TECHNICAL NOTE

To	City of Greater Geelong	**Date**	10 March 2022
From	Cameron Munro	**Project No.**	0182
Subject	Gheringhap Street and Moorabool Street bicycle lanes safety assessment		

1. Introduction

The City of Greater Geelong, supported by the Department of Transport, has recently installed protected bicycle lanes on Gheringhap Street between Little Malop Street and Kilgour Street, and along Moorabool Street between Carr Street and the Barwon River.

This safety assessment was commissioned by the council to provide an independent review of the as-constructed bicycle lanes at five locations:

1. Gheringhap Street between Malop Street and Ryrie Street
2. Intersection of Gheringhap Street and Little Myers Street
3. Intersection of Gheringap Street and Kilgour Street
4. Intersection of Moorabool Street and Park Crescent
5. Intersection of Moorabool Street and Little Fyans Street.

The primary focus of this review was to assess the possible safety risks and their implications for all road users. This review is not a formal road safety audit.

2. Methodology

A site inspection was undertaken on Tuesday 15 February 2022 from around 10 am to 1 pm. Weather conditions were dry and sunny[1]. The route was firstly ridden by bicycle (in both directions) to observe the operation of the bicycle lanes from the point of view of the primary target of the project. The reviewer had previously seen plans of the lanes and had been part of discussions reviewing the plans prior to construction but had no prior experience physically present at the locations. A subsequent walkthrough was conducted to examine the details of the project and observe motorist and pedestrian movements more closely. Finally, the Gheringhap Street section was driven in a car. Cyclist demand was very low during the period of observation, as was pedestrian activity and motor vehicle demand was moderate (generally free flowing).

The bicycle lanes had been installed in stages in the second half of 2021 and were functionally complete at the time of the assessment. There were several temporary signs warning road users of changed traffic conditions. The southbound section of bicycle lane between Little Ryrie Street and Myers Street was incomplete, presumably due to major building construction and the partial road closure southbound to accommodate this construction.

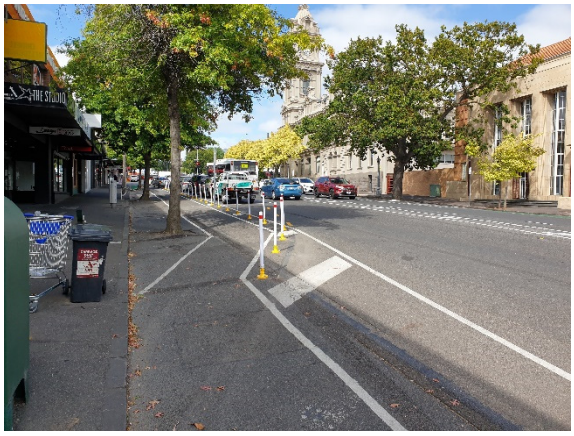
[1] Night-time issues, especially illumination, were not considered in this assessment.

3. Gheringhap Street between Malop Street and Ryrie Street

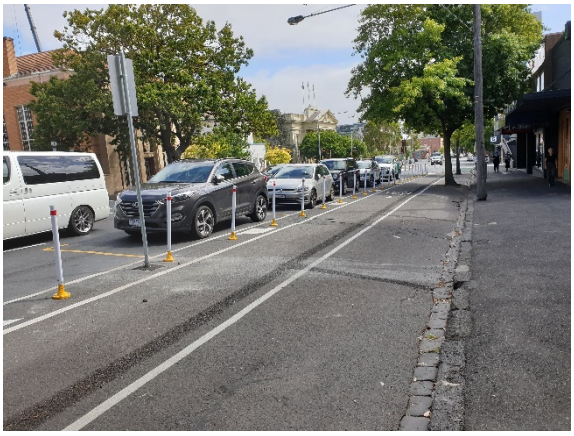
This section consists of two distinct blocks:

1. No bicycle lanes between Malop Street and Little Malop Street
2. Kerbside bicycle lane with either bollards and floating parallel parking adjacent to the traffic lane or a painted buffer (Figure 3.1).

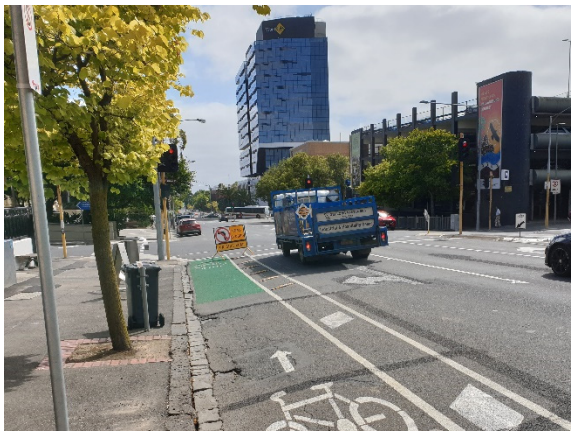
It is understood the future provision of cycling facilities in the northern section is under consideration but dependent on other upcoming projects and is not considered further in this assessment.



(a) Southbound start of bicycle lane at Little Malop Street



(b) Southbound midblock between parking



(c) Northbound approach to Little Malop Street (note roadworks sign impeding bicycle lane)

(d) Northbound bicycle lane diversion around tree

- **Figure 3.1: Gheringhap Street - Little Malop Street to Ryrie Street**

3.1 Bicycle lane design

3.1.1 Southbound

The bicycle lane running southbound does not present significant hazards:

- The speed limit is 40 km/h, which will markedly reduce the likelihood of fatal or severe injury occurring should a motor vehicle and rider collide with one another.
- The entry to the bicycle lane is clearly delineated and the first physical separator (a frangible bollard) is positioned well downstream, out of the direct desire line and has reflective tape.
- Parallel parking is sufficiently offset from the bicycle lane by the painted buffer that the risk of collision with opening passenger doors is negligible.
- The bend-out at the trees isn't unduly severe, in any case is heading uphill such that riders are likely to be travelling at modest speeds and so can readily negotiate around the trees.
- The rubber separators used on the approach to Ryrie Street are conspicuous and setback from the bicycle lane thus reducing the likelihood a rider will inadvertently strike the separators[2]. Moreover, they provide a physical deterrent to left-turning motorists from entering the bicycle lane.
- An advanced stop line set forward around 1.4 m is provided at Ryrie Street to allow riders to position conspicuously ahead of motorists during the red signal phase. An additional signal aspect has been added to the primary and tertiary lanterns that is presumed to provide an early start phase for bicycle riders. This was not operational at the time of the assessment.

