



Future Merseyrail rolling stock – what passengers want

April 2014



Forewords

Merseytravel

In 2003, Merseytravel took control of the local Merseyrail Electrics network, instead of the commissioning and awarding of the concession being dealt with by central government.

A decade later, the railway has seen huge improvement, with passenger satisfaction levels regularly among the highest in the UK. At the same time, passenger numbers have increased substantially and continue to rise. This has been achieved through a close working relationship between Merseytravel and the concession holder, Merseyrail Electrics 2002 Ltd (a 50/50 joint venture between Serco and Abellio). Working together, with key decisions taken locally has delivered results for passengers in improved services performance, investment in stations and innovation.

The Merseyrail Electrics fleet, which was built in the late 1970s, is now amongst the oldest operating in the UK. Rising passenger numbers are presenting an increasing challenge and it is clear that the current fleet, as is, will not be able to keep pace with projected passenger growth. The railway has seen strong growth in passenger numbers over the last ten years and this looks set to continue at a rate of over two per cent per annum, which will particularly impact capacity during peak periods. Failure to meet this demand could impact on economic development across the City Region. As part of Merseyside's 2011 Local Transport Plan, which provides a long term strategy for the improvement of transport in the region up to 2024, Merseytravel identified the need to address capacity on the Merseyrail Electrics network.

One of the options for Merseytravel to deliver this additional capacity is the replacement of the fleet. Fleet

replacement would also allow other improvements to be introduced including reduced journey times, improved reliability and a significantly improved passenger experience.

With a value in excess of £300 million, the initiative would be one of the most significant infrastructure projects of its type in the UK. Although passenger satisfaction with the existing trains is relatively high, as they stand, they are fast approaching the end of their anticipated design-life and will not be equipped to cope with the predicted rise in passenger numbers.

Any new trains coming into service on the Merseyrail network, would have to take into account predicted passenger growth, and would be an integral feature of the long term rail strategy being developed by Merseytravel for the Liverpool City Region.

In developing the specification for any replacement trains, Merseytravel wishes to ensure that passengers' opinions and aspirations are fully understood to allow them to be incorporated wherever practical to do so. As a result, Merseytravel approached Passenger Focus to undertake a series of comprehensive surveys. Passenger Focus' knowledge and understanding of passenger needs and expectations, previous research experience and involvement in rolling stock projects made them a natural partner for this work.

The results and insight of this work will inform the development of the Project. By listening to passengers we can deliver a project that the whole of the City Region can be rightly proud.

David Powell
Programme Director
Merseytravel

Passenger Focus

Passenger Focus considers it vital for passengers to be involved in the design of new trains at the earliest opportunity. Without proper consultation at the right level and time, passengers could end up having to travel on trains that fail to meet both their existing and future needs.

Passenger Focus holds a unique place within the industry in having no vested interest other than trying to secure the best possible deal for passengers. We were therefore pleased to be able to work with Merseytravel on

this joint piece of research, with the goal of establishing what design features and facilities passengers think any new trains should incorporate. Passenger Focus agreed to work jointly with Merseytravel because they assured us that those passenger views had a genuine opportunity to shape all stages of the procurement and delivery of the project.

David Sidebottom
Acting Chief Executive
Passenger Focus

Research summary

Before anything else, passengers told us that they expect any new train design to make adequate provision for a number of basic requirements fundamental to their expectations being met – ‘hygiene’¹ factors.

Safety

A key concern to passengers, in the qualitative research, was the interface between the platform and the side of the train, and specifically the step up into the vestibule area. This was seen as being particularly difficult to navigate for those who were mobility impaired or those travelling with children (with or without pushchairs) or luggage/shopping; a difficulty exacerbated when the trains are busy.

Personal security

Passengers were keen for the visibility of CCTV to be improved and welcomed the possibility that live CCTV images might be screened within carriages. Any such screens could have the dual benefit of being able to provide an enhanced level of passenger information. Whilst satisfaction with personal security (86 per cent) inside the train is already high, the fact that passengers marked it as the most important attribute to improve demonstrates its underlying importance to them.

Accessibility

Ensuring that trains are accessible to passengers with disabilities was considered to be essential by all user groups. Beyond that though, passengers expressed a desire for a definite improvement in the space made available for those with pushchairs and bicycles, and for the intended use of such space to be clearly defined. Bicycles can currently be taken on to all Merseyrail services, even during the busiest times of the day, 55 per cent of all passengers agree that that policy should continue. This included a majority of those who don't currently travel with a bicycle (67 per cent). The need to ensure that there is adequate storage space for bicycles on the new trains is therefore important to passengers.

Having satisfied those core needs, passengers indicated that there were a number of additional factors that would help determine their satisfaction with any new trains.

Seating configuration

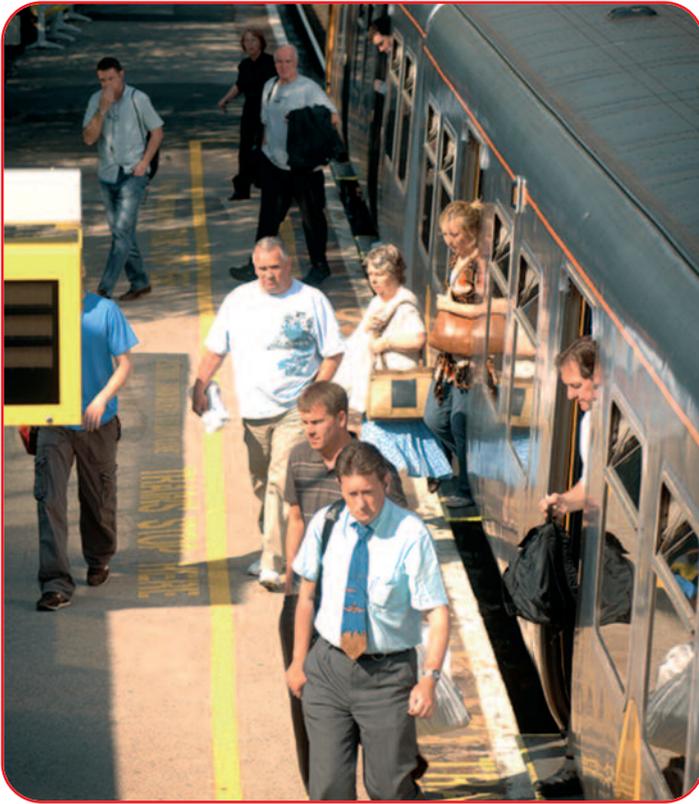
While passengers are keen on retaining the space and comfort provided by the existing bay seating, the predicted growth in passenger numbers will require a mix of seating styles so that better provision can be made for standing passengers and those requiring more space for pushchairs and bicycles.

Of those passengers that currently stand on Merseyrail services, just 46 per cent were satisfied with the space available to stand and only 41 per cent with the provision

of grab rails. Therefore provision of improved facilities for standing passengers is a key requirement.

The current levels of passenger satisfaction with the amount of personal (71 per cent) and luggage (58 per cent) space, at a time when 92 per cent always or usually get a seat, suggest that the need for the designers to provide an improved sense of space will only become more acute when passenger numbers rise. This is further demonstrated by the clear preference





that passengers expressed for 'open-plan' trains (70 per cent), where there are no partitions between carriages, creating a more spacious feel. Whilst bay seats were the most popular (50 per cent), there was also significant appetite for new seating layouts such as 'airline-style' (33 per cent) and to a lesser degree, longitudinal seats (11 per cent).

Whatever seating mix Merseytravel decide upon, the comfort of those seats will be an important part of maintaining and improving passenger satisfaction, as it was the most common spontaneous priority for improvement stated by passengers (10 per cent).

Temperature

The inability of the current trains to provide an ambient temperature in line with seasonal variation is a frustration for passengers. While air conditioning was top of mind, they were open to alternatives, provided that they were efficient and effective. This would allow Merseytravel to explore a number of different solutions during the design process.

Cleanliness

Once introduced passengers were aware that any new trains would instantly provide a cleaner travelling environment. But they were keen for the design itself, for example through the provision of litter bins, to help ensure that a high level of cleanliness could be maintained. When asked to pick from a predefined list of possible improvements the most popular choice (48 per cent) among passengers was the addition of litter bins.

Beyond the above there were a small number of enhancements, which, if delivered, would help exceed passenger expectations now and meet them in the future beyond 2020.

Wi-Fi

While not essential in the context of the typically short journeys that are undertaken on the Merseyrail network, passengers felt that this would have a positive impact on the overall journey experience. Its provision in the future might also become more of an expectation amongst passengers, as it becomes more widely available in public spaces.

Next steps

This research provides a comprehensive insight into passengers' requirements for any new trains, should this option be the one which Merseytravel selects.

It will also inform any other fleet modernisation options. The findings are being thoroughly analysed and incorporated into the specifications and outline designs that Merseytravel are developing, which would form the basis of the procurement process. Understanding these issues at the outset of the project is critical to providing a fleet of trains which truly deliver an enhanced travelling experience for Merseyrail Electrics' current and future passengers.

However, this is far from being the end of the process. Merseytravel envisages engaging with representative passenger groups throughout the process of developing the trains' design. The engagement will be undertaken through further qualitative research, with Passenger Focus, supported by design material and the construction of mock-ups of any new trains.

