Traffix Group

Ticketed Parking Impact Assessment

Serpells Lane Car Park 399 Burwood Road, Hawthorn

Prepared for Boroondara City Council

October 2023

G32358R-02C

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1. Introduction

Traffix Group has been engaged by Boroondara City Council to undertake a Ticketed Parking Impact Assessment for the Serpells Lane Car Park at 399 Burwood Road, Hawthorn.

It is noted that Traffix Group previously completed an assessment in 2022 (ref: G32358R-01B) which assessed parking conditions within the Serpells Lane car park along with other key parking areas within the area. This report included a review of the parking utilisation, duration of stay and likely user groups that parked within the Serpells Lane car park.

This report assesses the impact of the introduction of ticketed parking within the Serpells Lane car park, which has occurred post issue of the 2022 report, with an updated review of the parking utilisation, duration of stay and the likely user groups that park within the car park.

Ticketed parking was implemented within the Serpells Lane car park on Friday May 12th, 2023. The fee to park in the car park for three hours was \$4.40 for the 2022/23 financial year and \$5 for three hours for the 2023/24 financial year.

2. Existing Conditions

2.1. Subject Site

The subject site is located at the northern end of Serpells Lane in Hawthorn and is bound by Glenferrie Railway Station and the Alamein/Belgrave/Lilydale rail line to the north, as shown in the locality plan at Figure 1.

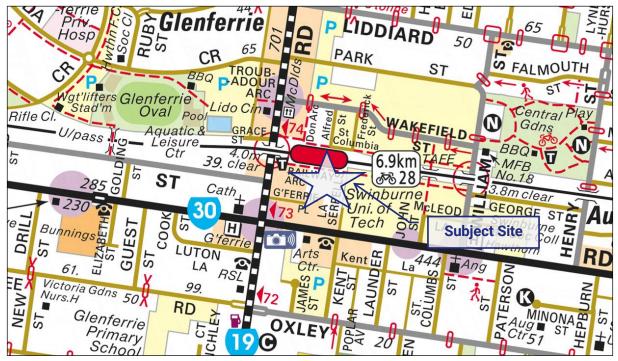


Figure 1: Locality Plan

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The subject site is currently occupied by an at-grade Council owned public car park.

Vehicular access to the car park is provided via Serpells Lane towards the southeast corner of the car park. The northern area of the car park operates in a one-way clockwise arrangement, whilst there is a smaller dead-end section located at its southern end.

No abutting properties are provided with direct vehicle access via the car park, however, Serpells Lane can be used by motorists to access three Swinburne University vehicle access points as well as a single vehicle access point for properties at 377 Burwood Road and 393 Burwood Road.

The car park is provided with a direct pedestrian link to Railway Arcade and Glenferrie Railway Station at its northwest corner. Furthermore, a pedestrian access point is provided at the western end of the car park for abutting properties at 660 Glenferrie Road and 367-369 Burwood Road.

The site comprises 90 car parking spaces as summarised at Table 1 with an aerial photograph of the subject site and its surrounds presented at Figure 2.

Table 1: Serpells Lane Car Park Summary

Parking Restriction	Parking Supply	
3P Ticket 8am-6pm Monday-Friday	83 spaces [1]	
Loading Zone	3 spaces	
4P Disabled Only	2 spaces	
Permit Zone Flexicar Carshare Vehicles Only	1 space	
3P Ticket 8am-6pm Monday-Friday, Permit Zone Police/PSO Vehicles Only 6pm- 2am	1 space	
[1] At the time of our most recent site inspection in August 2023, four of these spaces were unavailable due to constructi		

 At the time of our most recent site inspection in August 2023, four of these spaces were unavailable due to construction works.





Figure 2: Aerial Photograph

Source: Nearmap

The site is currently zoned 'Public Use– Local Government (PUZ6)' under the Boroondara Planning Scheme, as indicated in the land use zoning map at Figure 3.

The site is located within the Glenferrie Activity Centre, as such, surrounding uses generally comprise of a mixture of residential, commercial, retail and educational land uses.

Key surrounding land uses include:

- Swinburne University of Technology, located north and east of the site, and
- Glenferrie Railway Station, located immediately north of the site.



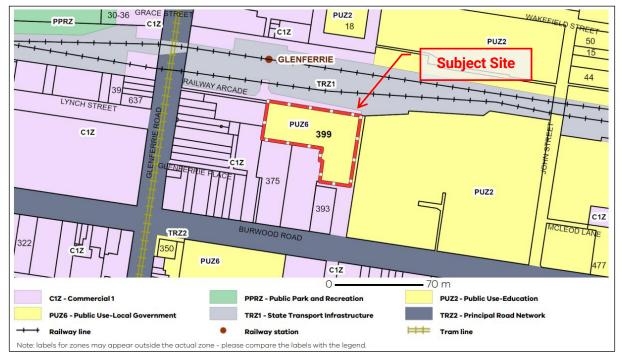


Figure 3: Land Use Zoning Map

Source: VicPlan

2.2. Road Network

Serpells Lane is a Council local access road that is aligned in a north-south direction to the north of Burwood Road.

In the vicinity of the site, Serpells Lane accommodates an approximately 8.8m wide carriageway which allows for simultaneous two-way traffic movements.

The default urban speed limit of 50km/h applies to Serpells Lane.

