Kensington Gardens, Mount Walk

Pedestrians and Cyclists Monitoring Programme for The Royal Parks

2016 Survey

14 November 2016
# Kensington Gardens, Mount Walk

Pedestrians and Cyclists Monitoring Programme for The Royal Parks  
14 November 2016

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Scope

Atkins was commissioned by The Royal Parks (TRP) to undertake a pedestrian and cyclist space use assessment of Mount Walk at Kensington Gardens, following the implementation of speed calming measures in March 2016.

One of the main concerns from the park manager was the potential for close interactions and the perception of close interactions for park users. This especially relates to how pedestrians feel when sharing Mount Walk with cyclists and whether they might gradually stop using it over time. The Pathway Code of Conduct points out that ‘pedestrians have priority over all other users of pathways, even in areas designated and marked for other purposes’. The implementation of speed calming measures in March 2016 aimed to address that: not only to reduce cyclist speeds but also the potential for close interactions and collisions so that pedestrians feel safe and do not avoid using Mount Walk.

The objective of this study was to collect evidence of various interactions along Mount Walk, observing pedestrian and cyclist behaviours to evaluate the impact of the speed calming measures in the light of a ‘before implementation’ study carried out in 2015.
Executive Summary

Introduction and scope of project

Mount Walk is a shared use path and is currently part of a cycle route that connects Kensington Gardens to the west and Hyde Park to the east. Mount Walk is a popular path for those visiting Kensington Gardens due to its strategic position connecting the Serpentine Gallery to Kensington Palace, two attractions with great historical significance within the park. Mount Walk is also a popular route for both commuter and leisure cyclists. Mount Walk is classified by The Royal Parks (TRP) as a Quietway Cycle Route with a design speed of 8 to 12mph, and as such, Mount Walk is not a highway style route but a ‘parkland path’.

According to TRP ‘Shared Use Routes Criteria for Success’ and ‘The Pathway Code of Conduct’, pedestrians have priority over all other users of pathways. In line with TRP ‘Hierarchy of Needs’, providing a safe environment for all members of the public, including cyclists, is of paramount importance for the overall performance of the park. This is pertinent given the significant potential for an increase in the number of cyclists using the route as a result of the recently completed East West Cycle Superhighway. Likewise, the number of pedestrians are expected to rise substantially in the near future.

As highlighted in the Royal Parks Walking and Cycling Technical Design Guidance, Kensington Gardens is primarily a leisure destination and a relaxing setting for a city retreat. Its use as a cycle route for commuters is confirmed the ‘transitional space’ character of the route. Cyclists using Mount Walk are likely to use the whole length of it as part of a wider route within this part of London, in particular connecting Kensington Gardens to Hyde Park, across West Carriage Drive.

To address that and with the view of future proofing the park against a backdrop of rising cyclist numbers and for the benefit of all park users, speed calming measures were introduced in March 2016. The physical interventions comprise a combination of inlaid granite sett rumble strips, speed calming measures were introduced in March 2016. The physical interventions comprise a combination of inlaid granite sett rumble strips, information pavers and tar spray and chip surface treatments. Further, 10 mph signs were erected at Mount Gate, Black Lion Gate, Palace Gate and Studio Gate in July 2016. To that end, Atkins was commissioned by TRP to undertake a follow up pedestrian and cyclist space use assessment of Mount Walk to evaluate the impact of the speed calming measures on pedestrian and cyclist behaviour in the light of a ‘before implementation’ study carried out in 2015.

Key findings

Pedestrian activity

• The overall pattern of activity did not change significantly from observations made in 2015: pedestrian flows at the weekend were observed to be higher than the weekdays. The lowest flows were observed early in the morning, increasing steadily across the day.

• Pedestrian flows along Lancaster Walk are higher compared to Mount Walk as this route remains an important north-south pedestrian route.

• Compared to 2015, flows were slightly lower; however the weather was quite unsettled during data collection days and may have impacted on the number of visitors for this time of the year.

Cyclist activity

• As with pedestrian activity, the overall pattern did not significantly change from observations made in 2015. In contrast to pedestrians, cyclist flows on the weekdays were observed to be slightly higher compared to the weekend.

• Even with a decrease in cyclist flows compared to 2015, Mount Walk remains a very popular commuter route. Once again, the weather was quite unsettled during data collection days and may have impacted on the number of cyclists.

• Cyclist flows along Mount Walk are consistent along its entire length, confirming the ‘transitional space’ character of the route. Cyclists using Mount Walk are likely to use the whole length of it as part of a wider route within this part of London, in particular connecting Kensington Gardens to Hyde Park, across West Carriage Drive.

• Once again, during weekdays, we can clearly observe a commuter pattern: high flows early in the morning (716 cyclists per hour observed between 06:00 and 09:00 on Tuesday) and late afternoon (610 cph observed between 18:00 and 19:00 on Tuesday), with much lower values in between (around 150 cph). This represents a 10% reduction in cyclist flows during morning peak hour compared to 2015, and a 20% reduction for the same afternoon period. During the weekend, the flow profile contrasts to weekdays when a more homogeneous pattern is observed: generally low cyclist flows early in the morning, increasing slightly throughout the day.

• As in 2015, cyclist speeds were observed to be higher during the weekday compared to the weekend (25% lower). This correlates with the weekday commuter peak times, both morning and evening.

• Comparative analysis shows that there was a 4% decrease in cyclist speed during weekdays: from 12.52 mph in 2015 to 12.08 mph in 2016. The decrease in speed was especially prominent during the morning peak times for the highest speed cyclists.

• Likewise, the proportion of cyclists prior to the implementation of the speed calming measures, riding at speeds above 20mph decreased in 2016 compared to 2015; and those riding at 12mph or below increased on weekdays.

• On weekends, the number of cyclists riding at speeds above 20 mph decreased (high speeds at the weekend were observed very early in the morning); conversely the overall daily average speed did not fall.

• It can be deduced that the speed calming measures had some impact in reducing cyclist speeds, especially for faster riding cyclists (in excess of 16mph), as this is where the greatest speed reduction was observed on both weekdays and weekend (see Graphs 1 and 2).

• The impact of installing a 10mph sign on cycle speeds was also examined. The data suggests that the sign has no demonstrable impact on the behaviour of cyclists, with no significant reduction in average speed. Nevertheless, as recommended cycling speeds continue to be advertised and enforced, there is a likelihood of long-term impact on speed compliance.

Graph 1: Percentage change in the proportion of cyclists moving at speed in 2016 compared with May 2015 - weekday data.
The volume of cyclists was approximately twice the number of pedestrians and cyclist shared use behaviour analysis compared with May 2015 - weekend data

Graph 2: Percentage change in the proportion of cyclists moving at speed in 2016

Executive Summary

• It can be assumed that the potential for more frequent interactions is possible between cyclists and pedestrians because of the sheer number of cyclists who use Mount Walk. However, it is clear that there are more pedestrians and cyclists sharing the space. However, it is also possible that interactions between cyclists and pedestrians are considerate.

• Analysis of cyclist speeds in relation to pedestrian flows shows that probably as a result of the sheer number of cyclists who use Mount Walk, it was noted that during cyclist peak times, pedestrians tend to walk along the edge of the path; although very few pedestrians felt the need to desist onto the grass with the intention of moving away from cyclists (during the survey periods, less than 1% were observed doing so).

• Analysis of cyclist speeds in relation to pedestrian flows shows that at the weekend, cyclist speeds were 22% lower compared to the weekday. However, most of the remaining close interactions took place at other intersections but with no consistent pattern in the time of day.

• Compared to 2015, the qualitative behavioural analysis and interactions along Mount Walk showed that the overall number of close interactions remained approximately the same for the weekdays. At weekends, when there is the biggest potential for close interaction between the two user groups, the number of close interactions decreased substantially: from 3.75 per hour in 2015 to 1.25 in 2016. Further analysis of ‘no-interaction’ cases gave a clear 99% of all cycle paths are safe for pedestrians. However, it is concluded that while interactions between cyclists and pedestrians are frequent, often involving cyclists maneuvering around groups of pedestrians or people moving to the side for cyclists, behaviours between the two groups are considerate and the potential for visible distress to pedestrians is small. However, as pointed out in a study by Living Streets, interactions can negatively impact the quality of the user experience and hence speed calming measures are necessary to provide a safe and pleasant environment to all users.

• Feedback from park users showed some criticism, particularly by cyclists, regarding the design / dimensions of the rumble strips. Most of the criticism (31% of all comments) related to the vibrations caused by the height of the tumbled granite setts while cycling over them.

Pedestrian and cyclist shared use behaviour analysis

• The volume of cyclists was approximately twice the number of pedestrians during the weekend.

• As observed during the 2015 survey, cyclists are predominant on the route on weekdays during the morning (07:00 to 09:00) and afternoon (17:00 to 19:00) commuter peak periods. 55% of all cyclist flows for the day occur during these hours, and almost 60% of those cycle at speeds above the recommended 8 to 12 mph TRP design speed.

• There is a clear tidal pattern of cyclist flows: eastbound in the morning and the opposite in the afternoon.

• Probably as a result of the sheer number of cyclists who use Mount Walk, it was noted that during cyclist peak times, pedestrians tend to walk along the edge of the path; although very few pedestrians felt the need to desist onto the grass with the intention of moving away from cyclists during the survey periods, less than 1% were observed doing so.

• It is concluded that while interactions between cyclists and pedestrians are frequent, often involving cyclists maneuvering around groups of pedestrians or people moving to the side for cyclists, behaviours between the two groups are considerate and the potential for visible distress to pedestrians is small. However, as pointed out in a study by Living Streets, interactions can negatively impact the quality of the user experience and hence speed calming measures are necessary to provide a safe and pleasant environment to all users.

• Speed calming measures along the route did appear to reduce higher cyclist speeds. The potential for close interaction between pedestrians and cyclists was also reduced.

