Department for Transport

Multi-modal public transport and operational changes: Qualitative research findings report

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Contents

Executive summary

Introduction

Research background

A key government priority is to improve the integration of the public transport system, to encourage greater use of multi-modal public transport and improve customer experiences.

Multi-modal public transport is defined as a journey that consists of two or more modes of public transport, such as a trip involving a train and a bus.

The Department for Transport (DfT) commissioned independent research agency, Verian, to undertake qualitative research to explore evidence gaps in relation to the factors influencing transport choices and understand how these factors affect uptake of multi-modal public transport journeys.

Research aims

The aims of this research were to:

- Understand the factors that influence choice of transport mode for journeys within Great Britain, where rail is or could be a part of the overall journey
- Explore current experiences of multi-modal public transport in Britain, including barriers and enablers
- Assess public attitudes to factors and operational changes that could increase take-up and improve experiences of multi-modal public transport, including simplified and/or integrated ticketing, timetabling and journey information provision

Methodology

A multi-stage qualitative approach was used to explore the research aims. Fieldwork was conducted between 27th February and 27th March 2025. In total 67 participants living in

England took part in a three-day online community, in-depth interviews and/or focus groups. Participants were sampled to ensure a mix of experiences of public transport, including those primarily travelling by car and those primarily travelling by public transport, and a good spread of rural, urban with rural, and urban areas.

Research findings

The key factors weighed up when considering what mode(s) of transport to use for local journeys were convenience, cost, comfort and safety. Participants from across the sample, including those with and without access to a car, and across a range of demographics, took these factors into account. Convenience and cost were top-of-mind factors for all journeys, while comfort and safety were less commonly considered because most modes and routes were considered safe and comfortable enough, unless travelling in certain circumstances (such as at night and when transporting heavy luggage). As a result, the more convenient and cost-effective multi-modal public transport is, the more likely it will be considered a viable choice and opted for over driving.

The perceived convenience of a transport mode(s) was generally based on three key variables: time, effort and stress. Effort refers to the mental and physical energy required to make a journey, while stress refers to negative feelings that could be experienced when making a journey where too much effort is required or where things go wrong. Convenient journeys were those that minimised the time, effort and stress involved. Therefore, to increase convenience, operational changes should aim to reduce the time, effort and stress of multi-modal public transport for passengers.

Safety can become a more salient factor when using multi-modal public transport because these journeys can involve walking between modes and waiting at interchanges. This transfer between modes can feel unsafe at night and in quiet or unsafe places. However, safety was still not a top-of-mind factor for all journeys as most multi-modal public transport journeys were considered safe enough. Participants did not say that they considered the risk of road accidents and collisions associated with modes when choosing how to travel.

Overall, how sustainable a journey is was not a factor considered when deciding what mode(s) to use for local journeys. Sustainability became more top-of-mind when deciding how to travel abroad and whether to travel by plane.

How factors were weighed up could vary according to individual demographics and circumstances, or in relation to different types of journeys. For example, those with conditions affecting mobility could be more concerned about reducing effort over other factors if certain modes made it particularly challenging for them to travel, and those travelling to work could be more concerned about minimising time and the risk of delay than those who were retired and making a leisure journey. However, it is important to note that those with and without access to a car took the same factors into consideration when deciding how to make local journeys, and that this was consistent across locations.

Participants reported current barriers to making multi-modal public transport journeys in relation to time, effort, stress, cost, comfort and safety. Participants also shared their experiences of enablers in relation to these factors, with the exception of comfort. Notably

although participants perceived barriers in relation to comfort, they were not aware of any enablers that had improved the comfort of making multi-modal journeys.

The prioritisation of operational changes reflected the key factors considered when deciding how to complete a journey (reducing time, effort, stress and cost), as well as if they were able to overcome current barriers to multi-modal journeys.

Improved information provision and more frequent services were felt to overcome a range barriers - for example, access to accurate real-time bus locations in London had helped reduce barriers created by unreliable services. As a result, participants indicated that operational changes around information provision, timetabling and routes had the potential to increase the use of multi-modal public transport. These operational changes were also prioritised because they increase convenience, which was a key factor that participants weighed up when deciding what mode(s) of transport to use for a journey.

While cost was a concern in relation to multi-modal public transport journeys (and a key consideration when deciding what mode(s) of transport to use for a journey), the effort of buying multiple tickets was not spontaneously reported as a barrier. This perception affected participants' views on how impactful integrated ticketing operational changes could be. Although participants felt that integrated ticketing would be a helpful operational change, it was considered less fundamental to encouraging greater use of multi-modal public transport than other changes, unless it reduced costs. Therefore, this function primarily addresses financial barriers, rather than barriers related to effort.

Operational changes that reduce the cost of fares were seen as particularly important in increasing consideration of multi-modal public transport among car drivers, who had the option to drive and typically felt that this was a considerably cheaper, especially when travelling with family.

Although not explicitly discussed by participants, other functions of integrated ticketing systems have potential to address the factors that influence transport choices. Ensuring access to the best available fare influences cost, while fare capping could also help mitigate stress if reliability issues require a traveller to switch transport mode.

1. Introduction

Research background

A key government priority is to improve the integration of the public transport system, to encourage greater use of multi-modal public transport and improve customer experiences. Improved integration is identified as supporting the achievement of net zero targets and the promotion of economic growth through better connectivity.

Multi-modal public transport is defined as a journey that consists of two or more modes of public transport, such as a trip involving a train and a bus.

The Department for Transport (DfT) commissioned independent research agency, Verian, to undertake qualitative research to explore evidence gaps about the factors influencing transport choices and understand how these factors affect uptake of multi-modal public transport journeys.

Research aims

The aims of this research were to:

- Understand the factors that influence transport choices for journeys within Great Britain, where rail is or could be a part of the overall journey
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- Assess public attitudes to factors and operational changes that could increase take up and improve experiences of multi-modal public transport, including simplified and/or integrated ticketing, timetabling and journey information provision

Methodology

A multi-stage qualitative approach was used to explore the research aims. Fieldwork was conducted between 27th February and 27th March 2025. In total 67 participants living in England took part in the research.

The research comprised three stages:

Stage 1: Online community (45 participants) and in-depth interviews (12 participants)
Stage 2: Follow up focus groups (3 groups with 5-6 participants in each who had taken part in the online community)
Stage 3: London focus groups (2 groups with 5 participants in each, involved in Stage 3 only)

Stage 1: Online community and in-depth interviews

Stage 1 explored the factors that influence transport choices, the enablers and barriers of multi-modal public transport, and views about potential operational changes.

An online community was run for 45 participants, over three days. One-hour in-depth interviews were carried out by telephone and online with 12 participants who were less digitally confident and preferred this format to the online community.

The online community was structured as follows:

- Participants were given a pre-task to reflect on the journeys they typically make and the reasons behind their choice of transport modes
- Day 1 explored participants' perceptions of different transport modes
- Day 2 explored participants' perceptions and use of multi-modal public transport. Participants were also asked to research how they would make one of their regular journeys using multi-modal public transport instead of travelling by car or taking a single mode of public transport, how they found the process of researching the route, and how they felt about the idea of making this journey. This task could inform their views on making multi-modal journeys or reinforce their existing perceptions
- Day 3 explored potential operational changes to improve the experience of using multi-modal public transport and participants assessed how beneficial they believed these changes could be

Quotas were set to ensure an even mix of those primarily travelling by car and those primarily travelling by public transport. Participants were also sampled to ensure a range of demographics and journey purposes (commuting, leisure and business), and to include those travelling with children and/or other dependants. Quotas were also set in relation to working status and household income.

To control for different existing infrastructure and connectivity, participants were also sampled from specific urban, urban with rural, and rural locations that have similar travel times by car and public transport to town centres and employment hubs. DfT Journey Time Statistics for 2019 were used to do this.

Locations participants were sampled from:

- Urban locations (18 participants total): Bristol, Manchester
- Urban with rural (19 participants total): West Chester
- Rural (20 participants): South Norfolk, Northumberland, Bedfordshire (excluding those living in Bedford)

A full breakdown of the achieved samples can be found in Appendix 1.

Stage 2: Follow up focus groups

Three 2-hour online focus groups, with 5-6 participants each, were conducted with participants who had taken part in the online community. These focus groups further explored perceptions of potential operational changes and their impact in local contexts.

The focus groups were run with those living in Bristol (urban), West Chester (urban with rural) and South Norfolk (rural). Each group included participants from one area, who reported that multi-modal public transport could be used to complete journeys they regularly make. The aim of these groups was to understand the potential of operational changes to increase uptake of multi-modal public transport.

Stage 3: London focus groups

Two 1.5-hour focus groups, with 5 participants in each, were conducted with those who use public transport in London and either commute into or live in London.

London has a well-established and integrated public transport system with extensive metro (underground) and urban trains and has implemented various operational changes to improve experiences of multi-modal public transport. As a result, London is the only part of the country where cars make up only a minority of trips (35% of trips are by private transport in London, compared with 65% across the rest of England[1]). These focus groups were included to explore passenger perceptions of the benefits and limitations of implemented operational changes.

Case studies

The report contains case studies that give detailed examples of participants' experiences and views. Pseudonyms have been used in these case studies.

[1] National Travel Survey: 2023 - GOV.UK

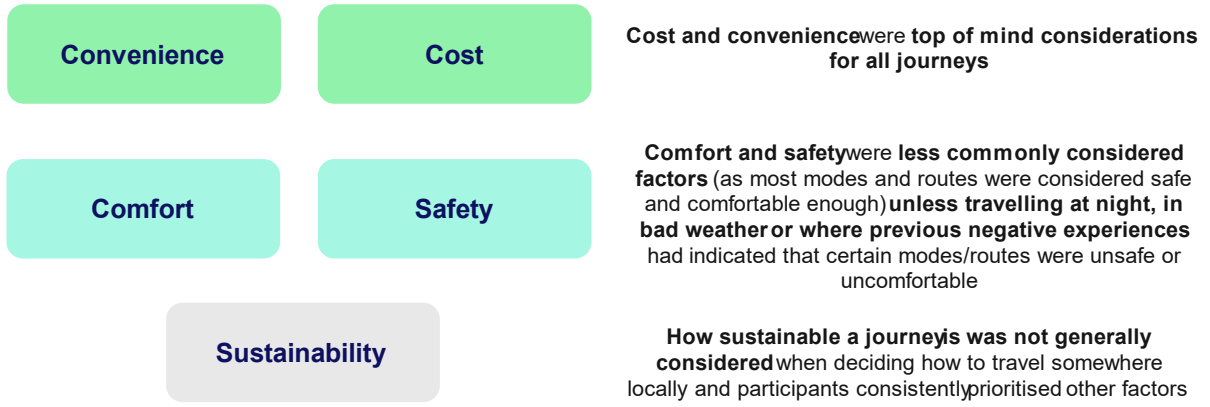
2. Factors influencing transport choices

This chapter explores the factors that influence individuals' transport choices for journeys within Great Britain. Modes of transport considered in this research were private cars and different modes of public transport (primarily trains and buses, as they are available across England, but also trams and underground rail systems as participants were sampled from Manchester and some were regularly travelling within London).

