

# Traffix Group

# Port Phillip 'Pop-up' Bike Lane Infrastructure

## Independent Transport Review

Prepared for  
Port Phillip Residents

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## 1. Introduction

Traffix Group has been engaged by members of the Port Phillip community to undertake an independent transport review of some key examples of the 'pop-up' bike lane infrastructure that was recently installed across a number of locations within the City of Port Phillip.

The treatments covered in this assessment include:

- Isolated sections of kerb separated bicycle lanes along Marine Parade in St Kilda between Fitzroy Street and Glen Huntly Road.
- Kerb separate bicycle lanes along Park Street in South Melbourne between Kings Way and Moray Street.
- Marine Parade/Wordsworth Street intersection as an example of a minor street intersection along Marine Parade in St Kilda.
- Richardson Street/Withers Street intersection in Albert Park as an example of a local crossroad intersection.
- Deakin Street intersections at Loch Street and York Street in St Kilda West.
- Lyons Street intersection at Bridge Street and Esplanade West in Port Melbourne.
- McGregor Street intersections at Page Street and Park Street in Middle Park.

## **2. Marine Parade Kerb Separated Bicycle Lanes**

### **2.1. Treatment Description**

Kerb separated bicycle lanes have been installed at three isolated locations in the southbound direction and one isolated location in the northbound direction on the 2.2km section of Marine Parade between Fitzroy Street and Glen Huntly Road.

Each of the locations where the kerb separated bicycle lanes have been installed are in the vicinity of signalised intersections and have replaced auxiliary traffic lanes. The locations include:

- Southbound carriageway 260m length prior to traffic signals at Cavell Street and 50m beyond the signals replacing an auxiliary through traffic lane.
- Southbound carriageway 30m length prior to traffic signals at Dickens Street replacing an auxiliary left turn lane.
- Southbound carriageway 185m length prior to traffic signals at Glen Huntly Road replacing an auxiliary through traffic lane and relocating the auxiliary left turn lane to the righthand side of the bicycle lane.
- Northbound carriageway 70m length prior to traffic signals at Dickens Street replacing an auxiliary left turn lane.

It is noted the 'pop-up' bicycle lanes are in locations where there is already an existing two-way off-road bicycle path that runs parallel to Marine Parade adjacent to the western side of the road. This path is fully separated from traffic.



*Figure 1: Marine Pde Southbound Carriageway on Approach to Dickens St*

### 2.2. Treatment Impacts

#### 2.2.1. Physical Separation

A positive impact of the pop-up treatment is that it physically separates cyclists from traffic. However, given the physical separation is only provided for isolated locations, the benefit this provides along the overall length of the route is negligible and may result in increased uncertainty due to an inconsistent application of treatments along the route.

We understand the treatment has caused confusion for some motorists, with the community reporting instances of vehicles driving in the separated bicycle lane.

#### 2.2.2. Continuous Bicycle Lanes

For the intersections at Cavell Street and Glen Huntly Road, there were not previously any bicycle lanes present in the southbound carriageway. Accordingly, the replacement of the previous auxiliary left/through lane with a separated bicycle lane allows for a continuous bicycle lane to be provided through these intersections providing a better environment for cyclists, although there are other impacts of providing bicycle lanes in this configuration.

#### 2.2.3. Conflicts with Left Turning Vehicles

Prior to the installation of the pop-up bicycle lanes, motorists travelling along Marine Parade were required to give way to cyclists when entering the auxiliary turn lane (Dickens Street intersection) or auxiliary left/through lane (Cavell Street and Glen Huntly Road). This would occur upstream of the intersections where motorists would generally be travelling faster than the cyclists, such that motorists would have a clear view of the cyclists ahead of them when approaching.

In the new arrangements, the conflict between cyclists and left turn vehicles occurs at the intersections where cyclists are likely to be travelling at faster speeds than the left turning motorists, with the cyclists approaching from behind the motorists in their blind spot.

Under the current Road Safety Rules, Rule 141 clearly states the rider of a bicycle is not permitted to ride past to the left of a vehicle that is indicating to turn left.

*'The rider of a bicycle or an electric scooter must not ride past, or overtake, to the left of a vehicle that is turning left and is giving a left change of direction signal.'*

However, we are of the view this rule is clearly not understood by both cyclists and motorists, and confusion is expected to arise due to the presence of the raised separators (concrete blocks). This is likely to increase the risk of collisions as left turning motorists will be unaware of cyclists approaching from behind them. This situation would regularly occur when a left turning vehicle is required to wait at the intersection to give-way to pedestrians crossing the side road.