The most significant risk is likely to be conflict between left- and right-turning motorists during the stale green phase; that is, sometime after the initiation of the green signal phase when traffic is flowing through the intersection. Neither the advanced storage box nor cyclist early start signal phase are helpful during this time[3]. Instead, the only realistic mitigations are:

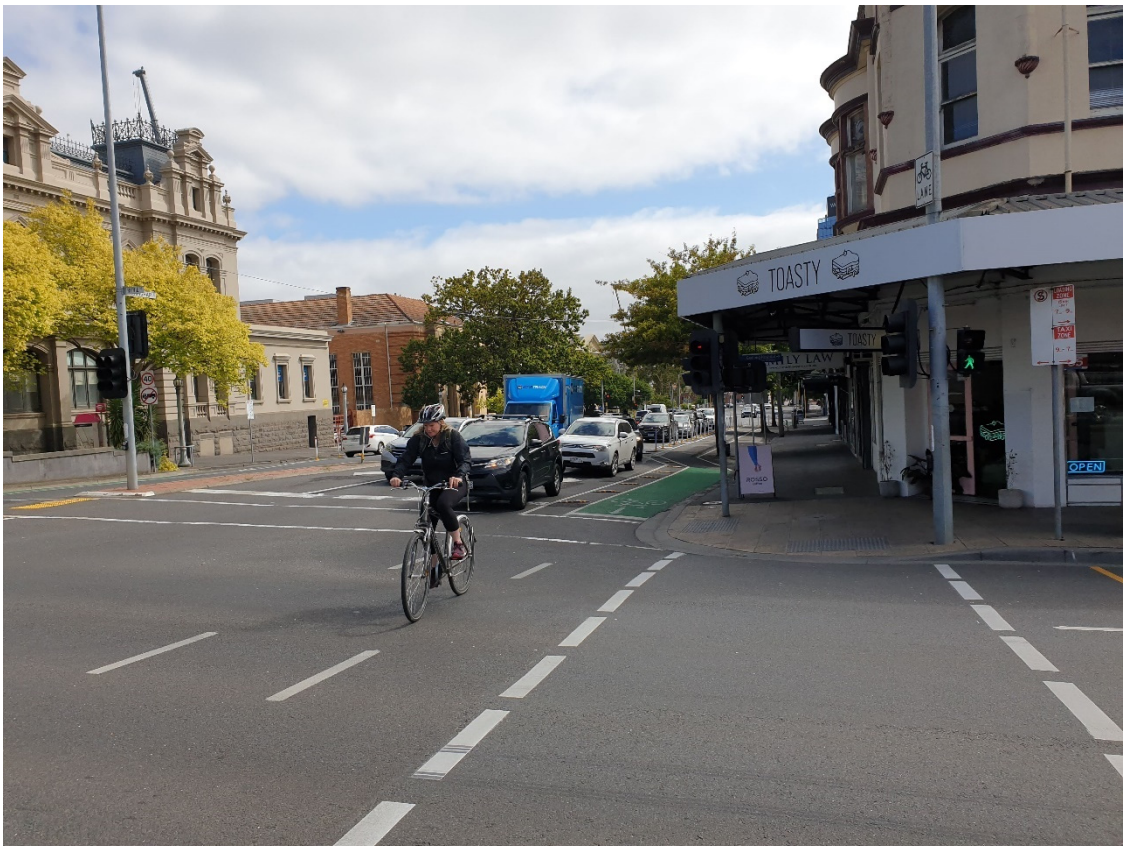
- Full temporal separation of the through-bicycle and turning motorist phases, which would reduce the level of service to both road user groups.
- Improving the conspicuity of riders in the conflict zone.

Full temporal separation would require a dedicated phase in the signal plan for bicycle riders. In theory, assuming both motorists and bicycle riders fully comply with the signal phasing, the conflict would be eliminated. In practice road users are not likely to fully comply with the signals, primarily because the level of service would be significantly degraded for all. For example, one option would be to allow for a cyclist early-start alongside the through-motorist

[2] The severity of the separators how is such that if they were invertedly struck by a rider they would very likely fall. However, the same is true of many common obstacles on roadways, not least kerbs and parked vehicles.
[3] It is further noted that pedestrians on the adjacent pedestrian crossing also help to "protect" bicycle riders during the early green period but may not do so during the stale green period.

movement while holding the turning movement with a single-aspect red turn arrow. This period would need to be long enough to clear the adjacent pedestrian crossing. During the latter part of the green phase bicycle riders would be presented with a red lantern while the red turn aspect would be extinguished. There would be a real risk that riders reaching the intersection during this period, when presented with a red bicycle lantern but a green general traffic signal phase, would choose to ignore the bicycle lantern and instead follow the general traffic signal. Such a scenario may result both in a deterioration of level of service *and* safety relative to the current situation.

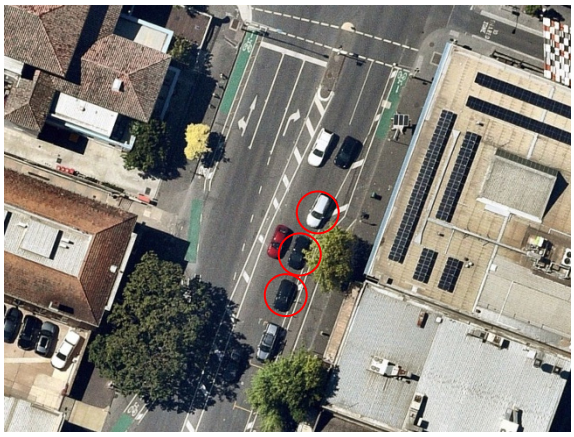
While dashed white lines are provided in the intersection to delineate the continuation of the bicycle lane the conspicuity is modest. Should conflict be reported green pavement treatment may be warranted. This green pavement would not need to extent fully across the intersection but instead extend only as far as the median on Ryrie Street (given the conflict is on the departure side of Ryrie Street). However, given the local speed context such treatment is probably not warranted, at least not in the absence of evidence of near-misses.



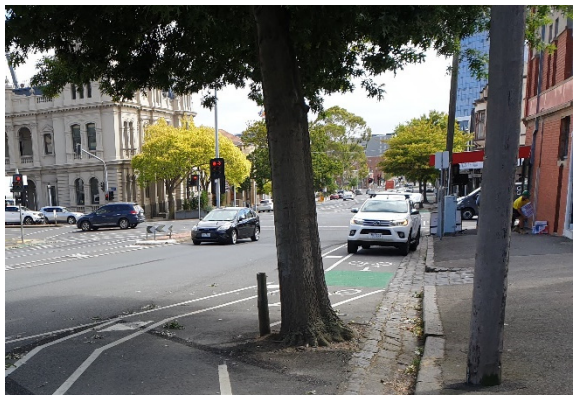
- **Figure 3.2: Southbound crossing of Ryrie Street**

Informal parking was observed that may lead to marginally elevated risks of injury in addition to being inconvenient for the bicycle rider. The aerial image from 20 January immediately south of Little Malop Street (Figure 3.3a) shows at least three cars parked outside designed

bays[4]. These vehicles do not strictly interfere with the bicycle lane but may affect motorists merging into one lane. During the onsite inspection a vehicle was observed parking on the bicycle lane on the southern side of Ryrie Street (Figure 3.3b). This vehicle requires that bicycle riders merge right into the left general purpose traffic lane. One or more bollards or rubber separators may be warranted to deter this behaviour.



(a) Gheringhap south of Little Malop Street (image: Nearmap Pty Ltd, Thu 20 Jan 2022)



(b) Northbound bicycle lane diversion around tree

- **Figure 3.3: Informal parking**

3.1.2 Northbound

In the northbound direction there are likely to be two risks:

1. Side swipe collisions adjacent to the bend-out at the tree.
2. Crossovers at the Court House and adjacent to 50 Gheringhap Street.

Both of these risks may be elevated by the downhill slope which will facilitate higher rider speeds than in the southbound direction.

The bend-out at the tree creates an unpredictable movement and risk that by "popping out" towards the traffic stream a motorist encroaching into the bicycle lane will collide with a rider. Possible mitigations include:

- Thermoplastic rumble strips or rubber separators in the painted buffer to discourage motorist encroachment.
- Removal of the two upstream parking bays such that the bicycle lane can travel straight from Ryrie Street adjacent to the kerb outstand past the tree before veering towards the kerb approaching Little Malop Street.