• It was also noted that the new junction design (replacing the look right / look left sign) has given pedestrians more confidence to cross with clear visual information of the ‘extension’ of the junction and that Mount Walk is a pedestrian priority route.

• Non-compliance by means of cyclists using paths restricted to pedestrians is mainly observed at weekends, particularly along Flower Walk and Lancaster Walk. It could be a combination of leisure cyclists who are unfamiliar with the area or ‘keen to explore’ other routes.

• Lastly, during the 10-hour survey, no cyclists were observed dismounting as they left the park during the weekday (Tuesday), and 19 cyclists were observed at the weekend (Sunday), corresponding to 4.5% of all cyclists. Compared to 2015, the overall pattern is similar when 0.5% of users dismounted at the weekdays and 3% at the weekend. The majority of people dismounting appear to be ‘leisure cyclists’ (all of whom were using Cycle Hire bikes), rather than commuters. The intersection of Mount Walk and West Carriage Drive appears to act as an orientation / decision-making point.

Adverse impact of design

• It was observed that 22% of cyclists ride around the rumble strips (average weekday and weekend combined). Parents with buggies have also been observed skirting around the rumble strips. This has caused significant damage to the grass which will likely widen and get worse over time.

• Feedback from park users showed some criticism, particularly by cyclists, regarding the design / dimensions of the rumble strips. Most of the criticism (31% of all comments) related to the vibrations caused by the height of the tumbled granite setts while cycling over them.

Further details, conclusions and recommendations are provided within the analysis and commentary that follows.

pedestrians and cyclists are mixed in the same space, interactions are common. ‘The majority observed in the study were very mild - consisting of natural adjustments and considerate behaviour as cyclists and pedestrians accommodate each other’s relative speed and direction of travel. Nevertheless, the survey results suggest that these interactions do have a negative impact on the quality of user experience.’ (Living Streets, 2016, Sharing the Space: A Study of Four Shared-Use Paths in London, p.4).

7 The Royal Parks are assessing the extent of the damage caused by the non-compliance and will take remedial actions (including intervention modifications) where it is deemed necessary.

5 The cyclist and / or the pedestrian did not anticipate the need to change course early enough almost resulting in a collision.

6 A recent report published by Living Streets recognised that ‘Where
Introduction
Mount Walk in Kensington Gardens, is a shared-use pedestrian and cyclist path (Figures 1 to 5). It runs from the Broad Walk to West Carriage Drive, forming an important east-west link across Kensington Gardens to Hyde Park.

In addition to the intersections with Broad Walk and West Carriage Drive, another important intersection is Lancaster Walk, which connects two landmarks: The Albert Memorial and The Physical Energy Statue. The route is essentially flat and surfaced with bound gravel sections, a finish suitable for cyclists and pedestrians, making it a convenient and safe route for all users. It was noted that despite being almost 800m long, there are no seats or benches along the route.

Mount Walk is a well established cycle route, which has become particularly popular for commuter cyclists. The route provides a continuous connection on an off-road route and therefore has levels of high perceived safety with cyclists, whilst remaining popular with pedestrians. Mount Walk is classified as a TRP Quietway Cycle Route with a design speed of 8 to 12mph, and as such, Mount Walk is not a highway style cycle route but a ‘shared-use path’.

In March 2016, speed calming measures were added along the length of Mount Walk (Figure 7), with a combination of inlaid, resin bonded, granite pavers, and bespoke 600 x 600 mm information pavers (Figures 1 and 2) on gravel surfacing. In addition, on 9th June 2016, signs suggesting a speed limit of 10 mph for cyclists were added to Mount Gate (entrance via West Carriage Drive - Figure 3), Black Lion Gate (entrance via Bayswater Road - Figure 4), Palace Gate (Kensington Road) and Studio Gate (Palace Avenue).

After the 2015 survey, works for the new East-West Cycle Superhighway were initiated, including a segment along West Carriage Drive. At the time of the 2016 survey, the works were underway, with the route officially opened to the public in August 2016.

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1 The work commenced on 4th January 2016. Work continued along the route on a junction by junction basis, the main body of the work was completed at the end of March (pavers were installed after the route was open again). The route was closed to cyclists for approximately a 12 week period.
London Cycling Routes

Mount Walk is not the only shared-use path in Kensington Gardens. There are a number of other shared-use path located in Kensington Gardens (Figure 5):

- The Broad Walk (North-South route)
- Mount Walk (East-West route that links to Studio Walk)
- Studio Walk (East-West route that links to Mount Walk)
- Albert Approach Road (East-West route)

However, Mount Walk, with Studio Walk and Broad Walk, form the only cycle cross park en-route. Albert Approach Road is a limited route covering approximately 40% of the east-west length of the park. This current scenario highlights the importance of Mount Walk in the cycling network in this part of London.

Alternative routes to Mount Walk include on-carriageway routes such as Bayswater Road and Kensington Road. These roads have little cyclist provision, causing much of East-West commuter cyclist flows to use Kensington Gardens as a primary route, with the Kensington Road and Albert Approach Road combination as another popular option.

Good connectivity with Hyde Park cycle routes and Cycle Superhighway 3 (East-West Cycle Superhighway) further east incentivise cyclists to use the direct off-road route through Kensington Gardens (Figure 6).
Figure 7: Implemented Mount Walk cycle calming measures, and the location of speed survey counters (represented by the red lines)
Pedestrian activity
Pedestrian flows: gate counts

Methodology

Pedestrian flow counts were carried out along Mount Walk and adjacent paths, in order to understand existing usage and identify any issues and opportunities.

Data on pedestrians flows was collected at 17 locations, over four days: on Tuesday 7th, Wednesday 8th, Saturday 11th and Sunday 12th June 2016, from 07:00 to 20:00 continuously via video footage (Figure 8).

The weather was quite unsettled most days; sunny spells and heavy rain for about two hours during weekdays, Saturday was overcast with sunny spells (the only dry day) and on Sunday there was light rain throughout the morning. The minimum and maximum temperatures ranged from 11°C to 24°C; slightly warmer compared to 2015 (min 8°C and max 19°C).

Due to the bad weather on Sunday, a follow up observation took place on Sunday 24th July from 13:00 to 19:00.

Figure 8: Pedestrian flow survey locations
Pedestrian activity

Average pedestrian flows

Pedestrian flows at the weekend were observed to be higher than the weekdays, despite the rain on Sunday. Saturday was the busiest day when on average (for all locations) 280 pedestrians per hour (pph) were observed using the paths. For weekdays, Wednesday was the busiest day when 210 pph on average were observed along the survey locations. Average hourly flows for Tuesday were 170 pph and Sunday 236 pph.

Compared to 2015 (reduced period from 08:00 to 18:00), flows were slightly lower for most days, as shown in the graph below. The inclement weather likely had an adverse impact on pedestrian flows with rain on 3 out of 4 days of surveys.

As observed in 2015, the highest pedestrian flows were observed on the Broad Walk. Pedestrian flows along Lancaster Walk were higher compared to Mount Walk as this route remains an important north-south pedestrian route throughout the week. Pedestrian flow distribution along West Carriage Drive was possibly slightly altered due to the construction works for CS3.

Figure 9: Average hourly pedestrian flows - Wednesday (07:00 to 20:00)

Figure 10: Average hourly pedestrian flows - Saturday (07:00 to 20:00)

Figure 11: 2015 and 2016 Comparison - Average number of pedestrians per hour (pph) across all locations (08:00 - 18:00)
Pedestrian flow profile

Looking specifically at Mount Walk (Locations P5 to P10 in Figure 8), analysis of pedestrian flows shows:

- The lowest flows - between 50 than 100 pph - were observed early in the morning before 08:00.

- Flows were higher late in the afternoon, in particular at weekends. Note here that on both weekdays, it rained around 14:30, which explains the dip in the pedestrian flows in the adjacent graph (Figure 12).

- Compared to weekdays, and despite the rain, flows are approximately 35% higher at the weekend, indicating that Mount Walk is a significant leisure route, operating as a ‘destination’ for those coming to the park. Flows are likely to be even higher at the weekend if it was not for the rain on Sunday morning. A subsequent survey on Sunday 24th July recorded an average of 350 pph (between 15:00 and 16:00) along Mount Walk, showing similar flow levels to 2015.

- The hourly average flows for Mount Walk were: 124 pph on Tuesday, 154 pph on Wednesday, 201 pph on Saturday and 171 pph on Sunday. The maximum observed flows were the equivalent of 385 pph at 15:15 on Sunday (a surge of pedestrians once the rained stopped) and 312 pph at 19:15 on Wednesday.

Figure 13, below, compares pedestrian flows between 2015 and 2016 surveys.
Cyclist activity and speed analysis
Cyclist flow counts

Methodology

In line with the 2015 study, cyclist flow counts were conducted on Mount Walk and adjacent paths in order to understand and compare flows. In conjunction with pedestrian flows, examinations on cyclist volume and speed can be used to assess the frequency of interaction between cyclists and pedestrians, as well as pedestrian safety, and how it compares with the 2015 study (prior to the implementation of the speed calming measures).

Data on cyclist flows was collected on the same days and times as the pedestrian flows. Although cyclists are not allowed to cycle on Lancaster Walk and adjacent paths by Mount Gate (Locations C14 to C18), cyclists were counted to give an indication of level of compliance.

Cyclist speed data was collected for a period of 6 weeks: from Monday 23rd May to Sunday 3rd July. Data was recorded using a special thin-walled automatic traffic counter (ATC) fixed on the path. Data was collected approximately at the same five locations as in 2015, as illustrated in Figure 15. As much as possible, cables were placed away from the rumble strips to have an accurate reading of cyclist speed between speed calming measures, locations shown in Figure 7 (page 13). As Monday 30th May was a bank holiday, all speed data for this day was assessed as ‘weekend’ data.