This research found that participants primarily weighed up four factors when considering what available mode(s) of transport to use for a local journey; these were convenience, cost, comfort and safety. Participants from across the sample and various demographics took these factors into account.

Convenience and cost were top-of-mind considerations for all journeys, while comfort and safety were less commonly considered factors. This was because participants felt that most modes and routes were safe and comfortable enough. However, comfort and safety could become top-of-mind when travelling at night, in bad weather or where previous negative experiences had indicated that certain modes/routes could be unsafe or uncomfortable (see figure 1). Overall, the sustainability of a transport mode was not a factor considered when deciding how to make local journeys and participants consistently prioritised the factors mentioned above. Sustainability became more top-of-mind when deciding how to travel abroad and whether to travel by plane.

Figure 1. Journey Purpose



Below we explore what convenience, cost, comfort and safety meant to participants and how they evaluated transport modes against these factors.

How factors were weighed up could vary according to individual demographics and circumstances. For example, those with conditions affecting mobility could be more concerned about reducing effort over other factors if certain modes made it particularly challenging for them to travel (see Convenience: Effort). However, it is important to note those with and without access to a car considered the same factors when deciding how to make local journeys, albeit those without a car had fewer options available to them.

In discussion of each these factors below we highlight these sub-group differences where relevant. It should be taken into consideration that while qualitative research illustrates the spectrum of response, it does not measure prevalence and further quantitative research may be useful to investigate specific needs for different demographics, for example the extent to which women may be affected by safety concerns when considering whether to make a journey by public transport.

Journey purpose also played a role and affected willingness to make multi-modal public transport journeys. Quantitative exploration may be valuable here, for example to establish the scale of journey purposes where time is of the essence, such as commuting. Granularity will be important when further exploring journey purpose – for example, some leisure journeys are very flexible on timing (such as a day out shopping) and some are time sensitive (such as a theatre trip).

While the same factors applied across the locations covered in this research, location played a role in participants' reference points and expectations based on the options available to them locally. Differences by location are discussed in more detail in Chapter 3 in relation to the barriers to multi-modal public transport.

Convenience

Participants wanted journeys to be convenient, and this research found that the perceived convenience of a journey was generally based on three key variables: time, effort and stress. Effort refers to the mental and physical energy required to plan and make a journey, while stress refers to negative feelings that could be experienced when making a journey where too much effort is required or where things go wrong. Transport modes considered to be convenient were those that minimised the time, effort and stress involved in making a journey.

"I feel that convenience is about saving time, reducing effort and making the whole journey as smooth as possible."
-current public transport user, urban

"[A journey] is convenient if it suits my needs, gets me to my destination on time, without too much stress and doesn't involve a long walk to my destination when I get off the other side."
- current public transport user, rural

"[A convenient journey is] one that is simple, quick and reliable, that I don't need to plan in advance as I know there's a bus every 5 mins or a train every 30 minutes or I know 99% of the time the trains are reliable."
- current public transport user, rural

"[A convenient journey is] quick, easy and stress free. I know my car will be sat outside my house, it will start and take me from A to B with no further thought or stress and I can carry everything with ease."
- predominantly private car user, rural

Below we explore in more detail how participants judged the likely time, effort and stress that different transport modes might entail.

Convenience: Time

When evaluating the time it would take to make a journey, participants commonly considered if modes of transport:

- Were quick and took a direct route
- Could be accessed at any time of day, such as a car or public transport with regular services running all day
- Were reliable and if they could be affected by delays, such as being stuck in traffic
- Required waiting for a significant amount of time at stops or stations for connecting services

Participants generally preferred to use modes that could get them to their destinations as quickly as possible. However, when completing ad hoc journeys (especially for leisure journeys which were not time sensitive, such as going shopping) participants said they might choose slower modes if these modes were more comfortable. Additionally, retired participants said they might choose cheaper modes, even if they were slower, as they have more time to spend travelling to destinations.

> "[A journey is quick when it has] direct routes to my destination with fast flowing, good quality roads."
> - predominantly private car user, rural

Convenience: Effort

When evaluating the effort of a journey, participants typically thought about the mental and physical energy that would be involved in planning and making the journey and commonly considered if:

- Planning was easy and straightforward, and journeys could be completed at any time of day, so that they do not need to be scheduled around services and involve less planning
- Modes were reliable and flexible, with other options available if a service is delayed/cancelled
- Modes were available door-to-door and did not require multiple steps and changes between services
- Modes allowed for multi-purpose trips to be completed easily (e.g. dropping children at school on the way to work)
- Modes allowed for multi-tasking (e.g. answering work emails) and easily transported luggage and shopping

The following quotes illustrate how participants articulated their experiences of effort.

> "[An effortless journey] takes me directly from door to destination in as few steps as possible, at the time that matters to me."
> - predominantly private car user, urban with rural

> "[An easy to plan journey] takes very little thinking about. I like to know the journey, I know how to get to my office in the car without much thought but to get public transport I'd have to look up timetables/check live updates, consider the best stop to get off at."
> - current public transport use, rural

Participants preferred to use modes that limited the amount of effort involved in a journey. Those with conditions affecting mobility could be more concerned about reducing effort over other factors and aspects of convenience, if certain modes made it particularly challenging for them to travel. Also, if travelling with shopping or luggage, participants might prioritise reducing effort (and stress) over other factors. However, participants said they might decide to take modes of transport that require more effort if lower effort modes were considered expensive or took longer.

Convenience: Stress

When evaluating whether journeys could be stressful, participants commonly thought about the potential risk of something going wrong and how they would feel in response, and considered if modes of transport:

- Were reliable, predictable, and would have active service updates available
- Had adequate storage for luggage and shopping to be transported
- Were flexible, with other options easily available and accessible if a service was delayed/cancelled
- Required multiple modes of public transport (as this was felt to increase the possibility of a disrupted journey, and could be difficult to manage with dependents, luggage and/or shopping, elevating levels of stress)
- Involved unclear road layouts and congestion, which could be stressful when driving

The following quotes illustrate how participants articulated their experiences of stress.

> "If the mode of transport is running to schedule, then it is stress free, and once I'm on board I feel relaxed, however I feel a sense of anxiety when I'm waiting for the train or bus to arrive."
> - current public transport user, rural

> "A delayed metro train caused me to have to run with luggage in order to catch a cross-country train, which was stressful."
> - current public transport user, rural

Participants wanted to limit the amount of stress involved in a journey and they were likely to prioritise minimising stress over other factors, including time, when journeys had the potential to be particularly stressful. For example, travelling with shopping/luggage (which could be difficult to manage when using public transport) and time-sensitive journeys, such as commuting to work (which could be stressful if participants used unreliable services and faced delays). In these instances, minimising stress might involve, for example, choosing to take a journey with fewer changes.

Cost

When evaluating the cost of a journey participants often considered:

- The overall distance travelled
- The cost of fuel and parking for cars
- The price of tickets for buses and trains (with participants reporting that buses were generally cheaper than trains)
- The number of passengers (as the cost of public transport tickets accumulates, while car costs do not)

It should be noted that while the upfront price of a car and insurance was recognised as part of the overall cost of running a car, it was not factored into the cost of individual journeys for those with access to a car. For those without access to a car, these upfront costs were often cited as a reason why cars had not been purchased or considered a viable transport option for them.

The following quote illustrates how participants articulated their experiences of cost.

"[When I think about cost] I think about the distance to travel, the cost of fuel (and whether I need to stop to refill en-route) and the cost of parking, the cost of train or bus fares and the associated costs of any parking associated with this."
- current public transport user, rural

Overall, participants preferred the cost of journeys to be as low as possible. However, they said they could be willing to pay more if cheaper modes took too much time, effort or stress. This was particularly the case where journeys were time sensitive and regular (e.g. commutes) where participants could be willing to pay more if cheaper modes were slow and unreliable. This is because they preferred to reliably get to their destination at a certain time and reduce the amount of time spent travelling on regular journeys each week. Additionally, participants said they could be willing to pay more when travelling with dependants if modes were more comfortable and less stressful, as these journeys could be more difficult to manage.

Comfort

When evaluating how comfortable a journey might be, participants thought about their physical and mental comfort, and commonly considered if modes:

- Made them feel out of control of their environments, such as if other passengers were likely to be loud and disruptive on trains and buses, or if there was likely to be congestion when driving
- Allowed for relaxation, such as admiring the view, reading a book or listening to music
- Were overcrowded and might require standing
- Would require walking to or waiting at stations and stops in the cold and rain
- Had adequate space for luggage storage so they could sit comfortably
- Required luggage/shopping to be carried uncomfortable distances

The following quotes illustrate how participants articulated their experiences of comfort.

"For me, a comfortable journey is one that I can sit down and relax, enjoy listening to music and can have it as loud as I would like and don't have to worry [which I can do when I am in a car]."
- current public transport user, urban with rural

"On a rainy day I also hate having to walk to public transport and would often jump in the car to save myself getting wet and cold."
- predominantly private car user, urban

"Once I am on the bus or in a train…I love that I can read, snooze, have a wander (especially on the train) or eat a snack, lunch or picnic. I find public transport very comfortable."
- predominantly private car user, rural

Participants wanted journeys to be as comfortable as possible. However, in general, they were willing to use less comfortable modes for local journeys if they were cheaper, faster and required less effort.

Safety

When evaluating the safety of a journey, participants commonly considered the following, especially when travelling at night:

- If modes had staff present at interchanges and at train stations
- If journeys involved quiet interchanges and services, where there might be few other passengers present
- If transport modes involved waiting and if services were reliable
- If travelling required walking in more dangerous and quiet parts of town or on roads without footpaths

Participants did not say that they considered the risk of road accidents and collisions associated with modes when choosing how to travel.

The following quote illustrates how participants articulated their experiences of safety.

