

SRP8: Delivery Cyclists

Insights into an overlooked demographic



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26 May 2023

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Document details	
Reference ID:	SUSR1243
Version:	V1.0
Client:	Transport Scotland
Circulation status:	Internal and Transport Scotland
Issue date:	26/05/2023
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Executive summary

This research examined how the growing number of delivery cyclists (those who deliver food and other items to customers using a cycle) in Scotland use infrastructure. It also explored the travel patterns, concerns and needs of this group. The report also presents a number of recommendations from delivery cyclists to make their work safer, easier and more pleasant. We hope that the findings in this report will support transport planners and others to plan for good quality infrastructure that will enable sustainable last-mile delivery. This project was funded by Transport Scotland and carried out by Sustrans.

A total of 163 delivery cyclists in Edinburgh and Glasgow responded to our survey about infrastructure, safety and working needs. In addition, we conducted 20 semi-structured interviews to gain a more detailed understanding of delivery cyclist experiences. The delivery cyclists involved in our study were mostly men, mostly under 45 and more than half with English as their main language.

Delivery cyclists were clear about their views on the infrastructure that is their workplace, although on some topics views varied. Most delivery cyclists interviewed described bumpy, poorly maintained roads, with poor drainage systems, and obstacles such as potholes, cobblestones, manholes and fallen leaves which make cycling unsafe. Delivery cyclists stated that poor road conditions meant they had to be hyperaware to avoid accidents, increasing their mental workload. They also described costs associated with repairs to cycles due to poor road conditions, and a sense of conflict between cars and cyclists when they had to weave around or avoid hazards in the road surface. Alongside road quality, the provision of toilet facilities was also poorly rated by survey respondents as a factor affecting their cycling experience.

While cycle lanes are designed for use by cyclists, the needs of delivery cyclists may differ from the needs of other groups within the cycling population. In interviews, delivery cyclists said that there were protected or unprotected cycle lanes available for the majority of their delivery journeys, though these were frequently blocked by cars. Unprotected cycle lanes (designated by a painted line), when compared to protected cycle lanes (demarcated by vertical barriers such as wands), were perceived to offer benefits of clear separation from traffic, and the ability to move around obstacles and overtake other cyclists. However, unprotected cycle lanes also presented problems, as cars were reported to cut too close in front of cyclists when turning left.

Additionally, while some delivery cyclists we interviewed felt protected cycle lanes created a sense of physical safety, others thought they were dangerous to exit. Delivery cyclists recognised that, when using protected cycle lanes, they encountered fewer obstructions and experienced less pressure to cycle fast to keep up with cars. Delivery cyclists using cargo cycles described difficulties fitting their trailers into the space between the pavement kerb and the vertical barriers, and negotiating narrow or steep entries and exits when accessing separated cycle lanes. Most delivery cyclists thought shared paths with pedestrians were safe and enjoyable to use. Although some felt they were too narrow for both cyclists and pedestrians.

Delivery cyclist interviewees said dropped kerbs (where the pavement dips for a short distance to the level of the road or cycle lane) allowed them to skip traffic, access houses for delivery and escape uncomfortable interactions with drivers. Those using cargo cycles were particularly impacted by the lack of dropped kerbs. They said the absence of dropped kerbs presented challenges to them in doing their job.

In addition to examining the experience of using different forms of infrastructure, we also explored how safe delivery cyclists felt at work. A third (33%) of the delivery cyclists responding to our survey reported that they felt safe cycling with regards to traffic, while over a third (40%) did not feel safe cycling with regards to traffic, and just under a third (27%) were neutral on the topic. Delivery cyclists were asked in our survey about safety when cycling with regards to their personal safety and security, with over a third (38%) of respondents agreeing that they feel safe. Under a third (29%) did not feel safe with regards to personal safety and security, and under a third (29%) gave a neutral response. The factors most likely to make delivery cyclists feel 'much safer' were better-connected cycle routes, more separated cycle lanes, wider cycle lanes and reduced traffic volumes. Interviewees who said they felt safe acknowledged that they were either experienced cyclists or had been delivery cyclists for a long time. For those interviewees who said they felt unsafe, the main source of this feeling was driver behaviour. Moreover, female cyclists mentioned being harassed on the street while doing their deliveries or by shop workers. Delivery cyclists said these perceptions of safety shaped their journey choices, with one saying they avoided taking orders on routes that include fast and narrow roads, and two interviewees said they avoid going through unlit areas at night.

Suggestions for improvements to their working environment offered by survey respondents included better cycle infrastructure, segregation and markings, improved road maintenance, stricter enforcement of speed limits and the highway code, and more 'cycle-aware' education for road users. When asked what would make it easier to deliver by cycle, dropped kerbs, removal of barriers, more cycle parking and clearer signage were found to be the top solutions. Most survey respondents agreed that better access to toilet facilities (85%), more

shade or shelter (79%), and more water fountains (76%) would make delivering by cycle at least a little more pleasant.

Survey respondents considered locations with little or no traffic, that were flat, had cycle lanes, felt safer or were in scenic environments as the most enjoyable to cycle for work in. Most of the locations that respondents least enjoyed cycling in were described as having a lack of appropriate infrastructure, with features such as cobbles, poor lighting and a lack of separation between road/street users mentioned.

Recommendations

The delivery cyclists that took part in this study gave recommendations for improving infrastructure, safety, and experiences with motorised traffic. Capturing recommendations from the delivery cyclists is significant as it brings their voices into active travel discussions, where they have been a rarely heard cycling demographic. This is a valuable set of data for Sustrans, and anyone interested in designing cycling infrastructure, as this group uses cycling for work which provides a unique perspective.

The Sustrans design team have given examples of how some recommendations may be achieved, which is noted in the lists below. The recommendations do not necessarily reflect Sustrans advice or policy.

The report provides further detail and additional suggestions from delivery cyclists which relate specifically to Edinburgh or Glasgow.

Recommendations for infrastructure

Cycle lanes

Recommendations for improving the cycle lane network

- Extend the network of cycle lanes across cities so that there are more cycle lanes giving better geographic coverage. Position lanes so that they link key destinations
- Improve the connectedness of cycle lanes by linking lanes together in a coherent network and addressing areas where lanes end suddenly
- Assess which is the most appropriate type of dedicated cycle lane for different parts of the road network – for example, narrow streets may be better suited to shared road rather than separated cycle lanes

Recommendations for improving all types of cycle lanes (protected/unprotected/shared/separated)

- Make lanes wide enough to accommodate cargo cycles
- Ensure safe and obstruction-free exit and entry points (including measures to deter parking)

- Install signage indicating the distance after which a cycle lane is going to end and when cyclists will be able to join a cycle lane (protected or unprotected) again
- Position signs targeted at motorists just before the end of a cycle lane indicating that they are about to share the road with cycles exiting the cycle lane.

[Sustrans design team note: This could be achieved using signage 150m ahead (depending on speed)]

- Keep lanes well maintained and free of debris, broken glass and obstacles – maintenance of road carriageway (such as use of road sweeping vehicles) should not be to the detriment of cycle lanes
- Position lanes, where possible, away from parking spaces in order to avoid risks from the opening of car doors.

[Sustrans design team note: the Cycling by Design guidance recommends using a buffer zone between the parking spaces and the cycle lane]

Recommendations for improving specific types of cycle lanes

Where **unprotected cycle lanes** are the best option, the key recommendations for ensuring they are fit for purpose for delivery cyclists are:

- Demarcating the lane from the road carriageway with a solid rather than a broken white line to make it clear that motor vehicles should not drive or park in the lane
- Moderating speed limits for stretches of roads with unprotected cycle lanes to reduce the dangers of cycling directly alongside fast traffic.

Where **protected (with wands/bollards/orcas) cycle lanes** are the best option, the key recommendations for ensuring they are fit for purpose for delivery cyclists are:

- Making physical protections visible in the dark (in particular, adding a reflective strip or light at the base of wands/bollards etc)
- Spacing physical protections sufficiently far apart from one another to allow cyclists to safely enter/exit the lane
- Implementing measures to prevent parked vehicles blocking the ends of the lanes.
[Sustrans design team note: e.g. double yellow lines]

For **separated (away from the carriageway) cycle lanes**, the key recommendations for ensuring they are fit for purpose for delivery cyclists are:

- Improving connections between the cycle lane and the carriageway for smooth entrance and exit
- Ensuring access points are wide enough to accommodate cargo cycles
- Installing clear signage to indicate the lanes are for cyclists only and not pedestrians.

For **shared paths with pedestrians** the key recommendations for ensuring they are fit for purpose for delivery cyclists are:

- Making paths sufficiently wide to allow pedestrians and cyclists to comfortably share the space, and, in particular, to allow cargo cycles to manoeuvre around pedestrians
- Installing signage – for example, indicating allocated sides for pedestrians and cyclists – to manage shared use by minimising route-user conflict.

Road conditions and surface

- Prioritise fixing potholes
- Installing a strip of smooth surfacing along the side of cobbled roads
- Improve the road surface within cycle paths where it is uneven or disrupted (by, for example, manholes at different levels), or prone to collecting debris and water (due to being poorly drained).

Lighting

- Improve lighting in parks, along canals and on traffic-free routes, as well as in areas outside the city centre (side streets and residential areas)
- Consider installing lighting to indicate divisions between unprotected cycle lanes and the carriageway.

[Sustrans design team note: eg, surface-mounted solar studs]

Dropped kerbs

- Install more dropped kerbs
- Prioritise dropped kerbs in retail parks and in front of food establishments to enable access
- Prioritise dropped kerbs on narrow streets to provide exit points in cases of cyclist–vehicle tension
- Clearly mark dropped kerbs with road paint in order to prevent obstruction by parked vehicles.

Other built environment features

- More cycle parking
- Better access to toilet facilities
- More water fountain locations
- Places providing shade/shelter for waiting in and/or designated waiting areas
- Places to sit and rest.

Recommendations for safety

- More cycle lanes that are separated from the road, for example with a barrier
- Wider cycle lanes
- Reduced traffic volume and speed
- More dropped kerbs
- More traffic lights tailored to cyclists.

Recommendations for users of motorised transport

Delivery cyclists called on users of motor transport to:

- Get to know the highway code and respect it
- Respect unprotected cycle lanes by avoiding driving in them or parking or loading in them
- Not park at the end of protected cycle lanes as this makes it dangerous for cyclists to exit
- Respect the 'advanced stop lines' (known as 'cycle boxes') in front of traffic lights and allow cyclists to filter into them
- Be aware of opening doors into the path of a cyclist
- Not overtake cyclists at speed, especially on uphill sections
- Be aware of cyclists who are filtering through stationary or slow-moving traffic
- Avoid turning left across the path of a cyclist
- Give cyclists space at all times, in particular when approaching roundabouts and junctions.

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1. Introduction

1.1 Research aims and purpose

The number of delivery cyclists in cities across the UK has been increasing, but there is currently little evidence to inform planners and infrastructure designers how this group of confident, professional cyclists use and experience infrastructure in cities.

This exploratory research project aimed to investigate the current state of knowledge about delivery cyclists in two cities, Edinburgh and Glasgow. The project also aimed to explore:

- Interactions with other delivery cyclists, the general public and food establishments
- The use of, and views about, the infrastructure delivery cyclists use for their work
- Delivery cyclists perceptions of safety and how this could be improved
- Delivery cyclists use of waiting spaces and other facilities, and how delivering by cycle could be made easier and more pleasant
- The most and least enjoyed cycling locations in Edinburgh and Glasgow.

1.2 Who are delivery cyclists?

Delivery cyclists are couriers who use a cycle to transport and deliver food and other items or information. This includes delivery cyclists using pedal cycles, electric cycles and cargo cycles. In the UK, most delivery cyclists work within the 'gig economy', which means that they are usually independent contractors and freelancers rather than employees, and are paid for each 'gig' – for example, each food delivery – they complete. Although the work is seen as flexible, and valued by some for that reason, there has been controversy over gig-workers' low pay and lack of employment rights ([Tassinari and Maccarrone, 2019](#); [Rawling and Munton, 2021](#)).

An increase in the use of cycle deliveries by companies such as Deliveroo, Just Eat and UberEats has contributed to delivery cyclists making up a growing proportion of cyclists on UK roads. The number of delivery cyclists is likely to have risen further during the COVID-19 pandemic, with companies such as Deliveroo signing up thousands of new riders, and more than doubling their total pool ([Deliveroo, 2020](#)). Nevertheless, data on this workforce is limited. Quantifying the number of people working within the gig economy as a whole has proved a challenge throughout Europe. The TUC (Trades Union Congress, the representative body for unions in the UK) reported in 2019 that nearly one in ten workers now do 'platform work' (i.e., paid work through an online platform) at least once a week ([TUC, 2019](#)), while a [European Commission study](#) the same year (2019) calculated that around 9% of the UK workforce carry out platform work. The same study estimated that between 10% and 20% of these platform workers provide transportation and delivery services. However, we do not have data on how many of these undertake cycle deliveries.

1.3 Why we need to know more about delivery cyclists

Research that accurately represents the cycling community is important for understanding how people travel actively. Currently, delivery cyclists are not prominent in active travel research and infrastructure discussions. The lack of data on the experiences and infrastructure needs of cycle delivery workers may lead to this group being overlooked by decision makers and excluded from cycle infrastructure considerations. This could mean that recommendations and policy actions disproportionately benefit other groups of cyclists, despite delivery cyclists spending a significant amount of time using the infrastructure.

The business case for cycle delivery is creating an increased demand for delivery cyclists. The findings of a simulation study focusing on Copenhagen suggest that any delivery fleet would benefit from the introduction of cycle couriers who, when compared to cars, can navigate congestion, travel off-road and achieve shorter journey times in urban locations ([Dupljanin et al., 2019](#)). As well as being faster, delivery by cycle is cheaper than delivery by car and is environmentally friendly, both of which are factors that can increase company attractiveness to stakeholders.

Cycling regularly can enhance mental health as it can reduce anxiety, reduce the risk of feeling stressed and increase self-esteem ([Avila-Palencia et al., 2017](#)), although those cycling for work may not benefit in the same way. Cycling can also improve physical health by increasing fitness levels and helping to prevent diseases such as heart disease, cancer, diabetes and asthma ([Sustrans, 2018](#)). [Thorpe \(2020\)](#) describes the positive social effects of

cycling with regard to equity and social inclusion among the vulnerable and largely migrant food-delivery workforce in Australia.

The economic, efficiency and environmental benefits associated with using delivery cyclists have encouraged organisations to choose this method of delivery. The experience of delivery cyclists as well as the conditions for this part of the economy could be enhanced if steps were taken to improve cycling infrastructure, and to address the needs of this group of workers.

2. Literature review

Most previous research on delivery cyclists has focused on policy, pay issues and business model critiques, and there has been little work undertaken to examine infrastructure and road conditions related to delivery cyclists and their work. In an interview-based study of risks experienced by 25 delivery cyclists in Edinburgh, Gregory found that participants experienced both financial risk and physical risk, with the latter largely due to the environment and infrastructure they encounter (Gregory, 2021). Interviewees described Edinburgh's road conditions as "awful". They said that potholes were common and could cause riders to fall from their cycles. After the death of a delivery cyclist in Edinburgh, riders took part in a memorial walk to draw attention to the dangerous conditions in which they work. In the same study, delivery cyclists stated that their lives are "more valuable than this" when referring to the risks they face when cycling in Edinburgh.

In interviews with nine delivery cyclists in London, Lam found that fast-moving traffic and delivery time pressures create a stressful environment for delivery riders (Lam, 2021). Participants also reported experiencing almost daily near misses, most often with pedestrians. Riders called for more space whilst cycling and more cycle training to reduce the amount of conflict with pedestrians and cyclists. When discussing infrastructure, participants in Lam's study recommended the use of protected cycle lanes; they also said that greater connectivity of cycle lanes was needed. Interviewees pointed out that most cycle routes are linear, which does not match the nature of their deliveries, and that more orbital routes would benefit their journeys. Additionally, Lam found that "better signage and wayfinding would be helpful, especially so riders could keep their eyes on the road instead of their phones". Lam's research highlights gender as a factor in the experience of riders, reporting that male participants were comfortable finding places to rest while female and non-binary riders had more difficulty. Together, the small-scale studies by Gregory (2021) and Lam (2021) provide important insights into the way delivery riders experience infrastructure and cycling. They provide some evidence that the current infrastructure does not meet the needs of delivery cyclists.

Gregory and Lam's work relates to the infrastructure needs of delivery cyclists. The literature on the needs of cyclists more generally has highlighted several barriers for those who commute by cycle or who cycle for leisure. Respondents to a survey of cyclists undertaken by Lee and Moudon (2014) identified barriers such as high traffic volumes, a lack of cycle lanes, no safe places to cycle and no interesting places to cycle. Some but not all of these identified barriers may be relevant to delivery cyclists. For instance, one barrier identified by Lee and

Moudon is not having interesting places to cycle, but the journeys of delivery cyclists are predetermined.