The continued success of the Merseyrail Electrics network can only be achieved if we meet and exceed passengers' expectations. This work will help Merseytravel to achieve that aim.

www.merseytravel.gov.uk

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Future Merseyrail rolling stock

– what passengers want

Qualitative research report



Management summary

As part of Merseyside's third Local Transport Plan, which sets out the long term strategy for improving transport up to 2024, consideration is being given to replacement of the rolling stock used across the Merseyrail Electrics rail network. Any such significant investment in the new trains would aim to deliver world-class facilities and enhanced journey experiences tailored to meet the needs of Merseyrail passengers.

Given the strategic importance of such an infrastructure project and the need for customer input to help inform the design process, Merseytravel approached Passenger Focus to commission and manage a programme of research.

Passenger Focus has considerable experience of conducting research in relation to rolling stock and what passengers think of it. When new rolling stock is being commissioned, Passenger Focus believes it is important to seek the views of those who will use the trains, at the earliest possible stage in the design process. The work will also help inform any other fleet modernisation options.

The first stage of qualitative research comprised six focus groups (90 minutes each) among commuters, business and leisure users of Merseyrail services. Six accompanied journeys (60 minutes each) were also conducted with disabled passengers - two with impaired mobility, two with impaired vision and two with hearing impairment.

Passenger expectations and priorities for the new trains can be illustrated using the conceptual framework of a needs hierarchy.

1. 'Hygiene' factors

At the most fundamental level passengers expect these needs to be met. They are basic requirements and failure to provide them is likely to be a cause of dissatisfaction. Key priorities identified from the research at this level are listed below.

Passenger safety

The interface between the platform and the side of the train and the step up into the vestibules is a cause for concern to passengers using the current trains.

Personal security

Improved visibility of CCTV cameras and the provision of a visual display screen, showing live footage, are likely to be welcomed as enhancements to allay any current concerns over personal security. The screen will also have an important role to help improve the quality of information available to passengers.

Accessibility

Ensuring the new trains are accessible to passengers with disabilities is considered to be an essential requirement among all user groups.

2. **Critical success**

Ultimate passenger satisfaction with the new trains will depend on the extent to which they are perceived to deliver against a number of 'critical success' factors.

Seating configuration

A balance between passenger preferences and future demand forecasting will be required in order to meet the strategic objectives for the new trains. The optimal approach is likely to comprise a mix of seating styles and a multifunctional area to accommodate dedicated priority spaces for wheelchairs, pushchairs and bikes.

Temperature

Temperature is a current source of dissatisfaction for many passengers when using the existing trains. Whilst air conditioning was top of mind for most passengers, this was because they were not aware of the wider options available. A range of solutions should therefore be considered.

Cleanliness

Passengers were keen that once introduced the new trains would have an improved level of cleanliness (and that there should be improvements to the current trains in the short term).

3. **'Enhancements'**

The provision of certain facilities would exceed the initial expectations of passengers.

Wi-Fi and power sockets

These were not considered to be essential in the context of typical journeys made on Merseyrail services but if provided they may have a positive impact on overall journey experiences.

1 Introduction

1.1 Research objectives

The overall objectives of this research were to use feedback from passengers to:

- Understand passengers' views about the design of existing rolling stock to inform the design of any new trains.
- Understand passengers' views about the design of new rolling stock for Merseyrail services.
- Understand passenger views on issues such as staff presence, help points etc.
- Provide advice about the key passenger issues in respect of the specification of any new trains and the relative importance of facilities to be provided on them.
- Provide Merseytravel with a robust evidence base on passenger opinions, and priorities to inform the design specification and proposals for any new rolling stock.

1.2 Methodology and sample

Qualitative research comprising focus groups and depth interviews was conducted to meet the research objectives. The sample was constructed to represent passengers travelling for commuting, business or leisure purposes on Merseyrail trains using the Wirral or Northern lines (some were travelling by rail for multiple purposes).

All respondents completed a pre-sensitisation exercise before attending the research. This was in the form of a brief, open-ended questionnaire to capture perceived strengths and weaknesses of Merseyrail trains and suggestions for potential improvement.

The focus groups comprised a mix of regular and occasional users of Merseyrail services and those making short journeys (less than 20 minutes) and longer journeys (more than 20 minutes).

Fieldwork was conducted on stationary trains at Southport and West Kirby stations in July 2013. Full details of the sample structure are outlined below:

Six discussion groups, each lasting approximately 90 minutes as follows:

1. **Commuters, aged 20-60 – Southport**
2. **Commuters, aged 20-60 – West Kirby**
3. **Business users, aged 20-60 – Southport**
4. **Leisure users, aged 20-40 – Southport**
5. **Leisure users, aged 41-60 – Southport**
6. **Leisure users, aged 61+ – West Kirby**

Additional recruitment criteria

- All groups contained a mix of both sexes and social grades
- All were recruited on the basis of type of journey made most often
- Group 3 business users were also recruited as being regular commuters
- Groups 4, 5 and 6 included a mix of travelling frequencies in each group
- Groups 4, 5 and 6 included passengers with experience of travelling with heavy luggage and pushchairs/children
- A good mix of passengers from different stations across the network were represented in each group
- None of the respondents only used the City line
- Some leisure passengers occasionally travelled at the weekend, but tended to use the bus or car during the week
- Representation of passengers across the sample who have experience of travelling on other networks such as London Underground/Overground, Metrolink in Manchester and Tyne and Wear's Metro.
- Some in each group had experience of using Merseyrail after dark
- Some had experience of taking a bicycle onto Merseyrail trains

Six accompanied journeys (approximately 60 minutes each) with passengers who had a disability were conducted on the Wirral and Northern lines, as follows:

- Two passengers with mobility impairments
- Two passengers with vision impairments
- Two passengers with hearing impairments

2 Train access/egress

In the context of broad passenger satisfaction with most aspects of the current Merseyrail trains, access and egress was identified as being a key concern across all of the focus groups. The research highlighted two important issues in this respect, both of which had an impact on perceptions of personal safety.

2.1 Step height

Conducting the focus groups and depth interviews on trains provided a clear illustration of this issue and the nature of the problem it poses for passengers. At all stations, respondents indicated the presence of a large gap at the interface between the platform edge and the door entrances. This was agreed to be universal across the network rather than specific to the stations being used during the course of the research.



At best, the height of the step into the vestibule was considered to be difficult to negotiate for many passengers in normal circumstances. These difficulties were thought to be a particular problem for those with mobility and vision impairments who needed to take extra care when boarding and alighting. One or two respondents mentioned that they had needed to provide assistance to elderly passengers in the past. Respondents who made journeys with pushchairs or bikes also identified the step height as an additional obstacle, as did women who wore high-heeled shoes.

“The only problem is the height of the step from the platform, especially if you are trying to get on with a bike and women with pushchairs struggle with that as well.”

Commuter, Southport

“I would like to travel with my grandson but I find the step up to the train is too high for me to get the buggy on the train.”

Leisure user, West Kirby

“I have had to help people on and off before, women with buggies and elderly people.”

Commuter, West Kirby

For all passengers, these issues were felt to be exacerbated when travelling at peak times, especially at busier stations. At worst there was some feeling that under certain circumstances, the step height could become dangerous rather than just difficult.

2.2 Platform gap

This was regarded as a related but different issue from the step height. Passenger concerns in this respect were focused on the gap between the platform edge and the side of the train in the area between the sets of doors. There was some feeling that this gap seemed to be wider than previously experienced when travelling with other train operating companies (TOCs), although this perception may have been based on somewhat unreliable memories during the research.

“The height from the platform to the train is difficult for me and I don’t like the big gap either side of the door so you can see the track.”

Leisure user, West Kirby

Despite the fact that a discussion group environment can create a forum in which consumers are inclined to over-claim and exaggerate, there was consistent evidence to suggest that this represents a genuine safety concern for passengers. This was on the basis of the gap being wide enough for a person to fall between the train and the platform. This was a particular concern for older passengers, parents travelling with young children and for those using stations that become crowded during peak times.

“Kids could easily fall down there. It’s difficult to get on with a buggy and shopping. I have had to literally carry my kids onto the train.”

Leisure user, Southport

“I don’t need to use the pole, I only hold onto it for security reasons when I get on and off because I’m frightened of the gap.”

Leisure user, West Kirby

3 Vestibule

The research identified congestion in the vestibule as being a frequent problem when travelling on Merseyrail trains. This was not felt to be an issue that is unique to Merseyrail services, since some respondents claimed to have experienced this when travelling with other TOCs and on London Underground. However, in the context of current passenger volumes and the fact that most are able to get a seat, even during peak times, this seemed to be a bigger problem on Merseyrail trains, in relative terms.

“This area always tends to be full because people prefer to stand here rather than move down the train where they will lose their balance.” Commuter, West Kirby

Crowded vestibules outside peak hours tended to indicate the existence of underlying issues and contributing causes. A number of themes were identified in this respect that may help to understand and explain this.

