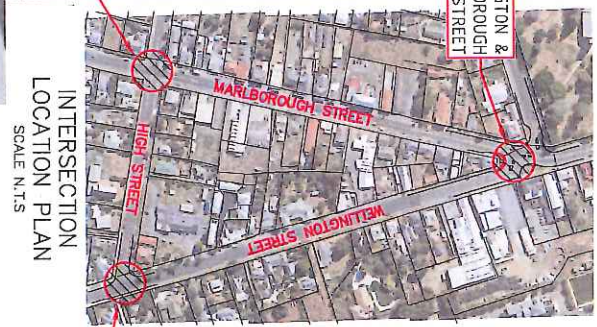
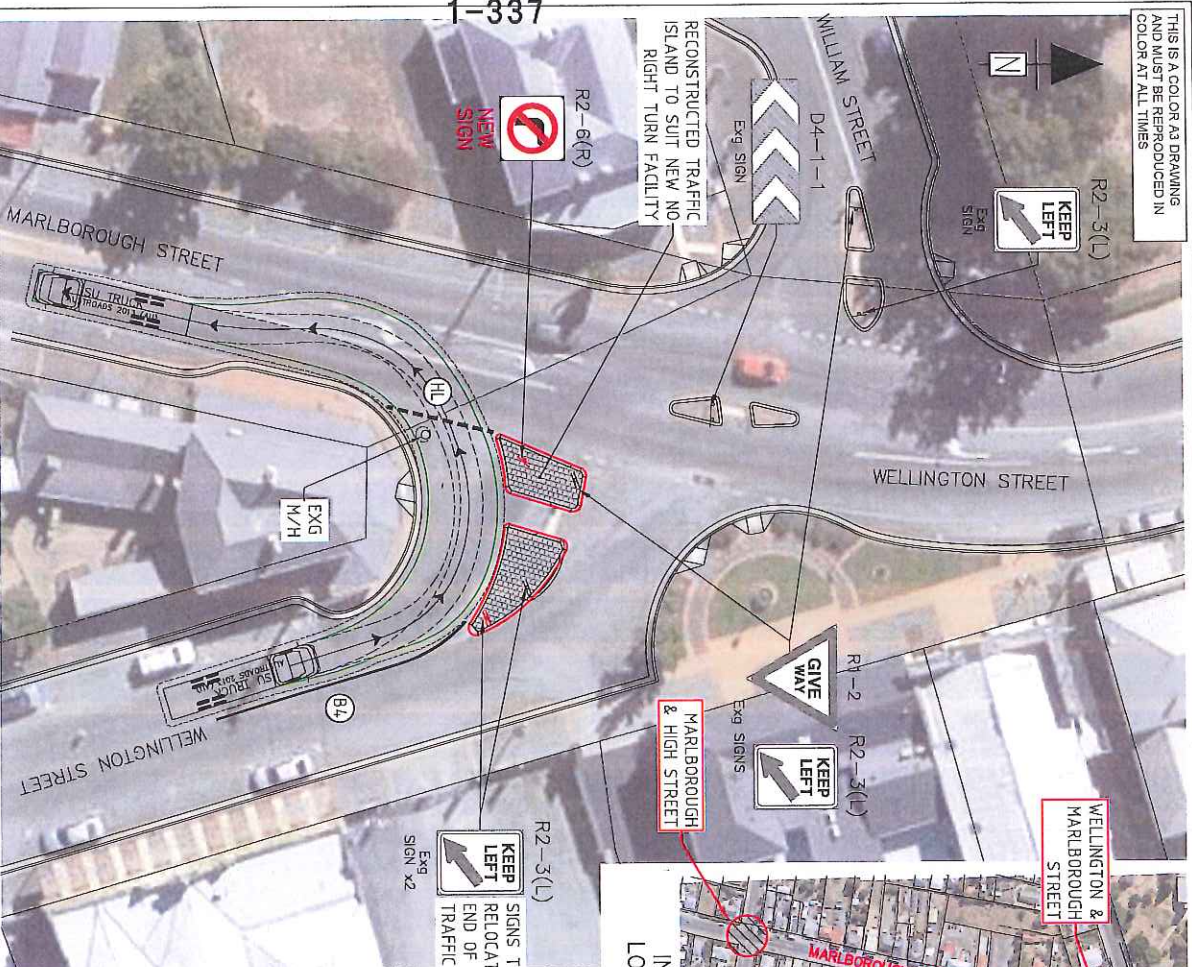
JMG recommends progressing the option proposing the traffic barrier protecting Sticky Beaks Café building.