In a 2014 study by [Hull and O'Holleran](#) on safety in the context of leisure cycling, several types of infrastructure were found to be associated with perceived increased safety. Cycle tracks – defined as a “paved path meant for cyclist use alongside major streets, separated by a physical barrier eg, a [kerb] or bollards” ([p. 2334](#)) – were found to have the lowest risk of injury. Shared cycle lanes were found to have the second lowest risk of injury, with cycle lanes defined as “markings on street surface indicating shared lane” ([p. 2334](#)).

Research on cycling for work has largely concentrated on experiences of available infrastructure on routes and in public spaces, but has left gaps in our understanding of road safety, desire lanes, and use of public space by this group. The aim of this study is to start filling some of those gaps by further exploring delivery cyclists' experience of road and public space conditions.

3. Findings

3.1 Who are the delivery cyclists we heard from?

A total of 163 delivery cyclists responded to our survey, with 57% (n = 91) working in Edinburgh and 43% (n = 69) working in Glasgow. The majority of respondents, 82%, were men (n = 131), 11% (n = 18) were women and 1% (n = 2) were non-binary people; 6% (n = 9) did not provide this information.

The sample was mostly comprised of young adults and middle-aged people. The most common age group was 25–34 (46%; n = 73), followed by 18–24 (31%; n = 49), and 35–44 (14%; n = 22). A few respondents fell into the 45–54 age group (4%; n = 7) and the 55–64 age group (3%; n = 4), while the remaining respondents (3%; n = 5) did not report their age.

Three-quarters of respondents (76%; n = 121) did not report any physical or mental health condition or illness that affected their day-to-day activities. However, 16% (n = 26) reported conditions – including mental health conditions, vision and hearing impairments, and breathing, stamina or fatigue-related difficulties – that affected them to some extent. A small proportion of respondents (8%; n = 13) preferred not to report their health status.

Respondents were also asked about their main language. Most (65%; n = 104) reported English as their main language. A wide range of other languages were also reported, with the next two most commonly mentioned being Urdu (5%; n = 8), and Scots (4%; n = 7)¹. A small proportion of respondents (5%; n = 8) preferred not to say. This question was included to help capture migrant participation in delivery cycling.

Overall, our sample of delivery cyclists was predominantly made up of healthy English-speaking young adult men, although other groups in terms of age, gender and main language spoken were represented.

To complement the survey responses, we interviewed 20 delivery cyclists, 13 who worked in Edinburgh and 7 who worked in Glasgow. Four-fifths of the interviewees (16 out of 20) were men, and a fifth (4) were women. Just over half (11 out of 20) said they worked full time as a

¹ Other languages reported include Polish (n = 4), French (n = 3), Chinese (Cantonese, Mandarin, Min Nam etc) (n = 3), Bulgarian (n = 3), Romanian (n = 3), Gaelic (Scottish and others) (n = 2), Punjabi (n = 2), Spanish (n = 2), Bangali (n = 1), Hungarian (n = 1), Italian (n = 1), Latvian (n = 1), Slovakian (n = 1), Tigrayan (n = 1), Turkish (n = 1) and British sign language (n = 1).

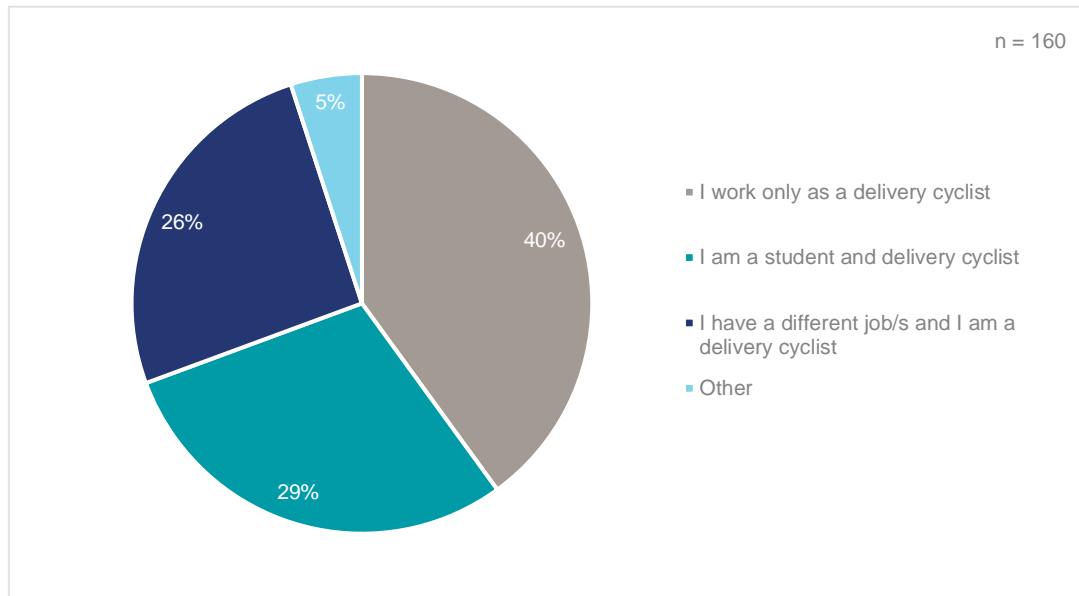
delivery cyclist while just under half (9 out of 20) said they worked part time. Two-thirds of respondents (13 out of 20) did not report any physical or mental health condition or illness that affected their day-to-day activities. Of the remaining interviewees, three mentioned having a disability, and four did not provide information on their health status. In terms of age, eight interviewees were between 18 and 24 years old, five were between 25 and 34 years old, four were between 35 and 44, one was between 45 and 54, and one was between 55 and 64. One interviewee did not provide age information. Four-fifths of the interviewees (16 out of 20) reported English as their main language, with the remaining fifth (4 interviewees) reporting another first language.

3.1.1 Background and work pattern

More than half of the survey respondents (55%, n = 88) combined their work as a delivery cyclist with either another job (26%, n = 41) or being a student (29%, n = 47). Of the remaining respondents, most (40%; n = 64) reported working solely as a delivery cyclist (see **Figure 1**). The remaining respondents (5%, shown as 'Other' in Figure 1) said they volunteer as delivery cyclists or run a delivery cycling business. Most commonly (in 44% of cases), respondents said they had been working as a delivery cyclist for less than a year. A third (33%, n = 52) had been a delivery cyclist for between one and three years, and a quarter (23%, n = 36) had been a delivery cyclist for more than three years.

Items delivered varied, but food from restaurants and cafes was the most common delivery item, followed by groceries from supermarkets, packages, and paperwork (documents).

Figure 1: Which statement best describes you?

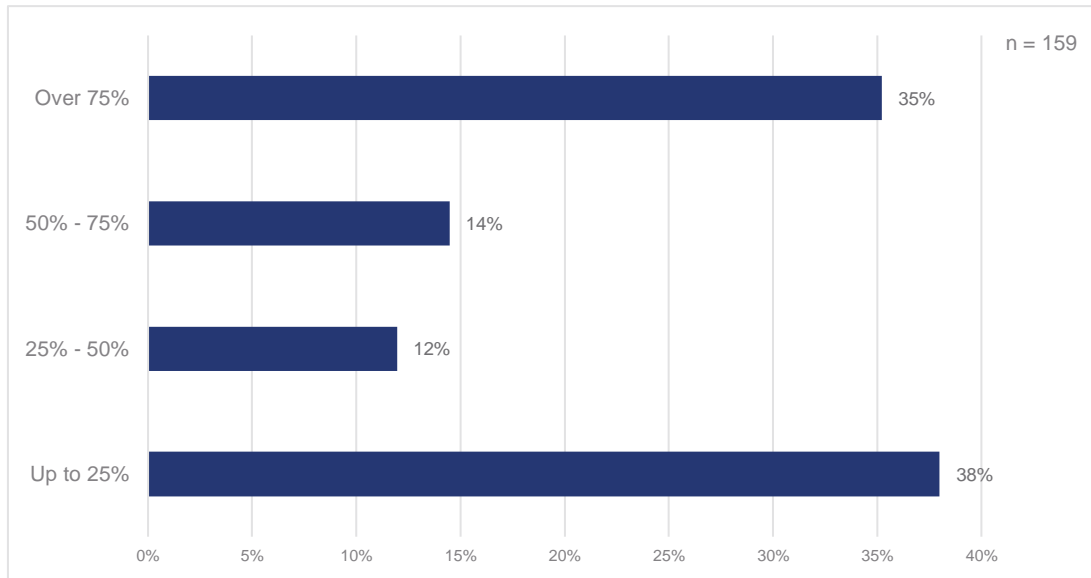


In a typical week, most respondents spent between 10 and 30 hours working as a delivery cyclist. Working patterns were similar for weekdays and weekends, with many respondents reporting that they delivered between 6pm and 9pm. Respondents also reported their weekly mileage. This ranged from 5 to 1000 miles per week; the average was 114 miles per week.²

Respondents were asked about the proportion of their income that came from their delivery work. Just over a third of respondents (38%; n = 61) said that less than 25% of their income came from delivery work, while a similar proportion (35%; n = 56) said that more than 75% of their income came from delivery work (see **Figure 2**). The remaining respondents were split between those who said they earned between 25% and 50% of their income from delivery work (12%; n = 19) and those who said they earned between 50% and 75% of their income from delivery work (14%; n = 23).

² Given the limited existing data on the mileage of delivery cyclist in the literature, it is difficult to say how accurate these mileage estimates are likely to be.

Figure 2: Roughly how much of your total income do you earn from delivering by bicycle (percentage)?

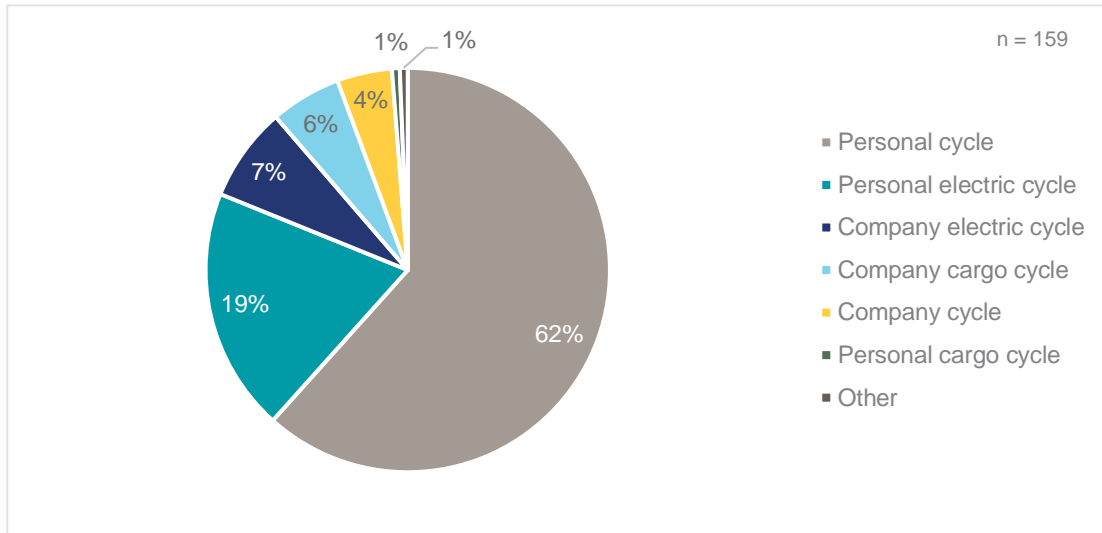


3.1.2 Type of cycle used

Respondents were asked about the cycle they used for their delivery work.

In the majority of cases (81%; n = 129), these were personally owned. Most respondents used manual cycles (66%, n = 105; 62% personally owned and 4% company owned), while 27% (n = 43) used electric cycles (19% personally owned and 8% company owned). Cargo cycles were less common, accounting for 7% (n = 10) of the total, with all but one company owned (see **Figure 3**).

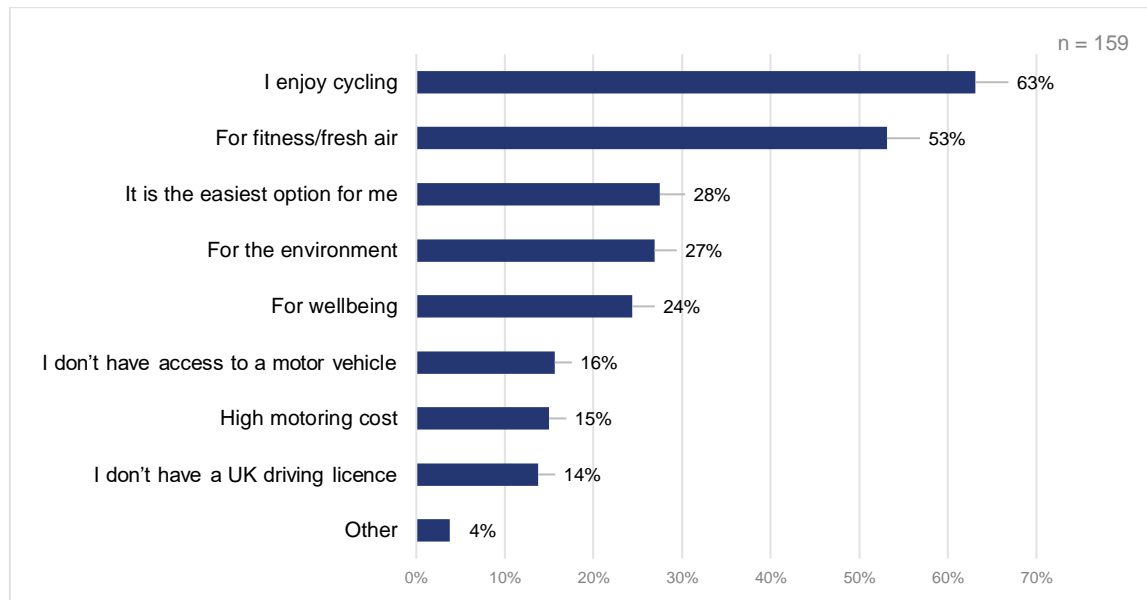
Figure 3: What type of cycle do you deliver with?



3.1.3 Reasons working as a delivery cyclist

Respondents were asked to select three reasons for working as a delivery cyclist from a list of eight possible reasons. The two most common reasons, selected by more than half of respondents, were “I enjoy cycling” (63%; n = 101) and “for fitness/fresh air” (53%; n = 85). Other reasons selected by around a quarter of respondents were “it is the easiest option for me” (28%; n = 44) “for the environment” (27%; n = 43); and “for wellbeing” (24%; n = 39). Reasons selected less often were “I don’t have access to a motor vehicle” (16%; n = 25); “high motoring cost” (15%; n = 24); and “I don’t have a driving licence” (14%; n = 22). A small proportion of respondents (4%; n = 6) selected “other” (see **Figure 4**).

Figure 4: Please tell us why you choose to use a bicycle?



Note on Figure 4: Respondents could choose up to three reasons.

3.2 Delivery cyclist subculture

We explored the delivery cyclists' subculture in the interviews to understand the support riders provide to each other and how and where they socialise (during and outside work). Additionally, we explored experiences with the general public and food establishments, and issues related to reputation and identity. Delivery cyclists subculture is important as it may shape how delivery cyclists use infrastructure. Furthermore, delivery cyclist experiences can provide a starting point for understanding the unique perspective of those who cycle for work.

3.2.1 Community

Most interviewees thought that the sense of community had been stronger previously, when the population of delivery cyclists was smaller. It was felt that the increase in the number of delivery cyclists made it difficult to have a real sense of community. One interviewee made a distinction between two types of delivery cyclist: couriers who really love cycling and those who do the job for other reasons. They commented that “there is definitely a bit more community in the people who are really into cycling” (male delivery cyclist, aged 18–24, Edinburgh). Another interviewee offered a similar view saying that the number of riders they knew had decreased as more people took on the job. Notwithstanding this, most interviewees

agreed that there was at least a sense of mutual recognition when riders pass each other on the road or are waiting together to pick up deliveries.

*“...there’s definitely some camaraderie between delivery cyclists, there’s definitely a lot of respect and nodding and saying hello.”
(male delivery cyclist, aged 18–24, Edinburgh)*

Those that felt that there was a sense of community referred to activities such as fundraising for the Scottish Cycle Messenger Association (SMCA), supporting an injured colleague (a fellow delivery cyclist) and using an online forum for delivery workers to discuss the challenges they face.