[4] It is not entirely clear from the aerial image whether the fourth car nearest the intersection is parking or waiting to merge into the general-purpose traffic lane.

The crossovers appear to have only infrequent vehicle movements and the building setbacks are such that sightlines are very good for vehicles emerging. There may be some masking from parking for motorists turning left or right into the crossover at 50 Gheringhap Street, although the presence of only two parking bays likely alleviates this risk. Moreover, the fact that the bicycle lane is one-directional very significantly reduces the risks relative to a bi-directional facility.

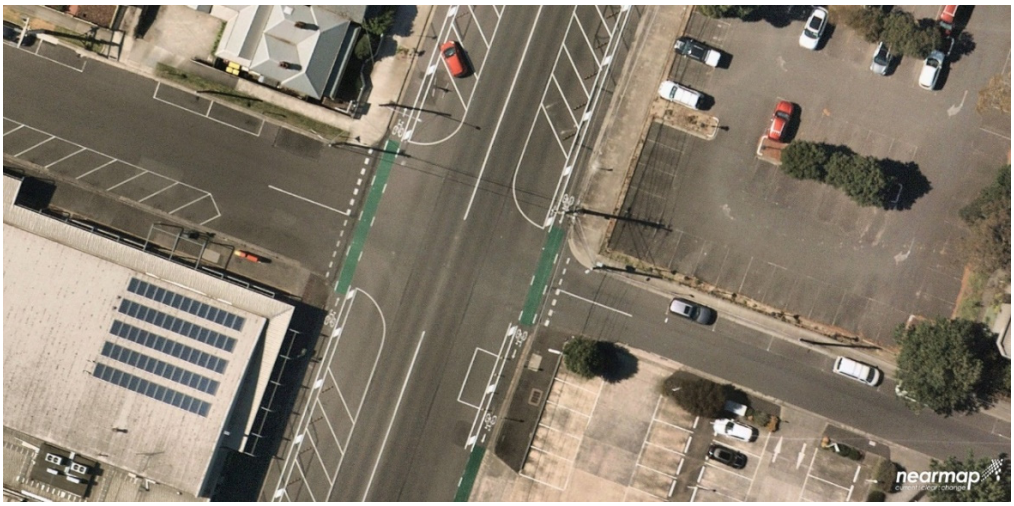
4. Intersection of Gheringhap Street and Little Myers Street

This give way sign-controlled intersection has green pavement at the conflict point and the angled parking on the approaches is setback 8 m to 9 m from the start of the intersection (Figure 4.1). Sightlines from both approaches along Little Myers Street are good towards oncoming traffic, including bicycle riders. There is a risk motorist gaze will be towards the general-purpose traffic lane rather than the bicycle lane, which is around 5.5 m farther towards the kerb thanks to the angled parking. However, the green pavement treatment should help mitigate this risk. In early February, around two months after initial completion, a dashed continuity line was added across the intersection between the angled parking bays and the painted islands at the end of the parking bay sections had chevron markings added[5].

Motorist speeds along Little Myers Street approaching Gheringhap Street are likely to be modest, especially from the east as the roadway is much narrower (7.5 m) than from the west (13.8 m). Kerb outstands would improve pedestrian safety and amenity crossing Little Myers Street to the west of Gheringhap Street, as well as reducing the cyclist conflict distance and encourage lower motorist speeds. Cyclist speeds in both directions of travel are likely to be modest given the intersection is at the crest of a hill.

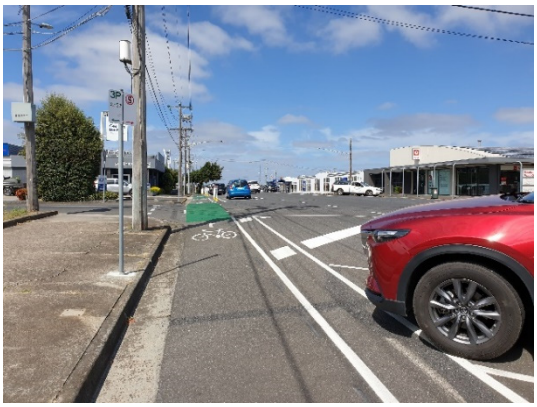
Motorists emerging from Little Myers Street and travelling straight or turning right were observed to prop across the bicycle lane and inline with the angled parking. This behaviour was presumably to allow the motorist to better observe conflicting traffic on Gheringhap Street. While inconvenient for a rider, who would have to veer left behind the propped motorist, this is unlikely to present a significant safety issue.

[5] Neither of these treatments are visible in the aerial image in Figure 4.1, but were present during the onsite inspection.

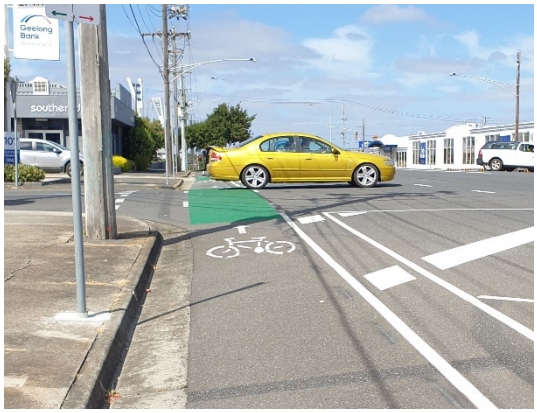


- **Figure 4.1: Gheringhap Street / Little Myers Street intersection (image: Nearmap Pty Ltd)**

(a) Sight distance from Little Myers Street eastbound towards Gheringhap Street south