Serpells Lane, in the vicinity of the subject site, is presented at Figure 4 and Figure 5.





Figure 4: Serpells Lane - view north



Figure 5: Serpells Lane - view south

Burwood Road is a Department of Transport (DoT) declared arterial road, located within a Transport Zone 2 (TRZ2), that is aligned in a general east-west direction to the south of the site.

In the vicinity of the site, Burwood Road accommodates two traffic lanes in each direction. Kerbside parallel parking is available on both sides of the road, with AM and PM peak hour Clearway restrictions applying to the south side and north side of the carriageway, respectively.

On-street car parking on Burwood Road is generally subject to short-term restrictions, including a combination of '1P 9am-4pm Monday-Friday, 9am-12:30pm Saturday' and '1/4P 9am-5:30pm Monday-Friday, 9am-12:30pm Saturday' on the north and south sides of the road.

A posted speed limit of 60km/h applies to Burwood Road in the vicinity of the site, noting that a 40km/h school zone speed limit applies a short distance to the east of the site.



Burwood Road, in the vicinity of the site, is presented at Figure 6 and Figure 7.

Figure 6: Burwood Road - view east



Figure 7: Burwood Road - view west



Glenferrie Road is a DoT declared arterial road, located within the Transport Zone 2 (TRZ2), that is aligned in north-south direction between Cotham Road (north) and Dandenong Road (south).

In the vicinity of the site, Glenferrie Road provides kerbside parallel parking on both sides of the carriageway along with a single traffic lane and a bicycle lane in each direction. The single traffic lane also accommodates a tramway.

On-street car parking along Glenferrie Road is generally subject to short-term restrictions, including '1P 8am-6pm Monday-Saturday'.

A posted speed limit of 40km/h applies to Glenferrie Road in the vicinity of the site.

Glenferrie Road, in the vicinity of the subject site, is shown at Figure 8 and Figure 9.



Figure 8: Glenferrie Road - view south



Figure 9: Glenferrie Road - view north



3. Existing Transport Data Summary

3.1. Serpells Lane Car Park (Subject Site)

3.1.1. Car Parking Restrictions

There have been changes to the car parking restrictions and supply of on-site car parking within the subject site across various surveys which have been completed. These are summarised within Table 2.

Table 2: Car Parking Supply & Restrictions

Survey Date	Public Parking [1]	Specialty Parking [2]
March 2019	62 x 3P 9am-5:30pm Mon-Fri, 9am-12:30pm Sat 23 x 2P 9am-5:30pm Mon-Fri, 9am-12:30pm Sat	3 spaces
March 2022	62 x 3P 9am-5:30pm Mon-Fri, 9am-12:30pm Sat 22 x 2P 9am-5:30pm Mon-Fri, 9am-12:30pm Sat	6 spaces
September 2022	62 x 3P 9am-5:30pm Mon-Fri, 9am-12:30pm Sat 22 x 2P 9am-5:30pm Mon-Fri, 9am-12:30pm Sat	6 spaces
August 2023	84 x 3P (Ticket) 8am-6pm	4 spaces

[1] During some surveys a small number of car parking spaces were unavailable due to construction activities.

[2] Includes disabled, loading and permit spaces.

As shown within Table 2 it is important to note that ticketed car parking was introduced between the 2022 and 2023 surveys.

3.1.2. Car Parking Occupancy Surveys

Council commissioned car parking surveys at half hourly intervals of the Serpells Lane car park (subject site) at the following days/times:

- Thursday 24 October 2019 between 7:00am and 11:00pm, and
- Thursday 10 March 2022 between 7:00am and 11:00pm

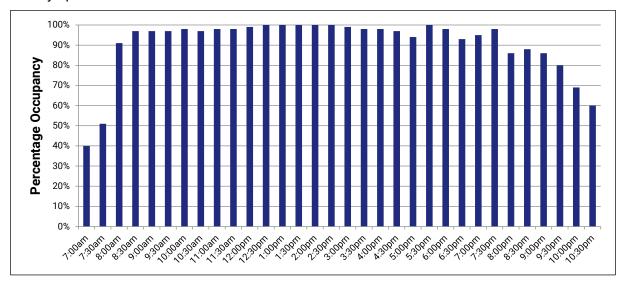
It is noted that ticketed car parking restrictions <u>were not in place</u> during these parking surveys.

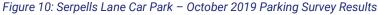
The 2019 surveys identified that the car park was fully occupied between 12:30pm and 2:30pm, and above 90% occupancy between 8:00am and 7:30pm, as presented at Figure 10.

The 2022 surveys identified a peak occupancy of 96% (86 parked cars, 4 vacant spaces) at 10:00am, with the occupancy of the car park generally being in excess of 90% between 9:00am and 7:00pm, as presented at Figure 11.

It is important to note that in the order of 90-95% occupancy is typically considered to be the 'practical capacity' of car parking. That is, whilst there may be a small number of vacancies available, many motorists will likely look outside of the area for vacancies as it appears to be at saturation.

Additionally, whilst demands decrease later into the evening, we have been advised, anecdotally, that there may be vehicles parked overnight associated with residents/visitors of nearby apartments.