On 9th June 2016, signs requesting a cycle speed limit of 10 mph were added to Mount Gate (entrance via West Carriage Drive) and Black Lion Gate (entrance via Bayswater Road), Palace Gate (Kensington Road) and Studio Gate (Palace Avenue). The impact of the signage was assessed using before and after speed data.

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1 No enforcement of the speed signs was undertaken by TRP police during the trial period.
Average cyclist flows

Taking into account all surveyed locations¹, Tuesday was the busiest day when on average 221 cyclists per hour (cph) were observed using the paths (between 07:00 and 20:00). At the weekend, Saturday was the busiest day when 128 cph were observed. The average flows for Wednesday were 198 cph and Sunday 66 cph. Once again, the rain on Sunday morning appears to have had a direct impact on the number of cyclists visiting the park.

As in 2015, flows along Mount Walk are consistent along its entire length, confirming the ‘transitional space’ character of the route. Cyclists, mainly during weekdays, tend to use the whole length of Mount Walk as part of a wider route across the park, including the Broad Walk and Rotten Row in Hyde Park.

Although cyclists are not permitted on Lancaster Walk and the three paths at the Mount Gate entrance, cyclist flows are considerable, especially on the paths to the south towards The Flower Walk and Lancaster Walk, with 28 and 17 cph on Saturday (Location C17). Conversely, cyclist flows along Pond Walk, an important diagonal route across the park, are low.

Figure 19 below compares cyclist flows from the 2015 and 2016 surveys for the 08:00 to 18:00 time period only.

Figure 19: 2015 and 2016 Comparison - Average number of cyclists per hour (cph) across all locations (08:00 - 18:00)²

1 Excludes locations C14 to C18, as officially cyclists are not permitted on these routes and flows were not counted during the 2015 survey.
2 Ibid 1.
Cyclist flows during peak hours

As in 2015, cyclist flows during the peak morning weekday period can be quite high with an average of 720 cph (further discussed in the next page). To illustrate these levels, the next set of images present cyclist flows on Tuesday and Saturday peak times. We have also noticed that the path to the left from Mount Gate, despite being a no-cycle route, is popular with cyclists.

- The average flows across the day for all survey locations were: 287 cph on Tuesday, 255 cph on Wednesday, 157 cph on Saturday and 80 cph on Sunday.
- During weekdays, the number of cyclists in 2016 is approximately 25% lower compared with last year (Figure 22 below). Although the available data is limited (4 days in 2015 and 2016) and the inclement weather may have had an impact; it could be speculated that it is very likely that the speed calming measures have affected some cyclists’ route choice.
- A similar graph showing the number of cyclists in 2015 and 2016 for peak times is shown in Figure 23 (overleaf).

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Figure 20: Cyclist flows - Tuesday morning peak hour (08:00 to 09:00)

Figure 21: Cyclist flows - Saturday afternoon peak hour (16:00 to 17:00)

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Figure 22: 2015 and 2016 comparison - Average number of cyclists per peak hour (cph) across Mount Walk only (08:00 - 18:00)

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1 The number of cyclists along Flower Walk shown in Figures 20 and 21 includes those cyclists that cycled into the area to check information displayed on the wayfinding totem and cycled back to Mount Walk. A more detailed analysis of cyclists riding along The Flower Walk is presented in 2015 and 2016 comparison - cyclist non-compliance (pages 30 and 31).
Cyclist flow profile

Looking specifically at Mount Walk (Locations C5 to C10 in Figure 15), analysis of cyclist flows shows two distinct patterns, which have not changed from 2015:

- During weekdays there is a tidal commuter pattern: very high flows early in the morning and late afternoon, with much lower values in between. Taking Tuesday as a benchmark, there is a large difference between the peak morning flow (716 cyclists per hour observed between 08:00 and 09:00) and values during lunchtime (around 150 cph). Cyclist flows peak at 08:15 when 215 cyclists were observed over 15 minutes (equivalent to 863 cph), followed by a second peak at 18:30.

- During the weekend, a more consistent flow was observed with low values early in the morning increasing slightly throughout the day with more leisure cyclists.

Figure 23: 2015 and 2016 Comparison - Average number of cyclists per peak hour (cph) across Mount Walk only (08:00 - 18:00)

Figure 24: Weekday cyclist flows across Mount Walk 07:00 to 20:00 for 2016 and 08:00-18:00 for 2015

Figure 25: Weekend cyclist flows across Mount Walk 07:00 to 20:00 for 2016 and 08:00-18:00 for 2015
Cyclist speed analysis

Average cyclist speeds were observed to be higher during the weekday compared to the weekend, especially during the weekday commuter peak.

The average for all weekdays (taking the full 42 day dataset) is 12.31 miles per hour (mph) compared to 9.33 mph at the weekend (07:00 to 20:00)\(^1\).

Cycle speeds do not appear to vary much along the route. The highest speeds in 2016 were recorded in Location 1 (near to the Broad Walk). In 2015, the highest speeds were observed in the middle of Mount Walk. It could be deduced that this change is related to the new speed calming measures along Mount Walk; with the highest speeds currently observed where there is a significant distance between rumble strips (i.e., there is enough space for cyclists to speed up between rumble strips).

The fastest speed was recorded on Monday 23rd May at 08:43 when a cyclist\(^2\) crossed Location 3 at 36.32 mph; the rider subsequently reduced to 16 mph for the rest of the route. At weekends, the fastest recorded speed was on Sunday 5th June at 07:00 when a cyclist reached 36.17 mph at Location 1, decreasing to 34.13 mph in Locations 2 and 3 and 30.47 mph in Location 4\(^3\). Although these cases are exceptional, they do highlight how fast some cyclists are able to ride along Mount Walk (further discussed on page 25).

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1. The data from the bank holiday Monday on 30th May was included in the weekend dataset.
2. We do not have CCTV footage to confirm that this speed was recorded by someone riding a motorised / electric bicycle and not a pedal / push cycle.
3. Ibid 2.
Looking at the overall pattern for the 42 day data set, the weekday / weekend contrast is most significant, as seen in Figure 28. Average speeds during the week can vary from 0.5% - 6% from one day to another, as illustrated in Figure 30.

The change in cycle speed once the 10mph sign was installed has also been examined. The data suggests that the sign has not affected the average cycling speed (Figure 28).

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Figure 29: Average cyclist speed (mph)

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Figure 30: Average cyclist speed (mph) for each day in the survey period. Monday bank holiday highlighted in yellow / 10mph sign installation day highlighted in green.
Cyclist speed day time profile

For both weekdays and weekends, the higher speeds were recorded early in the morning, between 07:00 and 08:00, decreasing throughout the day. An increase can be observed late afternoon, but it never reaches the same level as the early morning period. This is a similar pattern to observations made in 2015.

The average cyclist speed has been plotted against the maximum and minimum speeds based on the top and bottom 5% (Figures 31 and 32). Taking the highest / lowest 5% helps to normalise against outliers for very high speeds such as those >30mph and very low ones such as <0.5 mph.

The graphs show that for weekdays, the difference between the lowest 5% and average speed is not very pronounced, especially during the peak hours. This highlights a consistency in riding speeds and suggests a predominance of commuters going at a moderate to high speed. As for the weekend, the gap between the lowest and average speed is much more pronounced, suggesting a greater diversity of users.

Figure 33 summarises the percentage distribution of cyclists according to the recorded speeds: at the weekend, the majority of users (63%) cycle at speeds below 10 mph and only a small percentage (18%) cycle above the TRP recommended 8 to 12 mph design speed. During the weekdays, however, the pattern is reversed; 22% of all cyclists cycle at speeds below 10 mph and only a small percentage (18%) cycle above the TRP recommended design speed.

1 The peak time for high speeds coincides with dog walkers using the park prior to going to work, suggesting a potential conflict between the two.
2 Each cyclist count represents a cyclist going through one of the ATC cables; because most likely the same cyclist went through all 5 of the data collection points, the actual number of cyclists passing through the cables is anticipated to be approximately 1/5 of the total counts presented in Figure 33.
3 Ibid 2.
Cyclist activity and speed analysis

Looking at high cycle speeds in more detail, a time profile for when cyclists ride above 20 mph has been produced (Figure 35). 65% of the high speed counts were recorded during the weekday early morning period between 07:00 and 09:00; 41% for the same period at the weekend; note that in absolute numbers, cyclist flows are much higher during weekdays.

As Mount Walk is a shared use space, it is useful to compare cycle speed variations in relation to pedestrian flows. Furthermore, in light of the implementation of speed calming measures, a comparison with the 2015 data will help to establish any impact of the interventions on cycle speed reduction. Note that in reading this data, the inclement weather has likely affected some of the peak periods for pedestrians and cyclists visiting Kensington Gardens.

Figure 36 shows that there is a weekday correlation between where cyclist speeds are ‘high’ and pedestrian flows are ‘low’. The lowest average cycle speeds were observed during the lunch time period at a time when the number of pedestrians was one of the highest, with average cycle speeds between 10 and 11 mph. This is comparable with the 2015 data.

As was the case for the 2015 analysis, cyclist speeds at the weekend declined as pedestrian flows increased (Figure 37). Average cyclist speeds remained below 10 mph during the afternoon when pedestrian flows increased substantially after 15:00. This suggests that cyclists are aware of the potential close interaction with pedestrians and generally adjust their speed accordingly.

Cyclist speeds and pedestrian flow analysis

Figure 35: Distribution of cyclist speed above 20 mph across the day (WD=Weekday / WE=Weekend)

Figure 36: Average cyclist speeds across the day on Mount Walk compared with average pedestrian flows (Tuesday and Wednesday)

Figure 37: Average cyclist speeds across the day on Mount Walk compared with average pedestrian flows (Saturday and Sunday)
2015 and 2016 comparison - cyclist speeds

In order to specifically analyse the impact of the speed calming measures, cyclist speeds for the 2015 and 2016 data sets have been compared. Note the difference in data set sizes: the 2015 speed survey was carried out over 2 days (a Tuesday and a Sunday in May) from 08:00 to 18:00. The 2016 survey was much larger - collected over a period of 42 days from 08:00 to 20:00.

