



# Northumberland Road, Pascoe Vale

## Separated bicycle lane trial

Transport survey counts review

### Moving safely in Moreland

The Council Plan 2021-2025 includes Theme 2: *Moving and living safely in Moreland*. Under this theme, Strategy 2.1 is “Build safe, accessible and high-quality bike and pedestrian infrastructure to create links between areas of high pedestrian and cycling demand, especially the Coburg to Glenroy bike path”.

### Background to Northumberland Road separated bike lane trial

During the COVID-19 pandemic, there was an increase in the number of people using Moreland walking and cycling paths. To accommodate this, Council decided to invest an additional \$1.68 million walking and cycling improvements such as bike lanes and shared zones.

In total, 4 bike lane projects and 2 shared zone projects were endorsed by Council to be installed as trials in June 2021. All projects except the Albion Street bike lanes had been identified in Council's adopted future capital works program but were fast-tracked as part of our COVID-19 response. The Albion Street bike lanes were included in these trials as they formed part of the detour route needed due to the Level Crossing Removal (LXRP) works.

Unlike most of Council's infrastructure projects, the trials were designed as 'learning through trial'

projects with community engagement based around the implemented trial rather than design concepts not yet installed.

Installing these trials using materials that could be modified or removed, meaning that changes to final designs could be made based on both feedback from the community and technical findings.



Figure 1: Separated bike lane on Northumberland Rd, Pascoe Vale

### Trial on Northumberland Road

In June 2021, we installed trial separated bike lanes on Northumberland Road (as shown in Figure 1) as well as other sites in Pascoe Vale as part of the Coburg to Glenroy bike route.

This is a low stress cycling route, suitable for cyclists of all confidence levels, that safely and effectively connects to shops, schools, open space and community facilities.

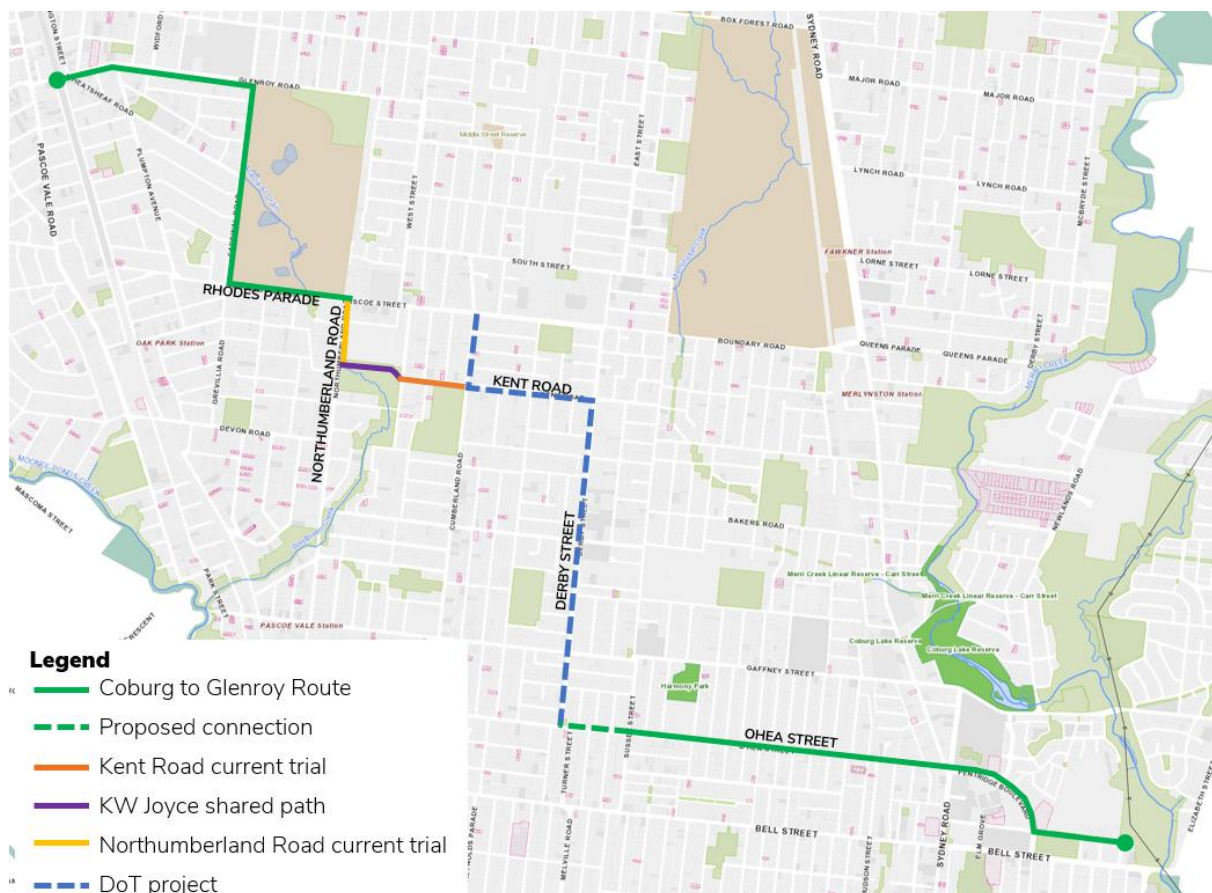


Figure 2: Strategic role of Kent Road in Coburg to Glenroy bike route

As illustrated in Figure 2, the new bike lanes in Northumberland Road (shown in yellow) link up existing sections of bike facility and allow for a more complete bicycle network as part of the Coburg to Glenroy bike route.