> "[I don't like] waiting in the dark and feeling unsafe and exposed, and the uncertainty of not knowing whether a service was turning up or not."
> – current public transport user, rural

Participants wanted journeys to be safe and were unlikely to choose modes that felt unsafe, even if these modes were cheaper or more convenient. Women, people travelling with dependants, and those with mobility-related conditions reported paying closer attention to safety, as they were more likely to perceive certain situations as unsafe for themselves and those they were travelling with.

Conclusion: Implications for operational changes

Key learnings from this chapter and their implications for operational changes:

- Convenience and cost were top of mind factors that participants weighed up when deciding what mode(s) of transport to use. As a result, the more convenient and cost-effective multi-modal public transport is, the more likely it will be considered a viable alternative to driving.

- To increase convenience, operational changes should aim to reduce the time, effort and stress of multi-modal public transport journeys for passengers.

- Safety becomes a more salient factor for passengers using multi-modal public transport because this can involve more walking between modes and waiting at interchanges. However, safety was still not a top-of-mind factor for all journeys as most multi-modal public transport journeys were considered safe. Participants did not consider the risk of road accidents and collisions associated with modes when choosing how to travel.

3. Barriers and enablers of multi-modal public transport

This chapter details barriers to making multi-modal public transport journeys, in relation to time, effort, stress, cost, comfort and safety. These barriers were perceived by both public transport users and those who primarily travel by private car. These barriers typically meant that private car or single mode public transport were seen as preferable to multi-modal public transport. The reliability of public transport, especially in relation to buses, was a key barrier impacting uptake of multi-modal public transport journeys as it reduces convenience.

Addressing the barriers to multi-modal public transport journeys through operational changes will be important in encouraging use of multi-modal public transport. This research suggests that information provision and frequent services have potential to be important enablers of multi-modal public transport journeys because they address a range of barriers, including unreliable services.

While cost was felt to be a barrier to public transport journeys in general, the effort of buying multiple tickets was not spontaneously identified as a barrier to multi-modal journeys. This affected participant views on how impactful integrated ticketing was expected to be, as explained in Chapter 4.

It should be noted that some barriers related to more than one factor, and are therefore discussed in more than one subsection (see table 1 below).

Table 1

Barrier	Time	Effort	Stress	Cost	Comfort	Safety
Bus and train services often do not align	✓				✓	✓
Transfers often involve walking to and waiting for connecting services		✓			✓	✓

Barriers and enablers related to time

Participants generally felt that multi-modal public transport journeys were slow, and slower than driving if travelling locally. This was influenced by their experiences using individual modes of public transport, particularly buses, as well as specific experiences of making multi-modal journeys. In the online community, participants were asked to research how they might make a local journey using multi-modal public transport and this task reinforced perceptions of multi-modal journeys as being slow.

> "I can just jump in the car and get there. I couldn't do that on the bus, as I have to wait for when a bus comes along."
> - predominantly private car user, urban

Barriers

Barriers relating to time:

- Public transport can be unreliable due to delays and cancellations, which can affect subsequent parts of a journey and its overall duration. For instance, participants noted that if a bus to the train station is delayed, they might miss their intended train and must wait for the next one. To prevent this, participants reported taking earlier services to avoid missing connecting services.

> "When I previously lived 20 minutes out of the center of town, [my journey] always required additional time for the bus [as I left early in case it was late] and then to catch a train to Bath."
> - predominantly private car user, urban

- Multi-modal public transport typically involves buses, which participants described as less reliable and slower. They reported instances of buses not arriving, travelling at slow speeds, taking indirect routes, and making frequent stops to pick up or drop off passengers. Participants who had not recently used local bus services still viewed them as less reliable and slower.

> "Buses are always late, very slow, unreliable."
> - predominantly private car user, urban

- Bus and train services often do not align, which means passengers may need to spend considerable amounts of time waiting for connecting services.

> "Buses and trains do not seem joined up. So, you can make a bus journey to the train station and be waiting tens of minutes if not longer to catch the train service - that is if it runs on time!"
> - predominantly private car user, urban with rural

- Bus routes into towns do not always stop near the town's train station, leading to longer walks and therefore journey length. For example, participants said that in Norwich the

bus station is a 15-minute walk from the train station.

Case study 1: Barriers relating to time

Sarah lives in Bristol and travels to work by car. She researched to see if it would be better for her to use public transport instead and concluded that public transport would not be a better option for her as the journey would be so much longer.

Sarah said the journey would involve a bus, a train, and then another bus. She said that, from experience, she knows that the first bus is often very busy, which means she might not be able to get on the bus at her preferred time.

If this happened, she would have to wait 15-20 minutes for the next bus, slowing down her journey and meaning she would miss her train. As a result, she said she might need to start her journey earlier to ensure she gets to the train station on time.

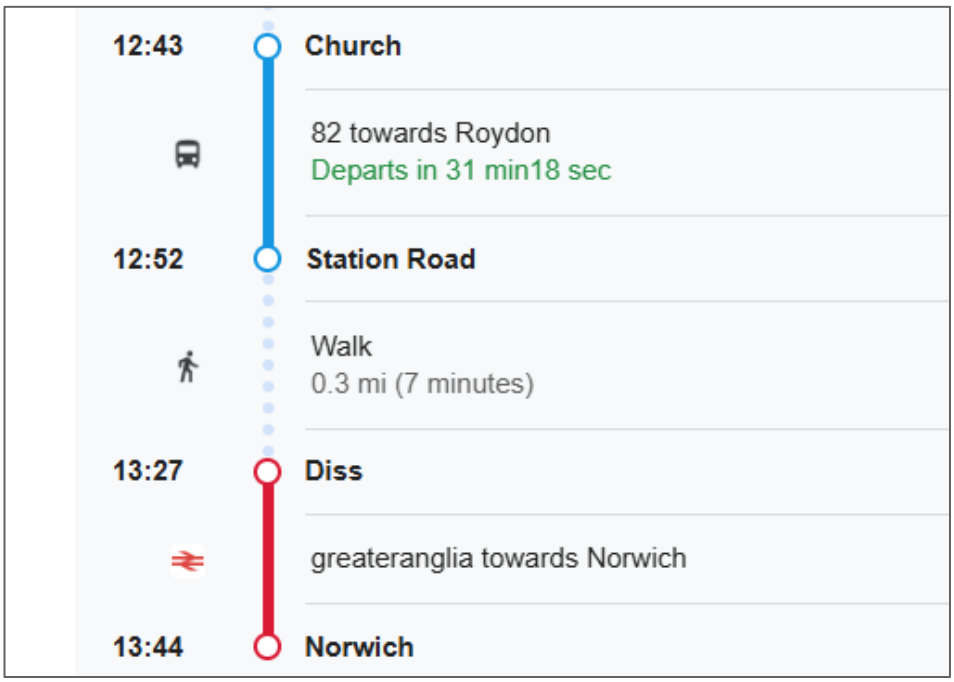
Even if the journey all went to plan, Sarah said the first bus would take her over twice the amount of time it takes to drive to the train station.

> “This would be an inconvenient journey. If I undertake it by car, I can travel door to door in 45 mins. Public transport would mean I would arrive over an hour later than the 10am required.”
>
> - predominantly private car user, urban

Case study 2: Barriers relating to time

Michel lives in South Norfolk. When researching how he would travel by public transport to his local city, he found that bus and train services don’t align. This means that after taking the bus to his local train station, he would have to wait half an hour at for the next train service to arrive. He said that this wait is too long.

Figure 2 – Michel’s journey to Norwich



Enablers

Participants described experiencing a number of enablers to making multi-modal public transport journeys relating to time. These were:

- **Frequent services**, as this addresses the barrier of unreliable services, minimising the impacts of delays as the next service will arrive sooner.
- **Real-time service information**, as this addresses the barrier of unreliable services by allowing passengers to start journeys later when they know their service is experiencing delays.

Case study: Enablers relating to time

Joan lives in West Chester. She often travels into Liverpool.

Joan said she has a bus stop 200m from her house and buses from this stop to her local train station leave every half an hour. From there, trains into Liverpool go every 15 minutes. This means that she only needs to spend time planning which bus she will get, as she knows that whenever she arrives at the station, a train will depart soon.

She also mentioned that she has real time bus updates on the local bus app. She said this is very helpful as she knows when buses are delayed and can set off later from her home, rather than wasting time waiting at the bus stop.

"If I was going to Liverpool from here, the trains are quite frequent, so it doesn't matter too much if the bus arrives after a train because I won't have too much of a wait [until the next

train].”
- current public transport user, urban with rural

This research included two focus groups with participants commuting to and living in London. Their experiences of travelling in London highlighted several enablers to multi-modal public transport journeys in relation to time:

- Driving is slow in London due to congestion and low speed limits, which means multi-modal public transport journeys were generally felt to be faster than driving

"[Multi-modal travel is the] fastest option and better than driving.”
- London

- Fast and reliable underground service which are regularly used as part of multi-modal public transport journeys, making them quick

- Frequent services and numerous routes and public transport options means services regularly align, even if delays are experienced, and passengers can use alternative services/routes if there are cancellations

- Accurate real time bus information as this allows passengers to feel more in control of their journeys and plan effectively if delays are experienced (see also Mohammed’s case study on the benefits of using the TfL Go app).

However, it is worth noting that buses were still commonly felt to be unreliable and slow, especially as participants compared them to underground services.

Barriers and enablers related to effort

Multi-modal public transport journeys were often felt to require more effort compared to driving, which was felt to be low effort. The inherent mental effort of combining modes could also make multi-modal journeys appear more demanding. For some this perception was based on previous experience of making multi-modal journeys, while for some drivers it was based on the perception that combining public transport modes could never compete with going by car in terms of effort. Again, researching a local journey as part of participation in the online community could highlight the effort that might be involved in combining transport modes, whether the mental effort of planning the journey or the physical effort of moving between modes.

“It’s so much easier that I can go door to door with my car and unload bags of shopping.”
- predominantly private car user, rural

“Journeys by car offer freedom to travel anytime and anywhere and allow me to go at a time that is convenient to me.”
- predominantly private car user, urban with rural

Barriers

Participants described the following barriers relating to the effort of making multi-modal journeys:

- More public transport legs need to be researched and coordinated, which can increase the overall planning required by passengers. This barrier led participants to frequently opt to replace one segment of a multi-modal journey with driving (typically the connection to or from a train station) as driving was perceived to require minimal planning.