### 2.2.4. Bicycle Lane Alignment

Prior to the introduction of the pop-up bicycle treatments, the bicycle lanes were aligned such that they ran parallel to the adjacent traffic lane, with no deviation.

The introduction of bollards and concrete blocks between the bicycle lane and traffic lane requires cyclists to shift laterally around these features. Noting Marine Parade is a very popular cycling route used by large numbers of cyclists particularly on weekends, visibility to these hazards may be reduced when closely following other riders. Accordingly, it is considered the introduction of lateral shifts, resulting in the need for cyclists to change direction, are likely to result in an increased risk of collisions.

### 2.2.5. Summary

The Marine Parade treatments provide some safety improvements for cyclists, however on balance due to increased safety risks associated with left turn conflicts and the introduction of lateral shifts to the bicycle lane alignment, we recommend the removal of these treatments.



## **3. Park Street Kerb Separated Bicycle Lanes**

### **3.1. Treatment Description**

Kerb separated bicycle lanes have been installed along the 300m section of Park Street between Kings Way and Moray Street in South Melbourne.

The treatment involved modifying the cross-section of Park Street which previously included two traffic lanes and a parking lane in each direction to now include a single traffic lane in each direction, with the parking lanes translated out from the kerb and bicycle lanes and a safety buffer located behind the parking spaces. The speed limit was also reduced from 60km/h to 40km/h through this area.

An example of the new cross-section for Park Street where the on-street parking has been shifted into the road and bicycle lanes have been introduced behind the parking is provided at Figure 2.



*Figure 2: Park St Looking West towards Eastern Rd*

### **3.2. Treatment Impacts**

#### **3.2.1. Allocation of Space for Cyclists**

Prior to the introduction of the pop-up bike infrastructure, there were no facilities provided for cyclists along the section of Park Street between Kings Way and Moray Street. The provision of separated bicycle lanes located behind parallel parking spaces combined with the reduced speed limit therefore provides a less stressful environment for cyclists to ride along this section of Park Street.

### 3.2.2. Impact to Motorists & Pedestrians

Noting there were already sections of Park Street which consisted of only one traffic lane in each direction, including at the roundabout at Heather Street, the removal of the second traffic lane in each direction within the midblock is likely to have minimal impact in terms of capacity.

It is acknowledged, however, the replacement of the second lane with parking removes the opportunity for a motorist to pass to the left of another vehicle waiting to turn right into a driveway or side road. This will result in the road becoming more congested.

The introduction of the cycle lane on the inside of the parking lane also introduces a conflict between pedestrians alighting their vehicles and cyclists

### 3.2.3. Conflicts with Left Turning Vehicles

Similar to the treatment along Marine Parade, the presence of a bicycle lane on the left side of left turning traffic will create conflicts on the approaches to the intersections at Kings Way and Moray Street at either end of the treatment.

This could be addressed by swapping the positioning of the left turn lane and bicycle lane on approach to King Street and by ceasing the bicycle lane short of the Moray Street intersection.

A typical example of where the left turn lane is provided on the left side of the bicycle lane on approach to a signalised intersection is presented in the example at Figure 3 on the Brighton Road southern approach to Carlisle Street.