(b) Cyclist view of Little Myers Street travelling southbound

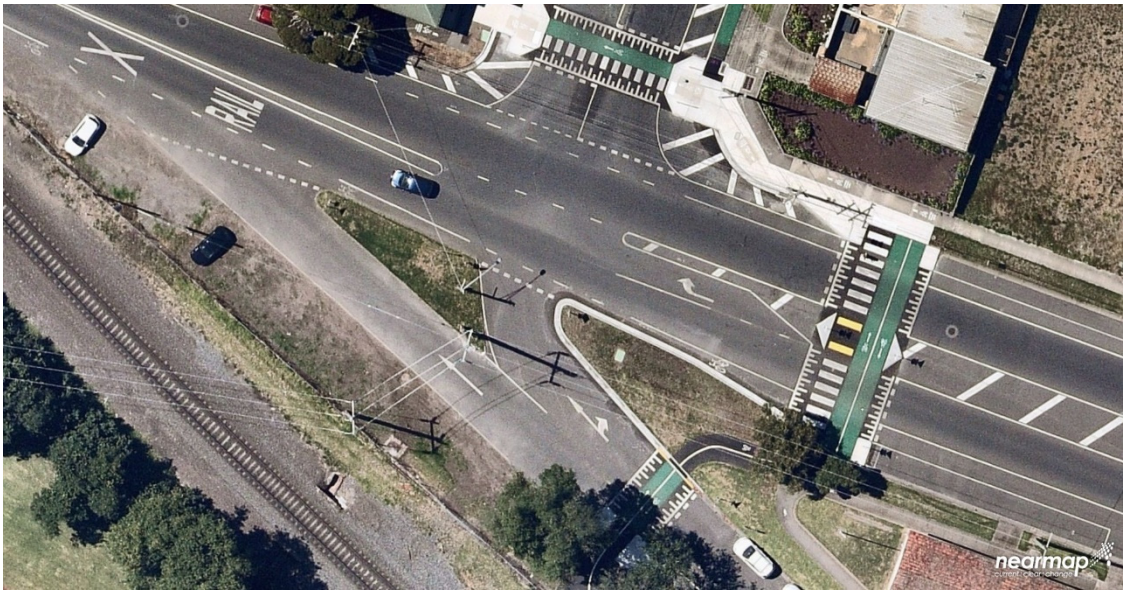


(c) Motorist propping at continuity line to enter Gheringhap Street

- **Figure 4.2: Gheringhap Street / Little Myers Street**

5. Intersection of Gheringhap Street and Kilgour Street

The intersection of Gheringhap Street and Kilgour Street involves two new cycleway crossings, with a third on Carr Street to the immediate south of the intersection (Figure 5.1). Southbound bicycle riders transition to the footpath (designated a shared path) and then onto the two-way crossing on Kilgour Street east of Gheringhap Street. Northbound riders use the two-way crossing and then a one-way (westbound) crossing of Gheringhap Street before turning north onto the protected bicycle lane. Both crossings allocate priority to pedestrians and bicycle riders through the use of Give Way signs for motorists and the pavement markings. The Gheringhap Street crossing is setback around 6 m from Kilgour Street and both crossings are on raised platforms with ramp grades that are nominally 1:15. Gheringhap Street has a posted speed limit of 40 km/h while the default urban speed limit of 50 km/h applies to Kilgour Street and Carr Street.



- **Figure 5.1: Gheringhap Street / Kilgour Street intersection**

For motorists and bicycle riders alike this arrangement is relatively complicated:

- The existing T-intersection itself is complicated by the intersection of Carr Street at an acute angle and the presence of the railway crossing to the west.
- For bicycle riders there are multiple turns that must occur within relatively short succession while also observing for conflicting traffic. In many, but certainly not all raised priority crossings, the cycleway approaches the road crossing at right angles. Examples include shared path crossings at mid-blocks and raised priority crossings of minor streets, such as farther south along Moorabool Road. In these situations the approaching rider can concentrate on observing for conflicting traffic without also having to negotiate turns, and does not have to look over their shoulder.

- Motorists turning into and out of Gheringhap Street must negotiate the pedestrian (zebra) crossing and one-way cyclist crossing[6].

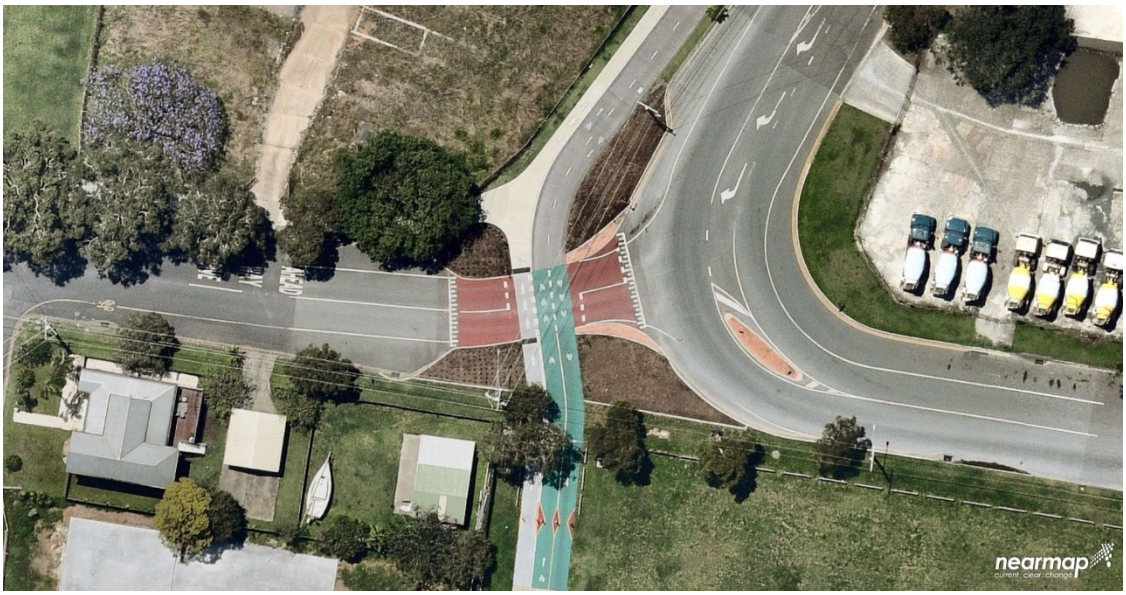
The few riders that were observed at the intersection during the onsite assessment all visibly checked the intersection for traffic before proceeding across the roadway, suggesting some degree of caution to verify that motorists were indeed giving way as designed. Motorists were observed to give way as intended by the design, both when crossing as a bicycle rider and pedestrian.

The critical movement is likely to be bicycle riders travelling south conflicting with motorists travelling eastbound on Kilgour Street. In this movement the motorist may think the rider is travelling east on the footpath rather than about to veer right onto the crossing, and likewise the rider will be facing away from conflicting traffic. Moreover, the speed environment (both posted and in practice) on Kilgour Street is markedly higher, increasing the severity profile.

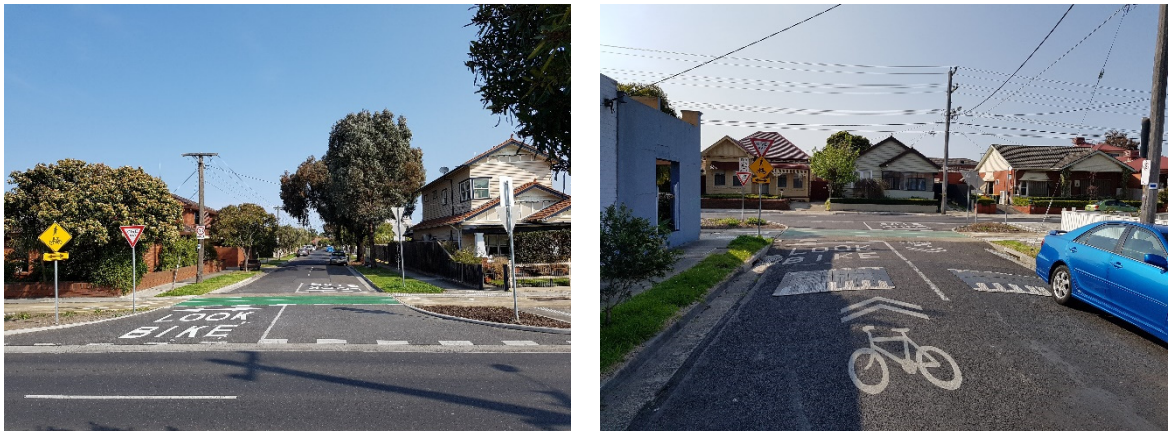
Given the geometric constraints there are few mitigations to this risk. Options may include Watch for Bikes markings on the road pavement on Kilgour Street ahead of the crossing and speed cushions to slow approaching motorists. A full reconstruction is unlikely to be warranted in the absence of reports of significant incidents, but ideally it is suggested the ramp grades could have been steeper, mainly on Kilgour Street where there are few other constraints on motorist speed. Extending the upstream ramp farther away from the crossing may also encourage motorists to slow well ahead of the conflict point. An example is shown in Figure 5.2 for a path priority crossing in Brisbane; while the context in this example is rather different (the crossing being on the terminating leg of a T-intersection) the ramp is positioned around 7 m upstream of the conflict point[7]. Note also the Give Way Ahead pavement marking on the side street approach to the crossing. Another example is the O'hea Street cycleway in Coburg, where various pavement markings have been trialled, sometimes accompanied with speed cushions, to address conflict (Figure 5.3). These treatments have not been formally evaluated, and it is noted both correspond to more problematic locations than Kilgour Street and Gheringhap Street.