Much of the congestion seems to be caused by passengers travelling with bikes and pushchairs standing in the vestibule areas. This was often assumed to be the easiest option due to the relatively large floor space and not having to navigate round other passengers and the partition on either side of the entrances. This was confirmed by respondents who acknowledged themselves to be guilty of causing an obstruction in the past with their own bikes or pushchairs.

“There is usually a bike in the middle with people struggling to get past it to get off the train with buggies.”

Leisure user, Southport

At a spontaneous association level, these problems were thought to be a result of having too few dedicated spaces available on current trains. In reality, other explanations were identified at a more considered level. Whilst there were occasions when there were more bikes on a train than dedicated spaces available for them, passengers recognised it was more common for the bike spaces to be unavailable for use because of other passengers sitting in the tip up seats. This problem is exacerbated by the lack of clear signage to indicate which carriages have accommodation for bikes. The cyclists in the sample explained how they had to run along the platform to find a (vacant) space or adopt the easier alternative of standing with their bike in a vestibule.

The problem for parents with pushchairs is even more acute on the basis that there is currently no dedicated provision for them. This results in the situation where pushchairs need to compete with spaces intended for bikes or wheelchairs. As a result the vestibule often becomes the default option due to the lack of a clear priority system in the carriages.

In addition to the inconvenience and difficulties this causes in relation to access and egress, congested vestibules create the perception of an overcrowding problem on trains that in many cases is an unfair reflection of the reality. Overcrowding itself is known to be a major cause of dissatisfaction among regular passengers and a significant usage barrier to those who make infrequent journeys. Overcrowding also has an adverse impact on many other aspects of the

travelling environment. Most important in this respect is the perception of being unable to stand in comfort or safety in the vestibule area. This contributes to other problems associated with a lack of personal space such as discomfort caused by noise pollution and hygiene concerns.

When the vestibules are congested with passengers, bikes and pushchairs, this means that the gangways are inaccessible to those who may want to use this space when no seats are available. This in turn results in the space inside the carriages not being used efficiently which contributes to the perception of overcrowding on Merseyrail trains.

“The problem with these trains is that the aisles are too narrow so people tend to stand by the doors which makes the train feel more full than it really is.”

Commuter, West Kirby

4 Saloon area

4.1 Current gangways

Gangways on the current trains are often not easily accessible to passengers from the vestibule area. The research uncovered a number of possible factors that explain why passengers are currently disinclined to use this space:

Looking down the carriage after boarding the train, the gangway has the appearance of being a narrow and uninviting space. The impression is that the aisle serves to provide access to the seats rather than serving the dual function of being an area that is meant to be occupied by standing passengers.

- The main reason for passengers being reluctant to stand in the gangways is the widespread perception of not being able to do so safely or comfortably. This is primarily due to the lack of usable grab poles in this part of the carriage (even in comparison to the vestibule areas). The rail attached to the overhead luggage shelf was considered to be too high and/or too far away from the aisle for most passengers to reach comfortably and the discs on top of the seats were thought to be difficult to hold firmly enough to provide stability when standing on a moving train.

“When the train is full there’s nothing to hold onto for security. There used to be straps hanging from the ceiling but there are other things that could be done.”

Leisure user, West Kirby

- The narrowness of the space creates the perception that there is a risk of those who move down the aisle becoming trapped there. This creates concerns about being able to get off quickly enough and perhaps missing the intended stop, especially for those making relatively short journeys.

“I don’t want to go right into the carriage if it’s busy because I might not be able to get off at my stop if the train is full.”

Leisure user, West Kirby

- Some respondents complained about being hit by bags and rucksacks when seated by those jostling for position in the aisles. This was also cited as a reason for being reluctant to use a space that appeared not to have been designed to accommodate anything wider than a passenger of medium build.
- One or two participants mentioned that they found the unavoidable personal proximity, that can result from standing passengers leaning over those in seats, uncomfortable and embarrassing. This is obviously not a problem that is unique to Merseyrail trains, but the narrowness of the aisle was felt to make this type of closeness more difficult to avoid.

“I don’t like standing in the aisle because I feel as if my bum is in someone’s face and it makes me feel uncomfortable when I am right on top of them.”

Leisure user, West Kirby

“I feel uncomfortable if have to stand up against someone who is sitting down because of the part of my body that is pressing against them.”

Commuter, West Kirby

4.2 Wider gangways

Respondents were asked to consider a possible trade-off between the width of the seats and the space available in the aisles. This was facilitated by the comparison that could be made while on the trains between two areas in the carriages with different gangway widths.

The picture on the left shows the gangway through the main saloon area of the current carriages. The relatively narrow aisle is due to the fact that the seats encroach into the middle from either side. This is as a result of the seat dividers illustrated in the picture on the right that have the effect of making each seat wider.



The potential gain in aisle width that could be achieved from narrowing the seats can be seen in the pictures below showing the wheelchair space. Although there is obviously more space resulting from the removal of seats on one side, the usable aisle space has also been increased since none of the seats in this area have dividers between them.



In theory, it would be possible to maintain the current seating configuration whilst creating wider gangways by removing the dividers between the seats. Some passengers felt that this would be an acceptable compromise but others were reluctant to sacrifice the additional levels of comfort and personal space that the dividers provide, for what was perceived as a negligible benefit for passengers standing in the aisle.



In reality, this is likely to be an academic argument. In the context of future demand forecasting for Merseyrail services wider aisles alone are unlikely to provide the additional space needed. This picture illustrates that if the trade-off is made in favour of wider aisles, this will not necessarily result in safer or more comfortable accommodation for standing passengers. The way the seats are configured is much more likely to provide the answers to the issue of increasing passenger volumes.

4.3 Seat configuration

Two important but conflicting issues became the focus of attention among respondents during the focus groups. The key themes that will need to be considered in relation to the design brief for the new trains can be summarised as follows.

Bay seats

The seating configuration was often spontaneously identified as a major strength of the current trains from the pre-sensitisation exercises completed by respondents before attending the research sessions. This was confirmed and reinforced during subsequent discussion in the focus groups and depth interviews.

Unsurprisingly, comfort was felt to be the primary consideration in this respect to the extent that this was often identified as being an area of current competitive advantage for Merseyrail over other TOCs. As discussed, the seats were felt to be adequate in terms of the amount of personal space they provided for passengers, especially those separated by dividers. The vast majority felt high seat backs also make a significant contribution in this respect, especially when compared to the shorter seat backs used on Northern Rail trains - the most immediate point of comparison for many respondents making regular journeys to Manchester. A small handful thought that the angle of the seat back became uncomfortable after sitting for any length of time.

The 2+2 bays elicited mixed views but were generally popular. Leisure users liked the informality of this seating style that allowed them to sit as a group and talk to friends or other family members they were travelling with. Even those who tended to make journeys alone, including some commuters, liked what they considered to be a sociable arrangement that encouraged them to make conversation with strangers sitting opposite them on journeys. This is in direct contrast to preferences often expressed by passengers who make regular journeys by train in London and the South East during the peaks.

“I prefer this seating arrangement because I often travel in a group of three or four so we can all sit together.”

Leisure user, West Kirby

However, some respondents in this sample claimed to feel uncomfortable when forced to sit opposite someone other than a travelling companion. Some admitted to feeling embarrassed and not knowing where to look in order to avoid making eye contact.



Others disliked being in a situation where they may be rubbing knees throughout a journey with a (tall) person sitting in the opposite seat. In both cases, there was spontaneous expression of interest in airline-style seats as an alternative.

"I don't like to sit facing people I don't know, so I tend to spend the journey looking out of the window so I would prefer to have a mix of different seat types."

Leisure user, Southport

"Sometimes if I have nothing to do I would prefer not to sit opposite someone because I feel at a loss to know where to look and girls putting make-up on would prefer not to sit facing a man."

Commuter, Southport

"I want privacy on the train if I'm reading a paper or using an ipad, I don't want to be sat facing people where anyone can see what I'm looking at."

Business user, Southport

The main objection to airline-style seating was the perception that the amount of leg room would be reduced. This may have been based on previous experiences of seats on airlines rather than airline-style seats on trains. Clearly this is an issue that relates to the pitch of these seats rather than an objection to this as a potential seating option. In reality, a mix of seating styles was often considered to be the optimal approach since this would allow passengers to choose their preferred style of seat.

"I think it would be best to have a mix of seats like they do on Virgin trains because then people could choose to sit in the type they prefer."

Commuter, West Kirby

"I like the idea of having the seats facing each other and then on the other side all facing the same way so people have got a choice then, because you'll get a group of people who want to sit together and families, but then you get a lot of single people or two people together."

Business user, Southport

¹ <http://www.flickr.com/photos/psd/> (the picture shown was not taken aboard a Merseyrail train)

London trains

Respondents were shown stimulus materials that included images of the interiors of new rolling stock now being used by London Overground and by London Underground on the Metropolitan and Hammersmith and City lines.



Reactions to this style of carriage were clear and consistent across the sample. Respondents understood why this design is needed on commuter routes in London, but felt they were inappropriate to the needs of passengers in the Merseyside area. The basis of this rejection was that these trains are designed to accommodate the needs of those who are standing rather than seated.

“That would work in London because the trains are so packed and there is no way to increase the capacity but there is no need for that here in my view.”

Commuter, Southport

“That’s what the trains are like in London now because they have to be designed for vast numbers of people who can’t all get a seat.”