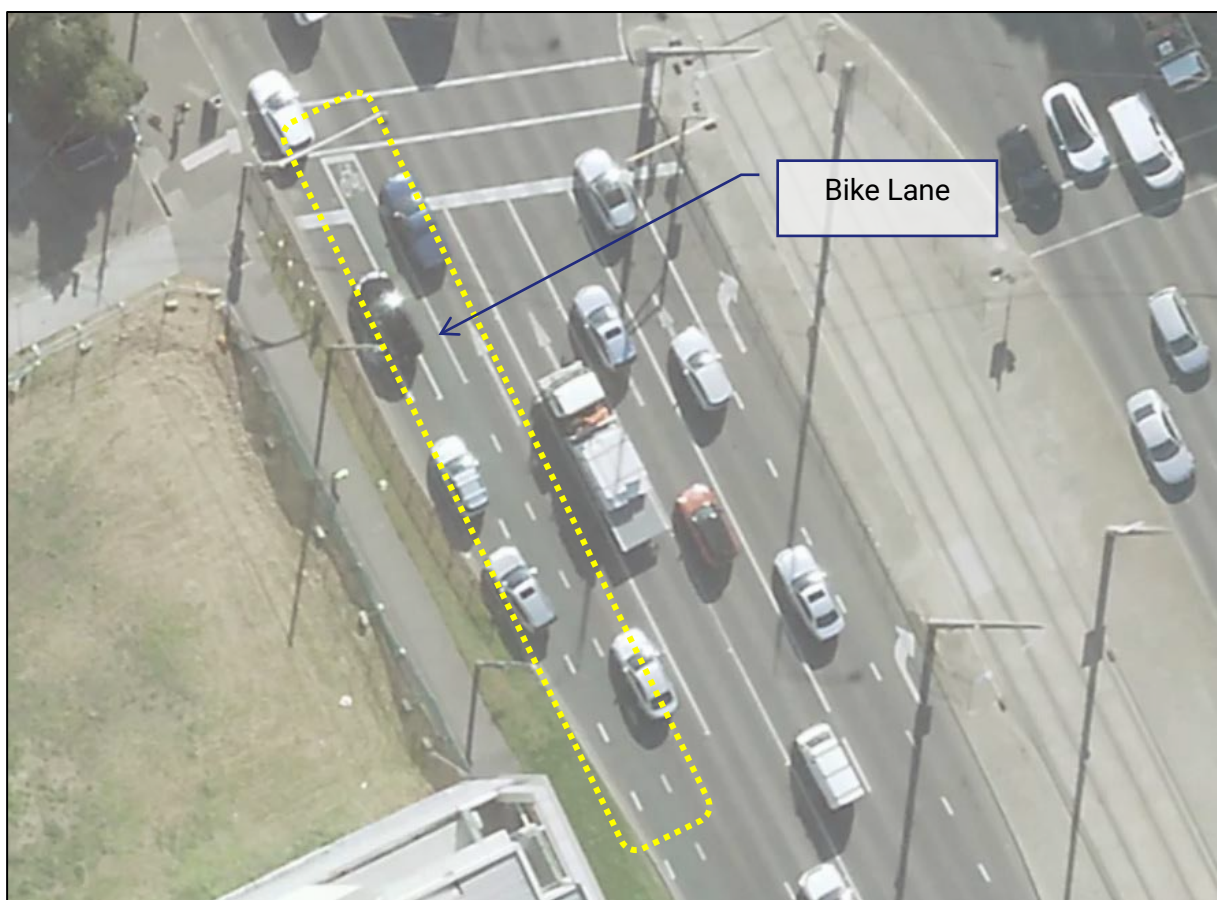


Figure 3: Conventional Arrangement with Left Turn Lane on Left Side of Bicycle Lane on Approach to Signals

### 3.2.4. Conflicts at Vehicle Crossings

There are a number of accesses to private properties located along both sides of Park Street for the length of the treatment. At each of these locations green pavement has been placed across the conflict areas to highlight the presence of cyclists to motorists using the crossovers and highlight the presence of motorists to cyclists travelling along the bicycle lanes.

Due to the presence of on-street parking close to these conflict areas, visibility between approaching cyclists and turning traffic is reduced. Additionally, as visibility to through traffic is reduced for motorists exiting crossovers, they will be forced to encroach across the bicycle lane, blocking the path of cyclists, in order to have visibility to approaching traffic.

To further reduce safety risks at these locations on-street parking spaces either side of vehicle crossovers could be removed, or alternatively the location of the bicycle lanes and parking spaces could be swapped such that the parking spaces are located closest to the kerb. This would not only improve visibility between cyclists and turning vehicles, but would also assist motorists by allowing vehicles to travel for a short distance within the bicycle lanes to pass to the left of a right turning vehicle.

### 3.2.5. Summary

Overall, the Park Street treatment is considered to provide improved conditions for cyclists compared to previous conditions. However, the bicycle lane on the inside of the parking lane introduces safety hazards for cyclists as they become hidden and vulnerable to vehicles turning to / from side streets and crossovers.

In this regard, if cycling treatments on this section of road are to become permanent, a more conventional arrangement whereby the on-street parking is on the kerb side of the bicycle lanes would provide a safer outcome by improving visibility at vehicle crossovers and also assist with left turning traffic at the major intersections at each end. Additionally, we are of the view it is a safer outcome for pedestrians accessing vehicles within the parking lane.

## 4. Marine Parade/Wordsworth Street

### 4.1. Treatment Description

The pop-up treatment that has been installed at the Marine Parade/Wordsworth Street intersection is typical of what has been implemented at a number of other minor road intersections along Marine Parade.

The treatment consists of the installation of concrete blocks and bollards around the north-eastern and south-eastern corners of the intersection to create a threshold to narrow the width of the carriageway on the minor road approach to the intersection.