[6] Strictly, this arrangement is not unusual – motorists turning into a minor road are required by the road rules to give way to pedestrians crossing the minor road but are not required to give way when emerging from the minor road. It is suggested this rule is unlikely to be well understood by the community; at least this particular arrangement makes the give way rules clearer.

[7] Separately, there is evidence to suggest that motorists tend to start moderating their speed around 20 m or more upstream of speed humps. It is speculated that separating out the two tasks of (1) slowing down, and (2) looking left and right for pedestrians and bicycle riders is likely to be safer than requiring motorists to do both simultaneously. Moving the ramp upstream is likely to achieve this separation and improve safety.



- **Figure 5.2: Example of path priority crossing with the ramps ahead of the crossing (Somerset Street / McDonald Road, Windsor Queensland)**

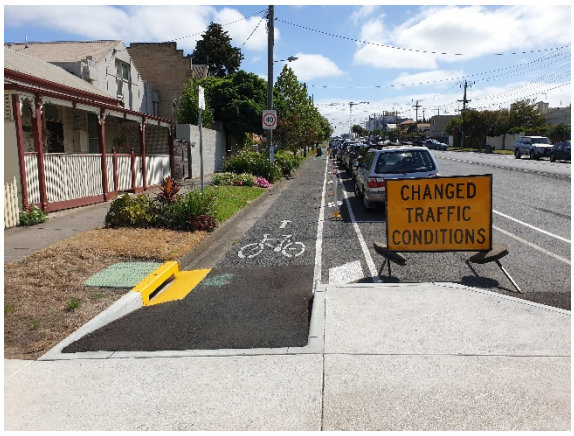


- **Figure 5.3: Examples of side street treatments at priority crossings on O'hea Street Coburg**

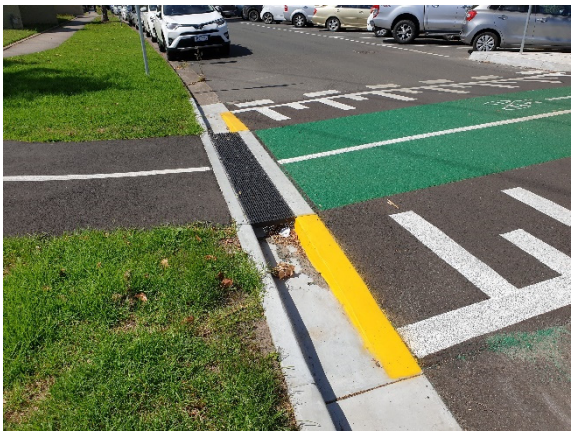
Some hazards, such as the stormwater drain in the northbound direction on Gheringhap Street, are delineated using yellow paint (Figure 5.4). The use of this treatment seems inconsistent and does always coinciding with the hazards that are likely to pose the greatest risk. For example, heading north a rider will likely turn northbound on Gheringhap Street across the drop of the kerb shown in Figure 5.5. This turn is fairly awkward given the limited width, and would be very difficult to achieve on a tandem or cargo bicycle. While in most cases a rider is unlikely to fall across this kerb there is a risk of a minor consequence single rider crash if destabilised by the kerb. Either grinding down or smoothing the kerb with additional asphalt may be beneficial, with yellow marking as an alternative if physical changes

are deemed excessively expensive. Similarly in the southbound direction it may be prudent to better define the leading edge of the kerb at the transition onto the kerb extension (Figure 5.6).

The second give way sign in Figure 5.6, while clearly intended for the Kilgour Street intersection, is positioned (necessarily) alongside the trailing edge of the crossing which may seem confusing to motorists. Whilst acknowledging this sign is required to be compliant it is in practice superfluous and only presents an additional obstactle to path users[8].



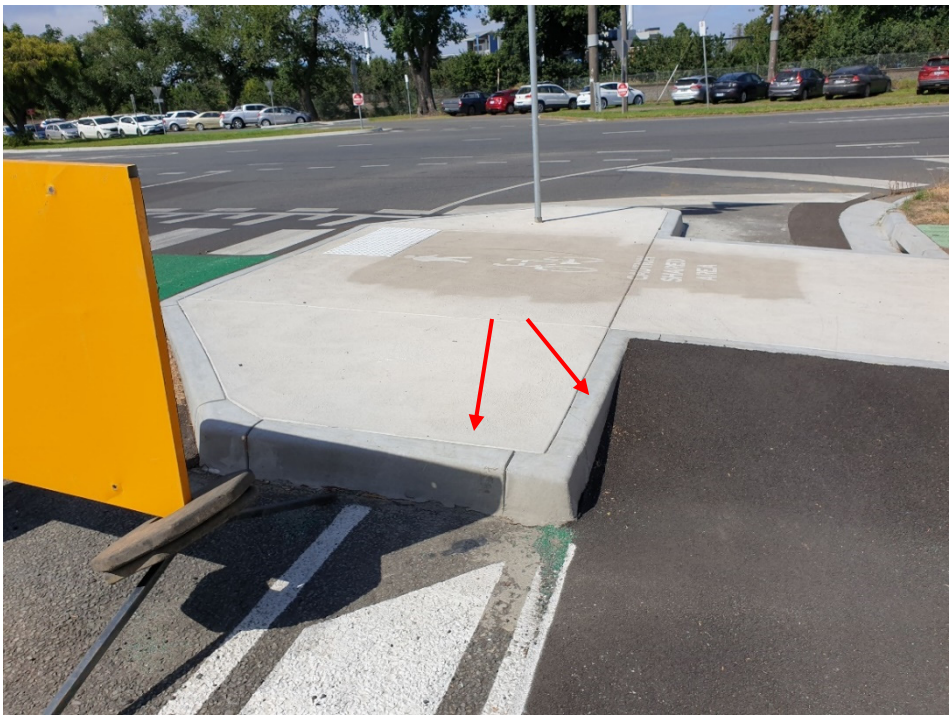
(a) Gheringhap Street northbound at Kilgour Street