As the Department of Transport controls some of the roads on this route, the final decision on the type of installation on those roads is not under Council's control. The proposed treatments on the dashed blue section of the route in Figure 2 are not consistent with Council's objective for separated facilities. Similarly, the Department has identified a northern section of Cumberland Road for non-separated bike facilities. This section can perform the function of providing access to the Coburg to Glenroy route but is not part of Council's preferred route.

## Benefits of separated bike lanes

A separated bicycle lane is where there is a physical barrier between cyclists and traffic. This separation between cyclists and traffic helps encourage more people to ride, including cyclists with lower levels of confidence, and under-represented groups such as women, children, and the elderly. This is particularly important in Moreland.

In 2020, VicHealth and Monash University surveyed over 4,000 people across 37 local government areas in Greater Melbourne and regional Victoria.

The research found that 83% of people in Moreland would consider cycling as an option in some instances but are often afraid to do so if required to ride among vehicles or pedestrians.

Physically separated bike lanes provide people a chance to ride bikes with physical separation from cars and pedestrians and can empower that 83% to ride their bike more often.





## Trial objectives

The broad objective of the trial, given the strategic importance of the route, was to determine the pros and cons of a separated bike facility.

This would be determined from a combination of community engagement and transport surveys, focusing on the experiences of people riding bikes, pedestrians, residents, other adjacent land users, local traffic and parking.

## Community Engagement

Throughout the 12-month trial we engaged with the community at various points to understand community sentiment, identify potential improvements, and allow the community to make suggestions for improvements.

Reference is made to the separate community engagement report “Making Walking and Cycling in Moreland Safer” (D22/306962) and future engagement process for bike lane projects, drawing on the lessons learned with this project (D22/301624), both of which can be found on the Conversations Moreland webpage for these trials (<https://conversations.moreland.vic.gov.au>).



Figure 3: Separated bike lane on Northumberland Rd, Pascoe Vale

## Data Collection

Council monitored this trial with a survey of bikes, pedestrians and vehicles using Northumberland Road and the surrounding streets. This was done with tube counters and a camera.

The remainder of this report is focused on the data collected before and during the trial, comparison of the bicycle counter data to publicly available bicycle counter data on nearby routes, and the conclusions that can be made.

## Bike, pedestrian, and vehicle survey counts

Vehicle survey counts allow us to effectively track vehicle, pedestrian, and bike activity in an area. Council engaged an independent research company to undertake these surveys using two methods:

- Tube counters placed across the street identify the number, type, and speed of vehicles, and
- A camera identifies the number, direction and approximate age and gender of bike riders and pedestrians.

Council is provided the raw data from these counts and can compare information gathered during the trial periods and compare this to information before the trial infrastructure was installed.

## Survey locations and data

Council undertook surveys across five survey periods to capture data on the usage of Northumberland Road by bikes, pedestrians, and vehicles, including:

- **Summer:** Thursday 3 December to Sunday 6 December 2020 before trial, out of lockdown
- **Spring:** Thursday 9 September to Sunday 12 September 2021 during trial, in lockdown
- **Summer:** Thursday 2 December to Sunday 5 December 2021 during trial, out of lockdown
- **Autumn:** Thursday 24 March to Sunday 27 March 2022, during trial, out of lockdown
- **Winter:** Thursday 16 June to Sunday 19 June 2022, during trial, out of lockdown

The location of each of the surveys is shown in blue in Figure 4, including:

1. Northumberland Road, between Lake Avenue and the school entrance. Counter located at 137 Northumberland Road
2. Northumberland Road, between Lake Avenue and Rhodes Parade. Counter located at 143 Northumberland Road

Vehicle surveys were taken over seven days, commencing from first day of each survey period. Parking surveys were also undertaken in the Northumberland Road area during the same periods as shown in Figure 4.