Some of the delivery cyclists interviewed suggested that the transitory nature of the role makes it difficult to build a sense of community.

*“Now you know some people and you stop when you see each other, you wait together for deliveries, but it used to be better when there were less cyclists. Now usually people just come and go.”
(male delivery cyclist, aged 55–64, Edinburgh)*

Among the interviewees who felt there was not a sense of community, the primary reason for this view was that the job involves independent working with no designated place for them to meet.

“I rarely manage to connect with other people. It’s a job where it is quite specific, especially if you have orders and don’t really stop and speak with other people, you don’t actually have the chance to really connect with them and discuss much.” (male delivery cyclist, aged 18–24, Glasgow)

“So this is what some of my friends were saying that they thought was a good thing for having a designated waiting zone, that you could build more community and more solidarity and mutual support.” (female delivery cyclist, aged 25–34, Edinburgh)

“...a shelter or a hub for delivery cyclists to congregate in. I think that could be a good idea because it could help to promote some kind of community between delivery cyclists.” (male delivery cyclist, aged 18–24, Edinburgh)

3.2.2 Relationship with food establishments

The experiences of food establishments varied. Some reported positive experiences and a good relationship with the food establishments they had worked for while others reported negative experiences or were neutral about their relationship with food establishments.

Negative experiences were more likely to be reported by Edinburgh-based delivery cyclists than their Glasgow-based counterparts.

Reasons given for regarding relationships with establishments as positive included being given access to toilet facilities and water, as well as having a good rapport with restaurant staff. This was especially true for delivery cyclists who pick up orders from the same restaurants on a frequent basis and have developed a friendly relationship with the staff. Additionally, restaurants sometimes offered them a place to sit and wait for an order to be ready.

“The restaurants are quite good as well. You can quite often wait inside. If your order is going to be five, ten minutes you wait inside the restaurant and it’s warm and you can use the toilets there. In the summer I’ve had quite nice experiences of when it’s been hot, I’ve been offered a cold drink by the restaurant while I wait.”
(female delivery cyclist, aged 18–24, Edinburgh)

However, these good relationships with food establishments seemed to depend to some extent on whether the cyclist spoke English fluently. One native English speaker interviewee reflected on how their good relationship with food establishments was a product of them being able to speak English fluently and being able to develop good relationships with businesses, and on how challenging it must be for delivery cyclists who were new to the job and spoke little to no English to access toilet facilities. This was confirmed by another interviewee (also with English as their first language) who talked about witnessing non-white, non-male, and non-native English speaker delivery cyclists being treated poorly inside establishments. No non-native English speakers we interviewed thought they were treated less well than other delivery cyclists by food establishments however, two mentioned that they were often overlooked and ignored - although this was also an experience shared by some native English speakers.

Other negative experiences of accessing restaurant facilities included being ignored by restaurant staff when the order they were picking up was not ready or dated back to the COVID-19 pandemic when all delivery cyclists had to wait outside no matter the weather, and no one was allowed to use the toilet facilities. One interviewee believed that this practice has persisted to the present day. Another interviewee who reported bad experiences with restaurants nevertheless understood that establishments wanted to prioritise the use of toilet facilities for their customers and could not allow unlimited access.

“I think a lot of restaurants for Deliveroo riders, for food couriers and food apps, they are really not keen on letting riders into the bathroom.” (male delivery cyclist, age not known, Edinburgh)

“I really feel for the Just Eat guys, they’re really marginalised and most of them are certainly not coming from English as a first language, which really makes barriers to being able to use facilities like that.” (male delivery cyclist, aged 45–54, Glasgow)

One interviewee mentioned that there was an unwritten rule that delivery cyclists do not casually walk into formal and ‘classy’ restaurants; rather they are expected to go round the back – where the kitchen is – to wait and pick up orders. This is generally understood and riders try to adhere to this, although one interviewee said there were occasions when they made a mistake and were told to go and wait outside.

3.2.3 Perceptions and reputation of delivery cyclists

Interviewees generally felt that there was a mismatch between the way delivery cyclists viewed themselves and the way they were viewed by the public.

Some interviewees talked about how their work facilitated efficient and quick delivery for customers as well as being a non-polluting delivery mode. As one interviewee put it, “I’m a non-polluting delivery system...I’m doing the job of a van but without the pollution, without the constant problems of slowing things down, pollution, nitrogen oxides, parking” (male delivery cyclist, aged 45–54, Glasgow). They further highlighted that bike deliveries are faster than car deliveries and are sensible for small items, both of which they felt were characteristics that contribute to a positive reputation. Overall, delivery cyclist felt that their service contributes to “the mission of sustainable practices within the food industry” (male delivery cyclist, aged 18–24, Edinburgh).

In contrast, the accounts given by interviewees suggested that public perceptions of delivery cyclists were somewhat different: mostly mixed or positive but sometimes unfavourable. One interviewee explained that the varying reactions they got from the public – sometimes positive and welcoming but at other times aggressive – often depended on people’s personal experiences with delivery cyclists who use cargo cycles and the nature of the public space.

“There’s definitely a lot of people in Edinburgh who love it and who are like this is great and we want to see more of it, specifically talking about cargo bikes and then some who are just confused by this new machine [ie, cargo bike] that they’ve never seen before.

It's definitely mixed.” (male delivery cyclist, aged 18–24, Edinburgh)

“I would say it's hard to tell with pedestrians because most of the time you bike by them and they either ignore you or they stare at you in awe because you're such a big [cargo] bike full of stuff.” (male delivery cyclist, aged 18–24, Edinburgh)

Interviewees also thought that, because there are now so many delivery cycles on the road, people have become used to seeing them and have accepted their presence to some extent.

“I feel like general members of the public are basically neutral. I think there's such a density of delivery cyclists these days, it's part of the furniture almost.” (male delivery cyclist, aged 18–24, Edinburgh)

Additionally, interviewees saw Edinburgh as a city in which a lot of people are aware of climate change issues.

One interviewee reported that delivery cyclists generally have a reputation for always being in a hurry and not observing the rules of the road so the public are pleasantly surprised when delivery cyclists stop for them at crossings.

“I think generally delivery cyclists have quite a bad rep[utation] for just being in a rush all the time and not respecting rules of the road. So, when you do stop at a pedestrian crossing or a zebra crossing and you let them go and they probably know that you're in a rush because they can see that you have a bag or whatever, some people can be quite thankful which is quite sweet and is quite a positive interaction.” (male delivery cyclist, aged 18–24, Edinburgh)

Finally, one interviewee raised another reputational issue regarding how they believed the work of delivery cyclists, or delivery work in general, is viewed as a non-worthy occupation or “not a real job” by many people. They added that delivery cyclists are stigmatised and seen as low class. This interviewee also worked as a lecturer and, according to them, are treated differently in their different occupations.

“It's funny because I'm a lecturer, so when I'm a lecturer, people treat me a certain kind of way and then when I'm delivering, I get

*treated completely differently but it's like you kind of don't fit in.”
(Edinburgh)*

3.2.4 Delivery cyclist identities

The interviews conducted found that delivery cyclists classified themselves as ‘career’ or ‘transitory’ delivery cyclists based on their motivation for doing the job, the level of income they got from the job, their knowledge of the city they work in, and their sense of community.

Table 1 highlights the key differences between career and transitory delivery cyclists for each theme.

Table 1: Classification of career and transitory delivery cyclists

	Career delivery cyclists	Transitory delivery cyclists
Motivation	Became a delivery cyclist because they love cycling and are passionate about it. <i>“...there's definitely couriers that really love cycling and then there's couriers who do it for other reasons ...” (male delivery cyclist, aged 18–24, Edinburgh)</i>	Became a delivery cyclist for other reasons. <i>“I needed more money, so I have a full-time job but I deliver in the evenings.” (female delivery cyclist, aged 25–34, Edinburgh)</i>
Income for delivery work	Work as a delivery cyclist on a full-time basis and earn most of their income from delivery work. <i>“I quite like cycling so it was an obvious way to earn money and then it's just been very flexible and quite easy to fall into and just do ...” (male delivery cyclist, aged 18–24, Edinburgh)</i>	Work as a delivery cyclist on a part-time basis and earn some income from delivery work to top up other income, or are students. <i>“...it's quite big, especially amongst students because it's low commitment and there isn't a schedule of work for you, so you can go whenever you want when you have free time.” (male delivery cyclist, aged 18–24, Edinburgh)</i>
Knowledge of the city	Have a good knowledge of the city (and Google maps), which helps them to better navigate their delivery routes and improve their delivery time.	Mainly use Google maps to navigate the city. <i>“...specifically Deliveroo and food riders, who are pinned to their phone and will follow Google Maps</i>

	<p><i>“...sometimes the maps on the app don’t even know about certain shortcuts that you can take, so you get paid a little bit more than you would because the app thinks you’re going a longer route than you actually are going. So you feel like you’ve been smart because you know about these shortcuts that a cyclist can take.” (male delivery cyclist, aged 55–64, Edinburgh)</i></p>	<p><i>to the letter...” (male delivery cyclist, age not known, Edinburgh)</i></p>
Sense of community	<p>Have a good sense of community.</p> <p><i>“...there is a hard core of cyclists that have been delivering for long years and they know each other. I think there used to be a better sense of community when there were less riders.” (female delivery cyclist, aged 25–34, Edinburgh)</i></p>	<p>Friendly and cordial but less sense of community.</p> <p><i>“It’s quite friendly but there’s no kind of communication between them other than that.” (female delivery cyclist, aged 18–24, Edinburgh)</i></p>

3.3 Infrastructure

Survey respondents and interviewees were asked about their experience of using different infrastructure while cycling for work in their city. This section reports on experiences of using unprotected, protected and separated cycle lanes, shared paths with pedestrians, and dropped kerbs, and views on the position and connectedness of cycle lanes, road conditions, and lighting. It also presents recommendations for improving different types of infrastructure. See the [recommendation section](#) near the start of the report for an overview of these.

3.3.1 Infrastructure in general

Survey respondents were asked to rate (from very poor to very good) their experience of using a range of different road and cycling infrastructure features and cycle parking facilities in their city. The results are presented in **Figure 5**. Toilet facilities and the quality of roads were the lowest rated features (ie, these features received the lowest proportions of good or very good ratings), while road markings and signs were the most highly rated features (ie, these features received the highest proportion of good or very good ratings).

Figure 5a and **Figure 5b** show the separate ratings for infrastructure features in Edinburgh and Glasgow. In Edinburgh toilet facilities received the poorest rating, with quality of roads receiving the second poorest rating (see **Figure 5a**). In Glasgow, the same features received

the two poorest rating, but the order was reversed, with quality of roads receiving the poorest rating and toilet facilities the second poorest rating (see **Figure 5b**).

Figure 5: Rating of different infrastructure features (all respondents)

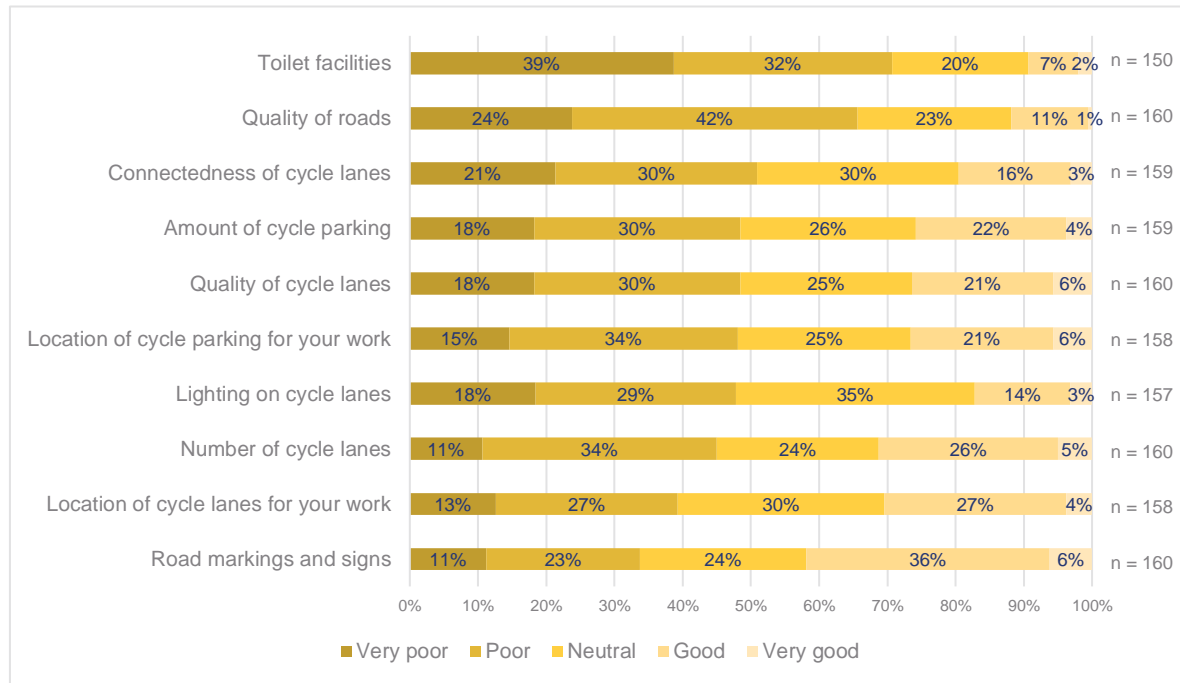


Figure 5a: Rating of different infrastructure features in Edinburgh

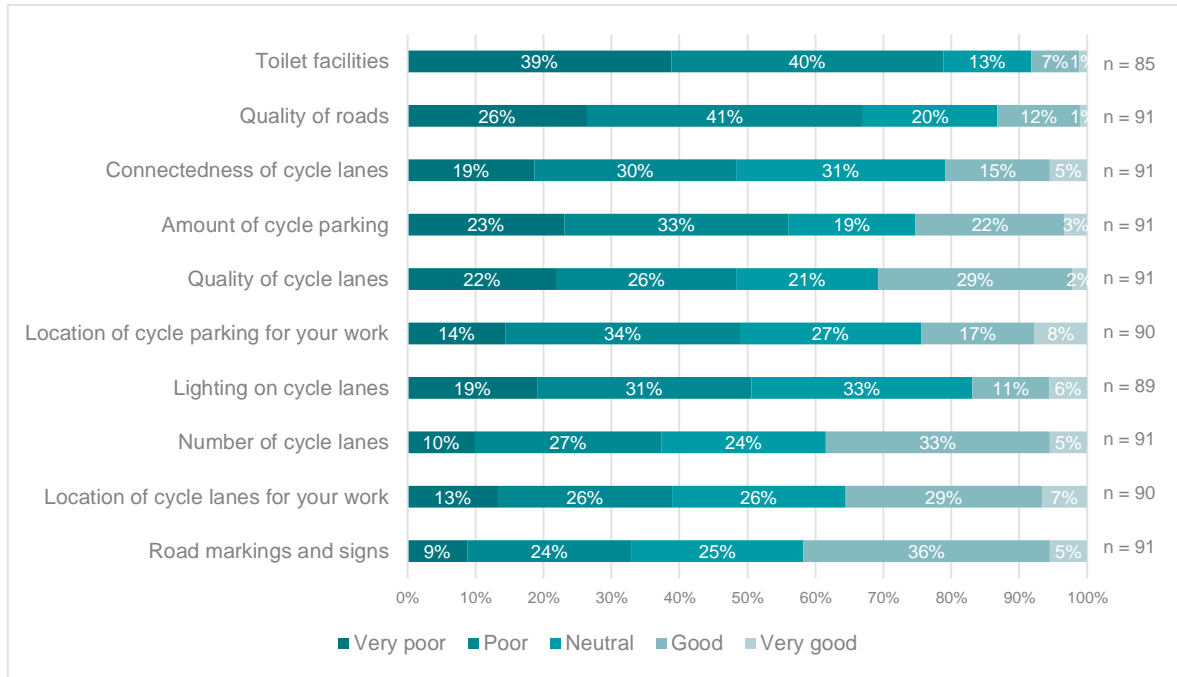
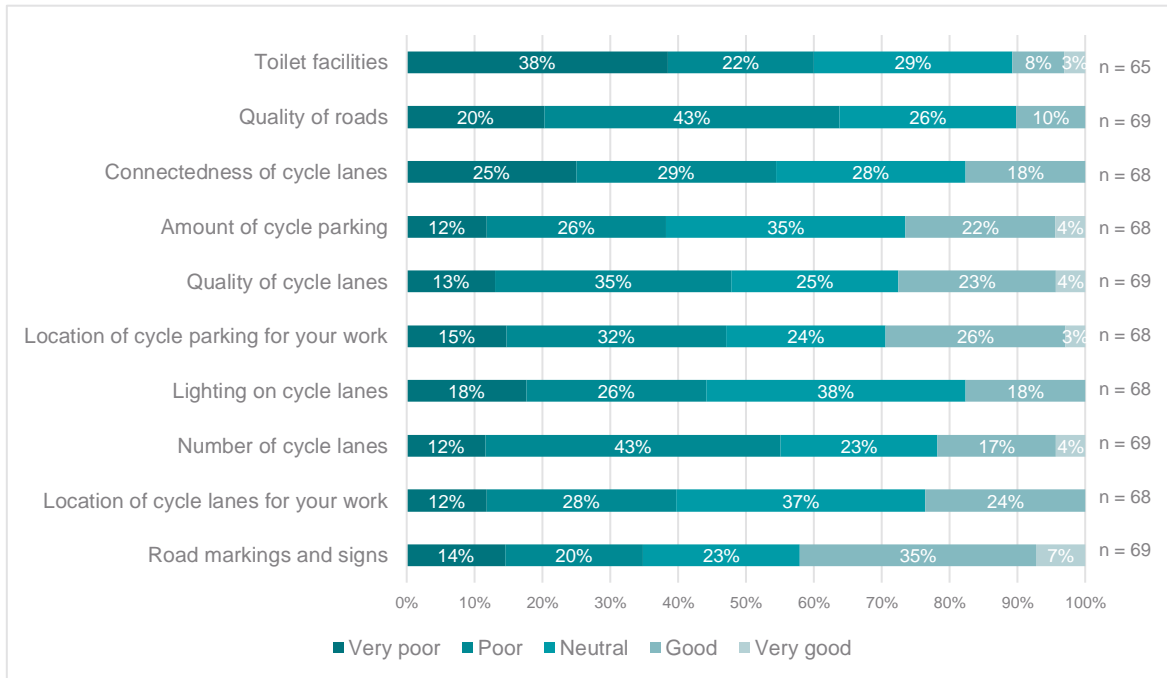