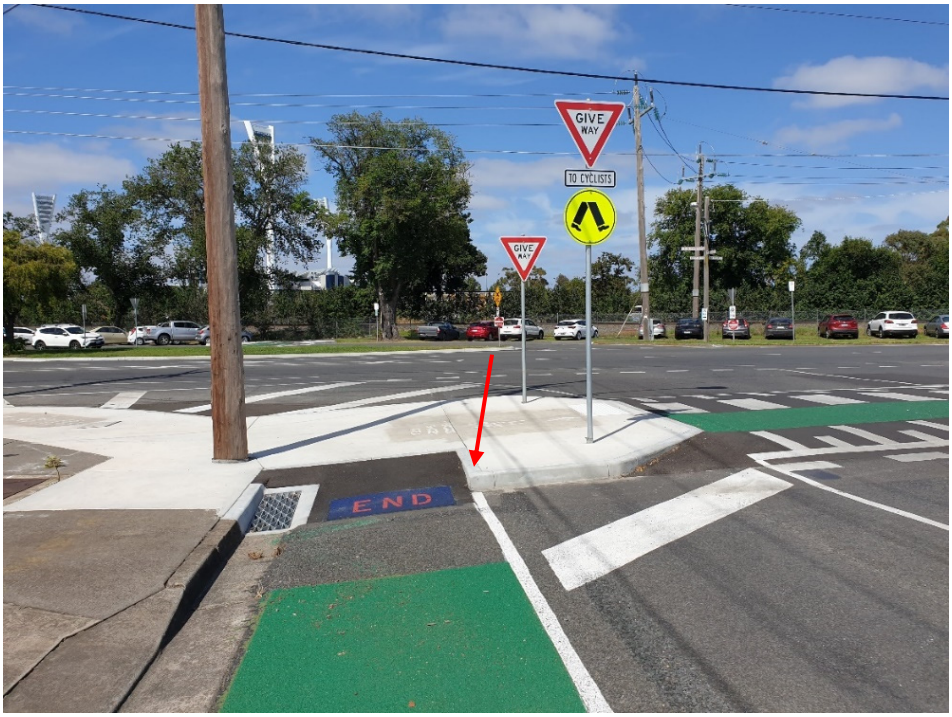
(b) Carr Street

- **Figure 5.4: Yellow paint to delineate hazards**

[8] The red END pavement markings on blue background used both on Gheringhap Street southbound at Kilgour Street and at several other locations along the corridor, are in my view is somewhat confusing – it's far from clear what exactly "ends". While technically it defines the end of the bicycle lane and start of the shared path this nuance is unlikely to be evident to the user. White lettering on green background may more clearly indicate the intent of this marking, albeit that it is probably not required at all.

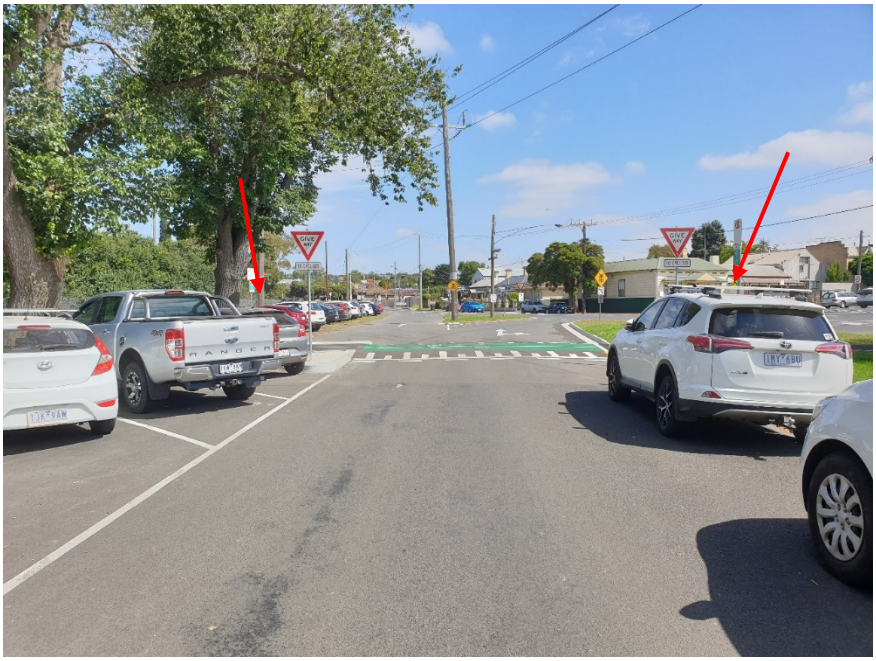


- **Figure 5.5: Kerb extension at Gheringhap Street northbound**



- **Figure 5.6: Gheringhap Street southbound at Kilgour Street**

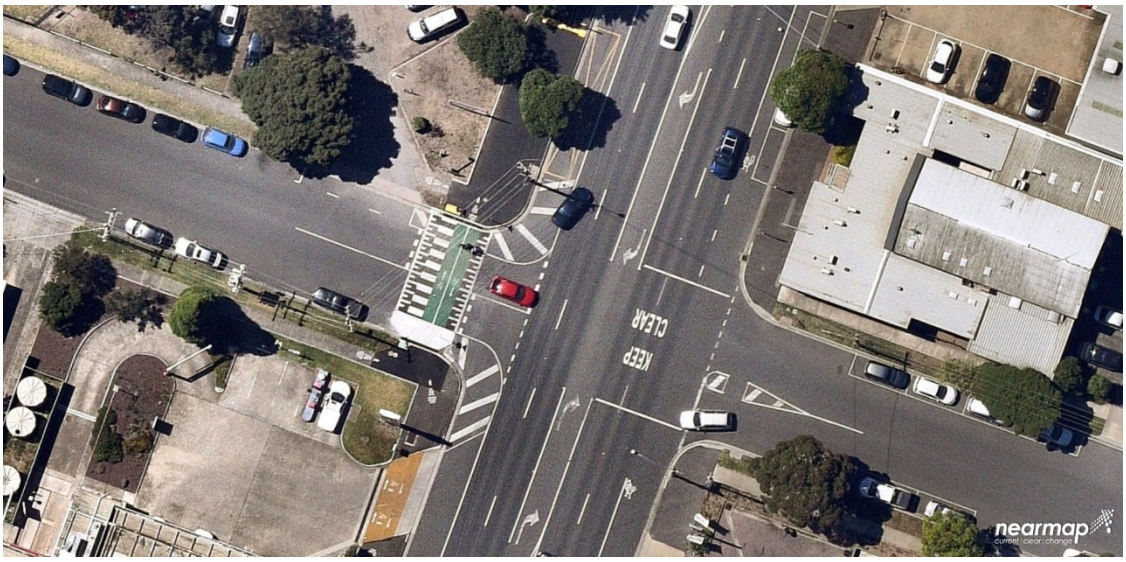
The crossing of Carr Street benefits from the lower traffic volumes and speeds compared to Kilgour Street, as well as being one-way traffic. However, as shown in Figure 5.7 the angled parking to the south and parallel parking to the north obscures bicycle riders. Removal of one or more parking bays would be desirable to improve visibility.