JMG can assist in developing this option into a designed product as well as targeted stakeholder management to attain positive outcomes for Northern Midlands Council, road users and the affected stakeholders.

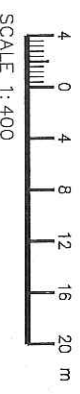
APPENDIX A

**Option 1:
No Right Turn out of Wellington St at
Marlborough Street**

THIS IS A COLOR A3 DRAWING AND MUST BE REPRODUCED IN COLOR AT ALL TIMES



DESIGN VEHICLE IS SINGLE UNIT (SU) - 12.5m TRUCK



PRELIMINARY PRINT

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| REV | DATE | REMARK |
| P1 | 20/10/20 | Final/Issue |

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| DESIGNED BY | SCALE @ A3 |
| CHROME | 1:200 |
| DATE | 20/10/2020 |

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LONGFORD TRAFFIC ANALYSIS

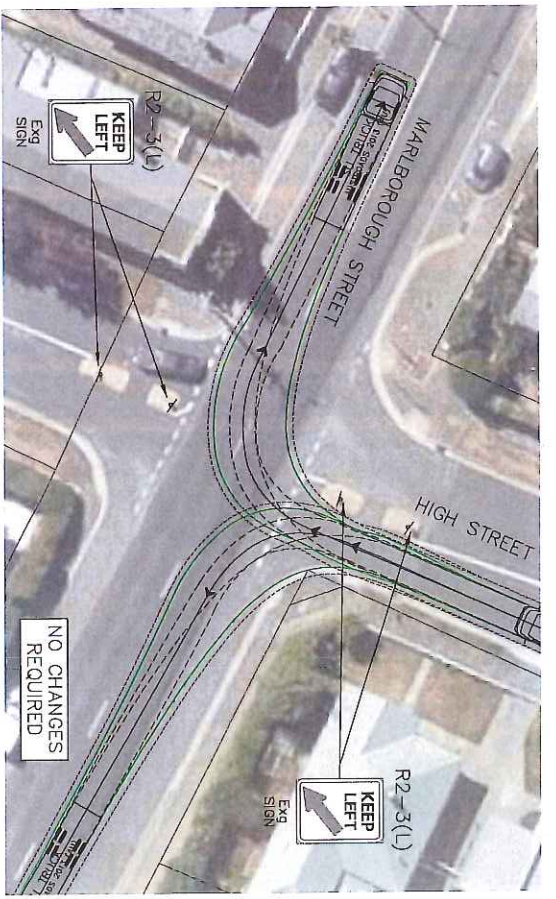
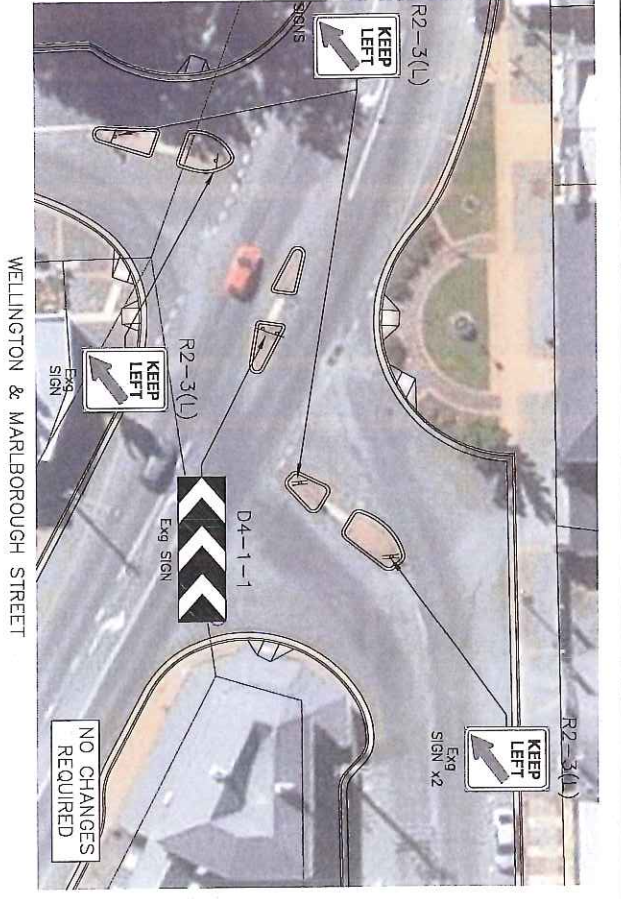
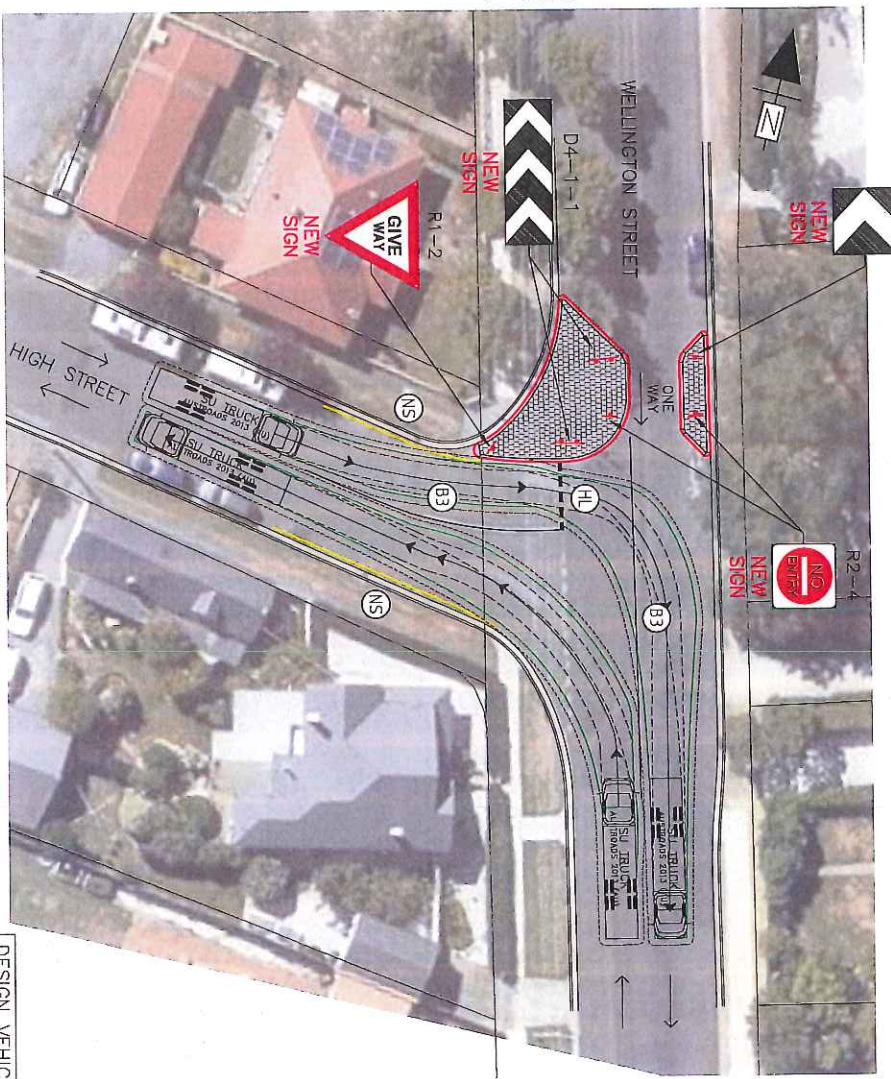
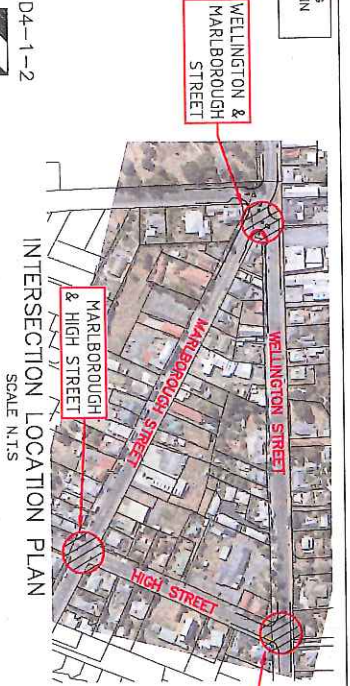
TITLE
OPTION 1
NO RIGHT TURN
WELLINGTON/MARLBOROUGH ST