Leisure user, West Kirby

“I don’t like it because to me it suggests there’s not going to be enough sitting room.”

Business users, Southport

Even commuters resisted such a low-seating density solution since they were unable to envisage a situation that would require such a radical approach in the foreseeable future. However, they did recognise that the current design would become untenable in the event of increasing future demand and therefore accepted the need for the new trains to be more spacious than the current ones.

“I wouldn’t want the whole train like that but they could have it in some sections so when it’s really busy people would know to go there to stand.”

Commuter, West Kirby

The walk-through, or open plan, carriages of the new London trains were felt to offer an ideal compromise in this respect. This was considered to offer the dual advantages of a modern design solution with extra capacity to accommodate additional passengers, especially those standing who are unable to get a seat at busy times.

“Being able to walk through the train would create more room so you could fit more seats or people standing in that space.”

Leisure user, Southport

5 Priority spaces

Across the sample, the provision of priority spaces was considered inadequate to meet the demand for them. A summary of responses and attitudes to the current provision and suggestions for improvement is outlined below.

5.1 Bike spaces

The intention was to attempt to recruit a few respondents across the sample with experience of travelling on Merseyrail services with a bike. In the event, this proved an easy quota to achieve and several regular bike users were represented across the focus groups.

As previously discussed, the lack of adequate provision for bikes was perceived to make a significant contribution to the problem of overcrowding in the vestibule areas. Closer consideration of this issue revealed that this may be due in part to the way in which these spaces are designed, as well as the number of them that are provided on each train.

“Safety is an issue because when bikes are stacked up they could fall on a small child so they definitely need to be properly catered for, even though I’m not a cyclist.”

Commuter, Southport

“Bikes on trains are dangerous because they block the exits so if there is an accident no one will be able to get off. In the old days you had to put bikes in the guards van but now there are only a couple of spaces.”

Leisure user, West Kirby

It was apparent during the discussions that there is a considerable degree of confusion and uncertainty regarding the way these spaces are currently used. Bike users and other passengers alike claimed to be unaware of the priorities or procedures that should apply in relation to bike spaces. The main cause of this problem is the two folding seats that are situated in each of the bike spaces. Cyclists claimed to be reluctant to ask someone sitting in one of these seats to move to make way for their bike. Other passengers confirmed they would not feel inclined to give up one of these seats if a cyclist boarded the train.

“How are you meant to put a bike in there when there is a chair in that space? I don’t put my bike here because there are always people sitting in those seats so I stand with it in the doorway.”

Leisure user, Southport

“People with bikes don’t always use the space so if they have priority that needs to be communicated to them so they use the space and make it safer for other passengers. If there are seats here people will use them so if you remove them it will be a clearer signal that this space is for bikes only.”

Leisure user, West Kirby

“The reason I don’t think of this as being a space for bikes is because there are seats in the way.”

Commuter, West Kirby

“If I got on with my bike and there was someone sitting there I wouldn’t ask them to move because I would feel it was rude so I would stand with it in the entrance.”

Commuter, West Kirby



The problem in this respect appears to relate to the perceived formality of this type of seat; once someone is sitting there is a reluctance to move or to ask someone to stand up. Most respondents agreed that the situation would be different if a perch seat was provided in this space instead of folding seats. It was widely expected that a passenger who is perching would feel less of a sense of ownership of their space than if they were seated and the priority for bike owners would become more obviously apparent.

“It’s annoying when people are sat on the seats where the bike space is. That’s why I don’t travel with my bike more because I would never feel that I could ask someone to move.”

Commuter, Southport

“I travel with my bike at the weekend and I use this space if it’s available but if someone is sitting there I won’t ask them to move.”

Leisure user, West Kirby

“I would be more likely to ask someone to move if they were perching on a rail rather than sitting on a folding seat.”

Commuter, West Kirby

5.2 Wheelchair (and pushchair) spaces

Wheelchair spaces were not subject to the same extent of confusion as bike spaces. The vast majority recognised that these are a statutory requirement and it was assumed that a minimum number of spaces on each train are mandatory. No respondents voiced any objection to the number of spaces currently provided or the possibility that more may be provided in future on the new trains.

The only problem identified was in relation to the lack of dedicated provision for pushchairs. Those who made journeys with young children were unhappy that cyclists have spaces for their bikes, but parents have nowhere to put pushchairs. Consequently, some claimed to have felt uncomfortable in the past about having to block the vestibule and causing inconvenience to other passengers.

“There is no space for buggies, so I have to sit here by the door and take up four seats but I will move if people want to sit but then I have to stand.”

Leisure user, Southport

“I take my son in a buggy to his nursery in the city centre but I started taking the bus because I felt that people were looking at me as if I was taking up too much space.”

Commuter, Southport



These problems were felt to be worse on occasions when passengers had put their pushchairs in the space intended for wheelchairs (or bikes). All felt that they should be entitled to use any available space on the train for pushchairs but equally none felt they should be using a space that was clearly intended for others. Although the few respondents for whom this was relevant in this relatively small sample had not been involved in disputes with other passengers, they were able to envisage how such a situation could arise.

“I would sit here with my buggy and if someone got on in a wheelchair I would move.”

Leisure user, Southport

“This is where a woman with a pram would sit and if someone gets on in a wheelchair they would have to negotiate.”

Leisure user, West Kirby

Since the current confusion is caused by a lack of communication around where pushchairs should go and the priorities that apply, this should be a relatively easy problem to address within the design of the new trains.

“I didn’t realise this was a disabled space and I have been using these trains for years. I thought it was for bikes and prams because I have never noticed the disabled sign before.”

Commuter, Southport

5.3 Multifunctional spaces

Some respondents thought that a possible pragmatic solution would be to remove all the seats from one or two of the current priority areas so that a portion of a carriage could be allocated specifically for the use of wheelchair users and those travelling with bikes and pushchairs. It was suggested that this area could also be used by others with suitcases or other large items of luggage. It was envisaged that this could be a current day, though more passenger friendly, equivalent of the guard's van that older respondents were occasionally able to remember.

On balance, however, this idea tended to be dismissed on the grounds that it could cause the 'ghettoisation' of passengers needing to use this area of the train. Some expected this would be less comfortable and hospitable than where the seats are situated and would therefore risk being perceived as second class accommodation.

"If I was disabled I would want options about where I could sit, I wouldn't want to be stuck with all the bikes and the buggies away from the other passengers."

Business user, Southport



Instead, there were positive indications of how priority spaces could be handled in future, based on responses to the current trains and the stimulus materials showing images of those used by other TOCs and London Underground. Although respondents dismissed the idea of London commuter trains and opposing rows of longitudinal seats especially, this design was felt to have potential as a multifunctional space. It was noted that removal of the partition by the door would facilitate access to such a space that could potentially be used by everyone. This would remove the possibility of marginalising any specific passenger group since it could be integrated within the main saloon area (possibly with a row of non-priority longitudinal seats opposite).

"You could have these seats down one side and folding seats down the other side which would create more space for people standing or buggies or whatever."

Leisure user, Southport

"Even when there are spaces for bikes and wheelchairs it's a struggle to get into them because you have to get past people standing and round the partition."

Leisure user, Southport

"The space should be combined because otherwise there will too much dedicated space that won't be used."

Commuter, Southport

6 Travel environment

6.1 Cleanliness

This was frequently identified as one of the main weaknesses of the current trains by respondents in the pre-sensitisation exercise. During the course of the focus groups and depth interviews, it transpired that there could be multiple definitions of what this could mean from a passenger perspective.

For some, this amounted to little more than a comment on the general condition of the trains and the fact that they are thought to be showing their age and general wear and tear. In this respect the interiors were felt to be in need of a deep clean that would include the upholstery, the windows and the floors. It was assumed that this should be happening on a regular basis for any mode of public transport and that Merseyrail trains were no better or worse than other TOCs or service providers in this respect.

“Look how dirty this train is, they need to be cleaned more often. They might mop the floors but they don’t get right into the corners where it’s all gungey.”

Leisure user, Southport

In most instances, comments in relation to cleanliness were to do with the presence of litter in the carriages. At best this would be discarded newspapers that may be recycled and used by other passengers; as such there were mixed views in terms of whether this constitutes a litter problem or a public service to other passengers. On balance, the general view was that the key criterion is the condition the paper is left in that determines what category it falls into. There were one or two requests for racks or bins to be provided so that papers could be left neatly for other passengers before being recycled.

“I would like to see pockets or something to put Metros in because it will get them off the seats and help to keep the train tidier.”

Leisure user, West Kirby

At worst, litter would be in the form of take away food cartons and drinks left in carriages. Many found the sight and smell of food especially offensive, whilst bottles or cans could roll around on the floor creating a mess over a wider area.

“The floor gets slippery when it’s raining and sticky when there has been a bottle rolling around and it spreads everywhere.”

Commuter, West Kirby

“People just leave their stuff on the train, there’s drinks all on the floor and paper stuffed down the side. I don’t think they’re cleaned regularly enough. I think there should be more done about that.”

Business user, Southport

Many noted that this problem is almost inevitable in the absence of bins being provided on trains. Some acknowledged that bins on public transport have been removed in the light of terrorist threats but felt that this would be unlikely to explain the lack of availability on Merseyrail trains.