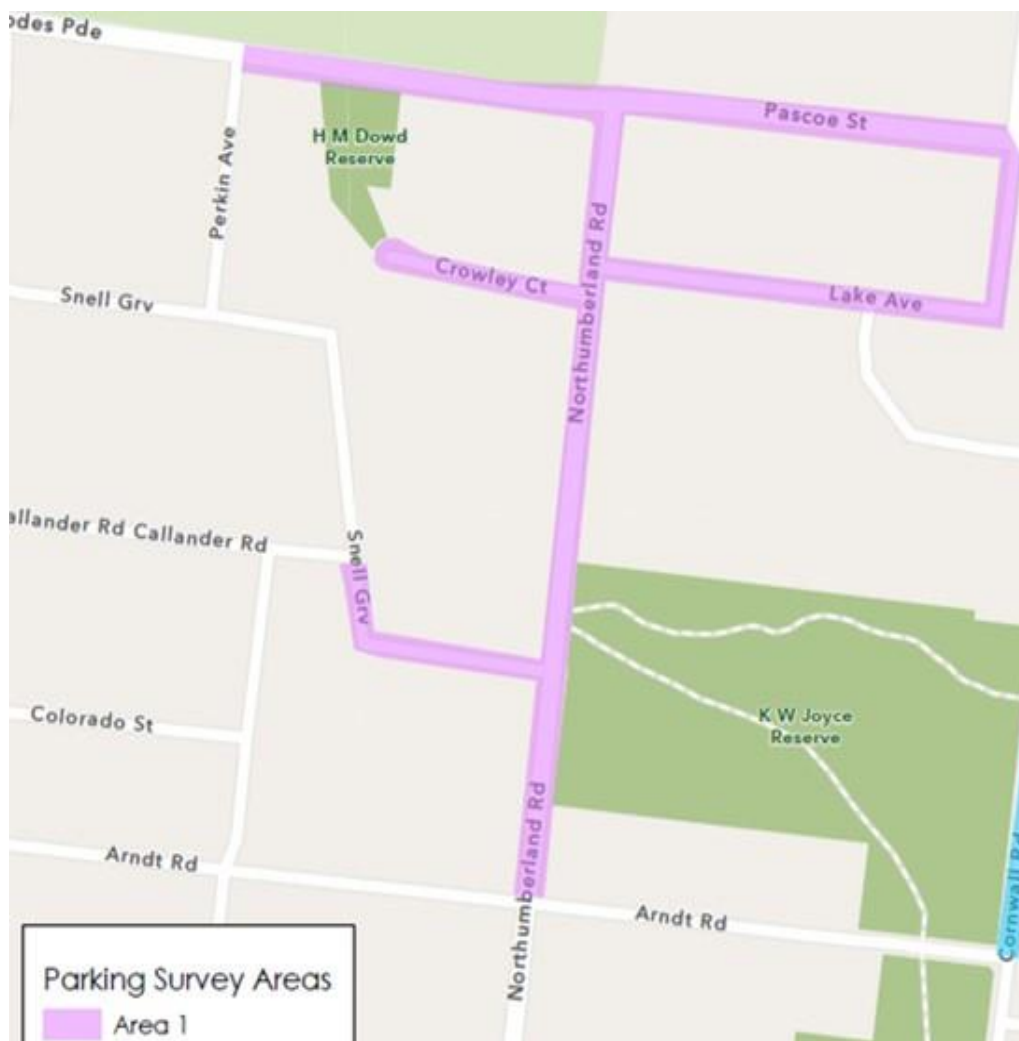


Figure 4: Transport survey locations for Northumberland Rd, Pascoe Vale

# Potential considerations with the data and survey methodology

## 1. Weather observations

Short term changes in weather conditions can impact the number of people likely to participate in outdoor activities such as riding and walking. Historical weather observations are provided below for each of the survey periods.

Table 1: Weather observations from Essendon Airport, Bureau of Meteorology station number 86038

Survey period		Minimum temperature (C)	Maximum temperature (C)	Rainfall (mm)
December 2020 before trial, out of lockdown	Thursday, 3 Dec	9.4	25	0
	Friday, 4 Dec	10.2	24.4	0
	Saturday, 5 Dec	12.4	28.4	0
	Sunday, 6 Dec	12	21.6	0
September 2021 during trial, in lockdown	Thursday, 9 Sept	11.2	24.6	0
	Friday, 10 Sept	9.6	18.8	0
	Saturday, 11 Sept	12.1	22.9	0
	Sunday, 12 Sept	8.3	15.7	0
December 2021 during trial, out of lockdown	Thursday, 2 Dec	16.4	33	22.6
	Friday, 3 Dec	10.3	20.2	3.6
	Saturday, 4 Dec	9.8	19.4	0
	Sunday, 5 Dec	9.4	20.8	0
March 2022 during trial, out of lockdown	Thursday, 24 March	11.6	20.8	0
	Friday, 25 March	12.2	21.1	0
	Saturday 26 March	9.7	24.3	0
	Sunday, 27 March	11.2	29.1	0
June 2022 during trial, out of lockdown	Thursday, 16 June	9.3	14.2	0.2
	Friday, 17 June	9.9	13.9	9.6
	Saturday, 18 June	6	16.7	0
	Sunday, 19 June	2.5	15.5	0

## 2. Impact of Victorian Government Department of health restrictions (Melbourne lockdowns)

The first survey recorded in December 2020 was outside of Melbourne's lockdown with travel patterns and daily life gradually returning to normal including a return to work in the office. September 2021 was during Melbourne's 6th lockdown where there were only 5 reasons to leave home. The third and fourth surveys in December 2021 and March 2022 were outside of Melbourne's lockdown with travel patterns and daily life returning to normal including school in person and people beginning to return to work in the office.

Typically, lockdowns have seen fewer commuting trips for work or other purposes such as socialising and organised sport but have led to a greater number of recreational walking and riding trips in local areas. It is likely travel patterns and reasons for travel would change in and out of lockdowns.

## 3. Time of year

Time of year may also impact survey outcomes. Under normal circumstances, transport survey counts are not conducted during school holidays as traffic patterns are too irregular and would likely miss key user groups including schools such as Pascoe Vale Girls Secondary College and work-related commuting trips.

## Key findings – bike riders

A summary of key findings is below. Detailed survey data can be found on the Northumberland Road Conversations Moreland webpage.