PROJECT NO. J202357CL
DWG NO. C10
REGION P1
PLOT DETAILS 202357CL WELLINGTON ST DWG

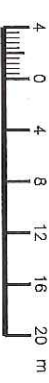
APPENDIX B

**Option 2:
No North bound Entrance into Wellington
Street at High Street**

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P1 | 30.10.20 Preliminary Issue

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| LONGFORD TRAFFIC ANALYSIS | J202357CL |
| Title | DWG No. |
| NO ENTRY TO WELLINGTON ST | C11 |
| WELLINGTON/HIGH ST | P1 |
| Revision | Product No. |
| | J202357CL |



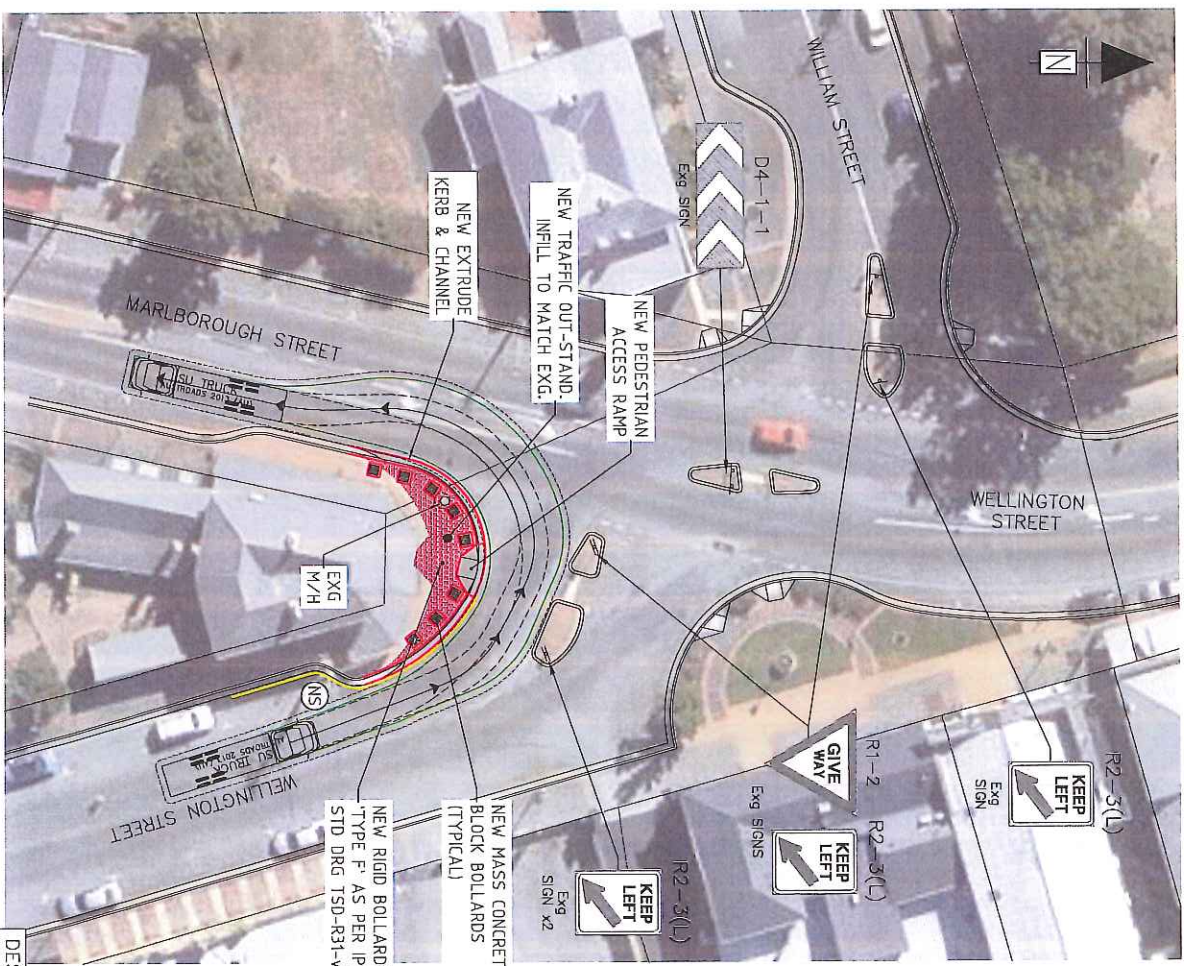
Johnstone McGee & Gandy Pty. Ltd.
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 (03) 8231 2555
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APPENDIX C