Many were aware that clear plastic bags are often used for this purpose which was considered to be a sensible and acceptable alternative to having no bins at all.

“I understand the reason for not having bins on trains in London but surely the terrorist threat isn’t the same on the Wirral as it is in London.”

Commuter, West Kirby

These findings are consistent with those from other similar work that has identified perceptions of an unclean travelling environment as a strong potential driver of passenger dissatisfaction.² Consequently, there were frequent requests on this occasion for the new trains to be fitted with bins in order to help prevent this from becoming a problem in future. Some noted that other TOCs use the partitions by the doors or the space between back to back seats for this purpose and either or both were considered to be acceptable solutions.

“They did used to have bins in between the seats didn’t they but they’ve been taken away now.”

Business user, Southport



Indeed, this was regarded as a measure that should be mutually beneficial for passengers and Merseyrail in that it could make cleaning the trains quicker and easier. As such, there was considerable interest in the possibility of Merseyrail fitting bins in the current trains as an interim measure until the new trains come into service.

“Other train companies have rubbish bins so it must be a Merseyrail policy not to provide them.”

Commuter, West Kirby

² London TravelWatch, Passenger perceptions of the travelling environment, qualitative research, 2013

“I think there should be bins provided because sometimes there is an incredible amount of litter on the trains because people throw it on the floor. It would surely be easier for the cleaners as well.”

Commuter, Southport

6.2 Luggage spaces

In the National Rail Passenger Survey (NRPS) Merseyrail achieves a satisfaction score of 69%³ in terms of ‘space for luggage. When compared to other TOCs, this is a good score but there was some feeling across this qualitative sample that the current provision is not as functional or as well utilised as it could be. A number of issues were identified in this respect.

- The overhead shelf was thought to be too narrow to accommodate anything much larger than a laptop bag or the rucksacks that tend to be used instead of briefcases for work purposes.
- The shelf was also felt to be too flat compared to those that curve or angle upwards (as some claimed to have experienced when travelling with other TOCs).

“The luggage racks need to stick out further and be curved because at the moment you can’t fit much on them.”

Leisure user, Southport

“People tend to put their cases on the seats but you never see anyone put them in the racks above because it’s not fit for purpose, it’s not wide enough.”

Commuter, Southport

In both instances, passengers were reluctant to use the shelf to store large or heavy items or even bags of shopping due to concerns that things could fall from the shelf onto those sitting underneath.

“The luggage racks are a waste of space because they are too narrow. You couldn’t put a suitcase up there because you would worry about it falling on someone’s head.”

Leisure user, West Kirby

³ National Passenger Survey, Spring 2013, Passenger Focus



- Many were unaware of the spaces between the back to back seats or of the fact that these could be used to store smaller items of luggage. Some claimed to be reluctant to use this space because the floor might be dirty or because they could lose sight of their bag, especially in the event of it being pushed to the back by another passenger using the same space.

“I saw someone use the space between the seats the other day but I’ve never noticed it before.”

Commuter, Southport

“I wasn’t really aware of the space between the seats but I wouldn’t want to put my luggage somewhere where I can’t see it.”

Leisure user, West Kirby

- There is no dedicated provision for those travelling with larger items, such as suitcases. Passengers will therefore tend to stand with this type of luggage in the priority spaces or the vestibule, or to sit with them in the gangways if seats are available. None of these current options were considered to be ideal for someone travelling with suitcases or other passengers. There was some feeling that the multifunctional area, previously discussed in the context of priority spaces, could also be used for this purpose on the new trains.
- As a potential quick fix for current trains and a longer-term requirement for the new trains, improved signage was expected to encourage greater use of the luggage provision available.

6.3 Temperature

Current situation

It is important to note that the focus groups were conducted on stationary trains on very hot days in July. This naturally influenced discussions regarding the temperature on trains so this has been taken into consideration in the analysis of the qualitative findings.

There was sufficient and consistent evidence to suggest that temperature control is currently regarded as a problem on Merseyrail trains. As well as being too hot in the summer months, trains can also be too cold in the winter. There was also some feeling that additional problems are caused by the way in which the heaters are currently used. Some had travelled on trains that were uncomfortably hot during cold weather due to the heating being set too high, or left on for too long, for passengers wearing winter clothing. There was also some feeling that the heaters are used on days when it is not required.

“It can be too hot in the summer and in the winter the heating is on full blast when it doesn’t need to be. I’ve been told it is for health and safety reasons to dry the floor which is rubbish.”

Commuter, Southport

“The problem is in the winter months when you are wrapped up and get onto a packed train and the heaters are on so high that it’s boiling hot and you have to start taking clothes off.”

Commuter, West Kirby

Irrespective of the conditions on the days that the research was conducted, the temperature on the trains was consistently identified as a high priority concern for passengers and a problem that needs to be addressed.

“I don’t care whether they have windows or air con as long as they find a way to manage the heat and the cold better.”

Commuter, West Kirby

Air-conditioning

The automatic and reflexive response tended to be for passengers to request air-conditioning as the obvious solution. This was partly due to awareness that newer trains on some routes now have air-conditioning and partly due to the lack of awareness of any viable alternative. While it was generally agreed that air-conditioning would provide a more comfortable travelling environment, it was also acknowledged that this may not necessarily represent an easy solution to the current problems.

“I don’t know if I would want air conditioning because it re-circulates germs and makes it more likely you will get colds and we’re not in a really hot country so we’re lucky if we get any nice weather.”

Commuter, Southport

A number of specific reservations were also identified.

- Some had experienced air-conditioning that worked too efficiently on other trains; especially in summer months. Carriages were felt to be too cold for passengers dressed in light clothing for the hot weather outside. This is consistent with findings from other research among passengers who make regular journeys on air-conditioned trains.

“I prefer air-con but if they have it stuck on at a stupid temperature everyone is stuck with it and they wish they had windows.”

Leisure user, Southport

- Some were aware that air-conditioning is ineffective when doors are opened frequently. This therefore created some debate about whether air-conditioning is more suitable for longer distance journeys than on the Merseyrail routes with short distances between stations and frequent stops. It was felt by a few respondents that this could be allayed to some extent by having doors that opened on request (by pressing a button) rather than all opening automatically at every station (some had experienced this on other trains).

“If air con could be guaranteed to work all the time that would be the preferred option but I can’t see how it could be on these trains that are stopping all the time.”

Commuter, West Kirby

- This prompted discussion about the trade-off between having air-conditioning or windows that open, since it was assumed that it is not possible to have both. Some respondents stated they would prefer to have windows that open to provide ventilation rather than air-conditioning.
- One or two thought there may be negative implications with air-conditioning from an environmental perspective. However, no specific details were volunteered and this was not necessarily felt to be a reason in its own right to preclude consideration of air-conditioning as an option for the future.
- Cost was not spontaneously identified as a barrier among this sample. When prompted by the moderator, some expressed concerns about the possible impact this may have on fares.

Tinted windows

There were a few requests for windows to be tinted as an efficient way to help control the temperature in the carriages during the summer months. It was noted that this can be especially problematic on the west coast when the sun is setting in the evening. Tinting was also expected to help to reduce the glare that was identified as an additional source of discomfort and inconvenience, especially for those using laptops and mobile devices with screens.

“The windows need glazing that prevent the heat coming through and also reduce the glare. There are no blinds so on a sunny day you can’t read off a screen or do anything.”

Commuter, Southport

6.4 Facilities

Respondents were specifically asked to comment on their expectations in relation to the provision of Wi-Fi and power sockets on the new trains. Responses were mixed in this respect across the sample.

The reflexive reaction tended to assume that the new trains would be equipped with these facilities, primarily on the basis that it was difficult to imagine that Wi-Fi and sockets would not be considered nowadays. A few commuters, especially those making longer journeys, recognised these facilities could make a significant contribution to their ability to make better use of the time they spend travelling to and from work. Some were aware of other TOCs providing power sockets and of Wi-Fi being available on some services (especially Virgin). Most knew that Wi-Fi access has to be paid for in Standard Class on Virgin services but unsurprisingly it was hoped that if provided on Merseyrail trains it would be free of charge.

“If there were power sockets I would use the train for work instead of my car because I would be able to use my laptop.”

Leisure user, Southport

“There are lots of dead spots on the network so I would rather have Wi-Fi than power sockets because it should be our responsibility to make sure our devices are charged.”

Commuter, Southport

“I would use my phone more if there was free internet on the trains to check emails and things like that that I can’t do now. Some of the river buses have Wi-Fi and you expect most places to have it now.”

Commuter, West Kirby

“If you commute from Chester you spend an hour and a half on the train every day so you could get quite a bit done in that time.”

Commuter, West Kirby

At a secondary level however, many questioned the need for these facilities to be included as part of the new train design. Those making shorter journeys recognised that they would make minimal use of Wi-Fi on a regular basis and access to power sockets to give a quick boost to mobile devices was considered to be useful but not essential. Some concerns were also expressed about the possibility of power sockets being vandalised. Furthermore, the high penetration of smart phones on 3G networks was felt to make the need for Wi-Fi on Merseyrail trains somewhat redundant.