1. Observed an upward trend in bike riders during the trial compared to pretrial data.

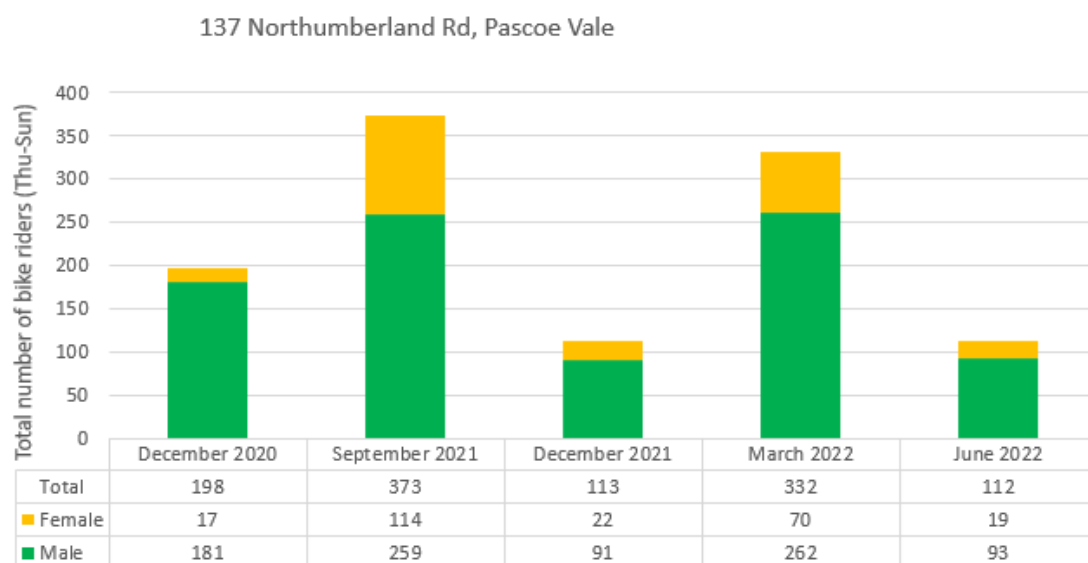


Figure 5: Changes in bike rider counts at 137 Northumberland Road between December 2020, September 2021, December 2021, March 2022 and June 2022 for the survey periods Thursday to Sunday.

\*Note: Gender split is estimated from video footage.

### Officer comment:

Investment in separated cycling infrastructure is likely to encourage a long-term, gradual increase in bike riding. The significant uptake in bike riding seen on the Northumberland Road trial separated bike lanes between December 2020 and September 2021 indicates the program's success during COVID in encouraging more trips to be made by bike riding, especially by women. The September counts show that bike riders have almost doubled overall, but most notably, female ridership increased by 570%.

By December 2021, travel patterns and daily life were gradually returning to normal, including a return to the office. Despite the slight drop in overall numbers in this period, female ridership increased slightly in total numbers but more notably, represented a greater portion of all riders (19.5%) compared to only 8.6% before the trial. It is also worth noting that weather conditions on the first day of the survey in December 2021 were particularly hot and wet, which may have impacted ridership that day.

Experience demonstrates that continued investment to create safe, efficient, and connected cycling infrastructure will provide a genuine alternative for people in the long-term. New bike riders take time to see the infrastructure there, know where it goes, what it connects to, and then seeing others using it to feel confident to take it up themselves. It occurs gradually, but steadily over time.

The observed increase in both total and in particular female bike riders in March 2022 is an early indication of people beginning to consider cycling as a genuine alternative due to investment in safe, efficient, and connected bike riding infrastructure. A similar trend is observed in Brunswick as infrastructure investments by Council 15 to 20 years ago continue to lead to increased participation in cycling. From 2011 to 2016, journey to work data indicates that cycling increased from 9.3% to 12.1% respectively (source: Australian Bureau of Statistics, Census data, 2011 and 2016). Brunswick has the highest journey to work cycling rate in Victoria.

There was a decrease in the total number of bike riders observed on Kent Road during the winter survey period in June 2022. A decrease in ridership can typically be expected during colder, winter months.



### Comparison with data from control sites

The below map in Figure 6 is a screenshot of the VicRoads bicycle counter data map<sup>1</sup>. There are bicycle counter sites on the Merri Creek, St Georges Road (x2), Capital City Trail and Upfield Shared Use Path. Having continuously recorded data on these sites presents an opportunity to use them as a reference, to identify where the variations in the Northumberland Road data is relative to background trends, and where it may be attributable to the Northumberland Road separated bike path.

Unfortunately, the Merri Creek site has not retained any data since January 2022. The Upfield site has been recording continuously, but usage has been impacted (positively) by the opening of the shared use trail as part of Level Crossing Removal works, and so is not a reliable 'untouched' comparator.

It was therefore determined to use the St Georges Road Northcote and Capital City Trail sites as comparators – shown as 'control sites' on Figure 4. These two control sites are collector bike paths and have significantly more bike riders using them but comparisons to trends is useful.