A photograph of the treatment at the Marine Parade/Wordsworth Street intersection from the Wordsworth Street approach is provided at Figure 4.



Figure 4: Marine Pde/Wordsworth St Treatment

### 4.2. Treatment Impacts

#### 4.2.1. Impact to Cyclists

An impact of reducing the width of the minor approach to the intersection is that cyclists are forced to merge with other traffic when approaching the intersection rather than remaining to the left of motorists within a wide traffic lane that can accommodate both vehicles.

In our view, the treatment does not provide any material benefit for cyclists and is unnecessary.

### 4.2.2. Reduced Pedestrian Crossing Width

A benefit of this type of treatment is that it narrows the crossing width for pedestrians when crossing the minor leg of the intersection. However, there are many side street intersections within Port Phillip that would benefit from such a treatment.

### 4.2.3. Reduced Vehicle Turning Speeds

The reduction in width of the minor approach road results in the need for vehicles to turn in and out of the minor street at an angle closer to 90 degrees, resulting in slower turning speeds. This is generally considered to provide a safer outcome for pedestrians crossing at the intersection. Indeed, this type of treatment is often implemented as a permanent measure in the form of kerb outstands as part of traffic calming schemes for local areas.

A key consideration when implementing this treatment is to ensure it has been designed to accommodate Council's garbage truck such that this vehicle can be accommodated without crossing into the path of oncoming vehicles.

### 4.2.4. Summary

Overall, the treatment at Wordsworth Street and other minor side road intersections along Marine Parade will not provide any material benefit for cyclists or motorists. It does provide a modest benefit for pedestrians.

Considering the intent of this treatment was part of improvements for bicycle infrastructure, we are of the view it should be removed or, if it is to remain, made permanent by kerb outstands and associated landscaping such that it provides a better urban design outcome.

## **5. Richardson Street/Withers Street**

### **5.1. Treatment Description**

The pop-up treatment involved upgrading the prominence of the on-road bicycle lanes that previously existed along Richardson Street through the intersection at Withers Street as well as other intersections along the route.

Specific changes that occurred at the Withers Street intersection included the installation of green pavement within the bicycle lanes where they run through the intersection, and the installation of raised kerbing and bollards on the southern side of Richardson Street within approximately 7m either side of the intersection in areas where parking was not previously permitted.

The treatment has also included replacement of white delineated bicycle lanes with yellow line marking. Yellow line marking has recently been used to denote temporary works.

A photograph of the treatment at the Richardson Street/Withers Street intersection from the eastern approach of Richardson Street is provided at Figure 5.



*Figure 5: Richardson St/Withers St Treatment Looking West*

### **5.2. Treatment Impacts**

#### **5.2.1. Increased Prominence of Conflict Areas**

The use of green pavement is a standard treatment used to increase the prominence of conflict areas within on-road bicycle lanes. The use of this measure at the Richardson Street / Withers Street intersection is consistent with current practice and will make turning motorists more aware that they are crossing a bicycle lane and make cyclists aware that they are riding through an area where there may be conflicts with motor vehicles.

### 5.2.2. Impact of Concrete blocks and Bollards

The concrete blocks and bollards that have been installed at the Richardson Street / Withers Street intersection are in an area that is not generally used by motorists, located on the left side of the westbound bicycle lane.

The treatment does not reduce the width of the Withers Street approach to the intersection and accordingly is not considered to have a significant impact to either motorists or cyclists.

Similar to the treatment at the Marine Parade/Wordsworth Street intersection, the installation of the kerb and bollards provide no material benefit for cyclists but do reduce the width of pavement that pedestrians need to cross when crossing Richardson Street.

### 5.2.3. Summary

Overall, this treatment is considered to result in an overall safety benefit for road users by making the conflict areas within the bicycle lanes more prominent.

Should this treatment be retained, the bollards and temporary kerbing should either be removed or made permanent through kerb extensions and associated landscaping. We also recommend the reversion of the yellow line marking to white.

## 6. Deakin Street/Loch Street/York Street

### 6.1. Treatment Description

A pop-up bicycle route has been installed along York Street and Loch Street through the suburb of St Kilda West. York Street and Loch Street intersect with Deakin Street in a 'Staggered-T' arrangement whereby motorists and cyclists intending to travel between York Street and Loch Street must initially turn right into Deakin Street and then immediately turn left.

A feature of each of the streets in this area is that they all have very wide pavements, in particular Deakin Street and York Street both have pavement widths between 17m and 18m, whilst the pavement width for Loch Street is approximately 13m.