“I wouldn’t get my laptop out on such a short journey and I don’t carry the cable around with me.”

Leisure user, Southport

“These are more like shuttle trains so there isn’t a great deal of time to get your laptop out.”

Leisure user, West Kirby

In reality, interest in these facilities appeared to be driven mainly by a common desire to ensure future-proofing of the new trains rather than on the basis of the high anticipated need for them in the context of typical journey lengths on the network.

“Surely Wi-Fi is only going to get bigger and more popular so it should be available on the new trains, even for short journeys just to catch up with the news on your phone on the way to work.”
Commuter, West Kirby

6.5 Information

Reactions to the information provided on the current trains were consistently positive across the sample. In particular, respondents commented on the Passenger Information System (PIS) that is used to display details of the destination and the stopping points along the route. This was thought to be especially helpful and reassuring to passengers who travel less frequently or lack confidence when using trains.

One or two asked for the time to be shown as part of the display but otherwise there were very few spontaneous suggestions as to how this information could be improved. Some thought it would be helpful to display the destination and stops on the side of the train, especially to help avoid possible confusion that could be caused by the different routes on each line to prevent passengers boarding the wrong train.

During the focus groups conducted on trains, there were a few positive comments about the use of public information posters on board, advising passengers of bye laws relating to putting feet on seats, for example. However, there was minimal evidence of any previous spontaneous awareness of this type of information.

6.6 Visual display screens

When the possibility of introducing a visual display screen on the new trains was suggested by the moderator, responses tended to be neutral rather than immediately enthusiastic. Some expected this would be intrusive on the basis that it was assumed that the display would be audio-visual. This created concerns about the screens having a detrimental impact on the travelling environment. This was heightened on occasions when respondents anticipated that a high volume of advertising content would be shown, although there were few objections to the idea of advertising in the form of visuals only. Indeed, some thought this would be an ideal vehicle to promote events in the local area and could potentially be used as a revenue stream for Merseyrail that could be used to maintain the new rolling stock and help keep fares down.

Many were more positive about the possibility of the screens being used to provide an enhanced level of information, potentially in a more visually engaging format than the current display. Suggestions in this respect included details of facilities available at each station on the route, especially in terms of accessibility and toilets.



“A monitor would be good because everyone wants information on their journey and they could show adverts to get some money for Merseyrail.”

Commuter, West Kirby

“A monitor could be used to provide information about delays and any problems and could also provide information about local events. It would help to create a more modern feel and make passengers feel that some money has been well spent on the new trains.”

Commuter, West Kirby

The most positive response was in relation to the perceived security role that the screens could play. Personal security issues were not a dominant theme throughout the research but anti-social behaviour was frequently identified as an important area of concern. Respondents were often unsure of whether Merseyrail trains use CCTV cameras, but there were frequent requests for them to be more visible to provide an enhanced sense of reassurance. Many were aware of the increasing use of visual display screens on public transport to show CCTV images of passengers in all areas of the vehicle. This function alone was usually felt to provide sufficient justification for screens to be included as an important feature of the new trains.

“There are signs about the CCTV on the trains now but it would be better if people could see themselves on the monitors.”

Leisure user, West Kirby

“There don't tend to be problems on this line but I think there have been some issues on the Northern line. In the Echo you used to read about problems with gangs of lads.”

Leisure user, West Kirby

“Showing CCTV images on the screen would be a deterrent to anyone thinking of causing trouble and could be used to provide evidence if there are any problems.”

Commuter, West Kirby

“I would like to see a bigger song and dance made about video cameras, not in a big brother away, but something mediocre like ‘smile you’re on camera’ but making a point.”
user, Southport

6.7 Staff

Other than the driver, respondents were unaware of the role that Merseyrail train staff are supposed to fulfil. Indeed, many were unsure whether all trains currently have an additional member of staff travelling on board. Some were aware that the guard gets out at every stop to ensure passengers are safely on the train and to ensure the doors are closed but were unsure of any additional responsibilities beyond this.

“There is always a guard on the train but they don’t walk up and down the train, that only happens when the police get on. The guards don’t check tickets, all they do is open and close the doors.”

Leisure user, Southport

Some who were aware that the guard travels in an ‘office’ at the back of the train felt that he/she should be more visible throughout the train for at least part of the journey. While discussing this issue, respondents could see no reason why the guard could not be more proactive in terms of checking tickets, ensuring feet and bags are not on seats and providing a deterrent to those who might be responsible for anti-social behaviour.

“There should be a member of staff or a Community Support Officer on the train all the time, walking up and down because that would make me feel a lot safer.”

Leisure user, Southport

“It’s good to see someone on the train because having that presence makes you feel more secure. It’s good to know someone is there.”

Leisure user, West Kirby

“The guard should check tickets on the train and could be alerted if anyone starts misbehaving to sort things out.”

Commuter, West Kirby

In the context of personal security being one of the most fundamental priorities for anyone using any mode of public transport, it was felt that the primary role for a member of staff on board trains should be to ensure a safe travelling environment for passengers.

“If I travel late at night I sit in the carriage near the guard so if anything happens I could bang on the door. I think the guard should be more visible on the train because it makes people feel more secure.”

Commuter, Southport

“It’s reassuring when you see guards coming along but they’re few and far between.”

Business user, Southport



7 Disability issues

Specific issues among passengers with disabilities were broadly consistent with those that have been identified in previous rolling stock design research. These can be summarised as follows.

7.1 Wheelchair users

Specific needs among wheelchair users are understandably more acute than those identified among other passenger groups.

The ideal situation would be for the new trains to allow unassisted and therefore independent travel. The Manchester Metrolink was highlighted as a good template to follow in this respect. Given that this is not likely to be an achievable objective due to infrastructure constraints, it will be important to ensure that other requirements are met.

“The psychological impact of being unsure whether I can get on or off the train creates fear so I need to know someone will always be there in order to have confidence in the service.”

“I would prefer not to have to call ahead and to be able to get on and off like any other passenger so that part of my journeys is not subject to human error and I have flexibility about my destination.”

Arguably the most important of these is for staff to have the correct attitude, given that wheelchair users rely on staff to help them on and off trains and in the event of encountering any difficulties. This was highlighted as a current strength of the customer service that is provided but it was suggested that having a dedicated disability equality officer at Merseyrail would help to ensure that this is maintained (and would be beneficial for all disability groups).

“I’m not keen on using buses due to the attitude of some drivers and priorities can be uncertain and I don’t want to be put in a position where I need to assert my rights.”

Wheelchair users also need to know that train staff will respond to the alarm if activated. One occasion was reported when other passengers needed to intervene to get the attention of the driver when station staff were not waiting with a ramp. This is essential to ensure passengers have sufficient confidence in the service to use it at any time.

“Having the alarm is essential but it’s even more important to know that someone will respond to it if I press it.”

The provision for wheelchairs on current trains was considered to be challenging on busy trains. Cooperation from other passengers is often required to access the dedicated space so sitting in the vestibule may therefore be an easier option.

“Space is the main issue because there’s not enough room on these trains. Wheelchair access is practical if the train isn’t busy but it can become fraught at other times.”

The provision of extra dedicated spaces with more room around them was identified as a key requirement for the new trains. Additionally, these should be integrated with accommodation for other passengers in order to promote a sense of integration rather than segregation. A multifunctional area with clearly indicated priorities (as previously discussed) is likely to meet the needs of wheelchair users in this respect.

“There needs to be more wheelchair spaces and they should be considered within the overall seating design rather than being a dedicated area away from other passengers.”

Although this work was focused on the design of the rolling stock, it was noted that the benefit of designing trains around the needs of wheelchair users is somewhat diluted if they are not able to use trains due to stations being inaccessible.

7.2 Mobility impaired

The main needs identified by passengers with a mobility impairment can be summarised as follows.

Grab rails

Mobility impaired passengers rely on grab rails when moving through the train, or when standing, more than others. Getting on and off the train is especially difficult due to the height of the step from the platform and would be impossible for some without the grab rail on either side of the doors.

Dedicated spaces

Some mobility impaired passengers may be able to use any seats but others would find it easier to have priority seats in a dedicated area of the train with more space around them to facilitate access and egress from them. One or two requested a card or pass that could be shown if other passengers are using these seats since this type of disability is not always obvious to others.

“You can’t always tell if someone is disabled. I would like a plastic card to show that I am entitled to use priority seats because I don’t need a wheelchair and I don’t always have a walking stick with me.”

Seat height

One or two had difficulties getting into and up from any seat, including those on the current trains. They therefore requested priority seating that is either higher than standard or, ideally, adjustable. One respondent claimed he would prefer to use a perch rail as he needed to use a stick or the help of other passengers to get up from a seat.

“These seats are comfortable to sit in but the problem for me is that now I’m in it I can’t get out of it very easily.”

7.3 Vision impaired

The vision impaired respondents represented in the sample had partial sight rather than no sight at all.

Accessibility of the carriages is an important issue for passengers with a vision impairment. The step height from the platform can be especially difficult to negotiate and presents more of a safety hazard for those with partial sight. Textured tiles close to the edge of the platform were therefore considered to be especially important.