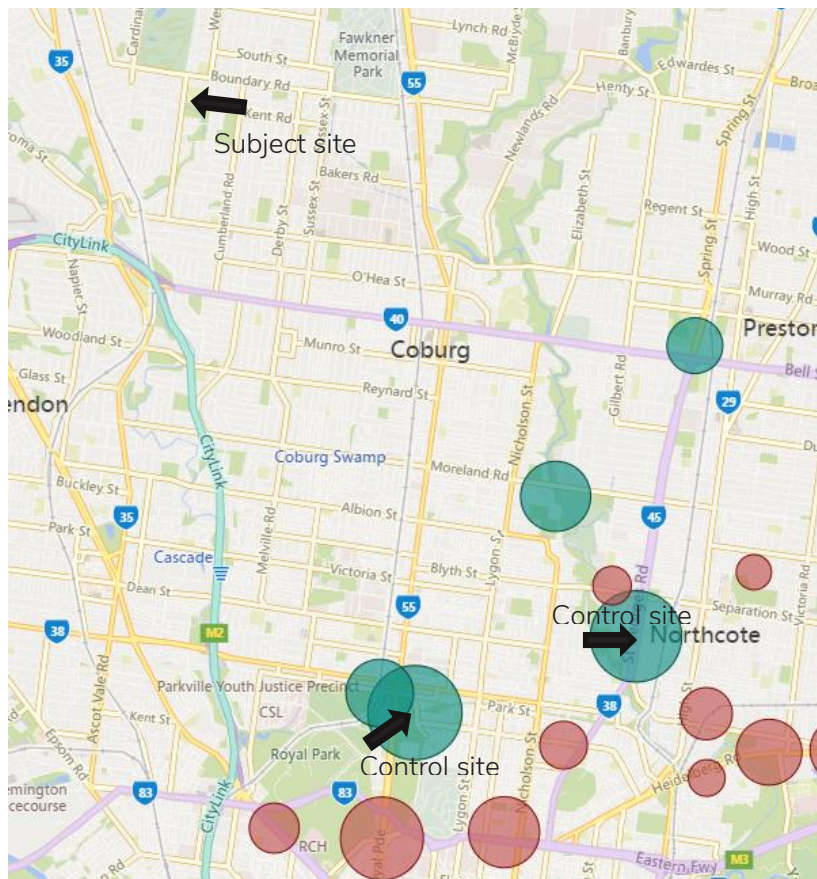


Figure 6: Bicycle counter control sites (Source: VicRoads)

The data extracted for the control sites from the above interactive dashboard was for the exact days that Northumberland Road data was collected, namely:

- **Summer:** Thursday 3 December to Sunday 6 December 2020 before trial, out of lockdown
- **Spring:** Thursday 9 September to Sunday 12 September 2021 during trial, in lockdown
- **Summer:** Thursday 2 December to Sunday 5 December 2021 during trial, out of lockdown
- **Autumn:** Thursday 24 March to Sunday 27 March 2022, during trial, out of lockdown
- **Winter:** Thursday 16 June to Sunday 19 June 2022, during trial, out of lockdown

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<sup>1</sup> <https://www.vicroads.vic.gov.au/traffic-and-road-use/road-network-and-performance/road-use-and-performance> (interactive dashboard, Bicycle Speed and Volumes)

The total volume detected for each of the four-day periods of data collection at the control sites is shown alongside the Northumberland Road data in Table 2.

Table 2: Bike counter data - control and subject sites

	Bike volumes detected	Control site	Control site	Subject site
Month	Collection days and lockdown status	St Georges Road	Capital City Trail	Northumberland Road
Before trial				
Dec-20	Thursday 3 December to Sunday 6 December 2020 out of lockdown	5644	5372	198
During trial				
Sep-21	Thursday 9 September to Sunday 12 September 2021 in lockdown	4628	6336	373
Dec-21	Thursday 2 December to Sunday 5 December 2021 out of lockdown	5480	5384	113
Mar-22	Thursday 24 March to Sunday 27 March 2022, out of lockdown	6288	6680	332
Jun-22	Thursday 16 June to Sunday 19 June 2022, out of lockdown	3548	4200	112
Average daily volume on collection days during trial relative to before trial		88%	105%	117%

This data is also represented in the chart below (Figure 5) that shows the relatively higher increase of bicycle volumes on Northumberland Road during the trial versus before the trial infrastructure was installed (a 17% increase on December 2020 or 117%) compared to the Capital City Trail (5% increase or 105%) and St Georges Road (12% decrease or 88%).