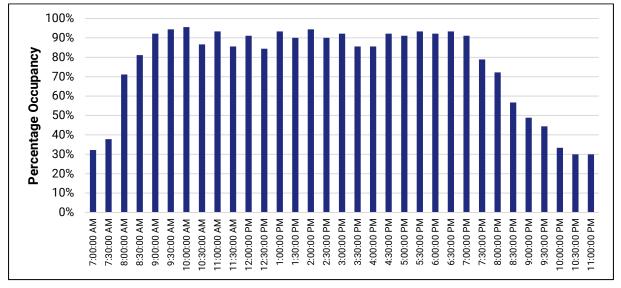


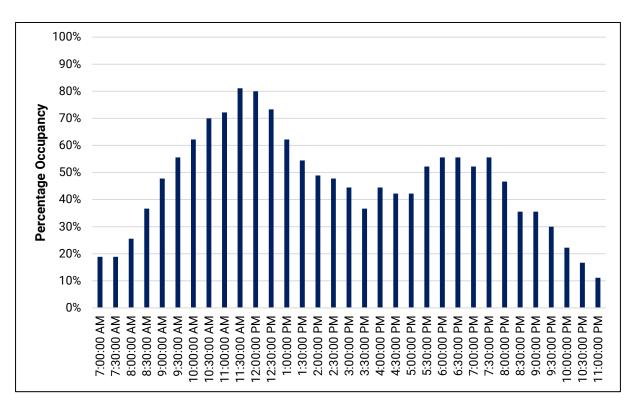
Figure 11: Serpells Lane Car Park – March 2022 Parking Survey Results

Further to this, Traffix Group completed car parking occupancy surveys at the following days/times in conjunction with the pedestrian movement surveys which are discussed later within this report:

- Thursday 15th September 2022 between 7:00am and 11:00pm.
- Thursday 10th August 2023 between 7:00am and 11:00pm.

The results of these car parking occupancy surveys are presented at Figure 12 and Figure 13.

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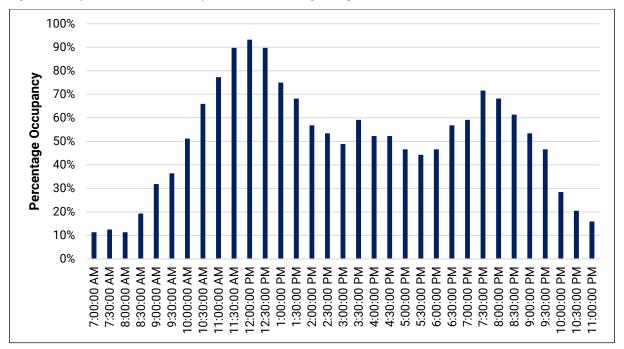


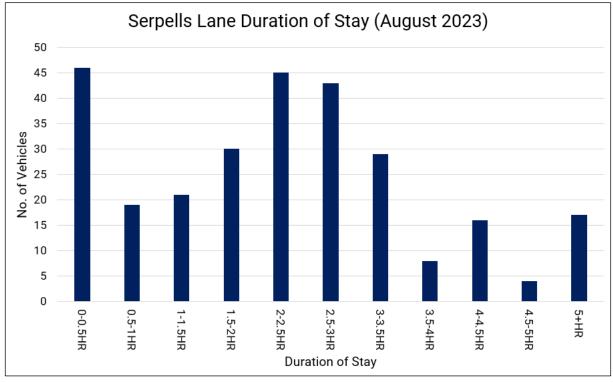
Figure 13: Serpells Lane Car Park - August 2023 Parking Survey Results

Key findings from the Traffix Group car parking occupancy surveys are as follows:

- The utilisation of the Serpells Lane car park increased, relative to September 2022 surveys, following the implementation of ticketed parking. In particular, a peak utilisation of 93% was recorded in August 2023 whereas a peak of 81% was recorded in September 2022.
- The usage of the car park has remained generally consistent following the implementation of ticketed parking, with a peak in utilisation occurring between 11:00am and 1:00pm during both surveyed periods (September 2022 and August 2023).
- Car parking demands were observed to decrease after 1pm, during the August 2023 and September 2022 surveys. This differs from Council surveys in March 2022 and 2019 where the car park was at or near full occupancy (greater than 90% occupancy) between at least 9:00am and 7:00pm.

3.1.3. Duration of Stay Surveys

Traffix Group commissioned duration of stay surveys on Thursday 10th August 2023 between 7:00am-11:00pm, with results presented at Figure 14.



These surveys were completed at a time when ticketed car parking restrictions were in place.

Figure 14: Serpells Lane Duration of Stay Results (August 2023)

Key findings of the August 2023 surveys are as follows:

- 27% of motorists overstayed the three-hour time limit.
- Pick-up/drop-off A total of 42 pick-up/drop-off movements were recorded across the entire survey period.

- Shuffle¹ parking Three instances of shuffle parking across the survey period.
- Motorcycle/scooter/bicycle activity Ten parked or propped across the survey period, were primarily associated with food delivery services.

3.2. Pedestrian Movement Surveys

Traffix Group commissioned pedestrian movement surveys at the Serpells Lane Car Park on Thursday 10th August 2023 between 7am and 11pm.