“The lines on the platform and the edge of the step on the train need to be clear in white or yellow because the step from the platform to the train can be precarious at some stations.”

Once inside the train, navigation is easier if all carriages have a consistent design and seating layout. The use of bright colours was also claimed to be helpful in this respect (e.g. to enhance visibility of grab poles that are helpful to passengers but could also be an obstruction if they are difficult to see).

“Sometimes bikes are an obstacle for me when they are in the doorways. I can see just enough to get round them but it can be difficult at times.”

“I like the yellow poles but if there are too many it becomes too busy and difficult for me to distinguish things.”

Ensuring access to information that is sufficiently clear is also a primary concern. Depending on the nature of the vision impairment, different colour combinations will be preferred by different people so it will not be possible to find a universal solution. However, the most important requirement is for information displays to be clearly legible, not too cluttered and ideally not located in high positions in the carriages. This obviously has implications that will need to be considered if visual display screens are introduced on the new trains.

“I need to sit close to the display or I can’t see it. I can’t read the orange very well so it would be better if the words stayed on the screen longer rather than scrolling across.”

Since some will find any form of visual information difficult, it is essential that these are supplemented by announcements that are clearly audible.

7.4 Hearing impaired

Previous research has indicated that issues relating to carriage design tend to be at a lower level for passengers with hearing impairments and this was confirmed on this occasion. Once again, most of the concerns and requirements that were expressed were in relation to the quality of the information provision.

These passengers rely more heavily on accurate visual displays and these were generally considered to be adequate on the current trains. The passenger information system was considered to be a helpful facility that provided an additional layer of reassurance to passengers, especially when travelling alone. The concept of new visual display screens was very positively received as they were expected to represent an enhancement to the current provision.

“I think the idea of a screen with more information would be great, especially if it is regularly updated and could be coordinated with tannoy announcements. I wouldn’t feel the need to concentrate so hard to make sure I’m not missing anything.”

“Sometimes I feel that I’m the only one on the train who doesn’t know why there is a delay because they only use announcements. It would be better if information about delays could be put on the screens, even if it’s just a short message like a tweet.”

Those with partial hearing will also rely on audio information. The clarity of announcements can be more important than the volume of them and this was identified as a generic industry problem rather than one that is unique to Merseyrail. One respondent mentioned that this had been a particular problem during the recent engineering work that affected the central loop. The problem in this respect seemed to be that announcements were not always well coordinated with the PIS which caused confusion since trains were terminating at different places during this period.

“Announcements can be a bit intermittent and I often miss bits of them. On other trains they tend to be clearer because there’s not so much interference.”

“Sometimes passengers have to get off trains but I only know when I see everyone else getting off. I would prefer to be more independent and not have to ask other people what’s going on.”

The quality of audio information is affected by background noise which is often a problem on trains. Noise from other passengers, tracks and tunnels create interferences that passengers with hearing impairments are unable to control. Anything that will help in this respect is likely to be welcomed, such as the availability of hearing loops and windows that are sealed.

“I get anxious if there is a lot of noise in the carriage, either from outside or other passengers, because I’m worried that I will miss an announcement.”

Bay (or pod) seating is often preferred by passengers who are deaf or have hearing impairments since this allows them to sit opposite travelling companions which makes signing and lip-reading easier than sitting next to someone in an airline-style seat.

A specific feature that was suggested was the inclusion of a visual cue to indicate when the train doors are about to close, to supplement the audible one.

8 Conclusions

The broadly consistent findings from the qualitative sample provide clear directions for Merseytravel to consider when making key decisions about the specification of any new rolling stock:

1. The interface between the platform edge and the side of current trains, and the step up into the vestibule, is a source of concern and a safety risk for some passengers. If it is not possible to address this with the new trains, it will continue to be regarded as a problem and a potential barrier to use for certain user groups.
2. Carriage access and egress is made more difficult by the extent of congestion in the vestibule areas that is frequently experienced when travelling on the current trains. This is caused by inefficient use of the space available and causes an exaggerated feeling of overcrowding that is a driver of dissatisfaction for many passengers. It will be important for the design of the new trains to address this, especially in light of the projected increase in passenger volumes.
3. The research considered the possibility of making seats narrower in order to increase the space available in the gangway to accommodate standing passengers. In reality, this is unlikely to represent an adequate long-term solution and a more radical approach to this issue will be required.
4. The seats and their current configuration are popular whilst the new generation of trains designed for London commuter services were widely dismissed as being inappropriate to the needs of passengers in the Merseyside area. However, a compromise between these positions will be required to successfully balance passenger preferences with the implications of future demand forecasting. Whatever the chosen solution, the final design should consider the needs of standing passengers, in particular the need for additional grab rails throughout the length of the train in order to enhance passenger comfort and safety, and to encourage passengers to move further down the aisles away from the vestibules.
5. In reality, a mixed seating solution within a more open saloon area is likely to be optimal as this will meet the needs of all user groups and is unlikely to be resisted in pragmatic terms by passengers.
6. The qualitative research findings are clear in relation to priority spaces.
 - Accommodation must be designed around the requirements of wheelchair users as the most fundamental priority
 - The presence of folding seats makes the bike spaces dysfunctional. The decision regarding provision on the new trains needs to be driven not only by findings from this research but by best practice from other TOCs and Merseyrail's future policy about allowing bikes on trains.
 - Dedicated and signposted provision for pushchairs is required to fill the current gap.

- Multifunctional areas in the new trains are likely to represent the optimal solution as long as they are integrated with accommodation for other passengers.
 - The implementation of any future solution will be facilitated by signage that provides a clearer indication of priorities that apply than is currently the case.
7. A number of opportunities to improve the travelling environment that will enhance the journey experience and levels of passenger satisfaction have been identified:
 - The provision of bins will help to maintain the cleanliness of the new trains and could represent a quick, easy and cost-efficient win for the current ones.
 - The current provision for luggage can be easily improved, especially in the context of multifunctional areas of the train and this could be supported by clear signage.
 - The temperature control on the current trains emerged as one of the most important priorities that passengers would like to see addressed, but air-conditioning may not be the most suitable solution.
 - Decisions about the provision of facilities such as Wi-Fi and power sockets should be based on further investigations about what passengers are likely to need and use and their likely impact on overall journey experiences.
 8. Visual display screens have the potential to play an important dual role on the new trains. It may be possible to justify considering their inclusion on the basis of the security reassurance they will provide for passengers and this will be supported by the ability to enhance the quality of information provided.
 9. Passengers want staff to be more visible in order to help promote the impression that Merseyrail trains represent a safe travelling environment for passengers.
 10. Specific needs of passengers with disabilities are consistent with previous research conducted in this area. Their primary requirement is to be able to make journeys with as much independence as possible. It is also important to ensure that priority spaces are integrated with accommodation for other passengers and for Merseyrail staff to demonstrate an understanding of disability equality rather than simply awareness.

Appendix A Focus group discussion guide

Passenger Focus Merseytravel 90 minute groups - discussion guide final

Introduction

- Introduce self/AECOM/recording equipment
- Explain nature and purpose of research and client parties and interests
- Outline research agenda and process and reason for conducting groups on trains
- Respondent introductions: name, occupation, three words to describe experiences of travelling by Merseyrail

Rail travel patterns

- Explore nature of journeys typically made – commute or business or leisure
- What time of day are journeys made
- Experience of travelling at weekends rather than weekdays
- Which Merseyrail stations/lines used most often (NB: focus on Wirral/Northern lines)
- Do journeys tend to be less than 20 minutes or more than 20 minutes
- Are you usually able to get a seat for the journeys you make. How important is this to you for the (length of) journeys you make
- What are your views about capacity in terms of the numbers of passengers to seats and space available on Merseyrail services. How does this vary at different times of the day or week. Any difference between Wirral Line and Northern Line
- Which other urban or suburban rail/transport networks have you used. How do these compare with Merseyrail in terms of capacity

Merseyrail experiences - overview

- How do you feel in general terms about experiences of journeys made by Merseyrail
- What are your impressions of the interior of the train carriages specifically
- *Refer to pre-tasks* What are the things you like most about the carriages at the moment
- What are the things you like least about the carriages in the context of the journeys that you make
- Can you recall any specific onboard experiences that stand out for good or bad reasons. What impact did these have on the train journey at the time
- What are your key concerns and priorities as a passenger (*spontaneous then prompt with number of seats; seating format and comfort; toilets; on-board facilities; storage space; standing space; air-conditioning; staff presence; security etc*)

- How do Merseyrail trains compare to those of other operators and other modes of transport. What do others do especially well or badly. What could Merseytravel learn in terms of train design and passenger experience
- What are your key priorities for improvement. What difference would each improvement make to your journey experience. Which of these improvements would make you more likely to use Merseyrail more in future

Brainstorming – ideal train design

- What are your main needs as a passenger from the interior design and onboard experience. What are the most/least important requirements
- Explain that Merseytravel will be commissioning new trains and the purpose of this research is to feed into the design process*
- Imagine you could design a train to meet your needs as a passenger for the types of journey you make. What would the ideal train look like
 - What are the key changes you would like to see in a new design. How would it differ from the current design
 - What are the things that would make the most difference to you and the type of journeys you make (*Spontaneous then probe with appearance, safety, comfort, seating, facilities etc*)
 - Are your key concerns related to seating or other on-board environment issues
 - What would work best for you in terms of the ratio of seats to standing space. Any difference between Wirral Line and Northern Line
 - With a similar number of seats, what could be done to improve the journey experience for standing passengers