> "[An easy to plan journey] means I do not need to factor in multiple modes of transport and different departure times."
> - predominantly private car user, urban with rural

- Changing between modes can require thinking and effort, such as thinking about what stop to get off at and how to navigate to the next service

> "Having to do the process of switching over to a different type of transport is a hassle… having to then get dressed again [putting on your coat] and gather belongings before getting comfortable on a second mode of transport is time consuming and annoying."
> - current public transport user, urban

- Transfers often involve walking to and waiting for connecting services, which can be tiring, especially for those with mobility conditions and travelling with children, dependents or with shopping/luggage.

> "The distance to train stations and bus stops can also be difficult as walking a lot as a disabled person…but doing so while carrying luggage/shopping can be even more exhausting and detrimental."
> - current public transport user, urban

Case study: Barriers relating to time and effort

Stephen lives in Dunstable. He frequently uses trains from Tring, Hemel, Luton or Leighton Buzzard to travel into London for work and leisure. He said he was either dropped off at train stations or drives and pays £10 for parking. If travelling home late, he said he might pay for a taxi from the station.

Stephen would like to be able to get a bus to/from these stations, however bus services tend to be infrequent (for example, there is usually just one available bus service every two hours), require multiple changes and 15-25 minutes walking, and do not run late or align with train times.

Stephen said that to get to Tring train station, it would take one hour by walking and bus, or an 18-minute drive. The bus goes every 30 minutes.

> "I would like to be able to take the bus to the train station…[but] I think it is very difficult to take more than one mode of public transport as buses are not frequent or convenient

enough to link up with train travel."
- current public transport user, rural

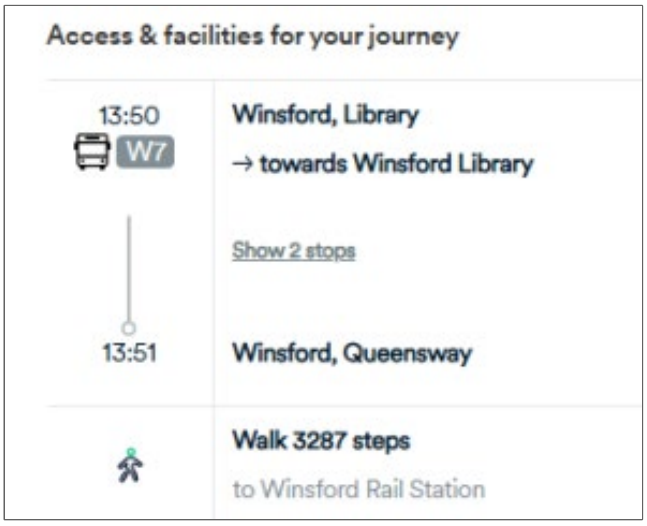
Case study: Barriers relating to time and effort

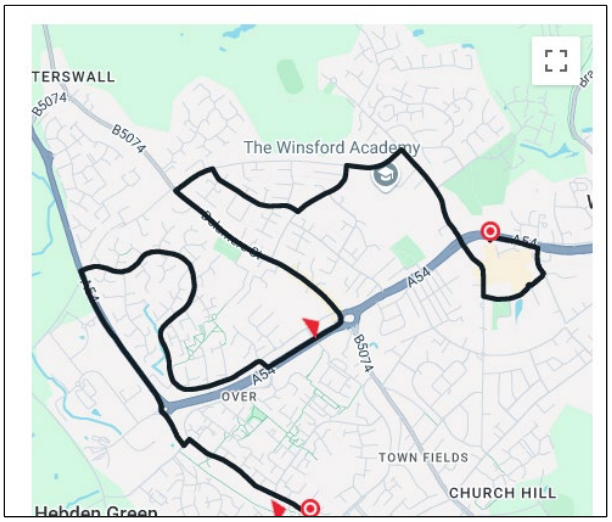
Fatima's route to her local train station in Winsford if travelling by public transport is detailed below.

The bus goes into the town centre but not the train station, which means she would need to walk over a mile and a half to the out-of-town train station.

Additionally, the bus route going into town is indirect and slow, adding additional time to any multi-modal journey.

Figure 3 (below left) and 4 (below right) - Fatima's walk from the bus stop in town to the out-of-town train station, and the indirect route of the bus into town.





Enablers

Participants shared several enablers that reduced the effort of making multi-modal public transport journeys:

- Frequent and aligned services reduced planning effort by reducing the need to plan to avoid waiting too long for connecting services. For example, participants in Manchester said they did not need to plan connections with trams as they come every six minutes.

"If I was going to Liverpool from here, the trains are quite frequent, so it doesn't matter too much if the bus arrives after a train because I won't have too much of a wait [until the next train]."
- current public transport user, urban with rural

- Contactless payment reduced the effort involved in purchasing tickets. For example, those visiting Manchester and London said it made travel easy as they could "*jump on and off*" public transport without needing to plan ahead or buy individual tickets. However, it is worth noting that the effort associated with purchasing tickets was not seen as a barrier to making multi-modal journeys.

> "I like how easy it is to hop on and off and tap in and out using contactless payment methods [in Manchester].
> - current public transport user, rural

In addition to contactless payment, participants in London shared further enablers that they felt reduced the effort of making multi-modal public transport journeys:

- Information provision reduced the effort needed to plan multi-modal public transport journeys. For example, participants described using CityMapper and TfL Go to quickly and easily plan journeys.
- Numerous routes and public transport options means multi-modal public transport journeys often consisted of less walking as passengers could combine modes and services to get closer to their destination.

> "[I like that combining modes] gets you closer to your destination. If it's working, I don't mind how many times I have to change if the changes are smooth."
> - London

Barriers and enablers related to stress

Multi-modal public transport journeys were often considered stressful, while driving was typically felt to be stress free, except in congested towns and cities, or areas with difficult parking. Perceptions of stress were based on personal experiences of using single mode and/or multi-modal public transport – previous experiences of stress when taking the train or bus on a single mode journey could create reservations about combining modes.

> "Using my car is comfortable and, most of the time, relaxing. I live in a rural area and the roads are generally quiet and trouble-free."
> - predominantly private car user, rural

Barriers

Barriers relating to the stress of making multi-modal public transport journeys:

- The more services taken, the higher the chances of delays and cancellations, which can cause stress as passengers might need to quickly replan multi-stage journeys and deal with arriving late (such as being late for work). Further, small delays in one service can have large knock-on impacts on the journey's total time if these mean a connecting service is missed. This can increase the stress experienced by passengers.

  As with the effort of researching more legs, this barrier also meant participants often

chose to replace one leg of a potential multi-modal journey with driving (commonly driving to/from a train station) because they wanted to limit the chance of delays.

"Two modes adds another variable that can go wrong."
- predominantly private car user, urban with rural

"Making journeys that involve more than one type of public transport is stressful and time consuming. Delays mean that connections are missed, and I have had multiple occasions where this caused me huge problems."
- predominantly private car user, urban

- Moving between modes can be stressful if interchanges are busy, poorly signposted and when travelling with dependents

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Case study: Barriers relating to stress

Nicole lives in Chester; she used to frequently travel to Manchester city centre to get to work. For this journey she had to take a bus and a train. Nicole relied heavily on the reliability and frequency of the bus and train service to get to work on time.

The bus and train ran about every 30 minutes. Nicole needed to get the 7.30am bus to catch the 8.20am train to be at work for 9am. If Nicole did not catch the 8.20am train, the next train was at 8.55am, which made her very late for work.

Nicole said she found combining buses and trains to get to work stressful. She knew that if her bus was delayed or cancelled, her whole journey would be severely delayed.

"I found the first leg of the journey very difficult and stressful as I am completely reliant on that bus service."
- current public transport user, urban with rural

Enablers

Participants described the following enablers that could reduce the stress involved in making multi-modal public transport journeys:

- Frequent services, as well as numerous routes and public transport options, as this addresses the barriers of stress associated with delays by giving passengers greater ability to re-plan journeys, with minimal knock-on impacts and time delays.
- Real time information for bus services, as this helps to overcome barriers associated with unreliable services. This is because when passengers can see where buses are they feel more in control of their journeys, can re-plan journeys more easily and can anticipate when they will reach destinations.

Participants also felt that, in some cases, congestion and confusing road layouts in towns and cities made driving unpleasant and stressful, which sometimes made multi-modal public transport a preferable option. Participants described opting for public transport to avoid driving under these conditions, such as not driving into Liverpool city centre to avoid confusing one-way road systems.

Participants in London shared similar enablers:

- Fare structures and caps that are built into the oyster and PAYG system operated in London means that passengers worry less about incurring additional costs if they need to change their route while travelling because changing bus within an hour does not incur additional fees and underground costs are calculated by zone
- Frequent services and numerous routes and public transport options reduced the stress of making multi-modal public transport journeys as passengers can use alternative services/routes if there are cancellations
- Real time information online and on display boards helps passengers to feel more in control of journeys

"If the bus I want isn't coming, I get another one along the way and you know you won't be charged for the next bus."
- London

Case study: Enablers relating to stress

Mohammed lives in London and used to be wary of using buses as well as the underground as he was "*scarred*" by experiences of waiting for buses "*that never came*" near where he lives. He said that this left him feeling that using buses would be too stressful because he would not be confident about getting to his destination on time.

He described how using the TfL Go app had transformed his experience of using buses. Mohammed really trusts the app to be accurate, and it has encouraged him to be more open to making multi-modal journeys.

"The TfL Go app is fantastic, the bus times are accurate, it tells you when the bus will be there… I can now take buses a lot more as I trust it."
- London

Barriers and enablers related to cost

Views on the cost of multi-modal public transport journeys varied, but car travel was generally considered cheaper than multi-modal public transport journeys for car owners, who commonly compared the cost of public transport tickets to the cost of petrol and parking (rather than factoring in the upfront and ongoing costs of buying and insuring a car).

Barriers

Barriers relating to the cost of multi-modal public transport journeys:

- **Multiple tickets need to be purchased which can increase journey costs**, meaning that multi-modal journeys are often more expensive than single mode public transport journeys or the perceived cost of driving (petrol and parking). This was particularly a barrier for those travelling frequently, e.g. to commute into work, as the additional cost of multi-modal travel adds up quickly and can feel unjustifiable if other methods are cheaper.

> "I think the cost [of the multi-modal public transport] is reasonable, however it does feel expensive as a regular journey when compared to it costing of petrol if choosing to go by car."
> - predominantly private car user, urban with rural

- **The cost of tickets accumulates when travelling with family** but this is not the case for car travel, which is considered better value with more people in the car.

> "The price would be a factor too - if I was travelling with my family, it would be cheaper to get an Uber rather than pay for all those single journeys [for a multi-modal journey]."
> - Current public transport user, urban with rural

- **Long distance multi-modal public transport often consists of a long-distance train,** which can be considered particularly expensive (especially when brought on the day of travel and at peak time) and make journeys considerably more expensive than petrol and parking if driving.