The methodology of the surveys is summarised following, noting that this methodology is consistent with our previous surveys undertaken in September 2022:

- All car spaces within the car park were assigned a number.
- When a vehicle parked within a car space, the destination of where the pedestrians walked and time that this occurred was recorded.
- When a vehicle departed from the car space, the origin of where the pedestrians walked from and time that this occurred was recorded.
- Pedestrians that did not park but walked-through the car park were also recorded.

Each of the pedestrian routes forming part of the survey are illustrated at Figure 15.

¹ 'Shuffle' parking relates to motorists who park their car and then move their car at a point(s) to another a space within the car park, so they are never parked in a single car parking space for longer than the parking restriction.



Figure 15: Surveyed Pedestrian Routes

Based on the directionality of pedestrians we can form conclusions as to the likely percentage of car park users who may be attending the Swinburne University Campus as opposed to other uses within the Glenferrie Activity Centre. Additionally, pedestrians who walked through the car park, without accessing a parked motor vehicle, were also recorded separately.

Whilst the specific destination of each pedestrian movement cannot unequivocally be confirmed, we have provided an estimate for the proportion of pedestrians that are likely to travel to/from Swinburne University via each route, as outlined within Table 3.



Table 3: Surveyed Pedestrian Routes

Route Number	Origin/Destination	Swinburne University Proportion
1	Swinburne University (towards Engineering and Science Buildings)	100%
2	Railway Arcade (towards Swinburne University)	95%
3	Railway Arcade (towards Glenferrie Railway Station)	90%
4	Railway Arcade (towards Glenferrie Road)	0%
5	Swinburne University (towards Railway Arcade)	90%
6	Burwood Road (east)	80%
7	Burwood Road (west)	0%
8	Burwood Road (towards Kent Street)	0%
9	Pedestrian Access for 377 Burwood Road	0%

Key results from the pedestrian movement surveys are as follows:

- The majority of pedestrian movements that were surveyed consisted of pedestrians 'cutting through' the car park rather than motorists parking within the car park and travelling to/from other destinations. Specifically, 83% of all recorded pedestrian movements were generated by pedestrians cutting through the car park, with the remaining 17% generated by pedestrians that parked within the car park.
- There was negligible use of the car park area by motorcycles, cyclists and scooters.
- As shown at Figure 16 and Figure 17, pedestrian route 3 (Railway Arcade towards Glenferrie Railway Station) was the most common walking route for pedestrians.
 Pedestrian route 6 (Burwood Road east) was the second most common origin/destination for pedestrians.
- As shown at Figure 18 and Figure 19, pedestrian routes 1 (Swinburne University) and 3 (Railway Arcade towards Glenferrie Railway Station) were the most popular routes for motorists that parked within the car park, with 30% and 22% of movements originating to/from these locations, respectively.

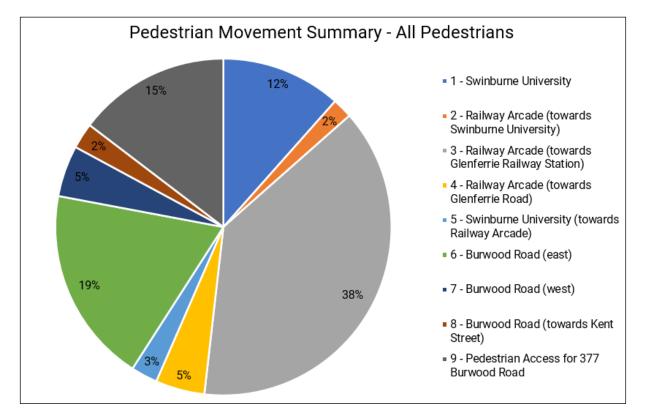


Figure 16: Pedestrian Movement Summary (All Pedestrians)

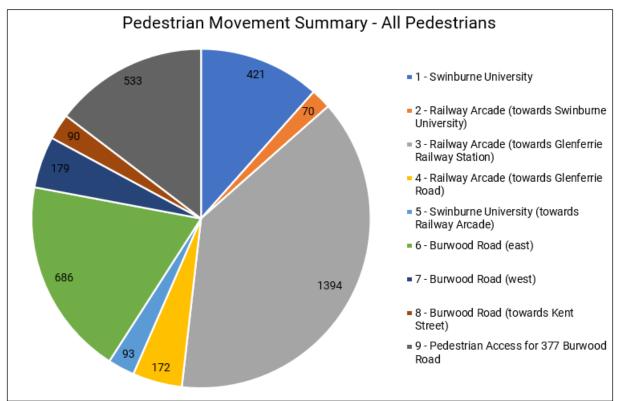


Figure 17: Pedestrian Movement Summary (All Pedestrians) – Number of Movements

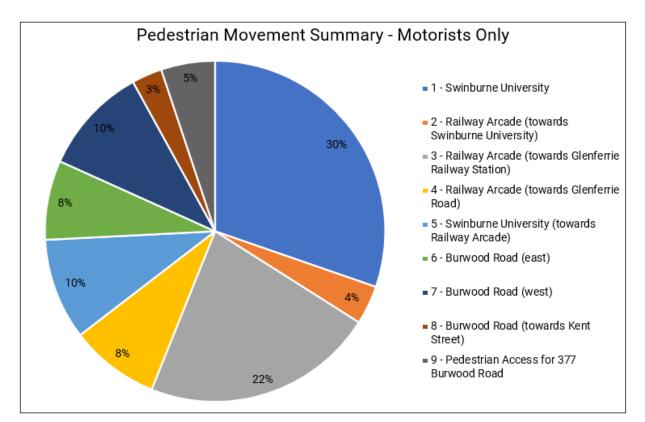


Figure 18: Pedestrian Movement Summary (Parked Motorists Only)