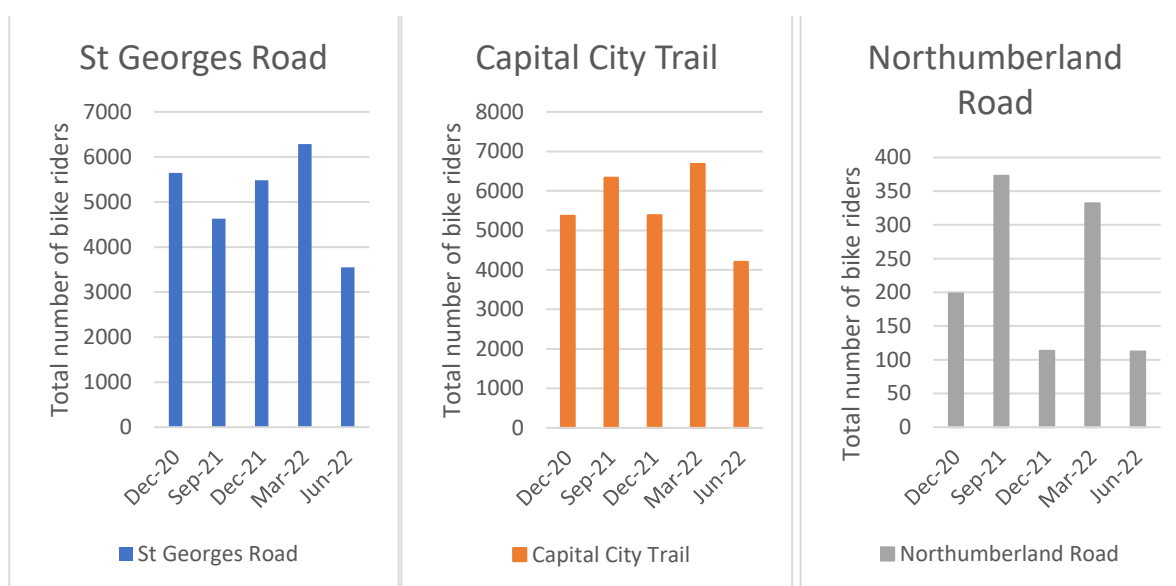


Figure 7: Total bicycle counter data at Kent Road and control sites, relative to December 2020



It is distinct in the comparison charts in Figure 5 that there was a relatively very high numbers of users in the Northumberland Road bike lanes during lockdown in September 2021 compared to the respective increases during the same period at the control sites. This is likely due to the implementation in physically separated infrastructure on Northumberland Road. There is also a bigger drop in ridership on Northumberland in December 2021 compared to the control sites. However the Northumberland Road figures for March 2022 and June 2022 trend similarly to the control sites in that March 2022 data is still high and higher than the Dec 2020 levels, and then drops significantly in June 2022. This suggests that the overall usage patterns in riding was similar in Northumberland Road other than in December 2021 as it was in the other two control sites.

While June 2022 was not during a lockdown, the combined effects of winter weather and suppressed demand (with many people choosing to work from home, or at home with illness) are likely to contribute to the lower volumes across the control and subject sites at that time. Northumberland Road was not alone in the reduction in demand in June 2022.

**2. Observed increases in the number of female bike riders during the trial in September 2021, December 2021, and March 2022 compared to the survey period before the trial indicates uptake in a user group that may have been less likely to ride without separated and convenient infrastructure.**

Another view of the Northumberland Road data is the gender split (as approximated by camera processing software to either male or female stereotypes). While apparent in Figure 5 above, Table reiterates the data about gender split for Northumberland Road. In summary, female ridership is estimated to have increased by 131% on pre-trial numbers, compared to a drop of 3% for males.

Table 3: Northumberland Road bike counts by estimated gender (average daily volume)

Month	Collection days and lockdown status	Northumberland Road – all bike riders	Northumberland Road – bike riders estimated as female	Northumberland Road – bike riders estimated as male
Before trial				
Dec-20	Thursday 3 December to Sunday 6 December 2020 out of lockdown	198	17	181
During trial				
Sep-21	Thursday 9 September to Sunday 12 September 2021 in lockdown	373	114	259
Dec-21	Thursday 2 December to Sunday 5 December 2021 out of lockdown	113	22	91
Mar-22	Thursday 24 March to Sunday 27 March 2022, out of lockdown	332	70	262
Jun-22	Thursday 16 June to Sunday 19 June 2022, out of lockdown	112	19	93
Average daily volume on collection days during trial relative to before trial		117%	231%	97%

The physically separated bike lanes have resulted in a measurable uptake in female ridership. During the September 2021 lockdown, the counts showed a remarkable 570% increase in female ridership. Not only did the number of female riders increase, but so did their percentage of the total trips. Prior to the trials, only 17 of the total 198 riders counted were female. This represented just 8.6% of all trips

and is indicative that pre-trial infrastructure was less viable for female riders. During the September 2021 counts, females represent almost a third of all riders (30.6%).