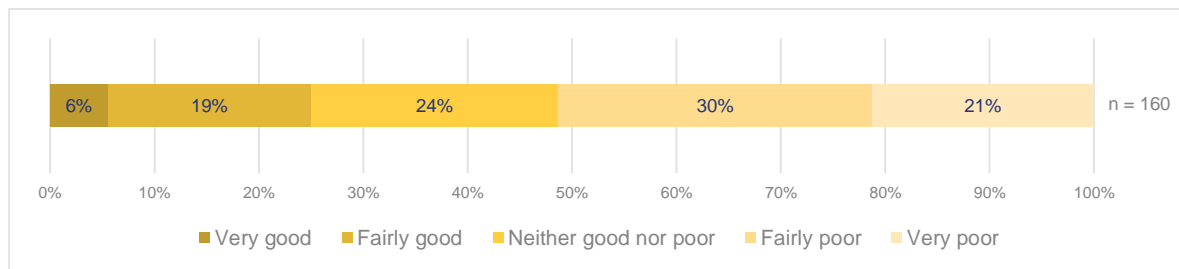
Figure 5b: Rating of different infrastructure features in Glasgow



3.3.2 Road conditions

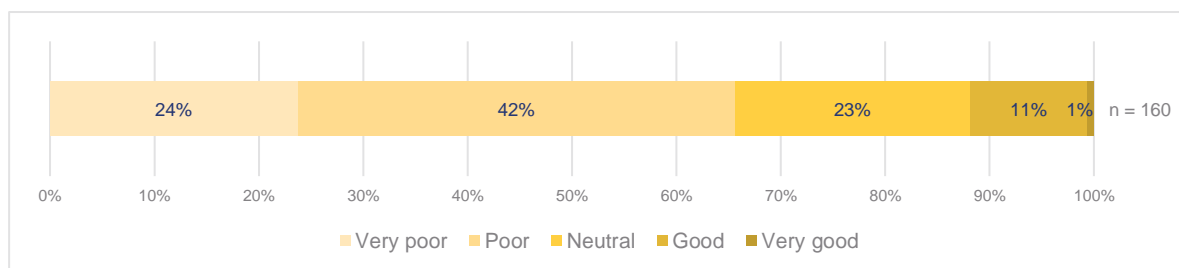
In the survey, 51% of respondents rated the road conditions they use at work as “fairly poor” or “very poor”, 25% said the road conditions were either “fairly good” or “very good”, and the remaining 24% said they was “neither good nor poor” (see **Figure 6**).

Figure 6: How would you rate the road conditions for delivery cyclists in the city you work in? (all respondents)



The majority of survey respondents also rated the overall quality of roads as “very poor” or “poor” (66%), with only a small proportion rating the roads as either “good” or “very good” (12%). Just under a quarter (23%) rated them as “neutral” (see **Figure 7**).

Figure 7: Rating of quality of roads (all respondents)



When asked about road conditions in the interviews, delivery cyclists focused on a range of issues including bumpiness, poor maintenance, poor drainage and obstacles such as potholes, cobblestones, manholes and fallen leaves, all of which made it unsafe for them to cycle.

Streets with cobblestones were described by interviewees as slippery, especially when wet, and uncomfortable to ride on. One delivery cyclist also mentioned that cobblestones can damage the cycle. Those using cargo cycles stressed the particular dangers for them of cobbles on inclined streets because of the weight of their cycles and the difficulty of working the brakes; one cargo cyclist recalled having an accident on a cobblestone street. As a result, delivery cyclists said they needed to ride more slowly on such streets or plan a different – sometimes longer – route. Delivery cyclists said that putting a strip of smooth surface along the side of cobblestone streets would ensure a safer, easier cycle.

“I don’t like them [streets with cobblestones], they are extremely dangerous. There is a street going up to the Royal Mile, it’s quite new, they did it a couple of years ago, it’s very slippery. It doesn’t make sense it’s so slippery because it’s for cars, everything they do is for cars.” (female delivery cyclist, aged 25–34, Edinburgh)

Manholes that were not at the same level as the road or cycle lane were identified as dangerous and damaging for their cycle by some delivery cyclists. They mentioned that manholes were usually near the edge of the road where delivery cyclists rode and that they generally avoided them, especially on downhill roads.

All the delivery cyclists interviewed saw potholes as dangerous; especially when it rained as they filled with water and became more difficult to see. Some said that potholes made their job more difficult as they wanted to avoid them, but at the same time they could not make sudden moves because they were carrying food.

“With the quantity of rain that we get, when it rains it hides all the potholes and then you’re in a whole world of pain. You’ve no idea what’s underneath the road and you’re just hoping for the best and holding on” (male delivery cyclist, aged 45–54, Glasgow)

“It [the poor road conditions] puts me in danger and it costs me money because I get punctures or I break wheels or I fall off. It’s even more dangerous at night so I’ve got to remember where the potholes are.” (male delivery cyclist, aged 55–64, Edinburgh)

It was common for delivery cyclists to say that fixing potholes would make a great difference to their deliveries; one delivery cyclist who did not say this mentioned that their cycle had very good suspension.

Vegetation and fallen leaves on the road were mentioned as problems by some delivery cyclists who said that these are not swept often enough, are left to disintegrate on the road and are pushed from the road into the cycle lane when they are cleared. Interviewees found wet leaves to be particularly dangerous when going downhill.

“It’s more dangerous to cycle in a cycle lane sometimes because of the debris. For example, now in autumn it’s just full of leaves, it’s slippery.” (male delivery cyclist, aged 35–44, Glasgow)

“Braking on these leaves is like braking on ice, you just go flying. The council do not clear away the leaves, they just wait for them to disintegrate.” (male delivery cyclist, aged 55–64, Edinburgh)

The survey results suggest some differences of experience between those working in Edinburgh and those working in Glasgow. Respondents working in Edinburgh most commonly rated road conditions as “fairly poor” (34%), whereas those working in Glasgow most commonly rated road conditions as “neither good nor poor” (30%). This might suggest delivery cyclists in Edinburgh encounter poor conditions more frequently than those in Glasgow. However, a quarter (25%) of delivery cyclists in both cities rated road conditions positively (either “very good” or “fairly good”).

Figure 8a and **Figure 8b** show the breakdown of ratings for road conditions and road quality for Edinburgh and Glasgow. **Figure 8a** shows a breakdown of responses regarding opinions about road conditions. It shows that Edinburgh-based respondents were more likely than Glasgow-based respondents to rate the local conditions as “very poor” (67% compared to 64%). **Figure 8b** shows a breakdown of the responses regarding opinions about the quality of roads. It shows that a slightly higher proportion of respondents working in Edinburgh rated the quality of the roads as “poor” or “very poor” (67%) compared to those working in Glasgow (64%).

Figure 8a: Rating of road conditions in Edinburgh and Glasgow

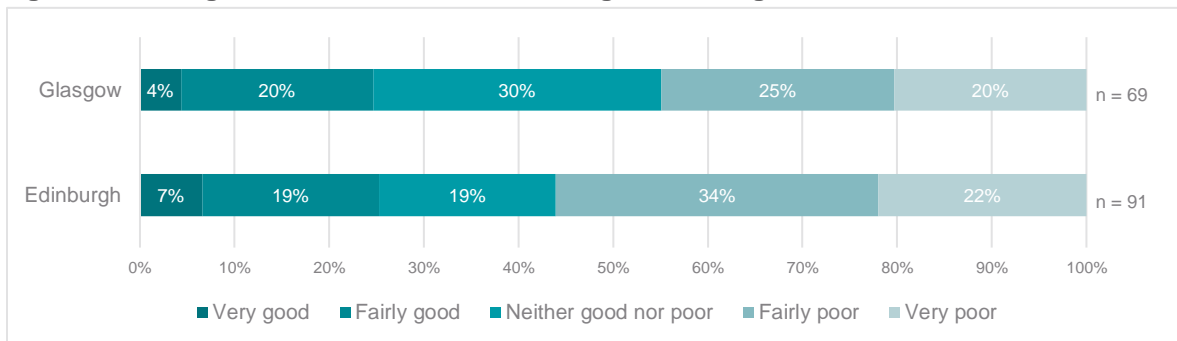
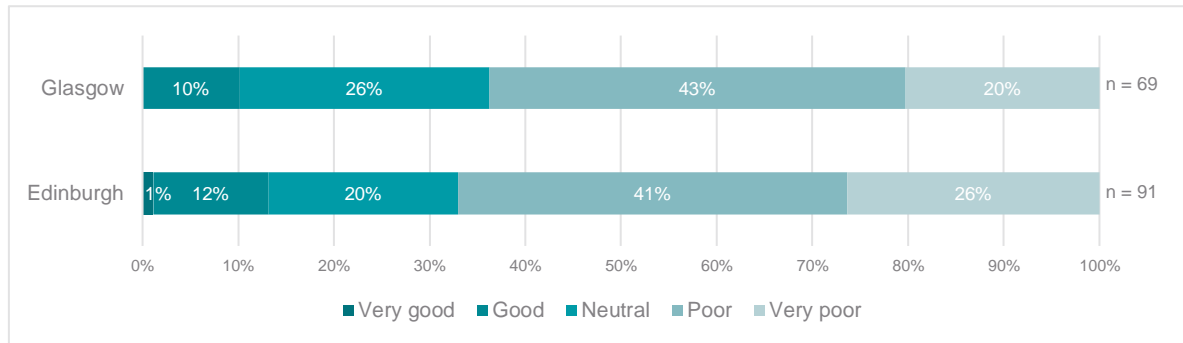


Figure 8b: Rating of quality of roads in Edinburgh and Glasgow



Implications and recommendations for practice

Poor road conditions and poor quality of roads affect delivery cyclists because they need to be extra aware to avoid accidents. It also costs delivery cyclists money to deal with repairs like punctures or broken wheels. Moreover, the need for cyclists to weave around potholes, or to stay outside of a cycle lane with too many obstacles causes frustration for car drivers and adds to the conflict between motorists and delivery cyclists.

The recommendation from delivery cyclists that took part in this study was to prioritise fixing potholes, as this was the obstacle consistently mentioned by delivery cyclists as having the most effect on their commute.

3.3.3 Unprotected cycle lanes

Unprotected cycle lanes are cycle lanes at street level defined by painted lines only, with no physical protection (eg, orcas, wands, bollards) between them and the road. Overall, the delivery cyclists interviewed perceived unprotected cycle lanes as good and well marked. Delivery cyclists said that cycle lanes (unprotected or protected) were available for the majority of their delivery routes. However, they were often blocked by parked cars which meant that cyclists had to ride around them or dismount their cycles and walk around them or try to rejoin the traffic in the main carriageway which they felt was not always safe.

The perceived benefits of unprotected cycle lanes were that they allowed delivery cyclists to move freely, in a dedicated space separate from cars. Some interviewees mentioned that unprotected cycle lanes were a better option than protected cycle lanes because they allowed them to navigate in and out of the lane if needed – for example, when turning right or avoiding obstacles such as potholes, leaves and broken glass.

“I like those [unprotected cycle lanes]. They give us a space and we can navigate out of that space if we need to.” (male delivery cyclist, aged 35–44, Glasgow)

Other interviewees noted that unprotected cycle lanes made it easier to overtake other cyclists going at a different pace, and were key to cycling more quickly between deliveries, especially in heavy traffic. However, one interviewee thought that this kind of infrastructure made more sense on less busy roads, where there was less need to be physically protected from vehicles.

The main identified disadvantages of unprotected cycle lanes were obstructions created by stationary vehicles, and lack of protection from direct contact with motor vehicles. With regard to obstruction by stationary vehicles, interviewees said that unprotected cycle lanes were frequently blocked by parked cars and by lorries loading and offloading goods. With regard to lack of protection from traffic and feeling unsafe, interviewees shared experiences of cars crossing into unprotected cycle lanes, leaving a very narrow lane for them to use. This was said by some to be a common occurrence when a new cycle lane was installed, reducing the road space for cars. Interviewees reported that cars repeatedly got too close to them, and that they were often cut off by cars turning left even though the unprotected cycle lane was clearly demarcated with a painted line.

“My experience is that you tend to get close passed quite a lot [by cars]. You tend to get cut off, even though they’ve changed the highway code rules, they’re not supposed to turn across us anymore, they still do it.” (female delivery cyclist, aged 25–34, Edinburgh)

Delivery cyclists perceived unprotected cycle lanes positioned next to parked cars as dangerous, with some recalling experiences of car drivers or passengers opening car doors without looking. Because of this, some delivery cyclists said they preferred to ride on the road with cars.

Delivery cyclists using cargo cycles found it particularly challenging to use unprotected cycle lanes because of their width. They said that cargo cycles were too big to fit within the lane, and they preferred to ride with the cars. The problem with this, according to one interviewee, was that car drivers behaved more aggressively because the delivery cyclist was not in the cycle lane.

Implications and recommendations for practice

Obstructed or partially blocked unprotected cycle lanes force delivery cyclists to abruptly merge with moving traffic which can be dangerous. A group of delivery cyclists that took part in this study recommended the speed limit for cars should be moderated, especially outside the city centre where cars tend to drive faster. They said this would make them feel safer when cycling next to cars in an unprotected cycle lane.

In addition, interviewees suggested that unprotected cycle lanes should be clearly marked with a solid line instead of a broken white line to make it clearer that cars are not allowed to park there. This suggests a preference for mandatory over advisory cycle lanes.

Some delivery cyclists suggested that cycle lanes might not always be the best way to improve safety for cyclists. For instance, they pointed out that on narrow streets where car lanes need to be reduced to fit in a cycle lane, motor vehicles often override the cycle lane and push cyclist into the kerb. In such cases, it was suggested that a road shared by cars and cyclists, clearly marked by painted signs on the road, might be a better option.

3.3.4 Protected cycle lanes

Protected cycle lanes are cycle lanes at street level with physical protection (eg, orcas, wands, bollards) from motorised traffic. The delivery cyclists we interviewed were divided in their views on protected cycle lanes. Some were in favour of protected cycle lanes, mentioning that the presence of orcas, wands and other types of physical separation worked well to protect the lane from traffic. In contrast, others perceived protected cycle lanes as difficult and dangerous to exit. One interviewee referred to them as a “pseudo safe space” and argued that they were not needed as clearly painted unprotected cycle lanes were enough.

More than half of the interviewees commented on protected cycle lanes, and there was agreement among this group that this infrastructure was more appropriate for busier and faster moving roads than for quiet roads.

The perceived benefits of protected cycle lanes were physical protection from cars and a more enjoyable and obstruction-free ride. Delivery cyclists said that protected cycle lanes made journeys safer and more enjoyable, with some saying that they were more likely to make deliveries in areas where there were protected cycle lanes. One interviewee reflected that protected cycle lanes made a difference to their journey because they could get a “clear run” without obstructions (eg, parked cars). Moreover, some said that protected cycle lanes were important in protecting them from aggressive drivers and reducing the pressure to cycle at a fast pace to keep up with the cars.