As part of the pop-up treatment, road space within York Street has been modified to include:

- 3.0m to 3.3m parallel parking lanes,
- 2.2m to 2.3m on-road bicycle lanes, and
- 6.6m remaining width for two-way traffic.

The bicycle lanes terminate a short distance to the north of the intersection at Deakin Street resulting in the need for cyclists to ride within the traffic lane for a short distance of approximately 15m. Sharrows (i.e. shared lane markings) have been installed in this area to indicate that it is to be shared between motorists and cyclists. There have also been speed cushions installed here to slow traffic and text linemarked within the southbound bicycle lane to state 'bike lane ends' and text within the traffic lane to state 'Bikes Merging', resulting in an overload of information within a short distance of travel.

Concrete blocks and bollards have also been installed on the eastern side of the York Street carriageway to force cyclists to merge into the traffic lane.

A photograph of the York Street approach to Deakin Street is provided at Figure 6.



Figure 6: York St Approach to Deakin St Looking South



The Loch Street carriageway has also been modified to include:

- 3.5m to 3.8m parallel parking lanes, and
- 5.7m remaining width for shared use between motorists and cyclists.

Sharrow markings have been installed within the central section of the carriageway to highlight the intention that cyclists are to ride along this part of the road.

There is an existing bend in Deakin Street that coincides with the adjacent intersections at Loch Street and York Street. As part of the pop-up treatment, the width of Deakin Street has been narrowed through the bend from approximately 18m down to 7.2m through the use of temporary outstands consisting of concrete blocks and bollards.

A photograph of the Deakin Street western approach to the intersections at Loch Street and York Street is provided at Figure 7.



Figure 7: Deakin St/Loch St/York St Treatment Looking East along Deakin St

## 6.2. Treatment Impacts

### 6.2.1. Head-on Collisions in Deakin Street

The substantial narrowing of Deakin Street from approximately 18m to 7.2m coinciding with the curved section of the road significantly increases the risk of head-on collisions occurring through these intersections.

Despite the significant width of Deakin Street there is no centreline provided along the road. This can make it difficult for motorists to be confident that they are tracking to the left of the centre of the road.

The narrowing of the road through the curved section without any prior warning is considered to substantially increase the risk of a head-on collision occurring, noting there is a high risk of vehicles tracking over the centre of the road when negotiating the curve.

The presence of the concrete blocks and bollards on both sides of the road through the curve and intersections creates a confusing situation for motorists who may be unfamiliar with the area, including where they should position their vehicle when turning into Loch Street or York Street.

### **6.2.2. Merging Cyclists in York Street**

The pop-up treatment has created a situation where southbound cyclists are required to merge when riding along York Street on approach to Deakin Street. The merge is required to happen over a relatively short distance where there are a multitude of non-standard pavement markings located on the pavement. This will create a confusing situation for cyclists who were not previously required to merge prior to the installation of the concrete blocks and bollards.

It is also noted the speed cushions do not extend to the bicycle lane. Some motorists choose to deviate to and drive within the bicycle lane to avoid the speed cushion. Clearly, this is an outcome that further places cyclists at risk.

### **6.2.3. Potential for Alternative Tracking Through Intersections**

A number of the concrete blocks and bollard installations through the York Street and Loch Street intersections with Deakin Street have been placed well out from the kerb. This creates opportunities for cyclists to take alternate paths through the intersections allowing them to avoid merging with traffic or providing a more generous turning arc.

Examples where this can occur is on the north-west and north-east corners of the Deakin Street / York Street intersection and on the south-west corner of the Deakin Street / Loch Street intersection. The potential for cyclists to emerge from unexpected locations results in additional risk of conflicts with motorists and pedestrians.

An aerial photograph illustrating the location of the concrete blocks installations in the vicinity of the intersection is presented at Figure 8.



Figure 8: Concrete blocks at Deakin St/Loch St and Deakin St/York St Intersections

### 6.2.4. Loch Street Cross-Section

The change to the cross-section of Loch Street to include parking lanes at a width of over 3m and only 5.7m for traffic and cyclists is a non-standard arrangement that is likely to result in vehicles parked further from the kerb and an increased risk of collisions between passing vehicles due to the narrower carriageway. However, the presence of the sharrows will hopefully draw attention that cyclists use this route.

### 6.2.5. Summary

Overall, it is considered the pop-up bicycle infrastructure installed in the vicinity of the Deakin Street/York Street and Deakin Street/Loch Street intersections does not result in a safer environment for cyclists or motorists and will result in an increased risk of collisions. Accordingly, it is recommended these treatments should be removed.