**Option 3:
Barrier Protecting Sticky Beaks Café Building**

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P1 30/10/20 Preliminary Issue

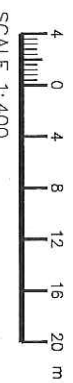
WELLINGTON & MARLBOROUGH STREET

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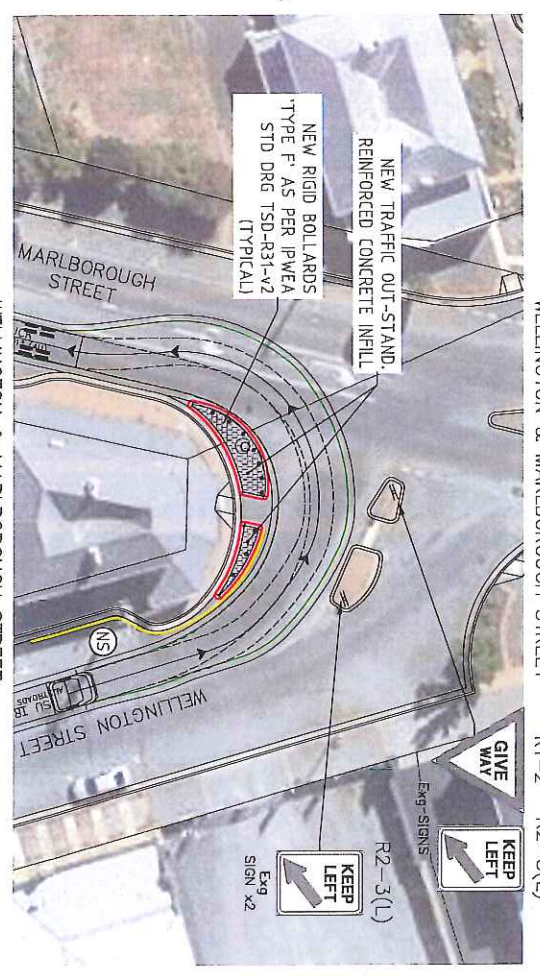
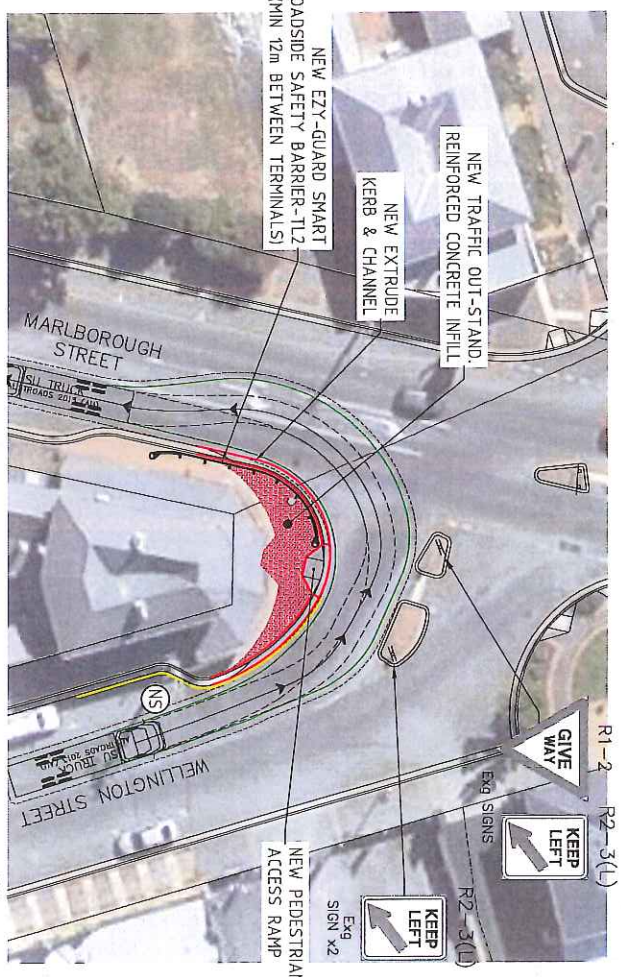
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| TITLE | PROJECT NO. |
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| OPTION 3 PEDESTRIAN/BUILDING PROTECTION | J202357CL |

| DWG NO. | REVISION |
|---------|----------|
| C12 | P1 |

| PLAT DETAILS |
|----------------------------|
| 1202357CL WELLINGTON STDWG |

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