- **Figure 5.7: Carr Street travelling west**

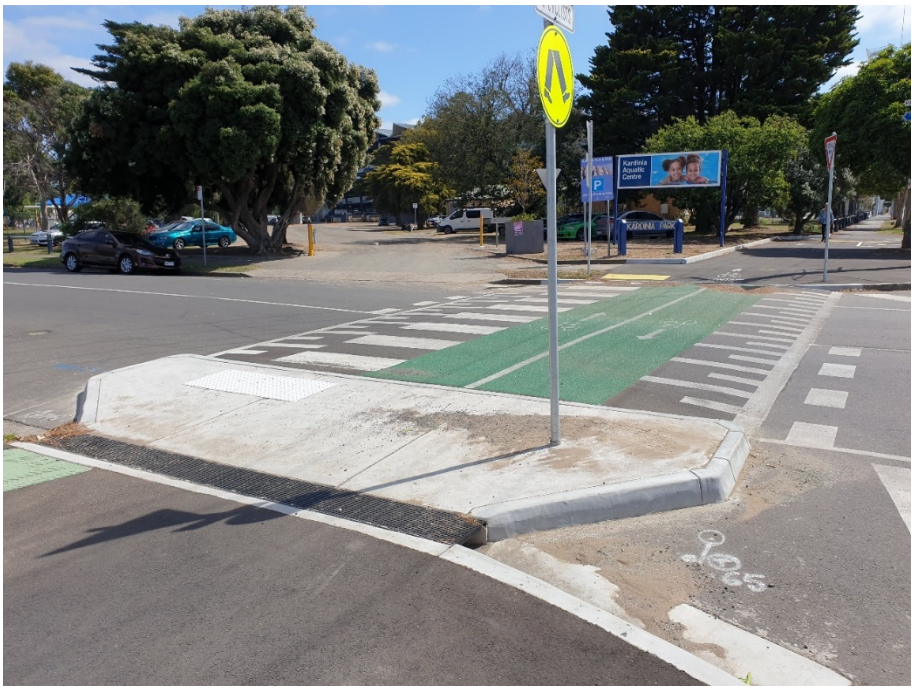
6. Intersection of Moorabool Street and Park Crescent

The give way sign-controlled intersection of Park Crescent has a 6 m setback from the kerbside traffic lane on Moorabool Street (Figure 6.1).



- **Figure 6.1: Moorabool Street and Park Crescent (image: Nearmap Pty Ltd)**

Sightlines at this intersection are good. At bi-directional cycleway crossings at T-intersections the critical movement is invariably vehicles emerging from the minor street turning left conflicting with bicycle riders travelling contraflow (i.e. southbound in this case). The setback of the crossing, along with the vertical deflection and good sightlines, will help to ameliorate but not eliminate this risk. Significant amounts of gravel was present around and on the crossing which could be a hazard; it is understood this was a result of heavy rainfall prior to the inspection and has subsequently been removed.



- **Figure 6.2: Park Crescent crossing (note gravel)**

Overall, it is suggested this intersection is likely to be operating to a satisfactory level of safety. Should issues arise countermeasures may include:

- Install speed cushions upstream of the crossing for eastbound motorists on Park Crescent.
- Install bollards or kerb outstands at the north entry to tighten the corner radius and reduce the crossing distance for pedestrian and bicycle riders.
- Reconstructing the crossing with steeper ramp grades and an extended ramp to the west to encourage emerging motorists to slow farther away from the conflict point.

In the absence of any reported incidents it would be difficult to justify remediations at this location.

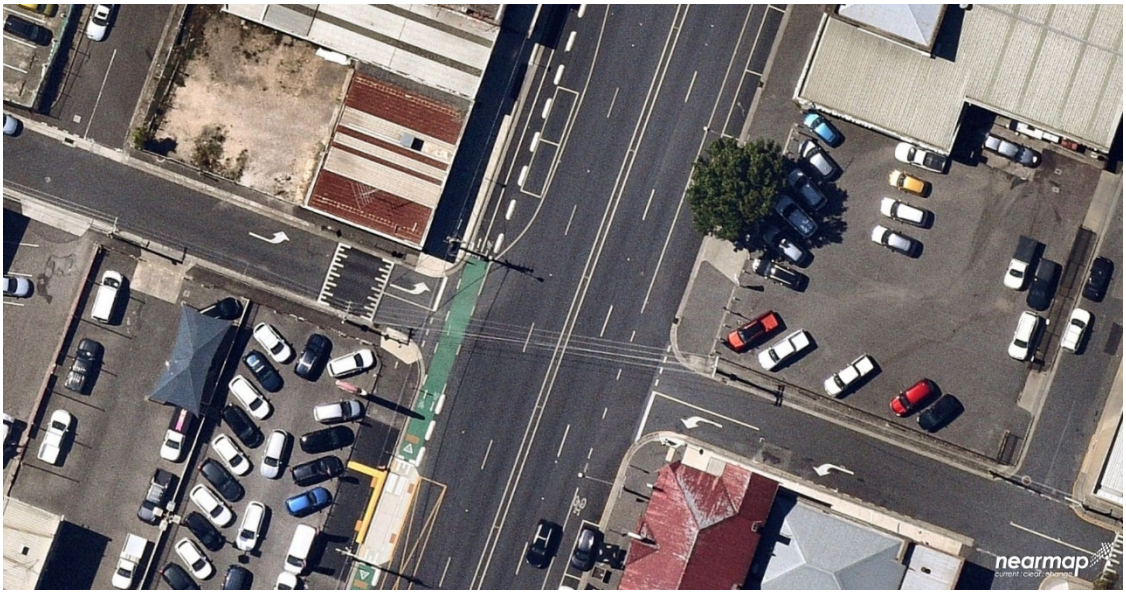
7. Intersection of Moorabool Street and Little Fyans Street

The intersection of the cycleway at Little Fyans Street has significant differences to that at Park Crescent which exacerbate the risk of conflict between motorists and bicycle riders:

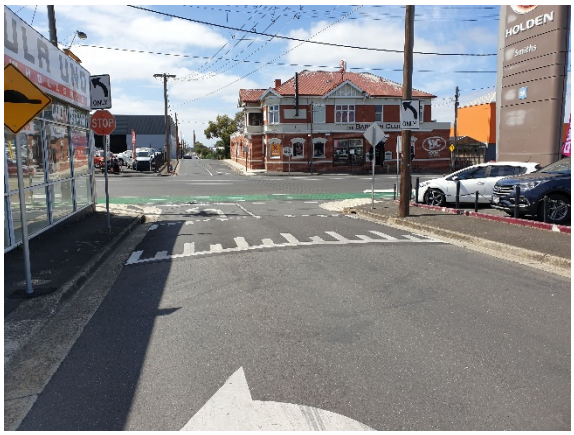
- Sightlines are restricted, especially towards the north (which is also the critical direction).
- The cycleway is not setback from the roadway, hence requiring motorists emerging onto Moorabool Street to negotiate both the cycleway and roadway in one movement.

Conversely, vehicles emerging from Little Fyans Street are limited to left-out movements – this if anything improves safety *vis a vis* Park Crescent, although only very marginally. Overall, the risk profile at this location is likely to be much higher than at Park Crescent.

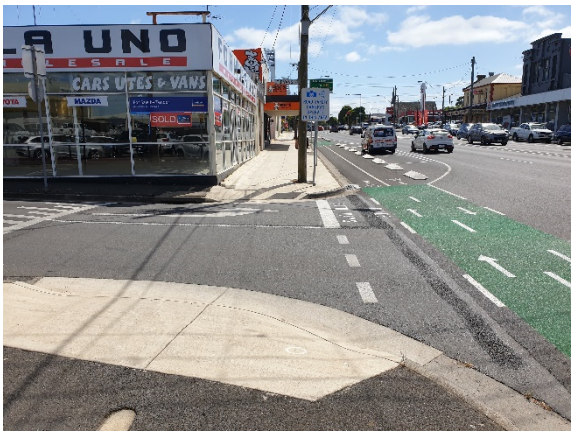
A speed hump was also installed in lieu of being able to install the crossing itself on a raised table. It is also noted Little Fyans Street has a Stop sign, whereas Park Crescent has a Give Way sign. In practice this sign will have negligible impact on motorist behaviour[9].