- **Public transport can be unreliable if delays and cancellations occur,** which may mean expensive taxis need to be taken to make connections. Participants in Bristol mentioned having to take a taxi to make train connections when buses were delayed at the bus stop.

> "I would be worried about missing the train as buses are unreliable, and the bus stop is a 15 min walk which isn't far, but if carrying luggage etc it would be awkward. Also, if the bus doesn't turn up I would have to order a taxi which makes it even more expensive."
> - predominantly private car user, urban with rural

Enablers

Participants described the following enablers to using multi-modal public transport relating to cost:

- **When travelling into towns with expensive parking and/or toll charges** as it can make multi-modal public transport cheaper than the perceived cost of parking. For example, participants said this was the case when travelling into Liverpool from West Chester as parking is expensive and the Mersey Tunnel has a toll.

- **If driving is inconvenient, slow, and uncomfortable**, such as when driving long distances, as this increased the perceived value for money of public transport and multi-modal options, even if petrol and parking were cheaper than public transport tickets.

> "Parking can sometimes be difficult in city centre locations; fuel can be expensive. There can be lots of being sat in traffic whereas buses can go in bus lanes and trains don't have traffic."
> - predominantly private car user, rural

- **When travelling with a free bus pass/travelcard/railcard** this reduced the cost of multi-modal public transport journeys.
- **When travelling with daily/weekly caps across services**, such as in London, as this reduced the cost of multi-modal public transport journeys.

Focus group participants travelling in London also said that capping enabled their use of multi-modal public transport, as they worried less about the costs of multi-modal public transport journeys adding up if they travelled regularly. However, it is worth noting that some participants, especially those commuting into London, had low understanding of capping rules and were cautious about adding to the cost of their journey by changing mode.

> "There are caps for daily and weekly travel, and you know that you're not spending more than you need."
> - London

Barriers related to comfort

Multi-modal public transport journeys were generally considered sufficiently comfortable, except in poor weather or when carrying luggage or shopping. In contrast, driving was perceived as consistently comfortable, even under these conditions. While there were a range of barriers in relation to comfort, participants did not share any enablers.

> "On a rainy day I also hate having to walk to public transport and would often jump in the car to save myself getting wet and cold."
> - predominantly private car user, urban

Barriers

Barriers relating to the comfort of multi-modal public transport journeys:

- **Transfers often involve walking to and waiting for connecting services**, which can be uncomfortable in cold or rainy weather, and if routes involve crossing busy roads and carrying large or heavy items like shopping.

> "Walking long distances with luggage is physically exhausting and uncomfortable."
> - predominantly private car user, urban with rural

- **Bus and train services often do not align,** which can mean passengers need to wait considerable amounts of time for connections, which can be uncomfortable if it is cold and raining.

> "For me, the things that make journeys that use more than one type of public transport unappealing are waiting around too long between the different types of transport in cold and bad weather."
> - current public transport user, urban

Barriers and enablers related to safety

Barriers

Multi-modal public transport journeys were generally considered to be sufficiently safe, but participants said they could feel unsafe if travelling at night and in quiet places. Women, people travelling with dependants, and those with mobility-related conditions reported paying closer attention to safety, as they were more likely to perceive certain situations as unsafe for themselves and those they were travelling with.

Participants described experiencing the following barriers relating to safety:

- **Transfers can require walking to and waiting for connecting services**, which can feel unsafe when it is dark, if walks are through quiet parts of town and if there are few other people, poor lighting and no staff at stations/stops.
- **Bus and train services often do not align,** which can mean passengers need to wait considerable amounts of time for connections, which can feel unsafe if it is dark and there are few other passengers and staff present.

Enablers

Enablers to multi-modal public transport journeys relating to safety:

- **Real time information,** which can increase feelings of safety as passengers know when their next service will arrive and how long they will be waiting for their connection.

> "Waiting in the dark and feeling unsafe and exposed, and the uncertainty of not knowing whether a service was turning up or not."
> - current public transport user, rural

Geographic variation of barriers and enablers

Although barriers were experienced across the locations sampled, barriers relating to time, effort and stress were particularly salient in rural areas.

Participants in rural areas were more likely to describe services as less frequent. This meant multi-modal public transport journeys often required more planning, and therefore more effort, as passengers needed to plan when to start their journey and travel to a bus stop/train station to avoid long waits for their first service to arrive. For example, Bristol

buses often come every 15-20 minutes, whereas in South Norfolk they often come every 40-60 minutes. Additionally, less frequent services meant that bus and train services were less likely to align. This meant that passengers needed to spend time identifying the best route and time of day to travel to minimise the time waiting for connections.

In rural areas, public transport options were less likely to take participants close to their destinations due to there being fewer bus routes. As a result, multi-modal public transport journeys were often slower and more effort due to the increased amount of walking involved. Also, there was little access to real-time bus information, which increased feelings of stress and uncertainty about making connecting services and arriving at destinations on time.

Conclusion: Implications for operational changes

Key learnings from this chapter and their implications for operational changes:

- Poor reliability - real or anticipated - (especially in relation to buses) was a key barrier impacting the uptake of multi-modal public transport journeys because it reduced convenience.
- Information provision could address barriers caused by unreliable services in several ways (including in London), such as reducing the effort required to plan journeys and allowing passengers to feel more in control of their journeys when services are delayed.
- Having frequent services was also highlighted as addressing numerous barriers caused by unreliable services by giving passengers greater ability to re-plan journeys, with minimal knock-on impacts and time delays, as well as increasing the likelihood that modes better align.
- Those with access to a private car also acknowledged that barriers to driving could act as enablers to making multi-modal public transport journeys. These could occur when driving is inconvenient and slow, and where parking and/or toll charges are high, as this increases the perceived value for money of public transport and/or makes multi-modal public transport cheaper than the perceived cost of driving.
- Free bus passes, travelcards and daily/weekly caps were also seen as enablers to multi-modal journeys in helping to address barriers related to cost. However while cost was a concern in relation to multi-modal public transport journeys, the effort of buying multiple tickets was not spontaneously identified as a barrier to making multi-modal journeys. This affected views on how impactful integrated ticketing was expected to be (as described in Chapter 4).

4. Operational changes to increase use of multi-modal public transport

This chapter explores participants' responses to five hypothetical areas of operational changes and their views on whether these changes could encourage greater uptake of multi-modal public transport in their local areas. The areas of operational changes discussed by participants were:

- timetabling and routes,
- fares,
- information provision,
- integrated ticketing, and
- interchanges.

Changes to **timetabling and routes**, **fares** and **information provision** were the operational changes that participants felt had the most potential to increase their use of multi-modal public transport. Participants felt that these changes would improve the convenience and reduce the cost of journeys, whilst also addressing barriers to multi-modal public transport. Although supportive of **integrated ticketing** (especially its capacity to support changes to fares, such as capping) and changes to **interchanges**, participants felt these changes would be less impactful. Although they were received positively, they were not expected to address their main or most frequently experienced barriers to making multi-modal public transport journeys.

This prioritisation of operational changes reflects the key factors considered when deciding how to complete a journey (reducing convenience and cost, as described in Chapter 2) and barriers to multi-modal journeys (as described in Chapter 3). There were no noted subgroup differences in participants' prioritisation of operational changes, but implementing changes to interchanges may have a bigger impact on those groups who were more concerned about personal safety.

Below we share response to each of the five areas of operational changes. We also include learning from the experiences and perceptions of those travelling in London. These highlight where aspects of these areas of operational changes were experienced positively in London, where there was felt to be scope to improve passenger experiences further, and considerations for implementing these changes elsewhere.

Timetabling and routes

Participants felt that changes to timetabling and routes should be a top priority as they were expected to increase the convenience of multi-modal public transport and address barriers to these types of journeys.

Key changes participants wanted to see implemented were:

1. Increased frequency and extending the times bus services run
2. Aligned bus and train services
3. New bus stops at train stations

Increasing service frequency and extending the times bus services run

Participants said they would like more frequent buses and, to a lesser extent more frequent train services, earlier and later bus services, and more bus services on Sundays and bank holidays when buses usually ran on an altered schedule. Participants generally wanted buses to run more frequently than they currently did in their areas, but there was no consensus on the exact frequency across locations sampled.

Participants prioritised this change because it was perceived to reduce the time, effort, and stress of multi-modal public transport (see table 2), as well as addressing barriers to these types of journeys.

Firstly, increasing the frequency of services was expected to help overcome the barrier that **public transport can be unreliable.** Having access to more frequent services was perceived to reduce the impact of any delays/cancellations, the stress associated with delayed journeys and the overall time spent travelling.

Additionally, increasing the frequency of services was expected to reduce the need to plan journeys to avoid long waits for services and connections. It was also expected to reduce the effort of planning journeys and activities around services, such as finishing social activities early to avoid missing the last bus home. As a result, this operational change was expected to reduce the impact of the barrier that **more public transport legs need to be researched and coordinated.**

> “I would use the bus service more if the services were earlier and more frequent.”
> – 45-59, urban with rural

Aligning bus and train services

Participants were enthusiastic about the idea of transport services being more aligned. Around 15 minutes was generally considered to be a reasonable wait time between services because participants did not want to rush if there are small delays but also did not want to wait long for connections. Perceptions of acceptable waiting times between services varied, such as by current public transport provision, with those living in areas with better provision generally wanting shorter waiting times. This research did not comprehensively collect the specific amount of time participants felt was acceptable to wait

and as a result, exploring acceptable wait times through quantitative research would be beneficial to better understanding variations.

This change was felt to have the potential to increase multi-modal public transport uptake because it would reduce the time, effort, and stress of journeys (see table 2).

This change also addressed a barrier reported by participants that **bus and train services often do not align.** This operational change was expected to directly overcome this current barrier, as well as reducing the risk of feeling unsafe or experiencing discomfort if travelling at night or in the cold and rain.

As aligning bus and train services would reduce the need to plan to avoid long wait times for connections, this operational change would also help overcome the barrier that **more public transport legs need to be researched and coordinated** since aligning bus and train services would reduce the need to plan to avoid long wait times for connections.

> "[By aligning services] it seems like it's creating one journey rather than multiple ones."
> –37 years old, urban with rural

Adding new bus stops at train stations

Participants prioritised this change because it would reduce the time and effort of multi-modal public transport journeys (see table 2).