Average overall daily speed

Comparative analysis for the period 08:00 to 18:00 shows that there was a 4% decrease in cyclist speeds during weekdays: from 12.52 mph in 2015 to 12.08 mph in 2016. Weekend data suggests a 3% increase: from 8.97 mph in 2015 to 9.27 mph in 2016. A ‘T-test’ has been applied to verify that the observed decrease in weekdays, albeit small, is statistically significant; whereas the variation observed at the weekend is not statistically significant.

Cycle speeds according to time of day

The analysis suggests that overall there has been a small decrease in average cycling speeds after the implementation of the rumble strips. Figure 39 breaks down the average cycle speeds to hourly periods, which helps to identify further details of the impact.

The most significant impact appears to have taken place during the morning peak when the highest cycle speeds were observed, with average speeds around 13mph. The 2016 speed data is generally 5% to 7% lower than in 2015. It can be deduced that this may in part be the result of speed calming measures being effective in reducing the overall average speed, albeit by less than 1mph.

For cyclists already moving at around 10mph, there appears to be less of a percentage change year on year. It could be deduced that the rumble strips and tar spray / chip surface treatment are not seen as such a nuisance when cycling at these lower speeds and a change in cycling behaviour / speed is not required.

Figure 38: Average cyclist speeds (mph) for 2015 and 2016

<table>
<thead>
<tr>
<th>Time</th>
<th>WD average</th>
<th>WE average</th>
</tr>
</thead>
<tbody>
<tr>
<td>08:00 to 09:00</td>
<td>13.60</td>
<td>11.69</td>
</tr>
<tr>
<td>09:00 to 10:00</td>
<td>12.71</td>
<td>10.88</td>
</tr>
<tr>
<td>10:00 to 11:00</td>
<td>11.65</td>
<td>10.26</td>
</tr>
<tr>
<td>11:00 to 12:00</td>
<td>10.82</td>
<td>9.41</td>
</tr>
<tr>
<td>12:00 to 13:00</td>
<td>10.74</td>
<td>9.20</td>
</tr>
<tr>
<td>13:00 to 14:00</td>
<td>10.51</td>
<td>8.95</td>
</tr>
<tr>
<td>14:00 to 15:00</td>
<td>10.22</td>
<td>8.73</td>
</tr>
<tr>
<td>15:00 to 16:00</td>
<td>10.37</td>
<td>8.61</td>
</tr>
<tr>
<td>16:00 to 17:00</td>
<td>11.02</td>
<td>8.63</td>
</tr>
<tr>
<td>17:00 to 18:00</td>
<td>12.11</td>
<td>8.85</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Time</th>
<th>WD change</th>
<th>WE change</th>
</tr>
</thead>
<tbody>
<tr>
<td>08:00 to 09:00</td>
<td>-5%</td>
<td>-10%</td>
</tr>
<tr>
<td>09:00 to 10:00</td>
<td>-7%</td>
<td>-5%</td>
</tr>
<tr>
<td>10:00 to 11:00</td>
<td>-2%</td>
<td>-1%</td>
</tr>
<tr>
<td>11:00 to 12:00</td>
<td>-4%</td>
<td>6%</td>
</tr>
<tr>
<td>12:00 to 13:00</td>
<td>-9%</td>
<td>4%</td>
</tr>
<tr>
<td>13:00 to 14:00</td>
<td>-4%</td>
<td>7%</td>
</tr>
<tr>
<td>14:00 to 15:00</td>
<td>-4%</td>
<td>3%</td>
</tr>
<tr>
<td>15:00 to 16:00</td>
<td>-3%</td>
<td>6%</td>
</tr>
<tr>
<td>16:00 to 17:00</td>
<td>1%</td>
<td>4%</td>
</tr>
<tr>
<td>17:00 to 18:00</td>
<td>4%</td>
<td>1%</td>
</tr>
</tbody>
</table>

Figure 39: Average cycle speed (mph) breakdown per hour (08:00 to 18:00)

1 T-test to compare two mean values.
Cyclist activity and speed analysis

Cyclist speed percentage distribution

As part of the 2015/16 comparative analysis, changes in the percentage distribution of average cycling speeds have been examined.

The most marked change in cycling speeds between 2015 and 2016 occurred for those travelling at higher speeds (more than 16mph) during the weekday peak times.

Figure 40 illustrates that a lower percentage of cyclists are now riding in excess of 16mph. Figure 41 shows that the largest percentage reduction has occurred for cyclists going 20mph or above on weekdays.

It can be concluded that 2016 speed counts show a reduction in the proportion of cyclists travelling at high speeds, most likely as a direct consequence of the implementation of the speed calming measures. High speed cycling on shared-use paths increases the severity of any accident and increases other path users perception of danger and the overall experience. Any reduction in cycling speeds, as observed in Mount Walk, is a positive outcome.

1 Cycle speeds impact pedestrian comfort levels. Where the physical environment allows or encourages faster cycling speeds, the pedestrian experience is likely to be diminished. (Living Streets (2016) Sharing the Space, p5.

2 Inclement weather, avoidance of the route and high pedestrian flows are additional factors that affect cycling speeds.
2015 and 2016 comparison - cyclist non-compliance

Cyclist non-compliance

The latest pedestrian flow counts have indicated that some of the paths off Mount Walk are used by cyclists on a regular basis, in particular Flower Walk. To that end, we have reviewed the 2015 data and analysed if the pattern has changes in the past year, and if so, how. Data analysis was limited to Tuesday and Saturday peak times: 16:00 – 18:00 and 15:00 to 17:00 respectively (Figures 44 to 47).

Pond Walk

Pond Walk was observed to experience good compliance. Most cases of observed non-compliance involved cyclists who seemed to be unfamiliar with the area. In these cases, the cyclists hesitated upon crossing the ‘no cycling’ markings, and often circled back to Mount Walk. A number of pedal cycle users intending to use a pedestrian-only path were observed to dismount and walk with their bicycles to their destinations. Good signage and the provision of adequate routes (Mount Walk) hinder cyclist to astray from the cycle paths. There were no significant changes in the number of cyclists using Pond Walk from 2015 and 2016 (Figure 43).

Other routes

As with Pond Walk, most cases of observed non-compliance involved cyclists who seemed to be unfamiliar with the area. This behaviour was particularly evident on Lancaster Walk, as groups of cyclists stopped at the junction to regroup, plan their journey or admire nearby landmarks.

Compared to Tuesday, non-compliance increases sharply on Saturday, leisure cyclists may be unfamiliar with the area or ‘keen to explore’ other routes are the predominant users of Mount Walk adjacent paths. However we noticed a sharp increase in the number of cyclists along Flower walk and Lancaster Walk, suggesting that a ‘loop’ of cycling activity is popular amongst visitors.

Figure 48 summarises the change in percentage flows from 2015 and 2016.
Cyclist activity and speed analysis

The Broad Walk West Carriage Drive Lancaster Walk Studio Walk Serpentine Gallery Round Pond

Number of Cyclists

<table>
<thead>
<tr>
<th>Location</th>
<th>Tuesday</th>
<th>Saturday</th>
<th>Tuesday</th>
<th>Saturday</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lancaster Walk North</td>
<td>1%</td>
<td>2%</td>
<td>1%</td>
<td>8%</td>
</tr>
<tr>
<td>Lancaster Walk South</td>
<td>2%</td>
<td>3%</td>
<td>7%</td>
<td>16%</td>
</tr>
<tr>
<td>Serpentine Gallery</td>
<td>1%</td>
<td>1%</td>
<td>1%</td>
<td>2%</td>
</tr>
<tr>
<td>Pond Walk</td>
<td>1%</td>
<td>4%</td>
<td>4%</td>
<td>4%</td>
</tr>
<tr>
<td>Flower Walk</td>
<td>1%</td>
<td>3%</td>
<td>2%</td>
<td>11%</td>
</tr>
</tbody>
</table>

Notes:

- To calculate the percentages, cyclist flows along Lancaster Walk were compared to flows to the east of Mount Walk and for the remaining paths, flows were compared to the one by Mount Gate. For instance: 8% (2016) = 16/211 * 100.
- Cyclist flows along Flower Walk were recounted and include only those cyclists riding the extension of Flower Walk and not turning back to Mount Walk.

Cyclists per hour (cph)

- 440 to 1200
- 310 to 440
- 270 to 310
- 210 to 270
- 100 to 210
- 0 to 100
- not a cycle path

Figure 44: Cyclist average hourly flows 2015 - Tuesday (16:00-18:00)
Figure 45: Cyclist average hourly flows 2015 - Saturday (15:00-17:00)
Figure 46: Cyclist average hourly flows 2016 - Tuesday (16:00-18:00)
Figure 47: Cyclist average hourly flows 2016 - Saturday (15:00-17:00)

Figure 48: Non-compliance percentage change between 2015 and 2016
Pedestrian and cyclist activity analysis
Pedestrians and cyclists combined flow analysis

Mount Walk is the main east-west cycle route through the park. On-carriageway east-west alternatives exist to the north and south of the park, but without dedicated space for cycling. Due to Mount Walk’s accessibility and perceptions of safety for cyclists, the dominance of cyclists over pedestrians on the weekday commute has not changed since 2015.