In contrast to the points above, some delivery cyclists considered protected cycle lanes, as they experienced them, unhelpful for their work. They explained that the physical protections in place were usually too close together which made it hard and dangerous to exit the cycle lane when turning right or avoiding obstacles. Moreover, the physical protections themselves were perceived as dangerous as they lacked lighting or a reflective strip at their base, making them difficult to see at night. Another perceived problem with physical barriers was that they made it difficult for delivery cyclists to rejoin the traffic flow; instead of merging slowly and gradually, delivery cyclists said they were forced to exit the protected cycle lane and join the traffic flow suddenly and at an abrupt angle to avoid hitting the physical protections, which made them feel unsafe and exposed.

Delivery cyclists discussed the problems presented by obstacles such as glass, debris, drains and potholes in protected cycle lanes. Interviewees particularly mentioned broken glass at weekends, and debris during autumn and winter. The problem of glass and debris was compounded by cleaning vehicles pushing leaves and litter to the side of the road, which in turn obstructed the cycle lane. Interviewees also highlighted the presence of drains and potholes in protected cycle lanes and the challenges in exiting the protected cycle lane to avoid them because of the physical barriers that delineated the lane from the road. Moreover, half of the delivery cyclists recalled experiences of cars being parked at the end of the protected cycle lane, forcing them to stop and exit the infrastructure.

Delivery cyclists using cargo cycles found protected cycle lanes to be too narrow as they struggled to pass the physical protections without scraping them with the trailer. Similar to their experience with unprotected cycle lanes, those using cargo cycles often chose to ride with the traffic and, as a consequence, reported receiving aggressive comments from drivers who believed that delivery cyclists should stay in their designated space.

“After lockdown Edinburgh put in some very good ones [cycle lanes] protected by the wands and they are on long stretches...I do use those quite a bit...that’s made my journey much safer and enjoyable.” (male delivery cyclist, aged 55–64, Edinburgh)

“The problem is they [protected cycle lanes] make it quite dangerous. If you are going to turn right, you’ve got to navigate getting out of the cycle lane, going in the space between the bollards and the cars coming behind you...it’s quite dangerous.” (male delivery cyclist, aged 35–44, Glasgow)

Implications and recommendations for practice

Physical barriers (eg, orcas, wands, bollards) for protected cycle lanes placed too close together make it difficult and potentially unsafe for delivery cyclists to exit the lane in the event of encountering obstacles or when turning right. Delivery cyclists would like to see protected cycle lanes kept clear, and priority being given to fixing potholes and sunken manholes. They would also like to see greater distances between the physical barriers or bigger spaces provided at regular intervals to allow for easier exit and a smoother merging with traffic.

Delivery cyclists also recommended placing a reflective strip or installing a light at the base of physical protections to make them more visible in the dark. They thought that lights on the top of these protections were useful, but having lights on the base would be even more so. They also suggested disallowing parking on the road at the end of protected cycle lanes and indicating this with painted signs on the carriageway..

3.3.5 Separated cycle lanes

Separated cycle lanes are physically separated from motorised traffic by being at a different level from the road, often using part of the pavement. Their use is exclusive to cyclists. Just a few interviewees commented on separated cycle lanes offering a mix of views.

The main benefit of separated cycle lanes reported by delivery cyclists was an increased perception of safety. Some said they felt safer cycling on a separated cycle lane than on the road.

However, some interviewees highlighted challenges in using separated cycle lanes linked to connectivity and pedestrian use of the lane. On the first point, delivery cyclists noted that the connection between separated cycle lanes and the road could be poor and not well designed. Separated cycle lanes at some locations were said to end abruptly without a smooth merge with the road. With regard to pedestrians, there were several reports of near misses or having to weave in and out of people, with people treating the separated cycle lane as part of the pavement.

“They [pedestrians] just assume it’s the sidewalk, so you’re constantly having to weave in and out of people. There’s always people walking on the cycle lanes, especially if it’s a cycle lane that’s properly off the road.” (male delivery cyclist, aged 25–34, Glasgow)

Delivery cyclists using cargo cycles mentioned that it was almost impossible for them to use separated cycle lanes as the entries and exits were quite narrow and steep.

Implications and recommendations for practice

Separated cycle lanes provide a safe off-road option for delivery cyclists, in some cases influencing the deliveries they choose to do. Nevertheless, they are not easily accessible for cargo cycles and are often used by pedestrians.

The recommendations from the delivery cyclists are to improve connectivity between the separated cycle lane and the road to ensure a smoother access to and from the road, to widen the access points to accommodate cargo cycles, and to ensure clear signage that indicates the lanes are for cycles only.

3.3.6 Shared paths with pedestrians

Shared paths with pedestrians are paths designated for the use of both cyclists and pedestrians. They are off-road and completely segregated from traffic, often connecting the centre of a city with outer areas and following the shape of landmarks such as rivers, old railway tracks etc. For the most part, shared paths with pedestrians were perceived as safe by the delivery cyclists we interviewed. Interviewees who commented on them generally saw them as a better option than sharing the road with cars, although some noted that shared paths work as long as pedestrians and cyclists are aware of the fact that it is a shared space.

The benefits of shared paths noted by delivery cyclists were increased safety and an improved riding experience. Some interviewees said they felt safer cycling on a shared path than on the road. Interviewees also said that they enjoyed cycling by the river or on a quiet path, and that in some cases the option of cycling a quieter route influenced whether they chose to do a delivery or not, especially when the deliveries were further away from the centre of the city.

“I like it more than the roads because I feel safer riding among pedestrians than next to cars.” (male delivery cyclist, aged 18–24, Glasgow)

“I like the totally separate cycleways that we have. They are very good and because of the way it works with the deliveries, you can kind of choose whether to accept a job or not and quite often I quite like that little cycle by the river even if it’s a further away one.” (male delivery cyclist, aged 55–64, Edinburgh)

However, some interviewees said that shared paths with pedestrians were not always wide enough to give space to cyclists and pedestrians at the same time. Interviewees stated that the busier the shared path was, the more challenging it was to navigate and the more likely it was that there would be collisions between cyclists and pedestrians.

“It’s not clear where the division is and you get people just wandering absentmindedly. I have to ring my bell and wait for them [pedestrians] to get out, obviously you don’t want to hit anyone walking about.” (male delivery cyclist, aged 18–24, Edinburgh)

Delivery cyclists on cargo cycles with storage at the front found it particularly difficult to use shared paths with pedestrians, because of the dimension of their cycles and the difficulty of moving the cycle and manoeuvring around pedestrians.

Implications and recommendations for practice

Delivery cyclists recommended that the space within shared paths with pedestrians should be split between pedestrians and cyclists, and marked accordingly on the path surface, and that signs with path etiquette (eg, “left is best”) should be put in place.

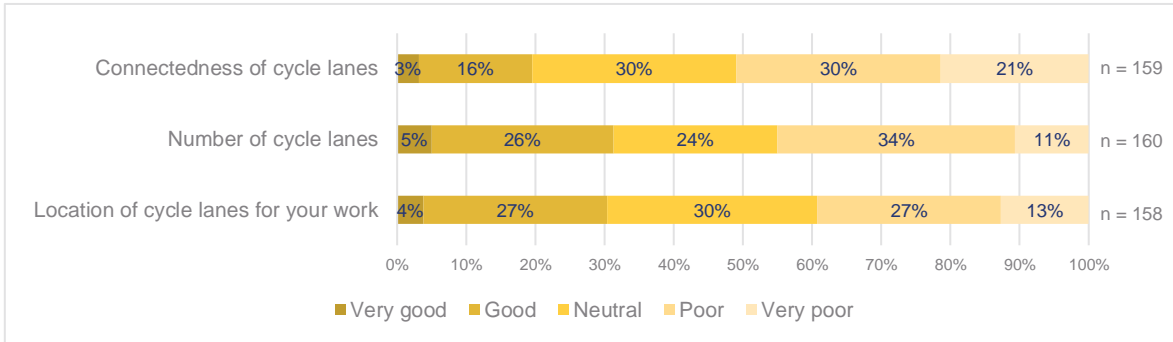
3.3.7 Position and connectedness of cycle lanes

The position of cycle lanes refers to how well spread out the cycle lanes are in the city, while connectedness means how well linked the lanes are.

Just over half (51%; n = 81) of survey respondents rated the connectedness of cycle lanes in Edinburgh and Glasgow as either “poor” or “very poor”, whilst a somewhat lower proportion (39%; n = 76) rated the location of cycle lanes in relation to their work as “poor” or “very poor”. This might suggest that general connectedness is viewed slightly more negatively than the utility of cycle lanes for delivery work. The number of cycle lanes was rated as “good” or “very good” by less than a third (31%; n = 50) of survey respondents.

Figure 9: Rating of connectedness, number, and location of cycle lanes

Amongst interviewees, some delivery cyclists perceived cycle lanes and cycle paths to be well positioned and evenly spread out in the city, while others described their positioning as



random and sporadic, with a clear lack of presence in the centre of the city.

Delivery cyclists from both Edinburgh and Glasgow perceived the connectedness of cycle routes to be positive and well planned. They described the path network as convenient and valuable, and said that the paths linked social places and main roads. Sauchiehall Street in Glasgow in particular was mentioned as a valuable link between the City Centre and Queen’s Park; in Edinburgh “off-road ways down to Leith” received similar positive comment.

“It has [Edinburgh] a lot of cycle paths going to very useful places and it covers all of the city, even not just the well-off parts.” (male delivery cyclist, aged 55–64, Edinburgh) [When asked about position of cycling routes]

In contrast, other delivery cyclists referred to poor connectedness of cycle routes. They attributed this to a lack of strategy when planning cycle lanes. They also highlighted cycle lanes stopping for no apparent reason, something that was seen as particularly dangerous as cyclists had to merge with traffic without warning and without being able to ease into it.

“You just cycle and then all of a sudden there is a cycle lane for 200m and then it disappears, when the cycle lane ends, you enter the road where the cars drive.” (female delivery cyclist, aged 25–34, Glasgow)

Implications and recommendations for practice

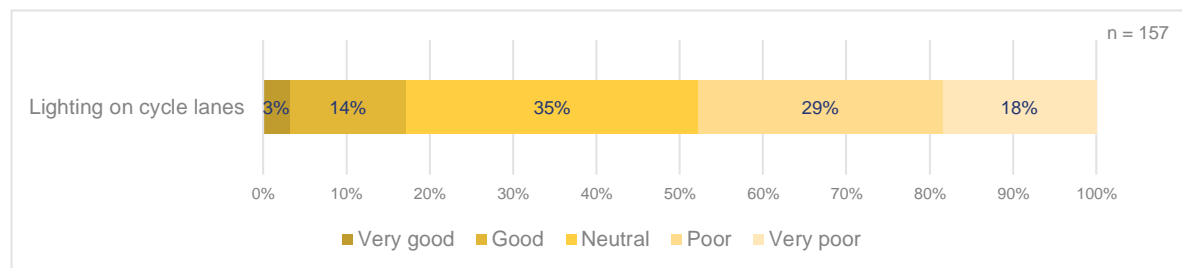
The main recommendation from delivery cyclists for improving their experience of cycling infrastructure is to introduce signage indicating when a cycle lane is about to end and where it can be joined again. The need for designs that ensure delivery cyclists could safely join the traffic when the cycling infrastructure ends was also noted.

Delivery cyclists also recommended that the connectedness of cycle lanes is improved by linking lanes together in a coherent network. It was suggested that the network of cycle lanes across cities is extended so that there are more cycle lanes giving better geographic coverage and linking key destinations.

3.3.8 Lighting

Just under half (47%; n = 75) of survey respondents rated lighting on cycle lanes as “poor” or “very poor”, with 17% (n = 27) rating it as “good” or “very good” and 35% (n = 55) selecting “neutral” as their response. This suggests a particularly negative view of lighting provision on cycle lanes.

Figure 10: Rating of lighting on cycle lanes



In the interviews, delivery cyclists commented more broadly on the lighting on the streets, pavements, cycle lanes and paths. Overall, lighting was described as generally adequate in the centre of the city but somewhat lacking in side streets and residential areas. However, there was a mix of views expressed by those who commented on this issue. Some mentioned that lighting was acceptable, even in winter; others said lighting was poor, especially in parks. Both these views were offered by interviewees in Edinburgh and Glasgow. A third group of interviewees – all from Edinburgh – said they were indifferent to lighting as they had good cycle lights.

The two key benefits of adequate lighting were that it made delivery cyclists feel safer, and it helped them see the edges of cycle paths, particularly next to canals or vegetation, and helped them avoid mud or grassy areas.

Poor provision of lighting affected delivery cyclists as it made them feel unsafe and sometimes forced them to choose inconvenient but better lit routes. Four delivery cyclists reported that they would avoid an area that was not well lit, even if it offered the fastest route to their destination. Delivery cyclists mentioned this was often the case with parks and traffic-free routes: they acknowledged such routes were a better option to avoid traffic but, because of the lack of lighting, they perceived them as unsafe. Four delivery cyclists indicated they would rather cycle with the traffic and expose themselves to heavy traffic, than cycle in a poorly lit area. Moreover, poor lighting made it difficult to see obstacles in the route. Two delivery cyclists mentioned that better lighting would allow them to see and avoid potholes. Another issue raised was that sometimes lighting was poorly installed using underground cables, which left the path cracked and slightly narrower than before.

Delivery cyclists who picked up deliveries from the centre and travelled out of the central areas to complete their deliveries were particularly impacted by poor lighting. Several interviewees mentioned that segregated paths going away from the centre, such as paths next to canals, were poorly lit or had no lighting provision at all.

“I feel Glasgow in general is quite well lit. Sometimes I go through the city and I even forget to turn on the lights on my bike, it’s so bright already.” (male delivery cyclist, aged 18–24, Glasgow)

“If I could stay on cycle routes, I’d feel pretty safe if they were well lit but the lighting on them is very poor.” (male delivery cyclist, aged 55–64, Edinburgh)

“In some cases the map will say go through this park and I know that it’s dark and not well lit, so I would choose to go on the roads instead of through the parks.” (female delivery cyclist, aged 18–24, Edinburgh)

Implications and recommendations for practice

Poor lighting made some delivery cyclists feel unsafe and led them to choose on-road routes, which were perceived as better lit, rather than off-road routes with poor lighting.

The paths and roads in central and residential areas seemed well lit, but lighting was perceived as poor along canals, cycle paths, and some off-road routes. Adequate lighting should be put in place on paths next to canals and parks. Delivery cyclists also recommended the installation of lighting indicating the division between unprotected cycle lanes and the road to make cars aware of the cycle path. The options of cat’s eyes or road studs were mentioned by one delivery cyclist.

3.3.9 Dropped kerbs

Delivery cyclists noted a range of benefits of dropped kerbs, including that they:

- Allowed delivery cyclists to skip traffic.
- Improved access to houses and business premises and facilitated smooth access to cycling infrastructure such as separated cycle lanes.
- Were useful for jumping from the road onto the pavement to avoid static traffic and breathing in fumes, and to escape uncomfortable situations following an interaction with a driver or a lorry.

Just one interviewee said they were neutral about them, stating that they would simply stop and climb up if there was no dropped kerb.

The absence of dropped kerbs meant delivery cyclists had to dismount to access the pavement. This broke up their journey and tilting the cycle to mount a high pavement also risked food spillages.

“Dropped kerbs make it easy for a cyclist to escape the road if they’re feeling uncomfortable for whatever reason, for example if a car is being too bullish or aggressive and driving close on the inside.” (male delivery cyclist, aged 18–24, Edinburgh)

“They [dropped kerbs] are useful when we are delivering and there’s a lot of food, I don’t like to jump up on a kerb because there’s more chance of a lid flying off.” (male delivery cyclist, aged 35–44, Glasgow)

Some interviewees said that they sometimes needed to ride for several blocks before finding a dropped kerb so they could get onto the pavement to access a shop. Delivery cyclists also mentioned that dropped kerbs were not always properly marked and access to them was sometimes blocked by parked cars. Moreover, it was said that dropped kerbs at intersections could be congested by pedestrians waiting to cross the road, which made it difficult for the delivery cyclist to get onto the pavement. Interviewees also perceived anxiety in some pedestrians when they saw a delivery cyclist approaching.

A group particularly impacted by the lack of dropped kerbs were cargo cycle riders. Those using cargo cycles described it as being impossible to move on to a pavement without a dropped kerb. This made it challenging for them to do their job.

Implications and recommendations for practice

Interviewees called for the prioritisation of dropped kerbs in retail parks and in front of food establishments to enable easy access for delivery cyclists. They also wished to see improved provision on narrow streets where it might be difficult for a cyclist to share space with a car, and on busy roads without a cycle lane where delivery cyclists might need to avoid slow-moving traffic.