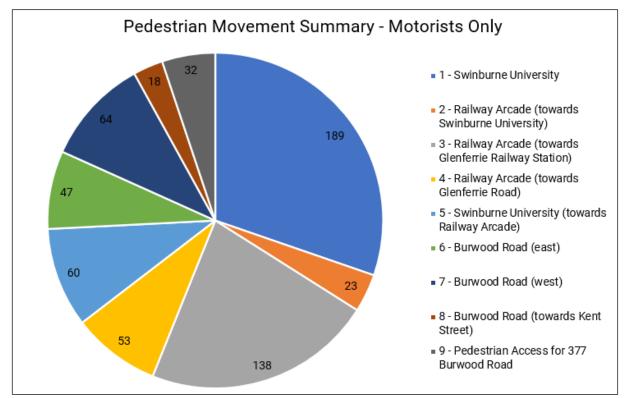


Figure 19: Pedestrian Movement Summary (Parked Motorists Only) – Number of Movements

By utilising the above data and the pedestrian distribution assumptions outlined within Table 3, we can derive the estimated split of motorists parked within the car park between Swinburne University users and other general users associated with the Glenferrie Activity Centre.

As shown at Figure 20, it is estimated that there is a 68/32 percent split between Swinburne University users and other general users associated with the Glenferrie Activity Centre. That is, more than two-thirds of motorists who park within the Serpells Lane Car Park (subject site) are accessing Swinburne University.

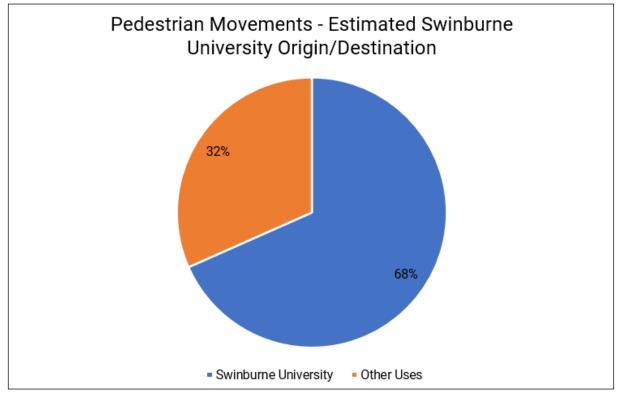


Figure 20: Pedestrian Movement Summary (Estimated Swinburne University Origin/Destination)

Additionally, we have also sought to assess the duration of stay characteristics of motorists accessing Swinburne University vs motorists who are not accessing Swinburne University. Our following duration of stay findings are based upon the following split of motorists:

- Other Users (Non Swinburne) Pedestrian Routes 4,7,8 & 9
- Swinburne University Users² Pedestrian Routes 1,2,3,5 & 6

The findings of our assessment are outlined within Figure 21 and Figure 22.

² Reflects pedestrian routes with an anticipated 80% or greater percentage of users who access the Swinburne University Campus.

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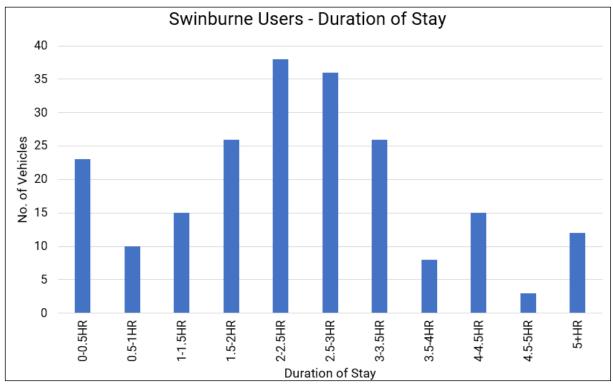


Figure 21: Duration of Stay Summary - Swinburne Users

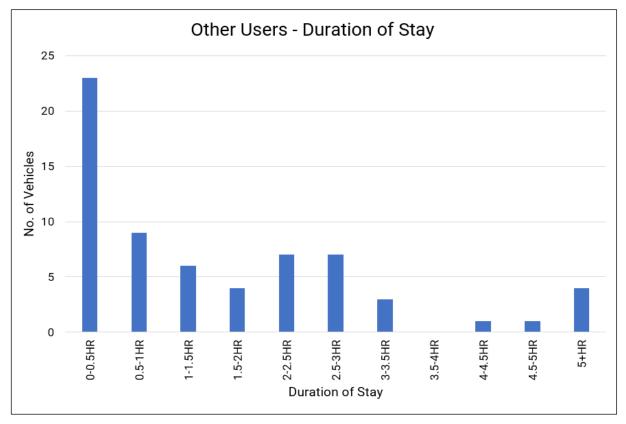


Figure 22: Duration of Stay Summary – Non-Swinburne Users

As shown within Figure 21 and Figure 22, respectively, 30% of Swinburne users and 14% of other users overstayed the three-hour time limit.