This change also addressed barriers to multi-modal public transport. For example, as **bus routes into towns do not always stop near the town's train station**, adding new bus stops at train stations would directly overcome this barrier and reduce the amount of walking involved in a trip and therefore the length of the journey.

Additionally, because **changing between modes requires additional walking,** adding bus stops closer to train stations would reduce the amount of walking and therefore the journey time, effort and potential stress experienced (especially for those with mobility conditions, travelling with children, and/or with heavy shopping or luggage), as well as helping passengers to avoid feeling unsafe if travelling at night.

> "I think I would consider getting the bus to the train station if it was linked in with trains. However, the bus I get does not currently serve this purpose - it goes on to the nearest city. If it was proven to be effective, I may consider getting the bus to the train station to catch a train to where I was working that day."
> - current public transport user, rural

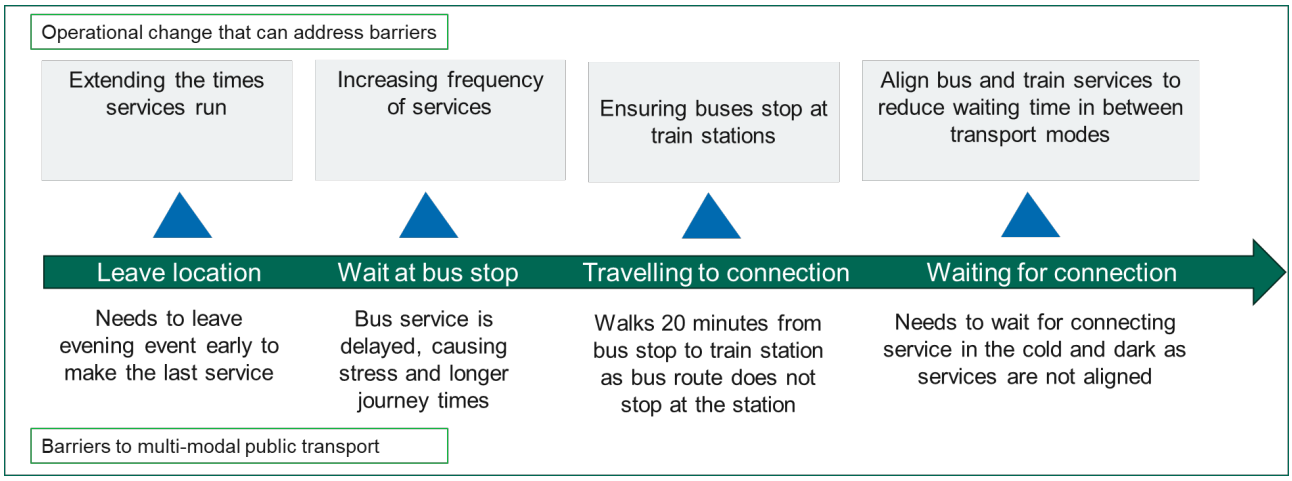
The table below summarises how changes to timetabling and routes could address passenger needs in relation to time, effort, stress, cost, comfort and safety:

Table 2

	Time	Effort	Stress	Cost	Comfort	Safety
Increasing frequency and extending the times bus services run	✓	✓	✓			
Aligning bus and train services	✓	✓			✓	✓
Adding new bus stops at train stations	✓	✓	✓		✓	✓

The diagram below is a composite case study based on the experienced and perceived barriers of multi-modal journeys designed to illustrate how timetabling and route operational changes could address these, based on participants' responses to these changes.

Figure 5



Discussion of routes and timetabling with participants travelling in London highlighted their appreciation of the tube network, which was perceived to be a strong foundation for multi-modal public transport journeys given its reach and the frequency of services. In contrast to this, trains and buses were perceived to be less frequent and more prone to delay. Buses were also felt to be less direct (albeit better than services outside London), compromising the convenience of multi-modal journeys.

This response reinforces the importance of a reliable and comprehensive local network that is not undermined by perceived weaknesses of individual modes.

Fares

Making changes to fares was welcomed by participants as this could reduce the cost of multi-modal public transport, as well as reducing the effort of securing cheaper tickets, and address barriers. These changes were felt to be particularly important to increase the consideration of multi-modal public transport among car drivers, who could choose to drive

and typically felt that this was a considerably cheaper option, especially when travelling with family.

Key changes participants wanted to see implemented were:

1. Daily or weekly caps
2. Family discounts
3. Fixed fares for trains

Daily or weekly caps and fixed fares

Participants were in favour of this change because it would reduce the cost of journeys for frequent travellers (see table 3), while addressing barriers to these types of journeys.

Firstly, having daily or weekly caps can help overcome the barrier of **more public transport legs needing to researched and coordinated** when completing multi-modal journeys. Caps reduce the effort of having to research to find the best ticket prices as passengers will know the maximum amount they could be charged for a day's or week's travel.

Introducing daily or weekly caps was also expected to reduce the cost of multi-modal public transport, as tickets for each leg of the journey were perceived to "add up" and often make these journeys more expensive than the perceived cost of driving (petrol and parking). As a result, this change would help overcome the barrier that **multiple tickets can increase journey costs** when traveling using multi-modal public transport.

> "Daily/weekly caps would be a great addition to Bristol. I think the convenience of not having to cost plan your journeys for the week and knowing how much you will be spending would be important to those that are budgeting."
> - current public transport user, urban with rural

Response from participants in London also highlighted the positive aspects of capping. Where it was understood, capping was appreciated by those travelling in London, and single pricing for multiple bus journeys within an hour was very appealing. However, some participants were not aware of capping or were unsure of how it worked and the specifics of pricing structures. Paying extra to travel across the zones in London could also be perceived to create complexity and make travel more expensive.

This response highlights the importance of clarity and simplicity in fare structures (although it may be important to retain zoning in areas where this would reduce costs for some).

Family discounts

Participants with children said they would like discounted family tickets on multi-modal travel, such as combined daily or weekend discount tickets. It is important to note that discounts are already available to families, so this response could reflect that awareness of these options might be low, or that the current discounts are not considered adequate. It would be worth exploring awareness of and attitudes towards family discounts in more detail quantitatively.

Participants with families felt that this change would increase their likelihood of using multi-modal travel as it would reduce costs (see table 3).

This change also addressed the barrier that **the cost of tickets accumulates when travelling with family**. Introducing family discounts was expected to make the cost of multi-modal public transport journeys more comparable to the perceived cost of driving, which does not accumulate the more people travel in a car.

"[I would like] a vastly reduced family ticket. If children are travelling with an adult, I do not think they should pay. It's the same way for park and ride works; you pay one fare for the entire carload of people. This would make it more cost effective in comparison to a car."
- predominantly private car user, rural

Fixed fares for trains

Participants wanted train fares to be fixed, so that their cost does not increase if bought on the day or at peak times, as was perceived to be the case for longer distance trains.

Participants prioritised this change because it would reduce the cost and effort of making multi-modal public transport journeys (see table 3).

It also addressed barriers to multi-modal journeys, including that **longer distance multi-modal public transport journeys often consist of a long-distance train** which can be expensive, especially when brought on the day of travel. As a result, fixed fares were appreciated to reduce the cost of multi-modal public transport journeys that are planned on the day and for peak hours and to remove the effort of having to research and buy tickets in advance.

"I believe fares should be the same price whenever you travel, this would encourage more people to use trains. A London ticket on the day can cost 150+. I can fill by car with 80 and that will get me back home as well. If prices were fixed, then everyone knows what you're getting."
- current public transport user, urban with rural

Table 2

	Time	Effort	Stress	Cost	Comfort	Safety
Daily or weekly caps		✓		✓		
Family discounts				✓		
Fixed fares for trains		✓		✓		

Information provision

Information provision was seen as essential to minimising the time, effort and stress of multi-modal public transport journeys, and therefore increasing their convenience.

Key changes participants wanted to see implemented were:

1. Real time information
2. Apps/websites that allow multi-modal journeys to be planned in one place, and ensuring bus information is up to date in known location
3. More in person staff

Real time information

Participants reported that they would like real time information and updates, particularly for buses, such as digital display boards at bus stops and apps/websites with real time information. Participants noted that in some areas digital display boards were already provided, but these only showed the bus timetable, rather than reflecting any delays or cancellations (such as in Bristol).

Participants thought this change would increase uptake of multi-modal public transport by reducing time and stress (see Table 4).

The provision of real time information also addressed two barriers to multi-modal transport: that **public transport can be unreliable (delays and cancellations)** and that **the more services taken, the more likely is it that delays and cancellations will be experienced**. Having access to real time information was felt to help address these barriers as it can allow passengers to plan their journey more easily and effectively (such as being able to leave their homes later is they know their first leg of their journey is delayed), feel more in control of their journey, and anticipate when they will reach their destination, which in turn reduces the time and stress of the multi-modal journey.

> “I would use public transport more [if there were real time bus updates], as I would be able to trust buses more. I don't like getting the bus mainly because I get stuck waiting for long periods of time with no information, even the apps sometimes don't tell you it was cancelled so you have to hope and wait.”
>
> – current public transport user, rural

Apps/websites that allow multi-modal journeys to be planned in one place, and the provision of up-to-date bus information in a known location

While it was acknowledged that Google Maps could be used to plan multi-modal public transport journeys comprehensively, participants felt that it did not always provide journey updates about delays and price information for different modes. As a result, they wanted apps where journeys can all be planned in one place with all the required information available. The Manchester Bee network, TfL Go and Citymapper were mentioned as good examples of apps that gave sufficient information on price, speed, and convenience. Participants in London also described appreciating apps such as these where whole journeys could be planned in one place, and where services could be tracked with real

time updates. This was a key enabler of combining modes and highlights the importance of real time information in unlocking multi-modal journeys and improving their convenience.

Participants also wanted up-to-date bus information to be available in a known location as they were often unsure where to find bus information and not aware of local bus apps (such as First Bus in Bristol). When researching buses, they often worried that information was out of date, such as pdf bus timetables available online or posters at bus stops.

> "If you could go online and it would give you the options and it was all connected up and you could buy all that together...That would make it much more attractive, and easier as well." – predominantly private care user, urban

This change was prioritised as it would reduce the effort of journeys (see table 4).

It also addressed barrier to multi-modal public transport that **more public transport legs need to be researched and coordinated.** Having a multi-modal planning app would reduce the effort needed to research and navigate journeys with multiple modes.

Providing easily accessible and up to date bus information would make planning multi-modal public transport journeys that involve a bus simpler. This change would help address the barrier that **multi-modal public transport typically includes a bus**.