- **Figure 7.1: Moorabool Street and Little Fyans Street (image: Nearmap Pty Ltd)**



(a) Facing east along Little Fyans Street



(b) Facing north

- **Figure 7.2: Intersection of Moorabool Street and Little Fyans Street**

[9] Observational studies undertaken in Queensland suggest less than 20% of motorists entirely stop at stop sign-controlled T-intersections when there is no conflicting traffic on the major road. In other words, most motorists treat Stop signs as Give Way signs.

It is understood there has been a Police-reported collision involving a bicycle rider travelling south and a motorist emerging from Little Fyans Street. This collision is typical for bidirectional cycleway crossings of minor streets – the motorist is likely to be looking to their right for conflicting traffic and fail to observe the rider approaching from their left. There is a long history of these types of conflicts occurring at Fitzroy Street in St Kilda (where there are two minor street crossings very similar to Little Fyans Street) and the O'hea Street cycleway in Coburg. These collisions usually result in only minor severity to the rider thanks to the modest motorist speeds. Nonetheless, it is conceivable such conflict could result in serious injury.

The site constraints make it very difficult to satisfactorily resolve the conflict risk. While additional signage and, preferably, pavement marking may help (and would certainly not make the situation worse) these of themselves may not reduce the risk to an acceptable level[10]. Given the modest cyclist demand there is low expectancy from regular motorists of encountering a bicycle rider, and hence static signs and pavement markings will be of diminished benefit. It is speculated that a significant proportion of motorists using Little Fyans Street are associated with the car dealerships and may regularly use the intersection; for these users' static signs combined with modest cyclist volumes are likely to reinforce the impression that there is no need to look for riders[11]. By contrast, a cyclist actuated sign may be more effective insofar as it dynamically responds when, and only when, a rider is present. There are at least two examples of such signs in use in Victoria, both approaching roundabouts[12]. These signs typically use inductive loops or piezoelectric strips in the pavement to detect the presence of bicycles and trigger the sign; it is suggested the trigger would only be required on the cycleway north of the Little Fyans Street. Assuming either an inline inductive loop arrangement, or using piezoelectric sensors, the detector could ascertain the direction of travel of the rider and only trigger for southbound riders.

The only entirely satisfactory solution is likely to be to configure Little Fyans Street as one-way westbound. This would eliminate the motorist movement that represents the greatest risk (namely, left-out). However, motorists would instead have to use Latrobe Boulevard and Fyans Street to travel east or north. The eastbound right-turn from Latrobe Boulevard onto Fyans Street is likely to be higher risk for motor vehicle occupants than the current combination of left-turning onto Moorabool Street and turning right at the signalised

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[10] "Acceptable" likelihood and severity is difficult to define. It is suggested here that an acceptable level would be where there is a low likelihood of a serious injury occurring over a 7-year period and fewer than one minor injury collision per year.
[11] An analogous situation arises with many static signs. Consider "Watch for Kangaroos" signs in rural areas: a driver using a rural road regularly during the middle of the day may never see a kangaroo, so is likely to dismiss the sign. Conversely, a motorist regularly using the road at dawn or dusk may regularly see kangaroos and so be acutely aware of the presence of kangaroos. In either case the sign isn't likely to alter motorist behaviour nor alter the likelihood of colliding with a kangaroo.
[12] Nepean Highway and McDonald Street in Mordialloc: https://goo.gl/maps/LtFTyXBUUYe2vLZK7 and Beach Road and Balcolme Road in Black Rock: https://goo.gl/maps/ZUTnVU9QKpipL3Sp7. An evaluation of the latter treatment observed an increase in the proportion of motorists stopping on the minor street (Balcolme Road) behind the hold line after installation of the sign, suggesting motorists may be detecting bicycle riders earlier and responding accordingly.

intersection with Fyans Street, so there would be some migration of crash risk for motorists from this option as well as the inconvenience.

8. Conclusions

Overall, it is suggested that the speed profile (aside from Kilgour Street) massively reduces the likelihood of severe or fatal injuries, making the projects far more forgiving. However, there is a moderate to high likelihood of conflict at:

- Moorabool Street and Little Fyans Street between emerging motorists and southbound bicycle riders.
- Eastbound motorists and southbound bicycle riders at Kilgour Street.

The treatments are relatively innovative and new, particularly in Geelong, such that there will be a period of adaptation required by road users. The combination of vertical deflections and clear and consistent signage and pavement markings that have been implemented help to ameliorate but do not eliminate the risks.

The issues identified in this assessment, and their possible mitigation are summarised in Table 8.1. The likelihood and severity of each issue is arbitrarily assigned a score from one (low) to five (high).

Table 8.1: Summary of issues and mitigations

	Before mitigation			After mitigation	
Issue	**Likelihood**	**Severity**	**Mitigations**	**Likelihood**	**Severity**
Gheringhap St between Malop St and Ryrie St					
Motorist-cyclist conflict at Ryrie St during stale green phase	●●●	●●	Full temporal separation of cyclist and turning motorist movements	●●	●●
			Green surface in conflict zone in intersection	●●	●●
Informal parking on bicycle lane south of Little Malop St	●●●●●	●	Bollard or rubber separators in painted buffer	●	–
Sideswipe collisions at bend-out at tree	●●●	●●●	Physical separators (rumble strips, separators) to discourage motorist encroachment	●	●●
			Removal of two upstream parking bays	●	●●●
Intersection of Gheringhap St and Little Myers St					
Wide crossing of Little Myers St west	●●	●●	Kerb outstands to reduce conflict area for pedestrians and bicycle riders, and to perceptively slow motorists	●	●
Intersection of Gheringhap St, Kilgour St and Carr St					
Motorist-cyclist conflict at Kilgour Rd crossing between eastbound motorists and southbound riders	●●●	●●●●	Watch for Bikes pavement markings	●●	●●●●
			Speed cushions	●●	●●
			Reconstruction with steeper ramp grades and extended approach ramp	●	●
Kerb hazards at Gheringhap St crossing	●●●	●●	Grinding of kerb to create ramp	●●	●●
			Conspicuous colour marking of hazards	●●	●●
Poor visibility of path from Carr St	●●●	●●	Remove parking near crossing	●	●●
Intersection of Moorabool St and Park Cr: no issues identified					

	Before mitigation			After mitigation	
Issue	**Likelihood**	**Severity**	**Mitigations**	**Likelihood**	**Severity**
Intersection of Moorabool St and Little Fyans St					
Motorist-cyclist conflict at Little Fyans St between emerging motorists and southbound riders	●●●●	●●●	Static warning signs and pavement markings for left-turning motorists	●●●●	●●●
			Dynamic cyclist-actuated sign for left-turning motorists	●●●	●●●
			One-way inbound reconfiguration of Little Fyans St	●	●

Likelihood: ● Rare (7+ years) ●● Unlikely (3-7 years) ●●● Possible (1-3 years) ●●●● Likely (quarter to 1 year) ●●●●● Almost certain (one per quarter)

Severity: ● Insignificant (property damage) ●● Minor (minor first aid) ●●● Moderate (major first aid and/or presents to hospital) ●●●● Serious (admitted to hospital) ●●●●● Fatal (death within 30 days)

“Before mitigation” refers to predicted likelihood and severity of conflict prior to mitigations, while “after mitigation” refers to predicted likelihood and severity should the proposed mitigations be implemented.