Figure 49: Pedestrian and cyclist average hourly flows (Mount Walk only)

Figure 50: Pedestrian and cyclist average hourly flow proportions - Tuesday (08:00-20:00)

Figure 51: Pedestrian and cyclist average hourly flow proportions - Wednesday (08:00-20:00)
Pedestrian and cyclist activity analysis

Figure 52: Pedestrian and cyclist average hourly flow proportions - Saturday (08:00-20:00)

Figure 53: Pedestrian and cyclist average hourly flow proportions - Sunday (08:00-20:00)
Daily trends

Flow profiles help to identify the type of cyclists and pedestrians using Mount Walk. Understanding the type of cyclists and pedestrians is crucial for considering their needs and priorities.

As observed in 2015, with peak hours from 08:00 to 09:00 and 17:00 to 18:00, the majority of cyclists on weekdays during these times are commuters. On the contrary, cyclists during the weekend show the same time distribution as pedestrians, which confirm that they are ‘leisure cyclists’, cycling slower and often in groups.

The commuter / leisure cyclist distinction is illustrated by the analysis of flows across the day: Figure 56 shows a clear predominance of eastbound movement for cyclists during the morning peak on weekdays and the reverse for the afternoon peak. Although the number of pedestrians is generally low at these times and any potential close interaction with cyclists is reduced (as cyclists ride following one single direction), the speed and intensity of flows may discourage some pedestrians to use Mount Walk (further discussed on page 43).
User behaviour analysis
User Behaviour

Methodology

Qualitative behavioural observations and analysis of user interactions along Mount Walk were carried out in order to understand existing issues.

The analysis took the form of high quality and systematic observations using CCTV footage. The behavioural surveys aimed to provide a robust understanding of current pedestrian and cyclist movement patterns and to assess how effective the current design meets users’ needs. The assessment also looks to understand the implications of design interventions on user behaviour, as recently implemented on the Mount Walk route.

Information on pedestrian and cyclist interactions and general behaviour was collected on Tuesday 7th and Sunday 12th June 2016. On Tuesday, the footage was analysed over three time periods: 08:00 to 10:00, 12:00 to 14:00 and 18:00 to 20:00. On Sunday, the analysis focused on two time periods: 14:00 to 16:00 and 18:00 to 20:00. In total, 60 hours of CCTV data was studied. For the results of the analysis, Mount Walk was divided into five areas, as seen in Figure 58:

- Area A: Broad Walk and Mount Walk junction
- Area B: Round Pond stretch
- Area C: Lancaster Walk junction
- Area D: Serpentine Gallery link
- Area E: Mount Gate and West Carriage Drive

Capacity analysis

Figure 59 summarises the maximum capacity of Mount Walk as observed during the CCTV footage exercise. This remains the same as in the 2015 report except for some additional observations. The maximum capacity for the path has been observed and four main scenarios discussed as illustrated in Figures 60 to 65:

- Scenario 1 - with 5 pedestrians
- Scenario 2 - with 4 pedestrians and 1 cyclist
- Scenario 3 - with 3 pedestrians and 2 cyclists
- Scenario 4 - with 4 cyclists

Figure 58: User behaviour study areas

Figure 59: Maximum path capacity and illustrative overtaking movements
User behaviour analysis

Qualitative observations provide a rich complementary insight to the quantitative data. CCTV camera records have allowed us to observe a variety of user behaviours, both on a weekday and weekend, and at different hours.

Some key observations:

- Mount Walk users behave in a confident and considerate way, with good levels of perceived safety observed.
- Even if the distance between cyclists and pedestrians is small, it is suggested that both cyclists and pedestrians generally behave in a calm and relaxed manner with no or little perceived anxiety between them.

General comments

- In such an open, flat space, visibility levels are high and both cyclists and pedestrians can see each other presumably with enough time to anticipate and adapt to the situation in a safe way. It was noticed that cyclists frequently use the bicycle bell to warn pedestrians of their approach.
- On intersections, it was noted that the new junction design (replacing the look right / look left sign) has given pedestrians more confidence to cross with clear visual information of the ‘extension’ of the junction and that Mount Walk is a pedestrian priority route.
- It was observed that during the weekday cyclist peak times, pedestrians walk on the edge of Mount Walk rather than occupying the full width, probably to avoid high speed cyclists.
- When the number (and speed) of cyclists decreases, pedestrians generally seem more comfortable using the full width of Mount Walk.
- On those occasions, when the path width is not enough to host all users, both cyclists and pedestrians use the adjacent grass space to overtake or avoid others for a short period of time; the number of cyclists using the grass being higher than pedestrians.
- Taking advantage of adjacent grass space also takes place when the path width is not completely used. This has been observed often when those on the path are especially slow and/or show unpredictable movement behaviours, e.g. when pedestrians stop to check directions or to assist their children, cyclists use the grass.
- We observed that some cyclists avoid the speed calming measures by using the grass adjacent to them.
Area A: Broad Walk and Mount Walk junction

The junction of Broad Walk and Mount Walk is a relatively complex one due to the number of different routes and turns that both pedestrians and cyclists can take. Broad Walk is very wide and overall there are good levels of visibility at any given point within the junction, which facilitates pedestrians and cyclists to coordinate their movements.

- During the weekday morning peak, there is a constant flow of cyclists coming from Broad Walk turning left onto Mount Walk as well as those crossing Broad Walk (Studio Walk / Mount Walk route). It is clearly predominantly commuters with cyclists generally riding in an orderly manner, one behind the other.

- During the same time period, many pedestrians walk south from Broad Walk passing the junction to Mount Walk. Pedestrians tend to ‘stop and wait’ until they feel that it is safe to cross (Figure 66). This particular behaviour, however, can lead to a number of pedestrians selecting alternative routes where they do not feel intimidated by the presence of cyclists.

- During weekday peak times, the few pedestrians continuing on Mount Walk seem to occupy the edges of the path, close to the grass, rather than walking in the middle (Figure 67). Most cyclists wishing to overtake these pedestrians, have adequate space to do so on the path rather than going on the grass.

- Towards mid morning and lunchtime, the potential close interaction between cyclists and pedestrians appears to diminish as the commuter flows reduce.

- At the weekend, the profile of the junction, as with the rest of the park, is notably different to on a weekday. There are fewer commuter cyclists and both cyclists and pedestrians appear to share the space considerately. The lower average cyclist speeds seem to enhance the perception of safety for pedestrians allowing them to share the space better rather than walking on the edge (Figure 69).

- As in other sections of Mount Walk, we observed that some cyclists avoid the speed calming measures by using the grass adjacent to them (Figure 68).
Area B: Round Pond stretch

This section of Mount Walk is the longest uninterrupted stretch of the route. There are some trees but no visual obstructions on either side, providing both cyclists and pedestrians good visibility of what is ahead of them.

- Despite the long stretch, average cyclist speeds at this location are generally no higher than the rest of Mount Walk. During the morning peak, in the context of the survey, the number of pedestrians observed was low and cyclists could comfortably ride along the route (Figure 70).
- Most of the close interactions on this section were noted at the intersection of Mount Walk and Round Pond (Figure 5).
- During the morning and evening peaks on weekdays, pedestrian flows are low and generally consist of runners and commuters. Once again, it was noted that most pedestrians walk on the edge of the path rather than in the middle (Figure 71).
- During weekday peak hours, very few cyclists swerve on the grass to avoid pedestrians but rather overtake on the path, as there is available space. Cyclists may overtake larger groups throughout other hours of the day and during the weekend by going on the grass.
- It was noticed that at the weekend it is more common to see groups of pedestrians and families with buggies walking along the route. However, there is clear consideration from all users to make room for each other through minor adjustments on the walking / cycling paths.
Area C: Lancaster Walk junction

This section summarises the observed behaviour between the end of the Round Pond stretch and Lancaster Drive junction. CCTV footage captures Lancaster Gate junction and the junction before it. Any minor close interactions identified are almost all on the junctions rather than on the stretch.

- There are three junctions along this stretch fairly close to each other. When approaching a junction, some pedestrians stop and look both ways (Figure 76) but some cross the junction without stopping. Pedestrian priority is now more clearly indicated along the route so this is an expected change in behaviour; newly-installed information pavers reinforce pedestrian priority on the cycling-permitted route (Figure 77 highlighted in yellow) as a mitigation to potential conflict.

- The overall pattern is the same as the previous areas. There is a higher number of cyclists during the peak hours on the weekday and few pedestrians who frequently walk on the edge of the path.

- Some close interaction occurs when pedestrians (especially those less familiar with the area, such as tourists) stop at the junctions to take photos or to look at the Albert Memorial.
Area D: Serpentine Gallery link

The overall pattern along this section of Mount Walk is very similar to the previous one, i.e. the intersections between paths are the most likely locations for close interactions between pedestrians and cyclists.

- Many pedestrians walking towards / from the Serpentine Gallery do not stop at the junction with Mount Walk before crossing (Figure 78). This could be a result of the junction re-design where the white lines which warn pedestrians to stop no longer exist. As with other junctions, pedestrian priority is now more clearly indicated along the route so this is an expected change in behaviour. As previously discussed, it can occasionally pose a risk to pedestrians when cyclists are not aware or ‘ignore’ the pedestrian priority junction.

- The pedestrians walking along Mount Walk during the weekday usually walk on the edge of the path (Figure 79). Cyclists wishing to overtake them can do so on the path rather than swerving on the grass.

- During the weekend, pedestrians share the space better with cyclists rather than walking on the edge of Mount Walk (Figures 80 and 81).

Figure 78: Example of a pedestrian not paying attention while crossing (weekday)
Figure 79: Pedestrian walking on the edge of Mount Walk (weekday)
Figure 80: Range of users sharing the space (weekend)
Figure 81: Larger groups of pedestrians occupying the full width of Mount Walk rather than only the edge (weekend)
Area E: Mount Gate and West Carriage Drive

This location is the main gateway to Mount Walk for those coming from Hyde Park and / or West Carriage Drive.