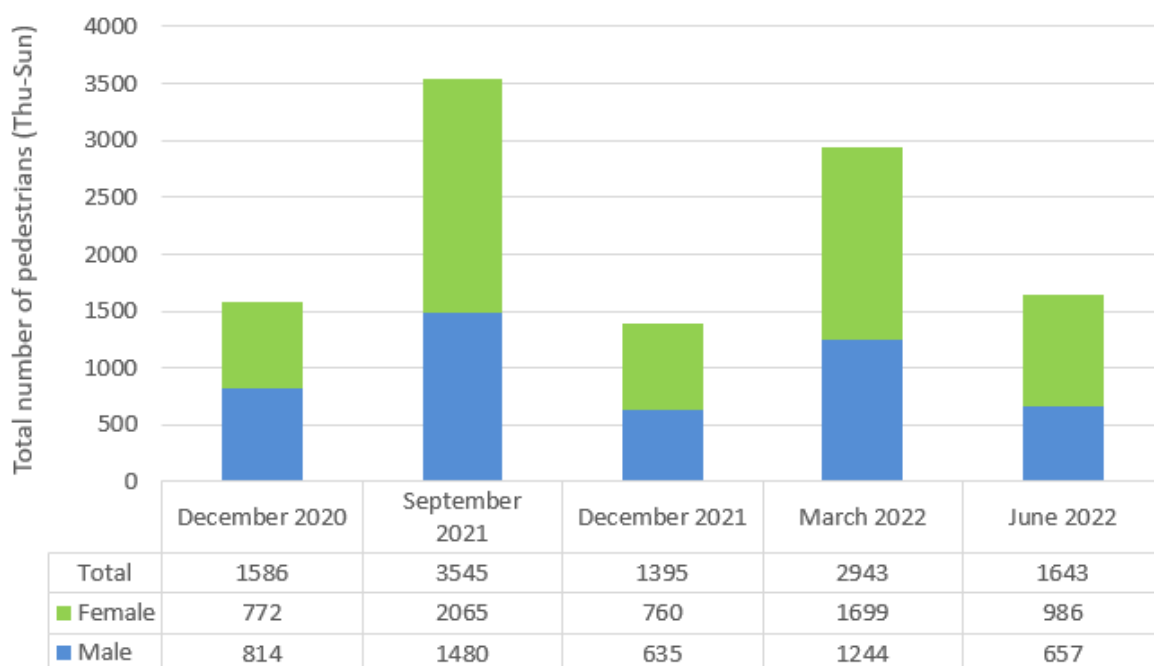
Despite the drop in overall riders in December 2021 compared to December 2020, female ridership increased by 19.5% overall. The portion of female riders was also 29%, higher than the pre-trial conditions of 8.6%. The March 2022 survey data shows an increase in female ridership of 312%, with the percentage of females riding and the percentage of females out of the total riders increased to 21%. This indicates the separated bike lanes are encouraging the “interested in cycling but concerned” user group to ride a bike.

The trend of increased proportions of female riders and total number of female riders continued in the June survey period with an overall increase in female riders by 12 percent, and females representing 17% of all riders.

## Key findings – people walking

3. Total pedestrian numbers for the survey area remained consistent throughout the trial (excluding lock down restrictions where walking greatly increased).

137 Northumberland Rd, Pascoe Vale



143 Northumberland Rd, Pascoe Vale

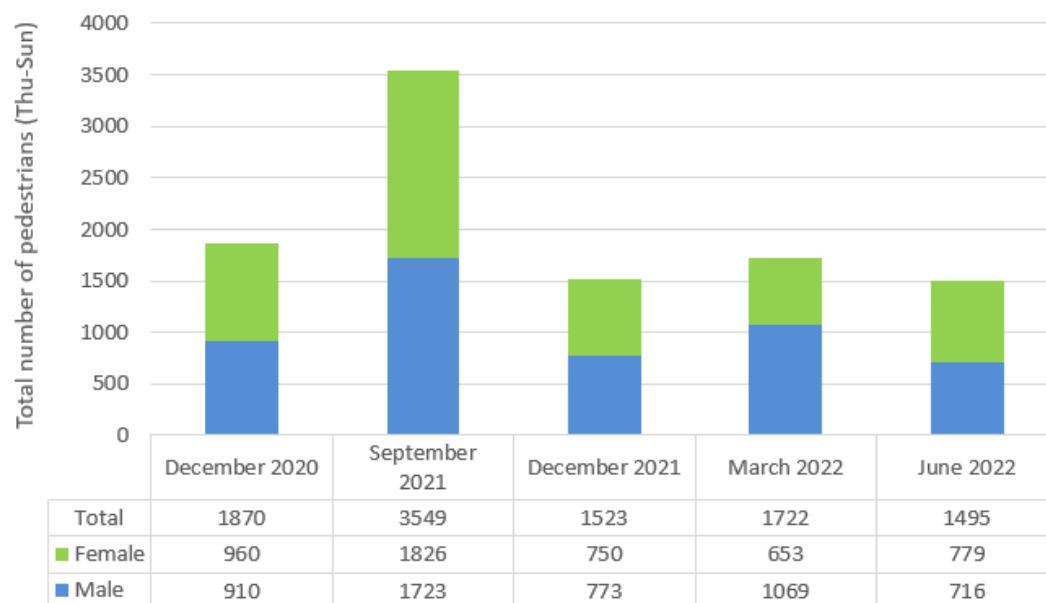


Figure 8: Total number of pedestrians for the survey area between December 2020, September 2021, December 2021, March 2022 and June 2022 for the survey periods Thursday to Sunday at 137 and 143 Northumberland Road, Pascoe Vale.

Officer comment:

Any changes to the way streets look and feel can influence the way people choose to get around. The new shared path through KW Joyce Reserve and the existing shared path along the golf course has likely made Northumberland Road a link between these two destinations. This is likely applicable to the significant increase in walking observed on Northumberland Road in September 2021 during Melbourne's 6<sup>th</sup> lockdown.

The slight ridership dip in the December results at both locations is likely due to indecent weather conditions on the first day of the survey – 2 December 2021.

Outside of the September and December 2021 survey results, there has been an increase in people walking at 137 Northumberland outside the school, and a slight reduction in the survey location at 143 Northumberland, closer to Boundary Road.