> "If you're planning journeys, it would be nice to just see the entire route on one thing with live updates, because Google does show the entire route, sure, but it doesn't always give live updates."
> – current public transport user, urban

More in person staff

Participants wanted more in person staff to help passengers plan journeys, make connections and purchase tickets, especially for those less familiar with technology and less able to navigate travel websites/apps and ticket machines. For example, participants mentioned not being able to find staff in train stations when they needed help with ramps and lifts while travelling with children in prams and those with disabilities.

Participants prioritised this change because it would reduce the effort and stress of multi-modal public transport journeys (see table 4).

This change also addressed the specific barrier that **moving between modes can be stressful** as having more in-person staff was expected to reduce the stress of having to navigate to connection services, particularly at bus and train stations.

> "Not everyone has a smartphone so definitely an option to have a member of staff ready to help, to explain different options on the stations would be a bonus."
> – current public transport user, rural

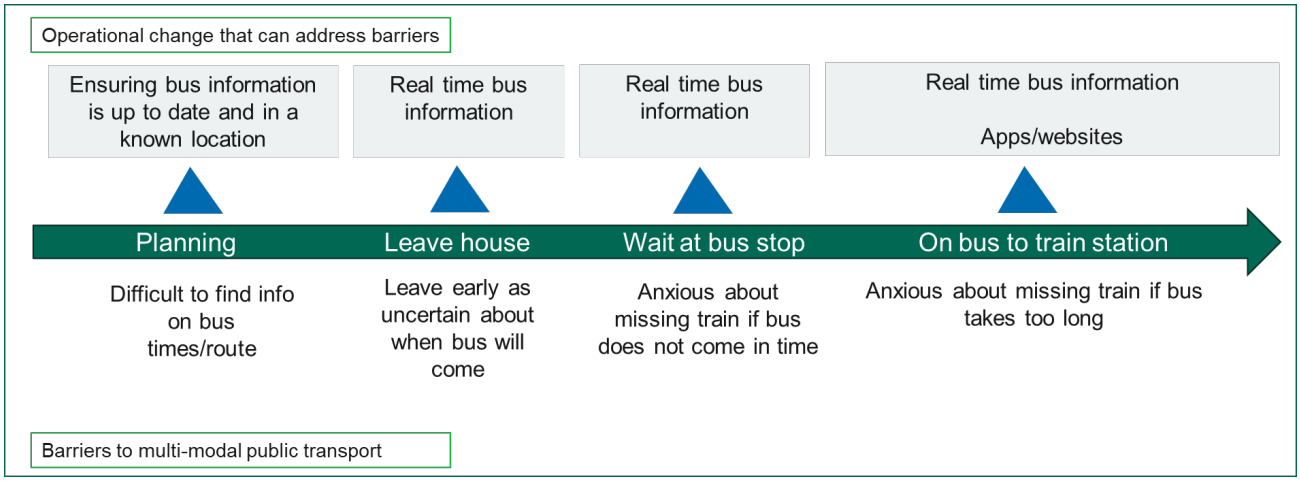
The table below summarises how these changes to information provision could address passenger needs in relation to time, effort, stress, cost, comfort and safety:

Table 4

	Time	Effort	Stress	Cost	Comfort	Safety
Real time information	✓		✓			
Ensuring bus information is up to date and in a known location		✓				
Apps/websites that allow multi-modal journeys to be planned in one place		✓				
More in person staff		✓	✓			

The diagram below is a composite case study based on the experienced and perceived barriers of multi-modal journeys and shows how changes to information provision could address these, based on participants' responses to these changes.

Figure 6



Integrated ticketing

Although participants were supportive of integrated ticketing and felt that it would be a helpful operational change, participants felt it did not address the main and most frequent barriers for them to the same extent as operational changes to timetabling and routes, fares and information provision.

Integrated ticketing appealed to participants in relation to reducing cost and effort. However, the effort of buying tickets was not perceived as a significant barrier to multi-modal journeys currently. This meant participants felt that integrated ticketing solutions aimed at increasing the ease of purchasing tickets were less likely to encourage greater use of multi-modal public transport than other operational changes.

> "Ticketing changes would not be enough to make me want to make more [multi-modal] journeys…Before ticket changes were implemented, the frequency, regularity and accessibility of public transport would need to improve from my rural location."
> – predominantly private car user, rural

Key changes participants wanted to see implemented were:

1. Discounted deals on integrated tickets (e.g. daily and weekly caps)
2. A contactless payment system
3. Websites, apps, or ticketing machines where bus and train tickets could be bought in one place

It is worth noting that despite integrated ticketing not being felt to be address the main and most frequent barriers for them, integrated ticketing can also play a role in operationalising changes to fares, which participants were very supportive of.

Discounted deals on integrated tickets

Participants found the idea of integrated ticketing particularly appealing if it were to include ticket discounts and/or daily and weekly caps. Participants were in favour of this change because it would reduce the cost and effort of multi-modal public transport journeys (see table 5) as well as addressing barriers to these types of journeys (see Fares for barriers overcome by reducing fares).

Contactless payment

Participants appreciated that contactless payments would increase the ease of switching modes (see Enablers for detail about experienced enablers of contactless payment). While this was an appealing suggestion, participants not from London also raised concerns that it might not allow passengers to get the cheapest price for a ticket (compared to buying tickets online on cost saving websites such as Split Ticketing), or to track the exact amount being charged for journeys.

While this change was expected to reduce the effort of multi-modal public transport journeys (see table 5), buying tickets was not reported as a current barrier to using multi-modal public transport. As such, this change was not expected to have the same impact as those changes which would overcome barriers.

> "There have been times when I've missed the metro due to the time it takes to buy a ticket, being able to tap in and out with my card (or preferably my phone) similar to the London tube would be appealing."
> – current public transport user, rural

Response in the London focus groups echoed the perception that contactless ticketing allowed for greater ease when switching modes. However, some participants did not have complete confidence in making contactless payments: some reported feeling uncertain whether payments had been correct when using Oyster cards and when passing through some tube or train interchanges where tapping in or out did not involve going through a

barrier. Those who had a TfL account felt that it helped to overcome this concern as they could easily trace what had been spent.

This response highlights the importance of giving passengers certainty in the accuracy of contactless payment, and clarity on what they need to do to make contactless payment work correctly when switching modes.

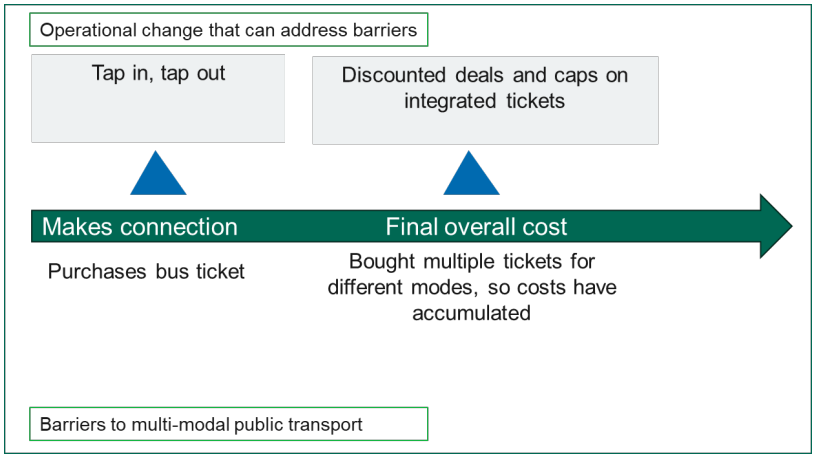
The table below summarises how integrated ticketing could address passenger needs in relation to time, effort, stress, cost, comfort and safety:

Table 5

	Time	Effort	Stress	Cost	Comfort	Safety
Discounted deals on integrated tickets e.g. daily and weekly caps		✓		✓		
A contactless payment contactless system		✓				

The diagram below is a composite case study based on the experienced and perceived barriers of multi-modal journeys and shows how integrated ticketing operational changes could address these, based on participants' responses to these changes.

Figure 7



The role of ticketing systems in addressing factors influencing transport choices

Ticketing systems perform several key functions that shape traveller decision-making, particularly in relation to cost, convenience, and multi-modal access. Integrated platforms, such as London's Pay-As-You-Go (PAYG) system and the Oyster card, enable users to travel across various transport modes using a single payment method. These systems also incorporate features such as fare capping and best-price guarantees, which can significantly affect travel choices.

The following functions within ticketing systems have specific impacts on user experience and transport behaviour:

- **Cost Minimisation**: Integrated ticketing systems often ensure access to the best available fare, thereby reducing the overall cost of travel. This function directly influences the cost factors of journey planning.
- **Fare Capping**: While not essential to integration, fare caps can be applied in integrated ticketing systems. These caps limit travel costs and simplify decision-making, particularly for users undertaking multiple journeys. By removing the need to calculate optimal routes based on cost, fare caps have the potential to lower the effort required. Additionally, certain fare caps, such as London's one-hour unlimited bus travel, could help mitigate stress during service failures. Travellers can switch modes without incurring additional costs, reducing the stress factor resulting from reliability issues on a particular mode.
- **Multimodal Access**: Integrated ticketing facilitates seamless travel across different transport modes. Although users felt this feature could be beneficial, the need to purchase multiple tickets was not widely perceived as stressful unless it resulted in increased costs. Therefore, this function primarily addresses financial barriers rather than effort-related ones.

Interchanges

Participants felt that improvements to interchanges could be effective at increasing the comfort and safety of multi-modal public transport. However, these changes were expected to have less impact on increasing uptake of multi-modal public transport journeys compared to operational changes around timetabling and routes, fares and information provision, given that most journeys were already considered safe and comfortable enough (see Chapter 2).

> "Whilst nice improvements, these would not change the cost, lack of convenience and speed of journey that are the main barriers to using public transport for me unfortunately."
> – predominantly private car user, rural

Key changes participants wanted to see implemented were:

1. Upgraded train waiting rooms and bus stops
2. More in person staff
3. Direct bus routes to train stations

Upgraded train waiting rooms and bus stops

Participants wanted new and upgraded train waiting rooms that are warm, well-lit, covered, and have CCTV with accurate service updates. Even those that did have waiting rooms at their local train stations said they were not always in the best condition and would benefit from an upgrade. Similarly, participants said they would like covered bus stops with service updates to provide increased feelings of safety and comfort. Those in more rural areas often reported that bus stops were only a post in the ground and only a few locations reported real time bus updates.