- The gate restricts any ‘overtaking’ should there be too many pedestrians and cyclists approaching the route. This is more of an issue during the weekend when larger groups of pedestrians pass through. However this does not result in close interactions in most cases, as cyclist speeds are low.

- From the CCTV data, it appears that cyclists and pedestrians are aware of each other and that this section of Mount Walk and Mount Gate provides sufficient clear widths and visibility for the observed flows to be safely accommodated.

- Much of the perceived close interaction between the two user groups take place along West Carriage Drive western footway where cyclists (generally commuters) cycle east-west and pedestrians walk north-south along the footway. Potential interactions occur between pedestrians going out of the park and cyclists making a turn through the gate into the park, towards Mount Walk (Figures 84 and 85).

Dismounting

As part of this study, the number of cyclists who dismounted as they left the park was counted. During the 10 hour footage survey for this location¹, no one was observed dismounting as they left the park during the weekday (Tuesday), however 19 cyclists were observed at the weekend (Sunday), corresponding to 4.5% of all cyclists. Compared to 2015, the overall pattern is similar when 0.5% of users dismounted during weekdays and 3% at the weekend.

The majority of people dismounting appear to be ‘leisure cyclists’ (all of whom were using Cycle Hire Bikes) rather than commuters. The intersection of Mount Walk and West Carriage Drive appears to operate as an orientation / decision making point and some cyclists, such as tourists, seemed to be unsure whether cycling was allowed.

¹ Dismounting study conducted over 6 hours during Tuesday (08:00 to 10:00, 12:00 to 14:00 and 18:00 to 20:00) and over 4 hours on Sunday (14:00 to 16:00 and 18:00 to 20:00).
Potential for close interaction assessment

Methodology

Information on the potential for pedestrian and cyclist close interactions was collected on Tuesday 7th and Sunday 12th June 2016 using CCTV footage. The data was analysed during the same time periods as for the user behavioural analysis.

Using CCTV footage, negative behavioural patterns such as hesitation or confrontation between cyclists and pedestrians were noted as a ‘minor close interaction’. Incidents where the pedestrian appeared to change direction as a result of the presence of a cyclist\(^1\), have also been classified as a ‘minor close interaction’. On several occasions it was difficult to judge from the footage but any doubt was generally counted as a potential ‘minor close interaction’.

For this study, interactions amongst cyclists were not quantified. It is recommended that in future studies, they are recorded.

Main locations

Figures 86 and 87 illustrate the locations of observed ‘close interactions’ between cyclists and pedestrians. The Lancaster Walk Junction was the location where the highest number of minor close interactions was observed (8 in total, 4 of these between 18:00 and 19:00). Most of the remaining close interactions took place at the intersections but without a specific time of the day.

\(^1\) For cyclists passing side-by-side in the same or opposite direction to a pedestrian.
Typical types of minor close interaction

In total, 18 cases of close interaction were observed during Tuesday over a period of 6 hours and 5 cases on Sunday over a period of 4 hours, giving an average of 3 and 1.25 close interactions per hour along the entire route (Figures 88 to 93). During the 2015 survey, 18 cases of close interaction were also observed on a Tuesday over a period of 6 hours and 15 cases on Sunday over a period of 4 hours, giving an average of 3 and 3.75 close interactions per hour along the entire route. It is important to note that these averages are indicative, as flows were slightly different compared to the 2015 report as the park was particularly quiet on Sunday in 2016.

As in 2015 analysis, to put these numbers into perspective, a comparison was made for the number of cases when cyclists overtook pedestrians without causing a close interaction. One hour time periods for the weekend and weekday were randomly selected. The results showed 700 ‘non-interaction’ cases / hour compared with 5 minor close interaction cases/hour (weekday and weekend), giving a clear 99% of all cycle journeys without close interaction. This study was conducted at location C where the highest number of close interactions had been observed. This percentage is the same percentage identified during the 2015 study and higher still than the prediction made in the Atkins Intelligent Space report where, for the Broad Walk, 97.5% of all cycle journeys would not involve a close interaction between pedestrians and cyclists.

No collisions were observed during the survey periods. It can be concluded that potential close interactions between different users are very low, but it is difficult to robustly demonstrate whether the speed calming measures have had an impact, as the number of potential close interactions has always been very low. However, the fact that no collisions or cases of very close proximity were observed, suggests that the speed calming measures had a positive impact on safety.

The percentage of close interactions involving cyclists using their own bikes compared to hire cycles was also assessed. Analysis showed that most minor close interactions during the weekday involved a non-Cycle Hire cyclist. Often we could not identify the type of bicycle as the cyclists were often filmed from behind. At the weekend, no clear pattern could be identified relating to Cycle Hire or non-Cycle Hire bike users.

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1 The selected area and time periods were: Area C between 18:00 and 19:00 on Tuesday and Sunday.
Use of space

Paths

As a measure of potential close interaction between user groups, the number of pedestrians walking on the grass possibly to avoid cyclists and the number of cyclists swerving onto the grass to avoid pedestrians was recorded. The survey was conducted for the weekday (Tuesday) and the weekend (Sunday) for all locations in Areas A to D (Figure 58). The survey times were 08:00-10:00, 12:00-14:00, and 18:00-20:00 on Tuesday and 14:00-16:00 and 18:00-20:00 on Sunday.

On the weekday, less than 1% of cyclists swerve onto the grass to avoid pedestrians during the AM and PM peaks, this number increases slightly during the lunchtime peak to 2% when larger groups of pedestrians occupy the space. At the weekend, this increases to around 5% of cyclists swerving onto the grass to avoid larger pedestrian groups between 14:00-16:00; this is the time period when the number of pedestrians, or groups, that mainly occupy the middle section of the path is highest.

Less than 1% of pedestrians changed their path onto the grass to avoid cyclists during the weekday and weekend survey hours. Only during the weekday afternoon peak did the number increase slightly to 2%. However, it is clear that most cyclists do respect pedestrians, are aware of any potential close interaction, and do take action to avoid collisions.

The number of pedestrians walking on the edge of the path was also analysed to better understand park users behaviour. During the AM and PM peak times on the weekday, 13 pedestrians per hour (pph) were recorded walking on the edge of the path in Location P8 and 16 pph on Location P7 (refer Figure 8); which equates to 18% and 28% of all pedestrian flows during the same time periods on these locations. The pedestrians were not far from the path, walking/running on the grass for instance, but were walking on the edge of the path while cyclists occupied the middle. During weekday lunch time and weekends, the percentage drops substantially to 3% and 7% respectively.

This further highlights the dynamic nature of the route, where during the weekday peak times, commuter cyclists dominate the route. Pedestrians still use the path but prefer to walk on the edge, probably as a safety measure. During the lunchtime weekday period and the weekend, the space is occupied by a larger number of pedestrians, often groups who walk in the middle of the path, while cyclists ride at lower speeds and manoeuvre around them, re-balancing the ownership of the route.

These patterns have been previously observed in 2015, although they were not quantified.

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1 The survey times were 08:00-10:00, 12:00-14:00, and 18:00-20:00 on Tuesday and 14:00-16:00 and 18:00-20:00 on Sunday, Area C only.
2 One average for the 3 time periods.
Junctions

To assess the impacts of the change in junction configuration, specifically the replacement of the ‘look left / look right’ path markings as in 2015 by the new junction design, the behaviour of people crossing Mount Walk from Lancaster Walk was assessed. CCTV footage for 2015 and 2016 were compared for the same days of the week and times:

- Tuesday, May 12, 2015 and Tuesday, June 7, 2016: from 16:00 to 18:00
- Saturday, May 9, 2015 and Saturday, June 11, 2016: from 15:00 to 17:00

It was observed that with the 2015 layout, compared to 2016, more people looked and/or stopped before crossing Mount Walk. On the weekday, it seems that when pedestrians saw a cyclist while approaching the junction and subsequently, guided by the look right / look left sign, they effectively looked right and left to make sure that there was not a cyclist coming before crossing (Figures 101 and 102). It is important to note that cyclists on weekdays do ride very fast and pedestrians were assessing the junction before proceeding (as we normally do before crossing a road). At the weekend, the pedestrians who stopped were mostly those who physically could not pass because of groups of pedestrians or cyclists on the junction.

As for the 2016 configuration (Figures 103 and 104), the new surface treatment seemed to give pedestrians more confidence to cross with a clear information of the ‘extension’ of the junction and the pedestrian priority approach. The CCTV footage suggested that most people just made sure the junction was relatively clear while crossing rather than stopping. The junction does allow for good visibility and both pedestrians and cyclists accommodated to each other’s path.

Figure 100 below summarises the results.

<table>
<thead>
<tr>
<th>Year</th>
<th>Day</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tuesday</td>
<td>Saturday</td>
<td>Tuesday</td>
</tr>
<tr>
<td>Look/Stop</td>
<td>28% (130)</td>
<td>22% (158)</td>
<td>19% (70)</td>
</tr>
<tr>
<td>Walk through</td>
<td>72% (338)</td>
<td>78% (576)</td>
<td>81% (290)</td>
</tr>
</tbody>
</table>

Figure 100: Summary table

Figure 101: The girls spot the cyclist so when they reach the junction
Figure 102: The girls make sure the junction is clear before they proceed
Figure 103: Pedestrian continues to cross the junction even though he sees cyclists going ahead
Figure 104: Pedestrian continues to cross the junction even though he sees cyclists going ahead
Level of Service
Level of Service - Shared use

The width of a path and its capacity is a key factor in determining how successfully a space can be shared, in particular when there are two or more different modes, i.e. pedestrians and cyclists. When assessing the capacity of a path and its design, it is important to take into account the level of pedestrian and cyclist activity and how activity on the path varies through the day. This supports an understanding of how a path functions during commuting periods or during busy weekend afternoons, when capacity issues are significant.