## Key findings – motorised vehicles

4. Average daily vehicle numbers are generally reduced or similar across both sites by June 2022 compared to before the trial (December 2020). Vehicle numbers in September 2021 were lower. Vehicle speeds have stayed similar across both sites by June 2022 compared to before the trial

Table 3: Daily average number of vehicles and 85<sup>th</sup> percentile speeds recorded at both of the vehicle counter survey sites between December 2020, September 2021, December 2021, March 2022 and June 2022 for seven-day survey period Thursday to Wednesday

	December 2020 (before trial)	September 2021 (during trial + lockdown)	Dec-21 (during trial)	March 2022 (during trial)	June 2022 (during trial)
<b>Counter location - 143 Northumberland Road</b>					
Daily Average Traffic Volume	3,355	2,364	3,355	3,189	3,245
85th percentile speed (km/h)	43.9	44.8	45.1	45.0	45.3
<b>Counter location - 137 Northumberland Road</b>					
Daily Average Traffic Volume	3314	2371	3262	3064	3,055
85th percentile speed (km/h)	41.6	44.7	37.5	41.8	41.7

Officer comment:

The decrease in vehicle numbers between December 2020 and September 2021 is very likely a result of changes travel patterns as a result of Melbourne's 6<sup>th</sup> lockdown. By December 2021, travel patterns and daily life were gradually returning to normal, including a return to the office. This provides a useful comparison to December 2020 in similar out-of-lockdown conditions but before the trial was implemented.

By June 2022, there has been a slight reduction in the average daily volume of vehicles observed at both sites compared to pre-trial conditions, while the 85<sup>th</sup> percentile speed (or the speed at which 85% of all vehicles are travelling at or below) had negligible changes.

The data collected shows that traffic has behaved in a similarly after the road was narrowed from the trial. Typically, narrowing of the road is known to reduce traffic volume. However, as Northumberland

Road is a collector road it provides a different function that alternative local roads in that it moves people between destinations rather than just providing a local access function to homes and places.

5. Cars parking in Northumberland Road, Pascoe Vale reduced during the trial period whilst no flow on impacts to surrounding streets was observed

Table 4: Breakdown of daily average and daily maximum percentage of car parking occupancy on Northumberland Road between December 2020, September 2021, December 2021, March 2022 and June 2022 for the survey periods Thursday to Sunday.

	Thursday Parking % occupancy		Friday Parking % occupancy		Saturday Parking % occupancy		Sunday Parking % occupancy	
	Avg	Max	Avg	Max	Avg	Max	Avg	Max
December '20	30%	48%	35%	48%	23%	25%	22%	25%
September '21	5%	7%	3%	7%	8%	12%	8%	12%
December '21	16%	25%	18%	28%	16%	18%	18%	20%
March '22	11%	18%	14%	23%	14%	18%	15%	18%
June '22	12%	18%	15%	22%	16%	20%	13%	18%

Table 5: Breakdown of daily average and daily maximum percentage of car parking occupancy across parking survey area (including Northumberland Road) between December 2020, September 2021, December 2021, March 2022 and June 2022 for the survey periods Thursday to Sunday.

	Thursday Parking % occupancy		Friday Parking % occupancy		Saturday Parking % occupancy		Sunday Parking % occupancy	
	Avg	Max	Avg	Max	Avg	Max	Avg	Max
December '20	38%	60%	41%	63%	30%	33%	29%	31%
September '21	26%	32%	25%	30%	23%	26%	24%	30%
December '21	32%	38%	31%	38%	29%	32%	29%	32%
March '22	28%	33%	30%	32%	28%	30%	29%	32%
June '22	33%	38%	34%	37%	32%	34%	30%	34%

Officer comment:

During the trial, there was a significant drop in parking occupancy on Northumberland Road as shown in **Table 4**. This likely due to the narrowed area for vehicle traffic.

Parking occupancy also reduced on the surrounding streets as shown in **Table 5** but only slightly, suggesting that those that previously parked on Northumberland were not parking on nearby streets.

**Table 5** shows adequate parking was available throughout the trial.



## Summary of findings

Throughout the trial, a steady increase in people riding bikes using the Northumberland Road infrastructure was observed. This was most prevalent during the lockdown period in September 2021, relative to Northumberland Road in December 2020, but also relative to September 2021 for two bike counter control sites in the region, suggesting that the increase was not only attributable to the higher levels of bike riding during the lockdown, but to something specific to the Northumberland Road bike lanes.

The increase in bike ridership included an increase in the number of women riding bikes, indicating an uptake not only of general bike riders, but of user groups that may have been less likely to ride without the separated lanes.

Pedestrian numbers peaked during lockdown restrictions as more people had a limited area for travel. Overall, there has been an increase in people walking at 137 Northumberland outside the school, and a slight reduction in the survey location at 143 Northumberland, closer to Boundary Road.

There was a marginal decrease to vehicle volume, though not significant. Vehicle speeds at the end of the trial in June were very similar to pre-trial speeds. The data shows that very few cars parking on Northumberland Road, which is likely due to the reduced width of the road. However, on-street parking availability remains high throughout the day in surrounding streets.

Officer recommendations regarding the Northumberland Road separated bike lanes account for the data presented in this report and the results of community feedback.