Despite participants generally feeling that most of their journeys were safe and comfortable enough, they felt improvements would still be welcome, particularly when taking more than one mode of public transport. As a result, participants appreciated this change because it would increase the safety and comfort of multi-modal public transport journeys (see table 6).

This change also addressed the barrier that **transfers can require waiting for connecting services.** This is because having new and upgraded waiting rooms and bus stops would increase comfort and safety for those who need to wait for connections, which can feel uncomfortable and unsafe if it is cold and raining, late at night and there are few other passengers or members of staff around.

> "I would use public transport more often if interchanging was easier, especially when it comes to travelling with children… I always worry that we're going to be stuck at a station in the cold. I'm fine, but I worry about my kids being cold."
> – current public transport user, rural

More in person staff

Passengers wanted more on-duty staff at train and bus stations in the evening and at quiet stations.

Participants appreciated this change because it would increase the safety of multi-modal public transport journeys (see table 6).

It was prioritised as it would help to address the barrier to multi-modal public transport that **transfers can require walking to and waiting for connecting services.** This is because having in person staff would increase feelings of safety for those who need to wait for connections in the dark and at quiet stations/stops, as well as reducing effort and stress (see More in person staff).

> "I think the availability of staff to help would make the biggest difference, as they could help re plan a journey if there were delays or changes to the service. It is also reassuring if you are a lone traveller."
> – predominantly private car driver, urban with rural

Adding bus stops at train stations

Participants prioritised this change because it was expected to increase the safety and comfort of multi-modal public transport journeys, as well as reducing the effort and time involved in a multi-modal journey (see Adding new bus stops at train stations and table 6).

It was also prioritised because having direct bus routes to train stations would reduce the amount of walking during interchanges, especially when it is cold and wet, dark or where this entails passing through quiet or unsafe areas. As a result, this change would address the barrier that **transfers can require walking to and waiting for connecting services.**

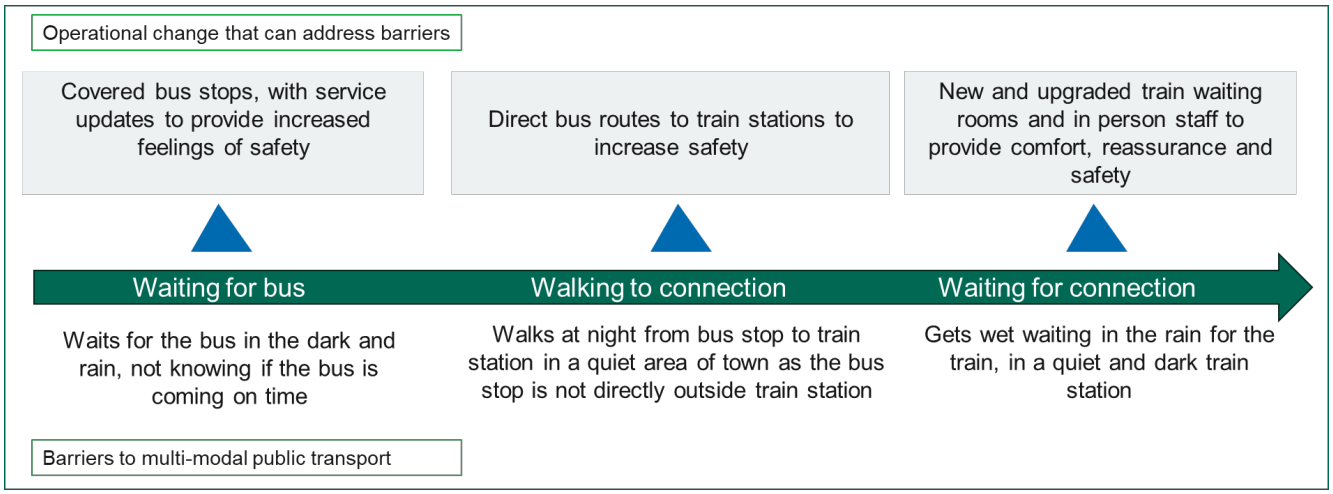
The table below summarises how changes to interchanges could address passenger needs in relation to time, effort, stress, cost, comfort and safety:

Table 6

	Time	Effort	Stress	Cost	Comfort	Safety
Upgraded train waiting rooms and bus stop					✓	✓
In person staff						✓
Adding bus stops at train stations	✓	✓			✓	✓

The diagram below is a composite case study based on the experienced and perceived barriers of multi-modal journeys and shows how changes to interchanges could address these, based on participants' responses to these changes.

Figure 8



Notably response from London participants highlighted additional barriers in relation to interchanges that should be avoided in implementation elsewhere. Long or confusing interchanges were perceived as a barrier to switching modes in London, particularly when moving from train or underground stations to bus stops. Participants shared examples of this being helped by signposting, such as showing which station exits to take for specific bus stops, but felt that it was hard to find information on this in advance. This response highlights the importance of providing information to improve the ease of navigating complex interchanges and reducing the mental effort of moving from one mode to another as well as the physical effort involved.

Conclusion: Implications for operational changes

Key learnings from this chapter and their implications for operational changes:

- Changes to timetabling and routes, fares and information provision were the operational changes participants felt had the most potential to increase their use of multi-modal public transport journeys. This is because they reduce the time, effort, stress and cost of multi-modal public transport, as well as overcome experienced barriers to these types of journeys.

- Although participants were supportive of integrated ticketing and changes to interchanges, and felt they would be beneficial changes, participants felt they did not address the main and most frequently experiences barriers and were unlikely to encourage a greater use of multi-modal public transport.

5. Conclusion

The key factors weighed up when considering what mode(s) of transport to use for local journeys were convenience, cost, comfort and safety. Participants from across the sample, including those with and without access to a car, and across a range of demographics, took these factors into account. Convenience and cost were top-of-mind factors for all journeys, while comfort and safety were less commonly considered because most modes and routes were considered safe and comfortable enough, unless travelling in certain circumstances (such as at night and when transporting heavy luggage). As a result, the more convenient and cost-effective multi-modal public transport is, the more likely it will be considered a viable choice and opted for over driving.

The perceived convenience of a transport mode(s) was generally based on three key variables: time, effort and stress, and convenient journeys were those that minimised these variables. Therefore, to increase convenience, operational changes should aim to reduce the time, effort and stress of multi-modal public transport for passengers.

It is worth noting that safety can become a more salient factor when using multi-modal public transport because these journeys can involve walking between modes and waiting at interchanges. This transfer between modes can feel unsafe at night and in quiet or unsafe places. However, safety was still not a top-of-mind factor for all journeys as most multi-modal public transport journeys were considered safe enough. When considering safety, participants tended to focus on personal safety, and did not mention considering the risk of road accidents and collisions associated with modes when choosing how to travel.

Overall, how sustainable a journey is was not a factor considered when deciding what mode(s) to use for local journeys. Sustainability became more top-of-mind when deciding how to travel abroad and whether to travel by plane.

How factors were weighed up could vary according to individual demographics and circumstances, or in relation to different types of journey. For example, those with conditions affecting mobility could be more concerned about reducing effort over other factors if certain modes made it particularly challenging for them to travel, and those travelling to work could be more concerned about minimising time and the risk of delay than those who were retired and making a leisure journey. However, it is important to note that those with and without access to a car considered the same factors when deciding how to make local journeys, and that this was consistent across locations.

Participants reported many current barriers to making multi-modal public transport journeys in relation to time effort, stress, cost, comfort and safety. The prioritisation of operational changes reflected the key factors considered when deciding how to complete a journey (reducing time, effort, stress and cost), as well as their potential to overcome current barriers to multi-modal journeys.

More frequent services and improved information provision were felt to overcome a range of barriers. For example, access to accurate real-time bus locations in London had helped overcome barriers created by unreliable services. As a result, operational changes around information provision, timetabling and routes were felt to have the potential to increase the use of multi-modal public transport. These changes were also prioritised because they increase would convenience, which was a key factor participants weighed up when deciding what mode(s) of transport to use for a journey.

Although participants were supportive of integrated ticketing and felt that it would be a helpful operational change, participants felt it did not address the main and most frequent barriers for them to the same extent as operational changes to timetabling and routes, fares and information provision. This perception affected participants' views on how impactful integrated ticketing operational changes might be and participants felt that integrated ticketing was less likely to encourage greater use of multi-modal public transport, compared to other changes, unless it reduced costs. Nevertheless, integrated ticketing remained appealing to participants, particularly for its potential to reduce both cost and effort through simplified payment options. Operational changes that reduce the cost of fares were considered to be particularly important in increasing the consideration of multi-modal public transport among car drivers, who had the option to drive and typically felt that this was considerably cheaper, especially when travelling with family.

Although participants were supportive of changes to interchanges, which would improve specific journeys at night or through quiet or dangerous places, participants felt these changes would not have the wide-reaching impact of other operational changes.

6. Appendix 1

A table showing the achieved sample of the online community and in-depth interviews.

Table 11

	Current public transport users	**Predominantly private car users**
TOTAL	29	28
In-depth interviews	6	6
Online community	23	22
PRIMARY QUOTAS		
Rural-urban classification		
Predominantly Urban	9	9
Urban with significant rural	10	9
Significantly rural	10	10
Mix-mode public transport journeys		
Uses bus and train combined in a single local journey at least sometimes	14	n/a
Does not use bus and train combined in a single journey, but would be feasible based on local transport options	15	n/a

SECONDARY QUOTAS		
Main journey purpose		
Commuting	14	12
Leisure	13	13
Business	2	3
Household income		
Below £15k	7	2
£15,000 - £30k	5	9
£30,001 - £50k	8	5
£50,001 - £80k	5	4
£80,001	4	8
Work status		
Working full or part time	13	18
Unemployed	13	2
Long term disabled	4	1
Stay at home to look after house / family	1	2
In full time education	5	
Retired	4	5
Private car access		
Owns a car	17	28
Do not own a car	12	0
Travelling with dependants		
Travelling with dependants	9	16
Travelling without dependants	20	12
Travelling with dependants		

Some travelling with dependants	6	14
Most travelling with dependants	3	2
Very few with dependants	6	8
None with dependants	14	4
TERTIARY QUOTAS		
Recent switch		
Switched to public transport in last 12 months	5	0
Started to use public transport more in last 12 months	7	5
Started to use public transport less in last 12 months	1	1
No change in public transport use in last 12 months	16	22
Age		
18-30	11	3
31-45	8	9
46 -59	5	8
60+	5	8
Gender		
Female	18	19
Male	11	9
Other		
Disabilities and impairments		
Has disabilities and/or impairments	13	9
Does not have disabilities and/or impairments	16	19