Methodology

The Level of Service analysis was conducted using the guidelines created as a result of a research conducted by Atkins Intelligent Space for Transport for London on shared use cycle routes in 2009. The Level of Service is a standard measurement of pedestrian capacity and level of comfort. In this context, the methodology assesses the peak volume of pedestrian flow activity and the amount of available, usable space. Level of Service is measured on a sliding scale to benchmark the level of comfort of routes from ‘A’, with plenty of available space to walk or cycle freely, through ‘F’, where the crowd and space available minimises the freedom of movement.

Space requirements

Although the capacity of a shared use path is dependent on the level of pedestrian and cyclist activity, there are desirable minimum widths which accommodate a rudimentary level of use. Guidance on minimum and recommended widths for shared and segregated cycling routes in open spaces was taken from Kensington Gardens Studio Walk report. Cyclist widths were taken from DfT guidance and pedestrian widths were taken from Kensington Gardens Studio Walk report.

Based on user widths, the recommended minimum width of an unsegregated shared use route is provided in Figure 105, which is based on low pedestrian and cyclist activity. The minimum path width of 3.00 m allows for one cyclist and two pedestrians to pass side-by-side. Figure 105 also provides a desirable minimum path width for an unsegregated route with active / high pedestrian and cyclist activity. The preferred minimum path width of 4.50 m allows for two cyclists and two pedestrians to pass side-by-side.

Measuring footpath width

Footpath widths for Mount Walk were obtained from CAD drawings supplied by TRP checked on site by Atkins. The Level of Service calculation is based on the ‘worst case scenario’ for pedestrian and cyclist activity. For this reason, the minimum width of path available for users (defined as the pinch point) was used in the calculation - that being the width entering the path from West Carriage Drive after the gate at 3.89 m. The width of Mount Walk is relatively consistent throughout at around 4.0 m in width with its widest point of around 5.7 m at the intersection with West Carriage Way.

Shared Level of Service Assessment

Following the methodology developed and presented in Kensington Gardens Studio Walk report, the analysis was carried out for three scenarios:

- Scenario 1: Two cyclists: minimum distance
- Scenario 2: Two cyclists: comfortable distance
- Scenario 3: Three cyclists: minimum distance

2 A shared use path is defined as a completely unmarked path (except relevant signage) where pedestrians and cyclists use the entire available width. A segregated path is defined as a path where separation of any kind (white line or other delineator strip) exists between pedestrians and cyclists. Mount Walk is therefore classified as a shared use path.
4 Cycle Infrastructure Design, Local Transport Note 2/08, 2008, DfT.
Platoon-LOS

Pedestrians often travel together as a group, especially within the context of a park. This phenomenon is called platooning. To account for the impact of platooning on pedestrian travel behaviour, the “Platoon-Adjusted LOS Criteria for Walkways and Sidewalks”, is shown in Figure 106.

Shared Level of Service Analysis

Assuming that the desired LOS for pedestrians should be LOS B as a minimum, as defined by Royal Park standards, the maximum flows allowed for the 3 different scenarios were calculated.

Scenario 1: It was found that assuming two cyclists need to pass each other on Mount Walk with a minimum distance between them, the maximum number of pedestrians that can pass is 939 pph for the path to still be of LOS B or greater, and provide an open / unimpeded flow (Figure 110).

Scenario 2: Assuming that the two cyclists pass with a comfortable distance between them, the maximum flow of pedestrians would have to be less than 775 pph. The observed pedestrian flows on Tuesday, Wednesday, Saturday, and Sunday were counted as always less than 400 pph on average across all locations. This means that for the existing situation under this scenario, the LOS for pedestrians is always going to be LOS B or better.

Scenario 3: where three cyclists need to pass with a minimum distance between them at any given point, less than 260 pph can pass on the narrowest width of the path. Looking at Figure 109, this could be problematic on weekends between 15:00-17:00. At these times, some overspill would have to occur onto the grass, as was observed at peak times. However, based on observations, the configuration of three cyclists riding side by side on weekends is rare, especially due to large groups of pedestrians. It is also common for larger groups of cyclists to be considerate of pedestrians especially on weekends (Figure 107).

<table>
<thead>
<tr>
<th>LOS</th>
<th>Description</th>
<th>Flow per unit width, pedestrians/min/m</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>minimum</td>
</tr>
<tr>
<td>A</td>
<td>Open</td>
<td>0.00</td>
</tr>
<tr>
<td>B</td>
<td>Impeded</td>
<td>1.64</td>
</tr>
<tr>
<td>C</td>
<td>Constrained</td>
<td>9.84</td>
</tr>
<tr>
<td>D</td>
<td>Congested</td>
<td>19.69</td>
</tr>
<tr>
<td>E</td>
<td>Crowded</td>
<td>36.09</td>
</tr>
<tr>
<td>F</td>
<td>Jammed</td>
<td>59.06</td>
</tr>
</tbody>
</table>

Figure 106: Platoon LOS

Figure 107: Cyclists riding in convoy at the weekend

Figure 108: LOS B maximum flows

Figure 109: Pedestrian flows on Mount Walk across surveyed days - 07:00 to 20:00 - showing the threshold for where pedestrian comfort could be compromised with three cyclists - scenario 3

Figure 110: Example of one cyclist and 2 pedestrians
Speed calming measures
Compliance at rumble strips

As part of the study, it was noted how worn out the grass has become around these speed calming measures. To that end, the level of compliance of speed calming measures by cyclists was measured. CCTV footage recorded the number of cyclists for the busiest days: Tuesday 7th between 08:00-09:00 and Saturday 11th July between 16:00-17:00. Analysis was carried out for 2 locations: at the entrance to Mount Walk from Broad Walk (one rumble strip) and the junction with Lancaster Walk (two rumble strips on either side of the junction). It was found that on the weekday there was 76% compliance (cyclists staying on path and not swerving to avoid the rumble strips) while on the weekend the compliance increased to 84%. A 24% non-compliance on a weekday equates to approximately 800 cyclists a day riding over the grass during the week, which explains such rapid damage to the flora.

Comparing the two locations, during the weekday, the compliance on the entrance of Mount Walk (Figures 111 and 113) is 84% compared to 77% on the Lancaster Walk junction (Figures 112 and 114). On Saturday the compliance increases to 90% on the entrance and 89% on the junction.

The analysis suggest that commuters are less likely to comply with the speed calming measures. Further, the junctions, with 2 rumble strips and tar spray / chip surface treatment, are seen as a bigger inconvenience than the single rumble strips and cyclists often try to avoid the whole junction.

The act of avoiding the speed calming interventions can be considered a speed calming / behaviour modifier in its own right; naturally The Royal Parks does not want any damage to the grass and are assessing the extent of the damage caused by the non-compliance and will take remedial actions (including intervention modifications) where it is deemed necessary.
Impact on pedestrians, cyclists and other vulnerable user groups

To further analyse the impact of the speed calming measures, some qualitative analysis of users on Mount Walk was conducted on Sunday 24th July.

Apart from a number of cyclists skirting around the rumble strips and the overall junction treatment, the speed calming measures had an impact on a number of pedestrians, in particular adults with children in buggies, children on scooters, children or adults using skate boards or rollerbladers. Some members of these user groups found difficult to walk across the speed calming measures, in particular the rumble strips.

Feedback from park users on the implementation of rumble strips has also been assessed. Those who contacted the park managers directly, were mostly cyclists disappointed with the implementation of the speed calming measures. There were several complaints about the depth of the grooves / height of the rumble strips and the vibrations caused by the design (seen as uncomfortable), with comments such as, ‘the vibrations from this rattle my whole bike and body.’ There were also a few comments about the impact for ‘a baby in a pram’, a cyclist with ‘chronic arthritic’ or the cost that slow speed abiding cyclists have to pay for those riding very fast. Many of the cyclists questioned the impact of the speed calming measures as ‘cyclists are simply going around the cobblestones’ and ‘cyclists have not slowed down.’ As a positive outcome, there were some interesting suggestions such as restricting the hours for cyclists or having a different design such as speed bumps. Figure 115 summarises the responses.

From a separate survey with vulnerable users, including wheel chair users, comments included that ‘the cobbles in the rumble strips were harder to cycle over than the smooth tarmac’ and that the current interventions ‘could potentially put young and vulnerable cyclists off using the route because the uncomfortable nature of the riding experience’. A vision impaired user welcomed the design and ‘had no concern the cobbles created any trip hazard’ and that in fact the current design was helpful to use as a guide, although more should be done to highlight the junctions.

Figure 115 notes:

* For the purpose of ‘complains and suggestions’, the person using roller blades was included as part of the cyclist group.

** Grass damage: not a complaint as such but 12 cyclists acknowledged that the grass is being damaged by riders avoiding the rumble strips.

<table>
<thead>
<tr>
<th>User type</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cyclists</td>
<td>24</td>
</tr>
<tr>
<td>Pedestrians</td>
<td>4</td>
</tr>
<tr>
<td>Rollerblade*</td>
<td>1</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Cyclist main complaints</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Extreme vibration</td>
<td>10</td>
</tr>
<tr>
<td>Unsafe for users</td>
<td>7</td>
</tr>
<tr>
<td>Discourage path use</td>
<td>4</td>
</tr>
<tr>
<td>Physical pain</td>
<td>4</td>
</tr>
<tr>
<td>Too frequent</td>
<td>3</td>
</tr>
<tr>
<td>Bike damage</td>
<td>2</td>
</tr>
<tr>
<td>Trip hazard</td>
<td>2</td>
</tr>
<tr>
<td>Grass damage**</td>
<td>12</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cyclist suggestions</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cycling only path</td>
<td>6</td>
</tr>
<tr>
<td>Remove calming measures</td>
<td>5</td>
</tr>
<tr>
<td>Segregated path</td>
<td>5</td>
</tr>
<tr>
<td>Signage improvements</td>
<td>1</td>
</tr>
<tr>
<td>Speed enforcement</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pedestrian suggestions</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Signage improvements</td>
<td>4</td>
</tr>
<tr>
<td>More effective speed calming measures</td>
<td>2</td>
</tr>
</tbody>
</table>

Figure 116: Adult carrying skateboard to avoid rumble strips

Figure 117: Father helping his son across rumble strips

Figure 118: Parents with buggies skirting around rumble strips
PEDESTRIAN PRIORITY
Conclusions and recommendations
Conclusions and recommendations

Conclusions

Mount Walk remains a popular, well used path by pedestrians and cyclists alike. Good connectivity with Hyde Park cycle routes and Cycle Superhighway 3 consolidates Mount Walk as an integral part of the cycling network in this part of London.