Delivery cyclists said they would like to see better marking of dropped kerbs to avoid cars parking at them.

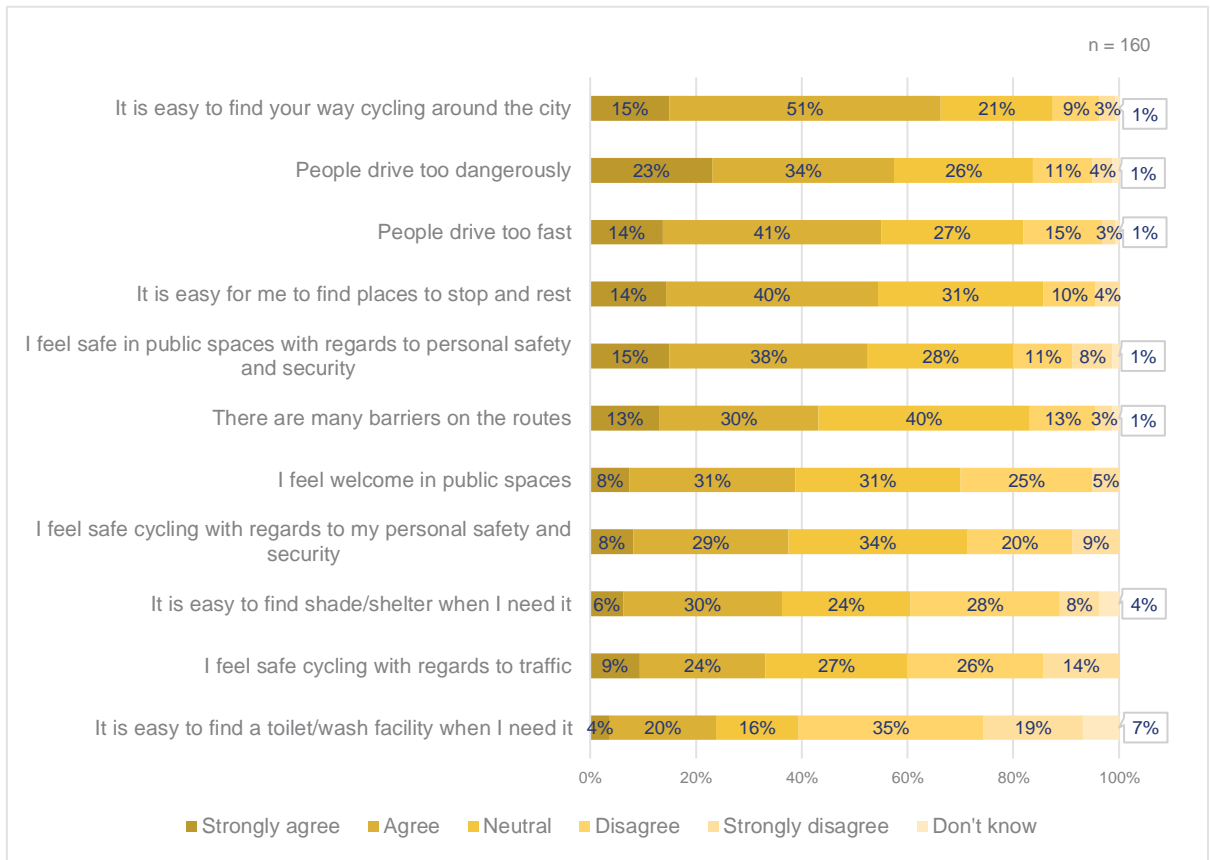
3.4 Safety

Survey respondents and interviewees were asked about how safe they felt while cycling for work, the risks they experienced, and whether they had been involved in collisions with other vehicles or road users. Factors that could improve their safety were also covered. This section concludes with a list of suggestions from delivery cyclists of possible measures that could improve their safety. See also the [recommendations section](#) near the start of this report.

3.4.1 Perception of safety

Survey respondents were asked about their agreement or disagreement with a number of statements linked to perceptions of safety and security when working as a delivery cyclist. Two-thirds of respondents (66%; n = 106) agreed that it was easy to find their way around their city while cycling, while just over half reported that it was easy to find places to stop and rest (54%; n = 87) and that they felt safe in public places with regards to their personal safety and security (53%; n = 84). However, more than half reported that they felt “people drive too dangerously” (58%; n = 92) and that “people drive too fast” (55%; n = 88). (See **Figure 11** for the findings related to all statements.)

Figure 11: Perceptions of safety as a delivery cyclist



In both Edinburgh and Glasgow “people drive too dangerously” and “people drive too fast” featured in the top five factors about how delivery cyclists perceived safety in their city. Results were similar for Edinburgh and Glasgow.

Delivery cyclists were asked in our interviews how safe they felt while cycling. Those who said they felt safe acknowledged that they were either experienced cyclists and/or had been a delivery cyclist for a long time. Some reflected that their feelings of safety resulted from their own awareness and experience as a cyclist.

Further, some cyclists mentioned that if they prioritised their safety, they would not be able to be efficient at their job.

“If I rode my bicycle in a way that maximised my safety, I couldn’t do my job. It would take me too long. Nothing would be profitable, it would just be a nightmare. So you weigh up your safety against your efficiency.” (male delivery cyclist, aged 45–54, Glasgow)

“I wouldn’t say that I feel unsafe all the time but it’s something you realise when you come home, that you’ve just been the whole day around noisy cars and they are trying to take you over from behind...it impacts my mental health.” (male delivery cyclist, aged 18–24, Glasgow)

Delivery cyclists who said they felt unsafe mainly attributed this to driver behaviour. Interviewees variously recalled bad experiences with reckless drivers, feeling intimidated by cars and buses overtaking at high speed when they were cycling on an unprotected cycle lane, or feeling unsafe cycling outside of the city centre where cars moved faster. Additionally, female cyclists mentioned being harassed by shop workers or on the street while doing their deliveries.

For some, feelings relating to lack of safety shaped journey choices. For example, one delivery cyclist said they had stopped making deliveries on routes which involved fast and narrow roads, while two female delivery cyclists mentioned that they avoided going through dark areas such as parks at night, preferring instead to go on a better lit road even if that meant a longer route or a route with traffic.

3.4.2 Risks to cyclists

The risks mentioned most often by delivery cyclists in interviews were parked cars opening their doors without looking, obstacles on cycle lanes and roads (eg, broken glass, potholes, manholes, leaves), roads with cobblestones, badly lit bollards on protected cycle lanes, and aggression from motorised road users. Delivery cyclists mentioned that it was more dangerous to do deliveries during the evenings and at weekends because of drunk people on the street and drunk-seeming people driving vehicles.

Every delivery cyclist recounted at least one bad experience or incident relating to motorised traffic that had made them feel unsafe. The practice of cars invading ‘advanced stop lines’ (also known as ‘bike boxes’, these are a place for cyclists to stop at traffic lights ahead of other traffic) while cyclists were filtering through traffic was seen as extremely dangerous by delivery cyclists, as it made them feel they were going to get caught in a bad spot. Roundabouts and junctions were also mentioned as being dangerous, as cars drove fast behind cyclists or lacked awareness of sharing the space with cyclists. Some delivery cyclists recalled being verbally abused by car and taxis drivers, which they said was intimidating and threatening.

“I was knocked off my bike once delivering and it was purely because a car didn’t look at a junction and just moved out. So unfortunately no amount of infrastructure is going to change stuff

like that happening.” (male delivery cyclist, aged 55–64, Edinburgh)

“People just screaming and shouting at you because you’re filtering [moving past queues of slow-moving traffic]. Or if you filter and step in front of the car, they’ll be hitting their horn, they’ll be trying to jump you at the lights.” (male delivery cyclist, aged 45–54, Glasgow)

3.4.3 Collisions

Respondents to the survey were asked if they had been involved in collisions with other vehicles or pedestrians. Overall, 39% (n = 62) of respondents reported that they had been involved in a collision – either major or minor – with other vehicles or pedestrians. With regard to cars, 26% (n = 42) of respondents had had either a major or minor collision with a car, and 45% (n = 72) had had a near miss. With regard to pedestrians, 19% (n = 30) of respondents reported being involved in either a major or minor collision with a pedestrian, and 41% (n = 66) reported a near miss. See **Figure 12**, **Figure 12a**, and **Figure 12b** for overall results and a breakdown for Edinburgh and Glasgow, respectively. The difference between the results for the two cities is that in Edinburgh more respondents reported having either a major or minor collision with a car (28%; n = 24) than with pedestrians (14%; n = 13), while in Glasgow most reported collisions – either minor or major – were with pedestrians (24%; n = 15) and for cars it was 18% (n = 11).

Figure 12: Collisions between delivery cyclists and other road users

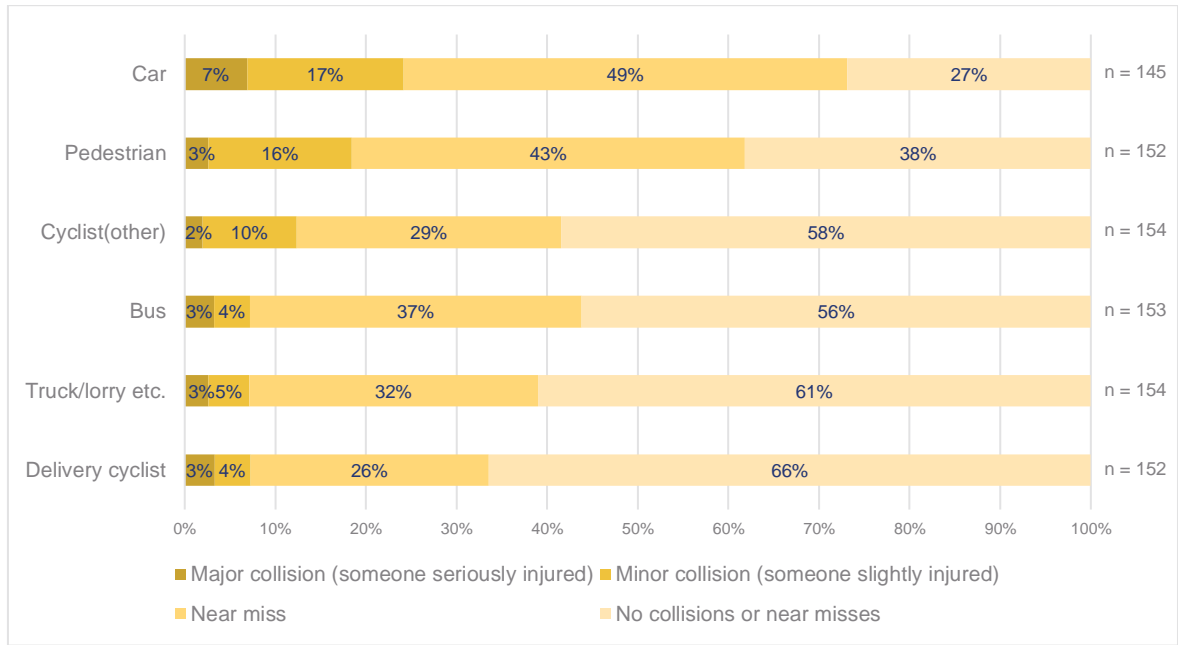


Figure 12a: Collisions between delivery cyclists and other road users in Edinburgh

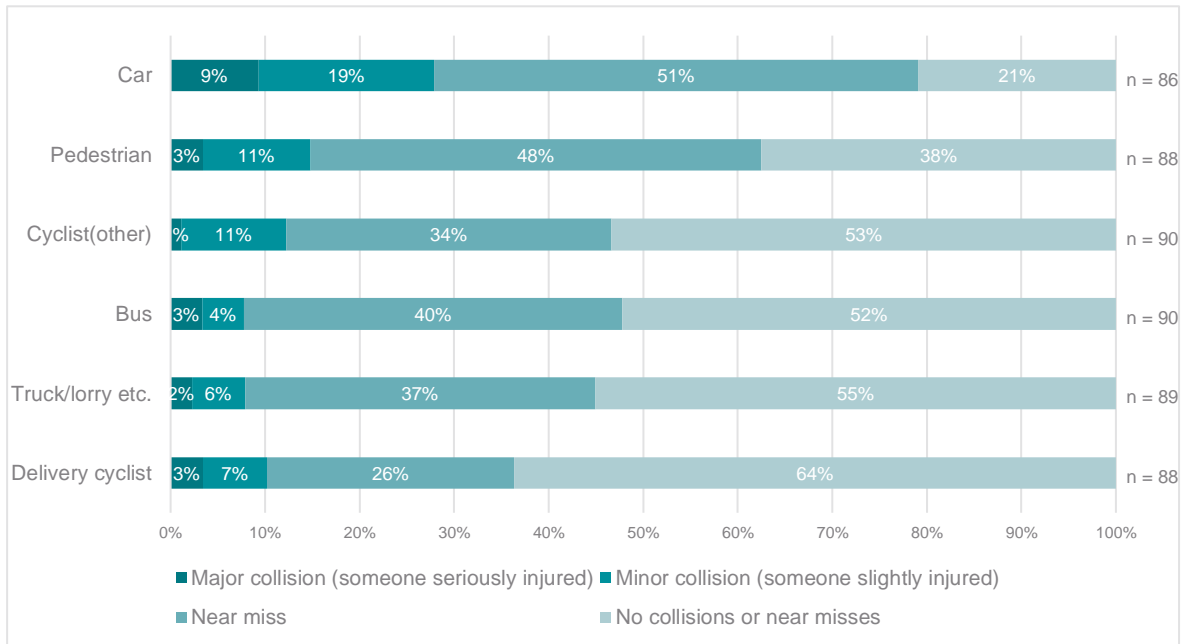
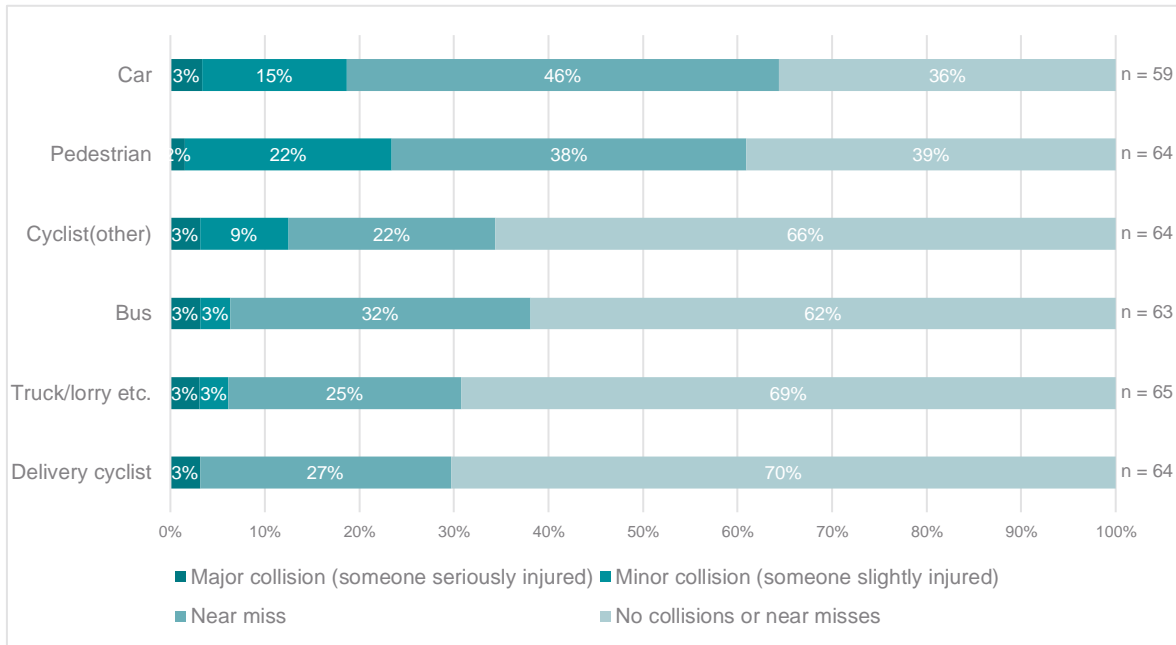


Figure 12b: Collisions between delivery cyclists and other road users in Glasgow



3.4.4 Factors that make delivery cyclists feel safe

In interviews, the most frequently mentioned factors that made delivery cyclists feel safe related to being guarded from cars, either by protected cycle lanes or clearly painted unprotected cycle lanes.

The delivery cyclists who mentioned protected cycle lanes said this infrastructure made them feel safe because it physically separated them from cars and allowed them to have a clear run; some said they rode more confidently on this type of cycle lane. Unprotected cycle lanes with clearly marked lines were particularly said to make cyclists feel safe on uphill roads when their speed reduces and faster cars overtake them. Some delivery cyclists mentioned they would go out of their way to use a cycle lane (protected or unprotected) because it made them feel safe.