Relative to other users of the car park, it can be concluded that motorists who park and travel to/from Swinburne University overstay car parking restrictions within the subject site at more than double the level of other users.



4. 2022 & 2023 Data Comparison

4.1. Preamble

As discussed previously, the introduction of ticketed parking to the Serpells Lane Car Park on May 12th, 2023 (i.e., implemented between the 2022 and 2023 surveys) has introduced changes to the usage patterns of the car park.

Given this, a comparison of the former and current parking arrangements is presented following.

4.2. Car Parking Utilisation

A summary of the car parking utilisation by pedestrians is provided at Table 4.

Table 4: Car Parking Utilisation Comparison

User	September 2022 Surveys	August 2023 Surveys	% Change
Pedestrians – Motorists Only	614 movements	624 movements	+2%

Based on these findings, the utilisation of the car park by motorists is generally consistent under the current ticketed parking arrangement (2023) and former free parking arrangement (September 2022).

4.3. Car Parking Occupancy

The peak occupancy of the Serpells Lane car park was generally recorded at lower levels across the entire surveyed period following the implementation of ticketed parking, with a summary of the occupancy for each surveyed period presented at 3.1.2.

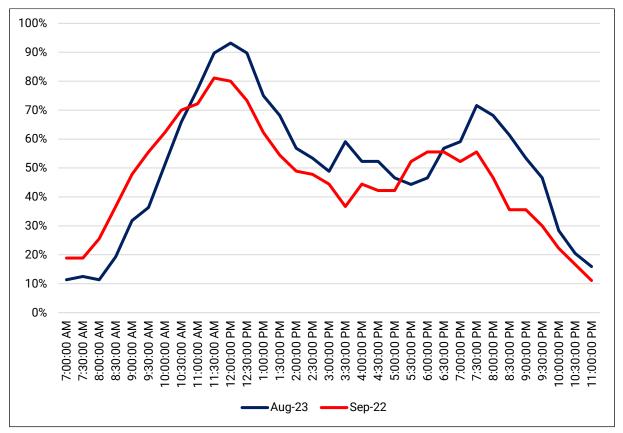
The occupancy was also recorded to remain above 90% for the majority of the surveyed periods in the October 2019 and March 2022 surveys (i.e. generally between 10:00am and 7:00pm). Following the implementation of ticketed parking, this significantly reduced after 1:00pm, with the occupancy generally reducing to less than 60% in this period.

A comparison between the September 2022 and August 2023 parking occupancy is presented at Figure 23.

Typically it would be expected that the introduction of ticketed parking would result in a decrease to parking occupancy. In this case, comparing September 2022 and August 2023 results it is clear that occupancy is relatively similar, albeit slightly higher, following the introduction of ticketed parking. There is not a clear reason for this change and is likely a result of other factors, e.g. changes to parking occupancy in the balance of the centre and/or changes to the intensity of persons and vehicles within the centre itself more broadly.

As evidence of the above it is noted that car parking demands between 5:30pm and 11pm (when tickets are not required) are generally higher during the August 2023 surveys relative to September 2022 surveys.

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Notwithstanding, it is evident that the current utilisation of the car park has greatly reduced from that recorded during the October 2019 and March 2022 results.

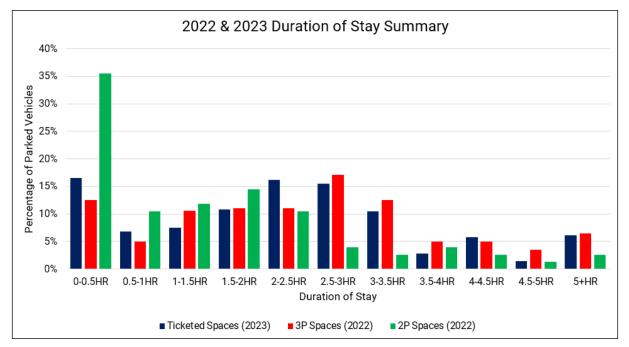
Figure 23: Car Parking Occupancy Summary

4.4. Duration of Stay Surveys

The September 2022 surveys identified that in the order of 33% of motorists who parked within 3P spaces, and in the order of 28% of motorists parked in the 2P spaces, overstayed the applicable time limit, also noting that limited shuffle parking was observed during these surveys.

The 3P overstay results were generally consistent with surveys conducted by Council in March 2022, whereas the 2P restriction areas differed (46% overstayed during the March 2022 surveys vs 28% in the September 2022 surveys). Overall, noting there were substantially more 2P than 3P spaces within the car park, the overall results were that around 30% of all motorists overstayed during both the March 2022 and September 2022 surveys.

As detailed in Section 3.1.3 of this report, the August 2023 surveys identified that 27% of motorists overstayed the parking restrictions. Whilst this is a minor decrease from what was observed during the 2022 surveys (approximately 30% overstayed), there is still a significant proportion of motorists that overstay the parking restrictions, even following the introduction of ticketed parking within the Serpells Lane Car Park.