## **7. Lyons Street/Bridge Street/Esplanade West**

### **7.1. Treatment Description**

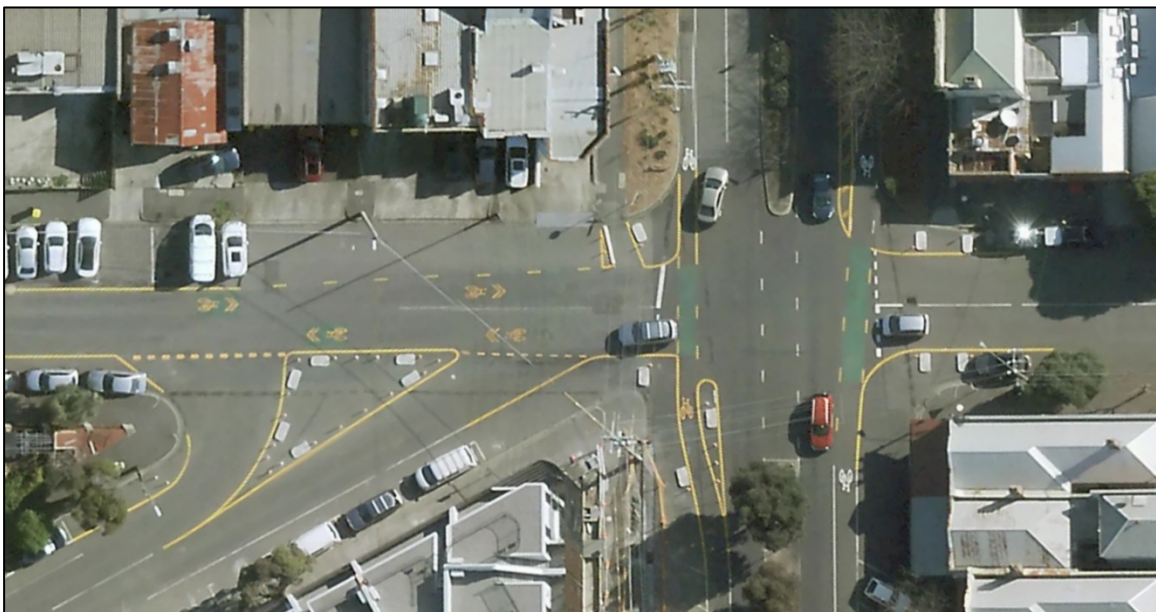
Pop-up bicycle infrastructure has recently been installed at the closely spaced intersections at Lyons Street/Bridge Street and Lyons Street/Esplanade West in Port Melbourne.

Key elements of the pop-up infrastructure include:

- Installation of sharrow markings to introduce a bicycle route along Lyons Street to the south of Bridge Street.
- Installation of concrete blocks and bollards to form a wide splitter island within the Lyons Street/Esplanade West intersection.
- Installation of concrete block and bollards on both sides of the Lyons Street carriageway to narrow the approaches to Bridge Street.
- Changes to alignment of the Bridge Street bicycle lanes including green pavement through the Lyons Street intersection.

In addition to the above, speed cushions have been installed in Bridge Street to the east of the Lyons Street intersection.

An aerial photograph illustrating the extent of works at the Lyons Street/Bridge Street and Lyons Street/Esplanade West intersections is presented at Figure 9.



*Figure 9: Pop-up Infrastructure at Lyons St/Bridge St and Lyons St/Esplanade West Intersections*

Photographs showing some of these key changes are also provided at Figure 10 through to Figure 12.



Figure 10: Splitter Island Comprising Concrete Blocks and Bollards on Esplanade West Approach to Lyons St



Figure 11: Narrowing of Lyons St South Approach to Bridge St



Figure 12: Realignment of Bridge St Westbound Bike Lane on Approach to Lyons St

It is understood that following community consultation, Department of Transport has since resolved to remove some of the concrete blocks and bollards to improve visual amenity.

## 7.2. Treatment Impacts

### 7.2.1. Lyons Street Cross-Section

The change to the cross-section of Lyons Street to the west of Esplanade West has resulted in a 3.0m parking lane on the eastern side of the road and only 5.6m for two-way traffic including cyclists between edge lines.

This is likely to result in vehicles parked further from the kerb and an increased risk of collisions between passing vehicles due to the narrower carriageway. However, the presence of the sharrows might mitigate this to some extent by drawing attention that cyclists use this route.