From the information collected via CCTV, the majority of Mount Walk users behave in a civilised manner. To that respect, the overall behaviour of both cyclists and pedestrians has not changed compared to 2015 and high levels of perceived safety are still evident.

As observed during the 2015 survey (prior to the implementation of the speed calming measures), cyclists are predominant during weekday mornings (07:00 to 09:00) and afternoon commuter peak periods (17:00 to 19:00). During these hours, there is approximately 55% of all cyclist flows for the day and almost 60% of those cycle at speeds above the recommended 8 to 12mph TRP design speed.

There is a clear eastbound direction early in the morning and the opposite in the afternoon. During the morning cyclist peak, pedestrian flows are comparatively low. This predominance of cyclists during the commuter peak hours impacts on the way pedestrians use Mount Walk: pedestrians tend to walk along the edge of the path during these times, with a small proportion deviating onto the grass with the intention of moving away from cyclists. While 2016 pedestrian flows are slightly lower than those observed in 2015, it is difficult to attribute this to changes in cycle flows, which have also reduced. More likely the inclement weather and / or people making changes to their commuting patterns as a result of the construction works, has temporarily reduced pedestrian and cyclist flows along Mount Walk.

At the weekends, the ‘commuter cyclist’ is far less prevalent with the majority of users. Good connectivity with Hyde Park cycle routes and Cycle Superhighway 3 consolidates Mount Walk as an integral part of the cycling network in this part of London.

During weekdays there is a clear dominance of cyclists; however at the weekend pedestrian flows are comparatively low. This predominance of cyclists during the commuter peak times when cycle speeds were at their highest. Similarly, it was noted that as the number of cyclists riding at speeds above 20 mph decreased, the ones riding at 12 mph or below increased. At the weekends, however the overall daily average did not decrease, although the number of cyclists riding at speeds above 20 mph did. It can be deduced that the speed calming measures have a more profound impact on faster riding cyclists (in excess of 16mph), as this is where a speed reduction is observed on both weekdays and at the weekend. It should be noted that inclement weather in the 2016 surveys may also have impacted on the faster riding speeds.

The qualitative behavioural analysis and interactions along Mount Walk showed that the number of potential close interactions between pedestrians and cyclists remained approximately the same for the weekdays as in 2015.1 At weekends, when there are more pedestrians, the number of close interactions actually decreased. While in 2015, there were two cases observed of very close proximity between a cyclist and pedestrian, not a single case was observed in 2016. It can be concluded that the speed calming measures, including the new junction design, information paver and signage, are helping to highlight the need for cyclists to control their speeds along Mount Walk in order to make it safer to all users.

It was also noted that the new junction design (replacing the look right / look left sign) has given pedestrians more confidence to cross with clear visual information of the ‘extension’ of the junction and that Mount Walk is a pedestrian priority route.

Level of Service analysis shows that Mount Walk still provides a sufficient clear width for the observed pedestrian flows for most times of day. As in 2015, it has been observed that both cyclists and pedestrians may occasionally make use of the adjacent grass space to overtake or avoid others when it is especially busy. This pattern has also been observed when an obstruction becomes apparent such as pedestrians stopping to check directions or to assist their children.

Comparative 2015 / 2016 analysis shows that there was a 4% decrease in average cyclist speeds during weekdays: from 12.52 mph in 2015 to 12.08 mph in 2016. Most significant is that the decrease in speed was more prominent during the morning peak times when cycle speeds were at their highest. Similarly, it was noted that as the number of cyclists riding at speeds above 20 mph decreased, the ones riding at 12 mph or below increased. At the weekends, however the overall daily average did not decrease, although the number of cyclists riding at speeds above 20 mph did. It can be deduced that the speed calming measures have a more profound impact on faster riding cyclists (in excess of 16mph), as this is where a speed reduction is observed on both weekdays and at the weekend. It should be noted that inclement weather in the 2016 surveys may also have impacted on the faster riding speeds.

1 For this study, interactions amongst cyclists were not quantified, it is recommended that future studies analyse this type of interaction which will help to have a more comprehensive understanding of users behaviour along Mount Walk.

In 2015, the previous Atkins report speculated that there could be some risk associated with an increase in the number of cyclists and pedestrians on this route, however users now appear to use the grass more frequently if there is a potential close interaction. Part of this could be as a result of the design of the speed calming measures, with 22% (weekday and weekend average combined) of cyclists riding around the rumble strips. This has caused significant damage to the grass in places.

Non-compliance by means of cyclists using paths restricted to pedestrians is mainly observed at weekends, particularly along Flower Walk and Lancaster Walk. It could be a combination of leisure cyclists maybe unfamiliar with the area or ‘keen to explore’ other routes.

Recommendations

Speed calming measures along Mount Walk were designed to improve path users experience. The interventions appear to have helped to reduce the proportion of cyclists travelling in excess of 16mph and in turn the potential for close interaction between pedestrians and cyclists were most likely helping to re-address the balance between pedestrians and cyclists (decrease the dominance of cyclists), increase pedestrian confidence and therefore improve the user experience for all park users.

However, there has been criticism by park users, in particular cyclists, regarding the design / dimensions of the rumble strips. The designs could be reviewed in light of these observations to consider other approaches for reducing cycle speeds, through less severe vertical deflection or other surface material choice. Furthermore, ways of preserving the grass around these rumble strips should be investigated as a matter of priority. Royal Parks does not want any damage to the grass and are assessing the extent of the damage caused by the non-compliance and will take remedial actions (including intervention modifications) where it is deemed necessary. We understand that the design of the interventions was always viewed as a trial and TRP will review the effects of the interventions and modify the interventions / layout as necessary in the future.

Lastly, at the time of the surveys, the Cycle Superhighway on West Carriage Drive had not opened. It would be advisable to observe the impact of the new route on flows and behaviours on Mount Walk to understand wider flows and whether this route remains fit for purpose in the future, in line with TRP Hierarchy of Needs to provide a safe environment to all members of the public.
Conclusions and recommendations

TRP Pathway Code of Conduct and Hierarchy of Needs

Advice for Considerate Cyclists in the Parks

Follow The Royal Parks Pathway Code of Conduct.

Be Considerate
Pedestrians have priority over all other users of pathways, even in areas designated and marked for other purposes. You are asked to use pathways and roads considerately, especially when passing. Give space to others to allow them to pass safely.

Be Safe
Please adhere to all pathway and road markings and signage. ONLY cycle on designated cycle paths - see the website www.royalparks.org.uk or enquire at the Park offices for detailed maps of these routes.

We recommend you wear British Standard approved protective equipment. Always observe the speed limit of the track you are on - that may be as low as 5mph! Our pathways are not suitable for fast travel; if you are in a hurry, you may wish to use another route.

Remain watchful on roads - the scenery may be lovely but you are still sharing these areas with motorists. A number of roadways across the Parks are designated for Park vehicles. Cyclists may only use these roads if they are designated cycle routes.

Be Seen and Heard
Using a bell and/or wearing high visibility clothing will help others be aware of your presence (some park visitors may have a visual or hearing impairment). Use British Standard approved lights in low visibility conditions.

Be Polite
Thank other park visitors who allow you to overtake or pass them. Give way to others to allow them to pass safely.

Stay on Track
Please consider wildlife by keeping to designated cycle paths, particularly in Bushy Park and Richmond Park (National Nature Reserve). Off-track cycling is not allowed in the Parks.

Cyclists
- Ring bell twice to warn others
- Pass people slowly
- Give space to people
- Please keep to cycle paths

Pedestrians
- Avoid walking on designated cycle paths
- Give cyclists space
- Be polite to cyclists

Hierarchy of Needs

The Royal Parks utilises an established hierarchy of priority for the management of the parks. The ‘Hierarchy of Needs,’ listed in order of priority below, reinforces the importance of considering a range of user groups, while prioritising design interventions that support the most vulnerable users:

- Safe access for all visitors
- Vulnerable users
- Pedestrians/walkers
- Runners/joggers
- Horse riders
- Leisure cyclists, skaters, scooters
- Sports and commuter cyclists
- Operational vehicles
- Cars, motorbikes and taxis, Private Hire Vehicles – with the park as a destination
- Through traffic

Working with External Agencies

The Royal Parks works closely with the Metropolitan Police and Local Authorities.

They are involved in consultations, projects and provide training; to help improve cyclist routes and safety within the parks.

Working in Tandem

Companion Cycling
Companion Cycling is a charity that enables people with special needs, regardless of their age or ability, to cycle on specially adapted bicycles in the peaceful surroundings of Bushy Park.

See www.companioncycling.org.uk for details.

Park and Ride
There are cycle hire facilities in Richmond Park in the car park near Roehampton Gate from April-September.

Out of season hire is by arrangement with Sterling Concessions: Phone 07050 209249.

Working with External Agencies

The Royal Parks work closely with the Metropolitan Police and Local Authorities.

They are involved in consultations, projects and provide training; to help improve cyclist routes and safety within the parks.

The Royal Parks Contact Details

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Tel: +44 (0)20 7298 2000
Email: cycle@royalparks.gsi.gov.uk

www.royalparks.org.uk