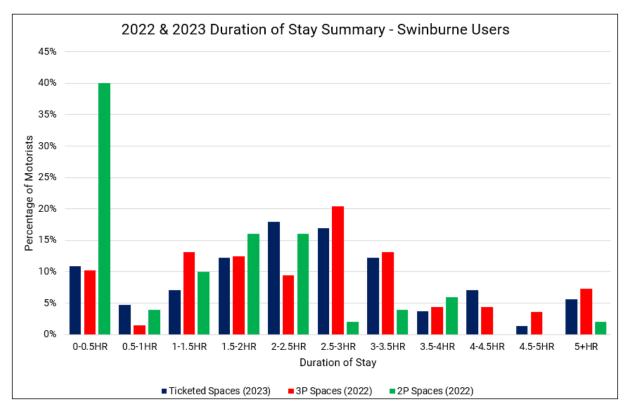


A comparison of the duration of stay data (August 2023 and September 2022) is provided at Figure 24.

Figure 24: 2022 & 2023 Duration of Stay Summary

A further breakdown of the duration of stay between Swinburne users and other users is presented at Figure 25 and Figure 26, respectively, comparing the August 2023 and September 2022 surveys.





399 Burwood Road, Hawthorn

Figure 25: 2022 & 2023 Duration of Stay Summary – Swinburne Users

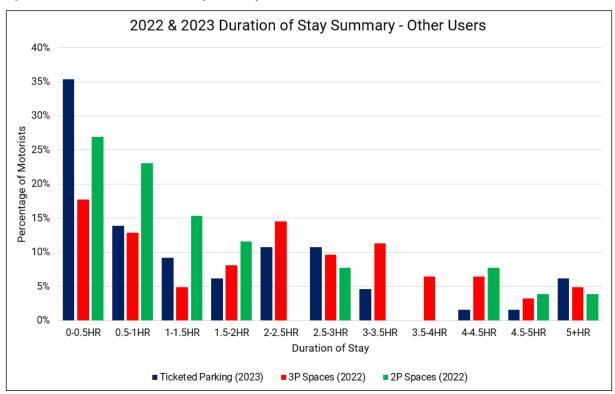


Figure 26: 2022 & 2023 Duration of Stay Summary - Other Users

Following the introduction of ticketed parking, short-term parking (i.e. less than 30 minutes) has decreased for motorists associated with Swinburne University. The overstaying of parking within this car park under the ticketed parking arrangement is also generally consistent for Swinburne University users compared to the previous surveys.

Conversely, there has been an increase to short-term parking (i.e. less than 30 minutes) for other (non-Swinburne) users in the Activity Centre, with more than one-third of other users parking for less than 30 minutes. Compared to 2022 surveys, the introduction of ticketing (2023 surveys) has resulted in a reduction in 'other users' who overstay the car parking time restrictions.

4.5. Pedestrian Movements

A comparison of the 2022³ and 2023 pedestrian movement surveys are presented at Figure 27 for all pedestrians, that is, all pedestrians who walked through the car park, whether associated with car parking or not.

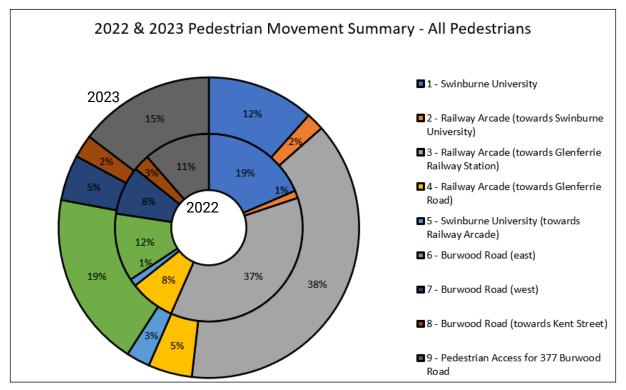


Figure 27: 2022 & 2023 Pedestrian Movement Summary – All Pedestrians

Overall pedestrian movements, in terms of percentage distributions, are generally consistent across the two surveyed periods, with the most significant distributional differences occurring for pedestrian routes 1 and 6, being Swinburne University and Burwood Road (east). Pedestrian route 1 experienced a 7% decrease whilst pedestrian route 6 experienced a 7%

³ Surveys completed on Thursday 15th September 2022 between 7:00am and 11:00pm.

increase, notwithstanding it is expected that a large proportion of these redistributed pedestrians are still associated with Swinburne University⁴.

Over and above this, Table 5 provides a comparison of the total number of pedestrian movements through the car park.

Table 5: Overall Pedestrian Movements

User	September 2022 Surveys	August 2023 Surveys	% Change
All Pedestrians	1,938 movements	3,638 movements	+88%

Clearly there is a substantial increase in the total number of pedestrians who travelled through the car park. Having reviewed this data in further detail this increase is associated with pedestrians who are not associated with parked vehicles. Indeed, the majority of increase is associated with people assumed to be travelling to/from Swinburne University. To assist in explaining this we note our experience and anecdotal observations that on-site attendance at universities is typically higher at the start of semesters (i.e. August 2023 surveys occurred at the start of semester 2) whereas attendance typically drops as semesters go on (i.e. September 2022 surveys occurred at the middle/end of semester 2).

Separate to the overall pedestrian movements described above, a summary of changes for the pedestrian movements of motorists is presented at Figure 28 and Table 6.

⁴ It is also noted that construction works that were taking place within Serpells Lane during the surveys may have redirected pedestrians to Burwood Road in favour of the direct Swinburne University connection to Serpells Lane.