### 7.2.2. Right Turn Movement from Esplanade West into Lyons Street

The introduction of the wide splitter island (by concrete blocks and bollards) in Esplanade West results in motorists turning right to exit Esplanade West into Lyons Street turning at closer to 90 degrees. This is considered to provide a safety improvement for both motorists and cyclists as they will not have to turn their head as far to the left to see other vehicles approaching from the southern leg of Lyons Street. It also slows vehicles approaching from Esplanade West and prevents them from cutting the corner.

### 7.2.3. Narrowing of Lyons Street on Approaches to Bridge Street

The reduction in width of the Lyons Street approaches to Bridge Street results in the need for vehicles to turn in and out of Lyons Street at an angle closer to 90 degrees, resulting in slower turning speeds. This is generally considered to provide a safer outcome for pedestrians as they reduce crossing distance in addition to the slower speed of vehicles.

Reducing the width of the Lyons Street approaches also forces cyclists to merge with other traffic when approaching the intersection rather than remaining to the left of motorists within a wide traffic lane that can accommodate both vehicles. This is not a positive outcome.

This additional merging task is likely to be an inconvenience to cyclists, particularly if stuck behind a through or right turning vehicle. Given the level of traffic in this area, nearby an activity centre with notable through and right turn movements from Lyons Street, the need for cyclists to merge into the traffic lane is not considered desirable.

### 7.2.4. Realignment of Bridge Street Westbound Bicycle Lane

The pop-up treatment has resulted in the introduction of a kink in the westbound bicycle lane on Bridge Street on approach to the Lyons Street intersection that did not exist previously. The presence of this kink is not desirable as it may lead to cyclists losing control when approaching the intersection if not paying attention and may result in a collision with the concrete blocks and bollards.

The presence of the concrete blocks and bollards also results in greater separation of cyclists from left turning vehicles from Bridge Street and may result in cyclists not being aware of the need to give way to left turning vehicles as required under the road rules.

### 7.2.5. Pedestrian Crossing Movement Across Bridge Street

The introduction of the concrete blocks and bollards between the westbound bicycle lane and traffic lane in Bridge Street creates an obstruction for pedestrians crossing Bridge Street to the east of the Lyons Street intersection as shown in Figure 13.



Figure 13: Pedestrian Crossing Alignment of Bridge St East of Lyons St

### 7.2.6. Summary

The pop-up bicycle infrastructure that has been installed in the vicinity of the Lyons Street intersections at Esplanade West and Bridge Street has some positive impacts but it is outweighed by the more significant negative impacts.

Overall, it is considered the concrete blocks separating the westbound bicycle lane and traffic lane on Bridge Street should be removed such that the kink in the bicycle lane can be avoided.

The Lyons Street cross-section to the west of Esplanade West should also be amended to include less width for the parallel parking lane on the eastern side of the street and more space for traffic movement including cyclists.

The wide splitter island in Esplanade West is considered to provide some safety benefit and is therefore recommended to be retained, albeit it should be made permanent through appropriate kerbing and landscaping to replace the concrete blocks and bollards.

It is considered the concrete blocks and bollards that narrow the width of the Lyons Street approaches should not be retained due to the greater potential for cyclists to be delayed behind through and right turning motorists, and associated risks as outlined above.



## 8. McGregor Street/Park Street & Page Street

### 8.1. Treatment Description

The pop-up treatment at this intersection consists of linemarking in McGregor Street and Page Street and kerb extensions provided as concrete blocks and bollards at the intersection of McGregor Street and Park Street. More particularly, the linemarking comprises a yellow centre line on McGregor Street between Page Street and Park Street, bicycle sharrow markings centrally within each traffic lane on either side of the centre line with green background behind them to highlight their presence.

The Page Street approach to the intersection consists of yellow edge lines separating the main part of the carriageway from the 90 degree angle parking areas on either side of the road as well as sharrow markings at regular intervals along the central part of the carriageway.

The Park Street intersection has been narrowed by the installation of the concrete blocks, bollards and associated yellow linemarking and sharrows.

A photograph of the treatment at the McGregor Street, between Park Street and Page Street is provided at Figure 14.



Figure 14: McGregor St Treatment Between Page St and Park St

These intersections form part of an east-west pop-up bike route along Page Street and Park Road, with a minor deviation along McGregor Street between the two intersections.

An aerial view of the McGregor Street/Page Street and McGregor Street/Park Street intersections is also presented at Figure 15.