Individual factors mentioned by just one or two interviewees as making them feel safer included:

- Cycling in the middle of the lane as this made it harder for a car to transfer lane and cut across the cycle, and prevented them being in the blind spot of the car
- Not cycling on cycle lanes that were next to parked cars, to avoid an accident with a passenger opening the door without looking

- Good weather, as roads were perceived to be dangerous when they were wet because they were slippery
- Traffic lights targeted at cyclists that went green a couple of seconds earlier than the green light for cars, allowing delivery cyclists to have a head start when moving off from stationary traffic – such lights were said to be key on main roads or when going uphill, but were said to not be common in the city.

In a few instances, interviewees reflected on changes that would make them feel safer, with reduced speed and volume of cars and more dropped kerbs mentioned in this context.

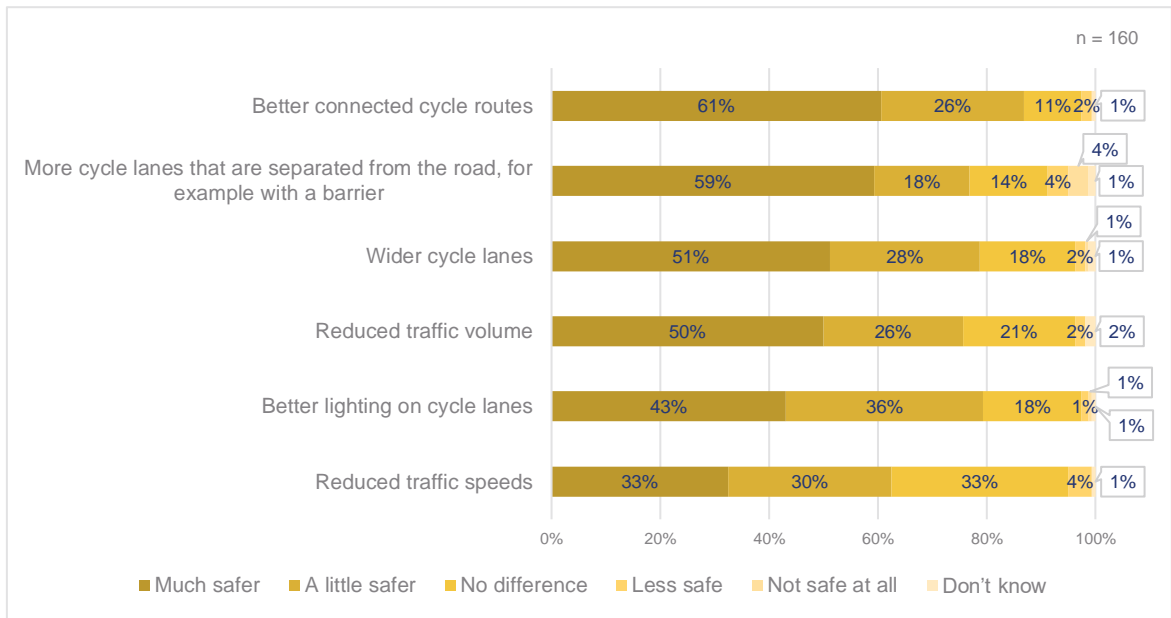
3.4.5 How safety could be improved

Survey respondents were asked about the extent to which a number of possible changes would make them feel safer when delivering by cycle. The responses are presented in **Figure 13**, **Figure 13a** and **Figure 13b**.

Overall, the changes most likely to make respondents feel “much” safer were:

- Better-connected cycle routes
- More cycle lanes separated from the road, for example with a barrier
- Wider cycle lanes
- Reduced traffic volumes.

Figure 13: Would any of the following make you feel safer ?



Additionally, there were some differences between Edinburgh and Glasgow. In Glasgow, reduced traffic volume was not one of the top four factors that would make respondents feel much safer while in Edinburgh it was the second top factor. It is not clear why traffic volume was a bigger issue in Edinburgh – this could relate to Glasgow city-centre streets being wider or perhaps to different patterns of car ownership and use in the two cities.

Figure 13a: Would any of the following make you safer? Edinburgh respondents

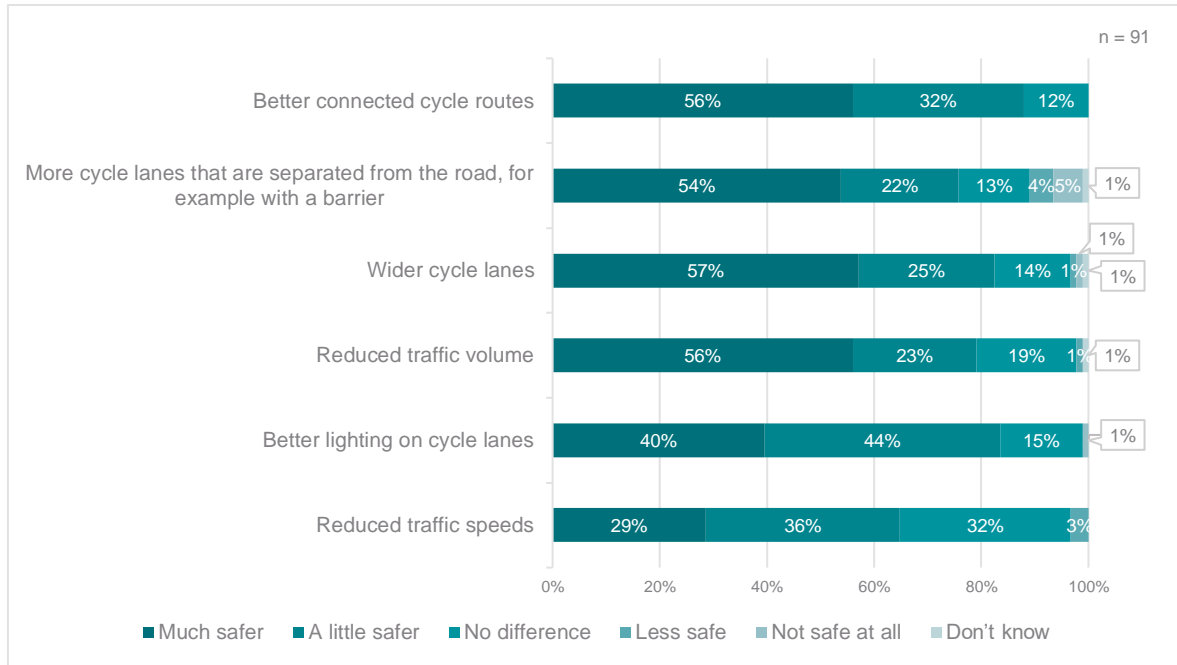
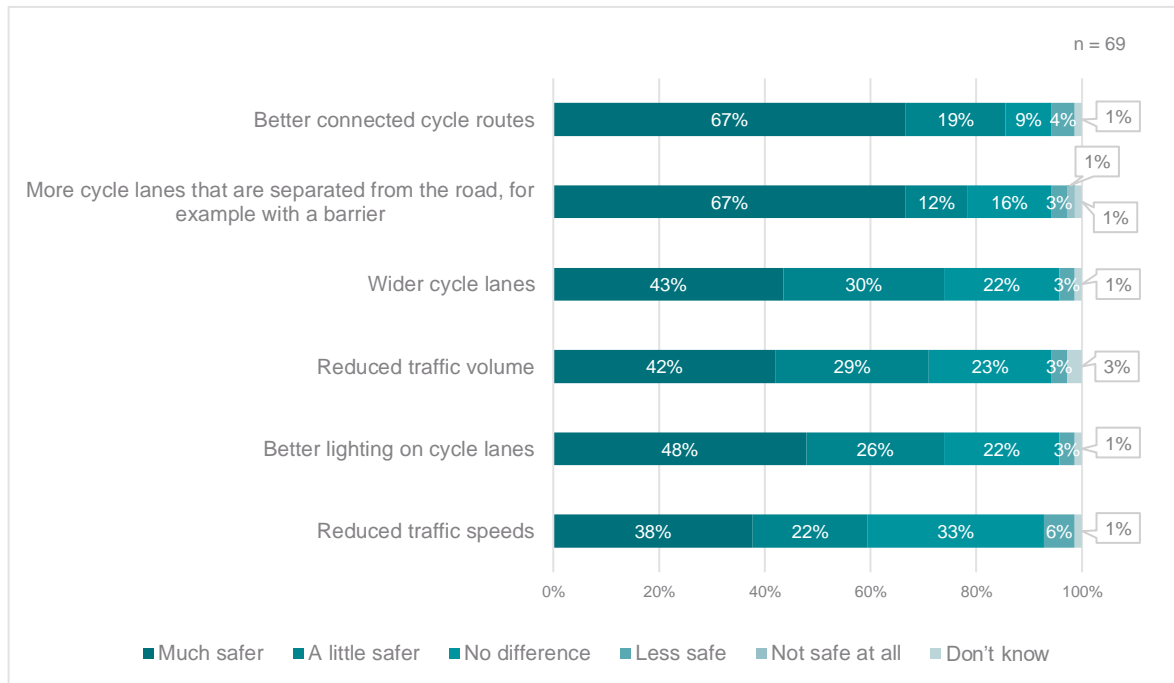


Figure 13b: Would any of the following make you safer? Glasgow respondents



3.4.6 Further suggestions for improving safety

Suggestions from survey respondents for improving safety on the road while delivering included increasing cycle infrastructure provision in terms of segregated cycle lanes, improving road markings, and improving general road conditions such as road surfaces and lighting. Additionally, respondents recommended strict enforcement of the highway code and speed limits, and better education to encourage other road users (ie, drivers and pedestrians) to be more cycle aware.

The top ten recommendations from delivery cyclists related to the following issues:

1. Enhancements to cycle infrastructure (eg, segregated cycle lanes, clear markings)
2. Improvements to road conditions (including road surface and lighting)
3. Enforcement of highway code and speed limit
4. Education to make people (drivers and pedestrians) more cycle aware
5. Removal of barriers and obstructions (eg, parked cars and rubbish)
6. Changes/improvements to traffic light signalling
7. Creation of a network of cycle lanes (connected cycle infrastructure)
8. Provision of secure cycle parking
9. Measures to reduce the volume of motorised traffic
10. Separate infrastructure for pedestrians.

3.5 Working as a delivery cyclist

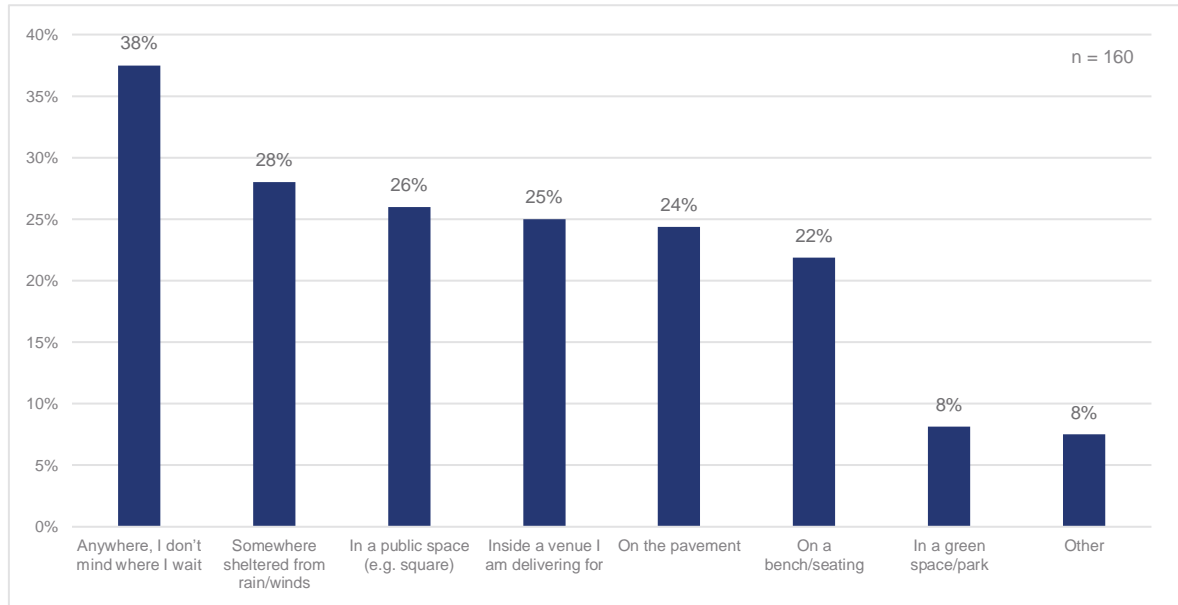
Our survey asked about the working habits of delivery cyclists, and about what would make their roles easier and more pleasant.

3.5.1 Waiting spaces, rest, and facilities

The place(s) that cyclists (who do not generally have a 'hub' or base) usually wait between deliveries was explored. Most often, respondents stated that they waited anywhere and did not mind where (38%; n = 62), the next most common waiting locations reported were "somewhere sheltered from rain/winds" (28%; n = 44) and public spaces (26%; n = 42) (see **Figure 14**). Some respondents expanded on their strategy regarding managing their waiting,

with some explaining that they go back home or only do next-day deliveries (and not on-demand deliveries), or that they just ride around until they get a new order.

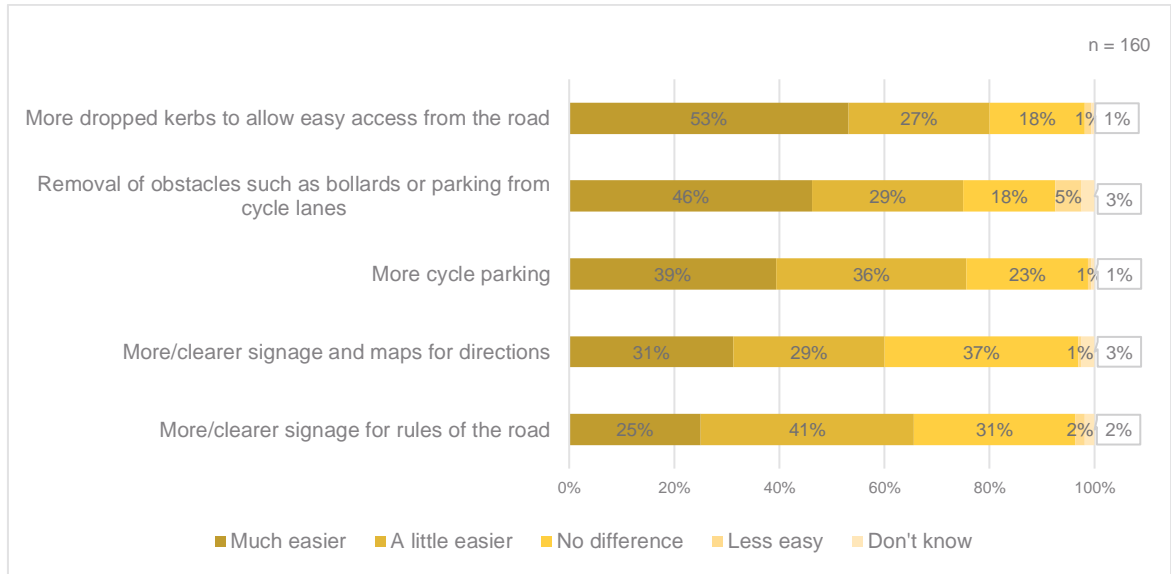
Figure 14: Where do you most commonly go while waiting for an order?



3.5.2 Making delivering by cycle easier

Survey respondents were asked about what would make it easier for them to deliver by cycle. Overall, the top three things that respondents indicated would make their delivery work at least “a little easier” were more dropped kerbs, removal of barriers on cycle lanes, and the provision of more cycle parking (see **Figure 15**). This pattern of responses was observed in both Edinburgh and Glasgow.