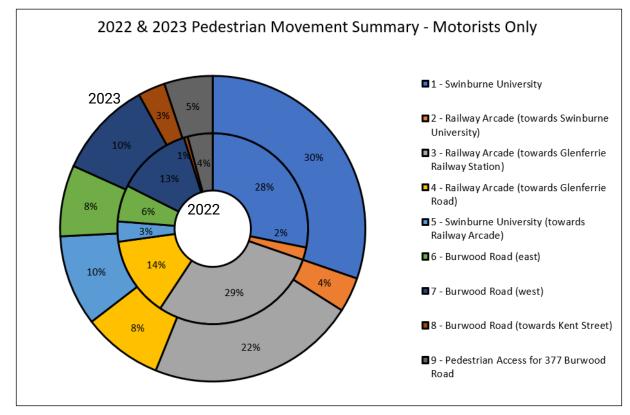


Figure 28: 2022 & 2023 Pedestrian Movement Summary – Motorists Only Table 6: Pedestrian Movements Comparison - Motorists Only

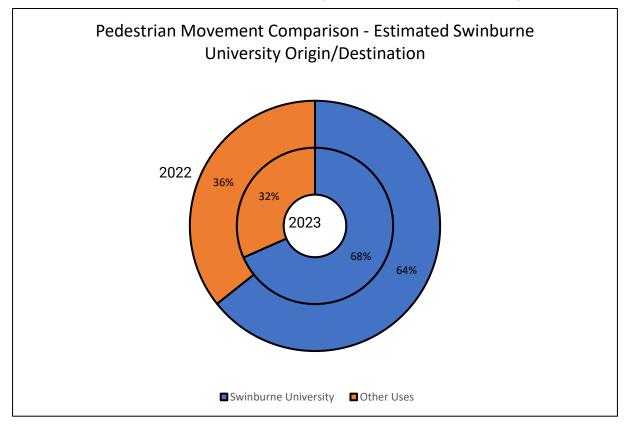
Pedestrian Route	2022 Proportion	2023 Proportion	Change
1 - Swinburne University (towards Engineering and Science Buildings)	28%	30%	+2%
2- Railway Arcade (towards Swinburne University)	2%	4%	+2%
3 - Railway Arcade (towards Glenferrie Railway Station)	29%	22%	-7%
4 - Railway Arcade (towards Glenferrie Road)	14%	8%	-6%
5 - Swinburne University (towards Railway Arcade)	3%	10%	+7%
6 - Burwood Road (east)	6%	8%	+2%
7 - Burwood Road (west)	13%	10%	-3%
8 - Burwood Road (towards Kent Street)	1%	3%	+2%
9 - Pedestrian Access for 377 Burwood Road	4%	5%	+1%

As shown above, decreases of 7% and 6% were recorded for pedestrian route 3 (Railway Arcade towards Glenferrie Station) and pedestrian route 4 (Railway Arcade towards Glenferrie Road), respectively, whilst an increase of 7% was recorded for pedestrian route 5 (Swinburne University towards Railway Arcade).



Based on these changes for pedestrians entering/exiting parked cars, it is derived that a greater proportion of motorists utilising the Serpells Lane Car Park are now (2023 surveys) associated with Swinburne University than previously (2022 surveys), as indicated at Figure 29.

In deducing the reason for this, we note that previously the Serpells Lane car park afforded motorists the opportunity to park for free, despite being a less convenient parking location, for most Activity Centre uses, compared to other public car parks within the Activity Centre. However, following the introduction of ticketed parking, it is logical that users of the Activity Centre are now parking within the existing paid parking areas that are located more proximate to the part of the Activity Centre they are visiting. As such, noting the location of this car park is well suited for Swinburne University users, the introduction of ticketed parking has resulted in a proportional increase in Swinburne University users relative to other Activity Centre users.







5. Conclusions

Having undertaken a detailed traffic and parking impact assessment of the Serpells Lane Car Park, we note the following:

- a) The existing Serpells Lane Car Park accommodates 88 spaces, which are generally subject to 3P ticketed restrictions.
- b) Historically, the Serpells Lane Car Park has been well utilised with high occupancy (90% plus) during peak periods, which generally occurs across the entire weekday daytime period.
- c) Following the implementation of ticketed parking restrictions, the occupancy of the car park has reduced, with a peak occupancy of 93% recorded, noting that a considerable reduction in the utilisation of the car park was also recorded after 1:00pm.
- d) Approximately 68% of all motorists parking within the Serpells Lane Car Park are associated with Swinburne University.
- e) In the order of 27% of motorists within the Serpells Lane Car Park currently overstay the time-based parking restrictions. Motorists who park and travel to/from Swinburne University overstay car parking restrictions within the subject site at far higher levels than other users.
- f) Surveys of pedestrian movements through the Serpells Lane Car Park identified that the majority of pedestrians travel to/from Railway Arcade (towards the northern portion of Swinburne University, Glenferrie Railway Station and the Activity Centre) and the southern portion of Swinburne University.
- g) Significantly more pedestrians 'cut through' the Serpells Lane Car Park compared with those pedestrians associated with travelling to/from vehicles parked within the car park itself.
- h) The proportion of Swinburne University motorists that utilise the Serpells Lane car park is considerably higher under the ticketed parking restrictions (68% during 2023) compared to the free parking arrangement (64% prior to 2023).