Figure 15: Aerial Image of McGregor St/Page St and McGregor Street/Park Street Treatments

## 8.2. Treatment Impacts

### 8.2.1. Increased Prominence of Bicycle Route

The treatment at McGregor Street/Page Street consists only of linemarking, the impacts are limited to providing a greater awareness for motorists and cyclists. The main impact is the presence of the bicycle sharrows on Page Street and McGregor Street will provide greater prominence to motorists that there are cyclists who ride along these routes. The markings also provide guidance to cyclists to ride centrally within the traffic lanes rather than track closer to the kerb. However, given the low volume of traffic in both streets, the presence of the bicycle sharrow markings is considered unnecessary.

### 8.2.2. Delineation of Traffic Lanes

The yellow centreline on McGregor Street assists traffic to keep to the left side of the road. However, given that McGregor Street is a quiet local road that follows a straight alignment, the presence of this short section of centreline is considered unnecessary.

### 8.2.3. Page Street Cross-Section

The introduction of edge line markings along Page Street separating the angle parking areas from the traffic lanes results in the width of the central traffic lanes being reduced to 5.5m between edge lines. This results in a slight increased risk of collisions between passing vehicles due to the narrower carriageway width for through traffic.

Overall, the edge linemarking provides no material benefit.

### 8.2.4. Concrete Blocks and Bollards in Park Street

The concrete blocks and bollards in Park Street create a threshold which significantly narrows the width of Park Street at its intersection with McGregor Street.

Although the treatment provides a small benefit to pedestrians by narrowing the crossing width, there is no material benefit for cyclists, noting that it forces them to merge with other traffic when turning at the intersection. The presence of the concrete blocks and bollards also introduces an additional hazard for cyclists that they will need to avoid, noting that some cyclists may choose alternative paths between the concrete blocks and bollards to avoid merging with traffic.

Accordingly, this treatment should be removed.

### 8.2.5. Summary

We consider the pop-up bicycle infrastructure that has been installed in the vicinity of the McGregor Street/Page Street and McGregor Street / Park Street intersections is unnecessary and will not result in any substantial safety benefits for either motorists or cyclists. Accordingly, the pop-up treatment should be removed.

## 9. Conclusions

Based on our independent review of a sample of the pop-up bicycle infrastructure treatments within Port Phillip, we recommend:

- a) The isolated sections of separated bicycle lanes that have been installed along Marine Parade introduce more safety issues than they resolve and **should be removed**.
- b) The Park Street inclusion of bicycle lanes is a positive outcome for cyclists, however the treatment **should be significantly modified** to provide a more conventional bicycle lane, given the number of existing crossovers and road intersections. If retained the yellow line marking should be replaced with white line marking.
- c) The Marine Parade / Wordsworth Street threshold treatment offers no material benefit for cyclists. The treatment does provide for some improved pedestrian safety, but there is nothing distinguishable about this intersection compared to many others throughout the municipality. Accordingly, the treatment at this intersection and other like settings **should be removed**. If it is to be retained, then it should be formalised through permanent kerb extensions and associated landscaping to provide for improved visual amenity. There are other intersections along Marine Parade where similar treatments have been applied where the same comments can be said.
- d) The inclusion of green pavement markings within the bicycle lanes at intersections along Richardson Street heightens the awareness of cyclists for motorists and should be retained. The inclusion of concrete blocks and bollards offer no material benefit for cyclists and **should be removed**. If they are to be retained the concrete blocks and bollards should be replaced with permanent kerb extensions and associated landscaping to improve the visual amenity. The yellow line marking **should also be replaced** with white line marking.
- e) The treatment installed at the Deakin Street intersections at York Street and Loch Street introduces additional safety risks and **should be removed**.
- f) The pop-up infrastructure at the Lyons Street intersections at Bridge Street and Esplanade West **should be modified** to remove the concrete blocks and bollards that narrow the Lyons Street approaches and separate the westbound bicycle lane from the traffic lane along Bridge Street. The parking lane on the south side of Lyons Street **should be narrowed** to provide more space for both motorists and cyclists. If the wide splitter island on Esplanade West is to be retained, it should be formalised through kerb and channel and associated landscaping to provide better visual amenity.
- g) The treatment installed at the McGregor Street/Page Street and McGregor Street / Park Street intersections **should be removed** as it provides minimal safety benefits to cyclists or other road users and is considered unnecessary given the low volume/low speed nature of this area.

Overall, we consider that in addition to visual clutter, the vast majority of the pop-up bike lane infrastructure either offers limited benefit for cyclists or results in an increased risk to road users including both motorists and cyclists.

Consequently, the majority of the temporary treatments should either be removed or significantly modified.