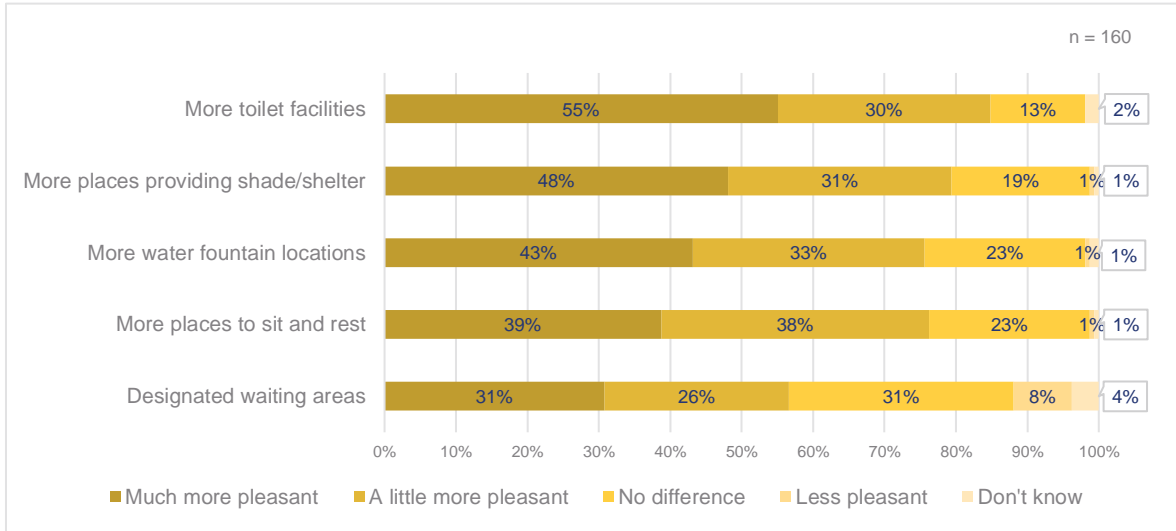
Figure 15: Would any of the following make delivery easier?



3.5.3 Making delivering by cycle more pleasant

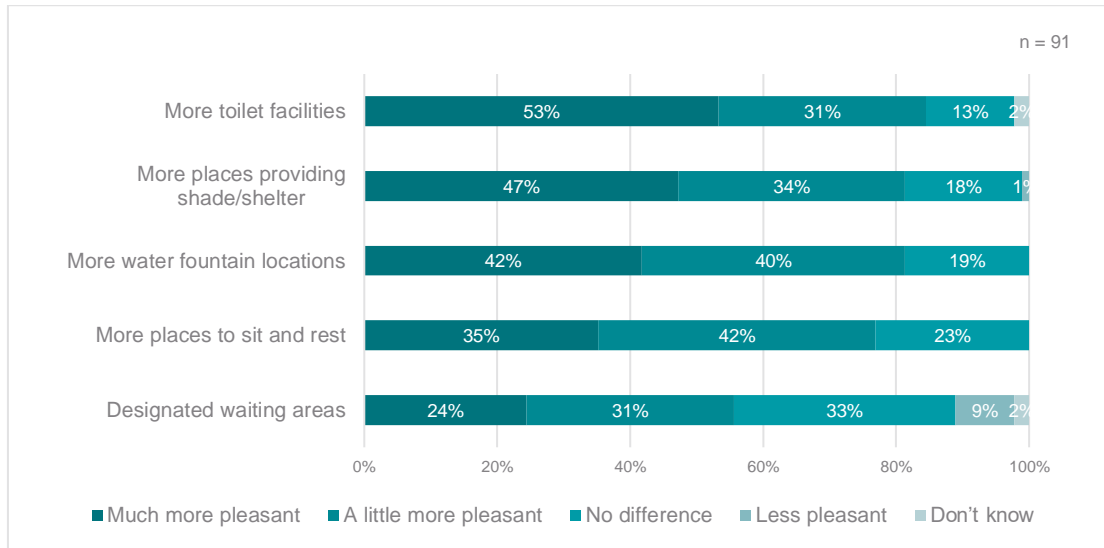
Survey respondents rated factors that could make their roles more pleasant. The results show that 85% (n = 134) of respondents felt that having additional toilet facilities would make delivering by cycle more pleasant. In addition to this, an increase in the number of places providing shade and shelter and the number of water fountains were considered important in making delivery work more pleasant (see **Figure 16**, **Figure 16a** and **Figure 16b**).

Figure 16: Would any of the following make working as a delivery cyclist more pleasant?

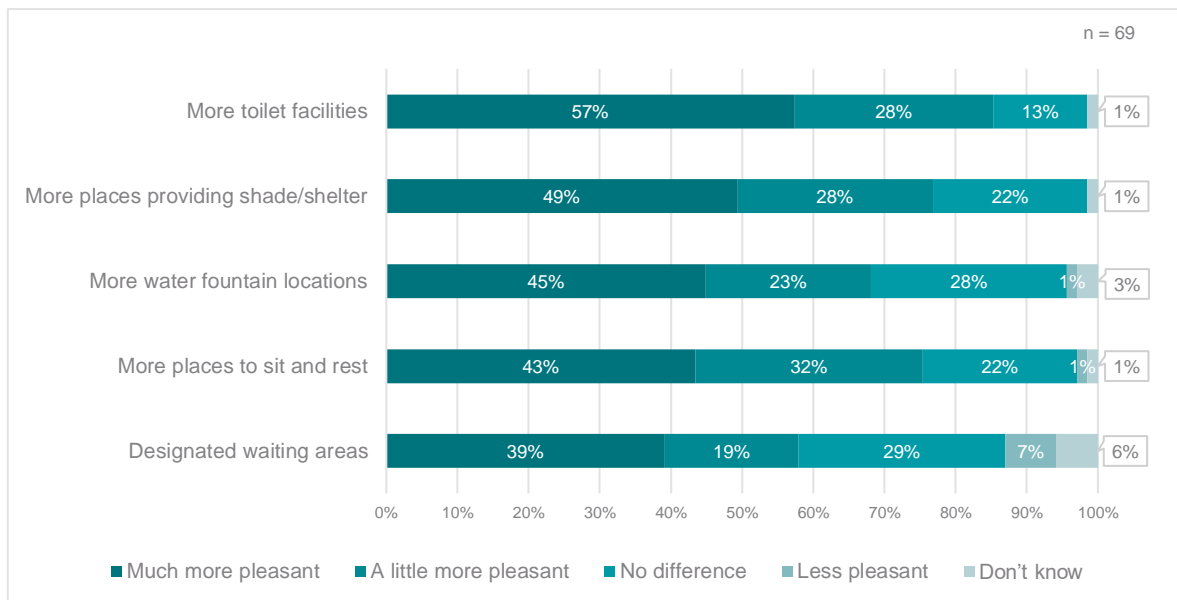


Response patterns were reasonably similar for delivery cyclists in Edinburgh and Glasgow, although those in Glasgow favoured more places to sit and rest over more water fountains, whereas those in Edinburgh favoured more water fountains over more places to sit and rest.

**Figure 16a: Would any of the following make working as a delivery cyclist pleasant?
Edinburgh respondents**



**Figure 16b: Would any of the following make working as a delivery cyclist pleasant?
Glasgow respondents**



3.6 Most and least enjoyed cycling locations

Survey respondents provided descriptions of the routes and locations they enjoyed cycling the most for work, and which they enjoyed the least. The specific locations varied among participants; however, the majority of the “most enjoyable routes” were characterised by having little or no traffic, being flat and easy to cycle, having cycle lanes, being considered safer, or having a scenic environment and being a friendly space. Most of the “least enjoyable routes” were described as having a lack of appropriate infrastructure.

3.6.1 Most enjoyed cycling locations

Examples of the most enjoyed cycling locations in Edinburgh were as follows:

- The Meadows: “No cars.”
- Morningside: “Safe and scenic location.”
- Marchmont: “Easy roads, not particularly sloped.”
- West end: “Wide roads, less traffic, no cobbles, flat.”
- Around central Edinburgh including the Meadows, and around Leith: “Nice scenery, good lighting, cars tend to be driving slower.”

Examples of the most enjoyable cycling locations in Glasgow were as follows:

- West end: “Restaurants [and] customers are closer together and many back streets are low traffic.”
- Along the Clyde: “Large cycle lane/separate bus lane that is often empty.”
- Southside/Govanhill: “Having the South City Way and numerous LTN [Low Traffic Neighbourhoods] measures in place making the streets quieter. Flat terrain is also a bonus.”
- Sauchiehall Street: “Busy street and separate lane for cycling.”
- Victoria Road Cycle Lane: “Great southern artery and well thought out. Separate cycle lanes in each direction. Clear road markings lots of space.”

3.6.2 Least enjoyed cycling locations

Examples of the least enjoyed cycling locations in Edinburgh were as follows:

- Princes Street/Shandwick Place: “Tram lines and poor lane designation.”
- New Town and Cowgate/Holyrood Road: “New Town is downhill and has lots of cobbles that are awful to cycle on. Cowgate and Holyrood Road are downhill and also higher risk of bike being stolen.”
- Granton: “Sketchy area.”
- Tollcross, Dean Bridge, all cobblestone roads: “Confusing and unclear Tollcross junction for many.”
- Cycle routes beside canals: “Usually too dark when delivering and scared of anti-social behaviour from others. Would rather be closer to roads if something were to happen when it is dark.”
- Busy/fast roads in the centre, and roads that have advisory cycle lanes but lots of vehicles parked in them: “Increased potential for conflict, impatient drivers trying to overtake when not enough space, can sometimes be difficult to take up correct road position in time e.g. for making right turn.”

Examples of the most enjoyable cycling locations in Glasgow were as follows:

- Around [Glasgow Central] station, south of the town: “No cycle paths.”
- Roundabouts. The big junction approaching Kinning park from Shields Road: “Feels unsafe, cyclists just get swallowed up with all the lanes and traffic.”
- Across the M8 at Charing Cross, and Tradeston, generally: “Charing Cross is a narrow shared use path with multiple 90° turns, three toucan crossings across motorway slip roads and always very busy. It's impossible to navigate ‘correctly’ – you will always come into conflict with other users. Also the road surface is post-apocalyptic.”
- Alexandra Parade area: “Zero cycling infrastructure combined with poor road surfaces and that area being a magnet for terrible driving.”
- Dennistoun to Stobhill: “The cycle lane is shared with pedestrians and is too narrow.”
- Dumbarton Road: “Because of the network issue.”

3.7 Additional participant suggestions

Survey respondents were asked if they had any other suggestions or comments about how cycle infrastructure or public space could be improved for delivery cyclists in their city. Suggestions related to; improving and increasing and cycle infrastructure; expanding provision of electric bike charging facilities and bike hire schemes; improving general road conditions, particularly road surface and lighting; and improved provision of secure cycle parking.

In addition, some made suggestions that were specific to the needs of delivery cyclists such as the provision of a delivery cyclists' hub.

Some of the comments related to suggestions are presented below – separately for Edinburgh and Glasgow.

Edinburgh

- “More cycle lanes all over the city.”
- “Cycle [storage] safety as there are so many cases of stolen bikes.”
- “Electric bikes for hire across the city.”
- “More places to park bikes outside residential homes. More often than not I lock to lamp posts and fences.”
- “Prohibit people from parking in cycle lanes – enforced with fine/penalty points etc.”

Glasgow

- “Better maintained cycle lanes. Often they are filled with rubble and debris and sometime they don't feel safe.”
- “Waiting spaces, more cycles lanes on busy streets. More education among pedestrians.”
- “Definitely more cycle lanes and having these connected would make it much safer and easier.”
- “Cycle contraflow lanes on all one-way streets. Alternate the one-way streets in city centre (they currently run in pairs east-west, meaning a 2 block journey just to change direction).”
- “Maintaining the cycle lanes clean over time. Some are built but are never cleaned during winter months. More bridges to link both parts of the city (one next to

Springfield Quay could be great). The Clyde and the motorway are definitely the key points that affect the way a cyclist travels around. Cycles must be separated from the road or car parking locations (opening doors are a hazard (eg, Victoria Rd, southside). Final point having lighting (eg, Kelvingrove Park), can be good to ensure pedestrian walking at night are seen by cyclists.”

4. Methods

The project was conducted as part of the Scottish Research Programme for 22–23 (SRP8) and funded by Transport Scotland. The fieldwork completed between 26 October and 5 December 2023, with an earlier pilot study undertaken as part of the Scottish Research Programme for 21–22 (SRP7), also funded by Transport Scotland. The research approach used to investigate the way that delivery cyclists travel around Edinburgh and Glasgow and explore their views and experiences included a literature review, a survey and interviews.

4.1 Literature review

A literature review was conducted to establish the current understanding of delivery cyclists' needs and use of infrastructure.

The first step was to design the review and define the criteria for identifying relevant literature. Europe was chosen as the required geographic region for the literature, given the likelihood of comparable infrastructure. Additionally, a date range of 2012 to 2022 was specified to focus on the recent rise in delivery cycling. The initial keywords for the literature search included 'delivery cyclists', 'courier', 'infrastructure' and 'needs'. The keyword search was subsequently expanded during the review, to widen the search pool, to include the terms 'cyclist', 'leisure', 'rider' and 'career courier'.

The second step was to conduct the literature review. This was done in stages, beginning with an initial search for journal articles published online and seminars given by relevant authors. Each piece of literature was screened to ensure it met the selection criteria and then assessed by reading the abstract/opening. Next, the literature was read in full, and evaluated, before making the final selection and highlighting key information.

Finally, the review was written by summarising and synthesising the selected information.

4.2 Survey

A survey of delivery cyclists was carried out to learn more about their travel patterns, use of infrastructure, concerns and needs. Quantitative methods were chosen in order to include as

many delivery cyclists as possible in the research; such methods also provide findings that can be communicated through statistics.

The findings in this report are based on data collected in both the pilot and main surveys.

An online survey was created and distributed via four channels. Sustrans colleagues handed out flyers to delivery cyclists on the streets of Edinburgh and Glasgow, resulting in 48 responses. Sustrans also reached out to UberEats, who distributed the survey via email, resulting in 95 responses. Posters around Edinburgh and Glasgow generated one response, and reaching out to charities working with migrants generated six responses. By using a range of distribution methods, the project gained learning on how best to reach this group which could be applied in future research. Survey respondents received a £15 supermarket voucher for their time.

The survey contained 30 questions and was split into four parts to ensure easy navigation for respondents. Part A: About you; Part B: Your experience of cycle infrastructure and public spaces; Part C: Improvements; Part D: demographics. The survey used a mixture of question types: multiple choice questions, free text questions and questions based on Likert scales (ie, questions offering a gradation of responses such as very poor, poor, neutral, good, very good). At the end of the survey respondents were asked if they would be interested in taking part in an interview.

A total of 163 survey responses were received (including pilot and main survey responses). Following data cleaning, three respondents were excluded from the analyses (two worked in cities other than Edinburgh or Glasgow and one worked in both cities, so it was not clear which city their responses related to). All cleaning and analysis was conducted in MS Excel.

Descriptive analysis was conducted for all the closed multiple choice questions and the frequencies and percentages of responses were calculated. For open text questions, the comments and suggestions of respondents were coded according to recurring themes and the most common themes were reported.

Additionally, the characteristics of the locations respondents liked or disliked to cycle for work were summarised.

4.3 Interviews

Qualitative semi-structured interviews were conducted to gain a detailed understanding of delivery cyclists' experiences and needs, their views on cycling infrastructure, and their perceptions of safety and to explore delivery cyclists' culture. Such methods ensure that views and experiences are understood in context.

The findings in this report are based on interviews carried out in both the pilot and main studies.

Delivery cyclists indicated their interest in taking part in an interview via a question in the survey. Participants were provided with a £30 supermarket voucher for their time.

The interview guide covered three themes: cycling infrastructure and road conditions; perceptions of safety; and day-to-day life as a delivery cyclist. These themes were derived from the survey questions and the gaps in the literature identified during background research. The interview guide posed 20 questions; however, the flexible semi-structured approach enabled the interview to be led by the participant, allowing the delivery cyclists to share views on the issues they considered relevant. The semi-structured interview method was particularly useful in studying real-life experiences, gender differences and topics which differed from those focused on in the literature.

Twenty online interviews were conducted by the Sustrans Research and Monitoring Unit (RMU) with delivery cyclists in Edinburgh (13 interviews) and Glasgow (7 interviews). Interviews were on average 45 minutes long.

The transcription of the interviews resulted in 156 pages of qualitative data. RMU undertook thematic analysis of the transcripts using NVivo (Release 1.7). The thematic analysis comprised six stages: (1) familiarisation, in which two researchers read the transcripts and identified potential codes; (2) creation of a coding framework, in which an initial set of codes was generated independently by two researchers and then compared and discussed before producing a final list of codes with definitions and examples to ensure clarity and transparency when coding; (3) coding, in which three researchers coded the transcripts to the list of codes and reviewed each other's work (4) theme generation, in which the researchers began to identify recurring themes in the coded data, (5) theme refinement, where the researchers reviewed the themes by reading through data excerpts and ensuring they were clear and distinctive from each other; and (6) reporting, in which the results of the analysis were described and used to present differences and similarities in delivery cyclists' points of view, using illustrative extracts and quotes.

One limitation of the study was a lack of time. The study generated a large volume of rich data. However, there was not enough time within the funding year to analyse all themes. It would be valuable to undertake further analysis of the data in the future – in order, for instance, to understand more about the experiences of delivery cyclists according to their gender and first language.