In the following sections, stimulus materials showing interior design elements of other trains to be used when required and as appropriate

Seating preferences and issues

- What seating formats have you experienced when travelling by train/tram (Tyne & Wear metro etc)/underground
- What do you prefer. What are the influencing factors and how does this relate to journey purpose and length
- What are your views about alternative configurations (2+2; 2+3; airline; longitudinal)
- How do you feel about having tip-up or perch seats to maximise use of space, especially at busy times. Are there issues with comfort, especially for longer journeys. Is this an acceptable trade-off to create more room
- What are the implications for aisle width and ease of navigation through the carriage
- How important is the comfort of the seat. What factors contribute to this (pitch, knee/legroom, width, depth, firmness, angle of seat back, height, armrests, ride quality etc)

- How do you feel about the current high-back seating. What are the strengths and weaknesses. What would you like to see in the new trains
- What other features are important to you (table; mini table; seat back trays, drinks holders; antimacassars; materials etc)
- Would you be happy with plastic seats (which could be easier to keep clean)
- Would you ever choose to stand if seats are available. Why/in what circumstances
- What would you be happy with in terms of seating. What would be better than the current trains. What would exceed your expectations and make a real difference to your journey

Entering/exiting and access

- What do you need in terms of number and location of doors. What factors contribute to ease of getting on and off the train
- What do you expect in terms of the gap/step between the platform and doors. Why is this important. What about along the length of the train
- What are your needs in relation to the vestibule areas. How do you and other passengers use this space. What could be done to improve this. How could the usable door width be improved/increased
- How easy/difficult is it to locate seats that are available and then get to them. What are the key requirements in terms of gangways
- What would you be happy with in terms of access. What would be better than the current trains. What would exceed your expectations and make a real difference to your journey

Carriage layout

- How much space should be given to priority seating and areas for passengers with disabilities.
- What about travelling with pushchairs or luggage or bikes. How do you feel about these if you need to travel with them or if you are another passenger. Any need for signage to help locate areas
- Should there be more or less standing space than there is now. What is required to ensure that passengers can stand safely and comfortably
- What is needed in terms of grab rails/handles on seat backs. What are these used for. Any difference in requirements when standing still or moving through carriage
- What is the optimal trade-off between the amount of seating and other space in the carriage

Travel environment

- What is meant by the travel environment. How important is this to you. What are the priorities (spontaneous then prompt with each of the following):
- **Ride comfort.** What do you think of the performance of the current trains. How could this be improved
- **General ambiance.** What does this mean and depend on

- **Decor and aesthetics** of carriage interior
- **Lighting.** Balance between natural and artificial. What is ideal. Window size and proximity to seats and availability of sun blinds
- **Temperature.** Preference for constant ambient temperature or adjusted according to weather. What are the strengths and weaknesses of air conditioning (prompt cost and environmental impact if not mentioned). Do you want windows that open or is temperature more important than ventilation. How to take into account body heat from crowding and seasonal clothing variations
- **Noise levels.** What is expected/acceptable. Discuss views in relation to engine noise, track noise, announcements etc
- **Other passengers.** How do you feel about them talking/making phone calls/listening to music. What could be done about noisy (school) children, poor etiquette, anti-social behaviour. How should this be policed. Can you expect to have personal space on public transport
- **External environment.** Poor travelling conditions are exacerbated by poor weather – what can Merseyrail do to mitigate this
- **Cleanliness.** Is this the responsibility of Merseyrail or other passengers. Should bins be provided or is this a security risk. How many and where should they be located. What could be done to help ensure trains are as clean as possible. Why have there been poor customer satisfaction issues in the past
- What would you be happy with in terms of the travel environment. What would be better than the current trains. What would exceed your expectations and make a real difference to your journey

Facilities

- **Toilets.** What needs to be provided in terms of information about provision of facilities at stations. How should this be communicated. What do you expect/need (spontaneous then prompt with line diagram with symbols on trains, announcements, electronic Passenger Information System, LCD screen when approaching next station)
- **Luggage space.** How much is required. What would be appropriate to needs. Where should this be located. Trade-off with space for seats and passengers. Is signage needed to help locate spaces when boarding
- **Power sockets.** What needed considering maximum journey lengths across network. What would these be used for. Where should they be located
- **Wi-Fi.** Is this expected nowadays or considered to be a bonus. Do you expect this to be free or would you pay for it. When would it be used and what for. What impact would it have on journey experiences
- **Coat hooks.** How important to provide. Where should they be situated
- **Bicycle storage.** Where should these be located. How many on each train. What are the issues involved. How do you feel if you are a bike user or non user. How should the space be used when not occupied by bicycles

- **Space for wheelchair users.** Where should these be located. How many on each train. How should the space be used when not occupied by wheelchair users
- **Space for prams/push chairs.** Where should these be located. How many on each train. How should the space be used if no prams/push chairs
- What would you be happy with in terms of facilities. What would be better than the current trains. What would exceed your expectations and make a real difference to your journey

Information

- What is required in terms of quantity and quality
- **Exterior displays** including front and rear of train and sides of carriages
- **Interior displays.** What is needed in terms of electronic Passenger Information Systems; route maps etc. How would you feel about monitors that could display images rather than dot matrix displays. What could they be used for
- **Announcements.** Responses and preferences in terms of automated or by staff. Volume and clarity issues. Why have there been poor customer satisfaction issues in the past
- Is there any need for a link between information on trains and displays at stations. Why would this be helpful
- Should the emphasis be on providing accurate information during delays rather than general information provision at other times
- What would you be happy with in terms of information. What would be better than the current trains. What would exceed your expectations and make a real difference to your journey

Staff and security

- What are the current issues and concerns in terms of staff and security. What does this depend on. Any differences between Wirral Line and Northern Line users
- What staff are present on trains. What do you believe their role to be. What do you expect/need as a passenger (spontaneous then prompt with announcements, journey information)
- What else needs to be provided in terms of personal security (spontaneous then prompt with CCTV; visibility through carriages; help points etc)
- Is it enough to know that CCTV or staff are present or do they need to be visible. Would notices/announcements be sufficient. Would it be helpful to display CCTV images on screens throughout the train (as on some buses)
- How do your needs and requirements change if you travel after dark or after 7pm when services become less frequent.
- What would you be happy with in terms of staff and security. What would be better than the current trains. What would exceed your expectations and make a real difference to your journey

Priorities

Trade-off exercises to identify which design features are likely to be most highly valued in the context of journeys being made

- Which of the things we have discussed are most interesting to you as passengers
- Which would have the most difference on journey experiences. Which would have the most positive impact
- Which would encourage you to use Merseyrail for more journeys in future

Summary

- What are the main improvements needed by passenger and journey type
- What are the key themes to have emerged for Merseytravel
- What are the most important elements of the brief for the design team
- What is the single most important change each respondent would like to see included in the new design

Future Merseyrail rolling stock – what passengers want

Quantitative research report

1 Management summary

Summary of findings

- The National Rail Passenger Survey indicates that Merseyrail passengers currently have above average satisfaction with the on-train environment (89 per cent) compared to other regional train operators and those across the national network as a whole (both 80 per cent). This was largely echoed throughout this research. The starting point for the renewal of rolling stock is therefore strong, and assets could be further developed to optimise the passenger experience.

The following points summarise the findings from this research, with passengers' main priorities emboldened.

- **An improved sense of space should be the principal ambition for any new rolling stock.** Some attributes relating to space score lower satisfaction (71 per cent and 58 per cent satisfied with personal space and luggage space respectively) and space lies at the core of a number of spontaneously suggested passenger priorities for improvement. Space (and perception of space) within the carriage should therefore be considered the key challenge to be addressed by the new rolling stock design. Indeed this is likely to become even more apparent as passenger volumes increase significantly in the future. Whilst the design is important to create a sense of space, there will need to be a policy on how that space is managed once the trains are in service. For example, passengers will need to be given clear guidance on where to store pushchairs, bicycles, etc.
- The internal layout of the carriage is critical to Merseyrail passengers' sense of space.
 - Passengers have a clear preference for open-plan trains, where there are no partition doors between carriages. Besides space creation, passengers would welcome the ability to see down the length of the train, because of the enhanced sense of personal security it would provide.
 - On the subject of seating layout, passenger opinion is more diverse. Whilst there is strong support for the existing bay seating (pods of four seats on each side of the aisle), there is also significant appetite for new seating compositions such as 'airline'-style and, to a lesser degree, longitudinal seats. Any seating should be mindful of passengers' preference for a spacious environment. It is likely therefore that a mix of seating types is most appropriate giving passengers a choice over their seating and creating space, both in perception and tangibly. This would also help accommodate those with specific needs (e.g. disabled passengers, cyclists and those travelling with luggage) as well as standing passengers – the number of standing passengers in the peak is likely to increase as demand grows.
 - Although standing is not currently the norm on Merseyrail services, the experience for passengers who do stand is unsatisfactory; with only 46 per cent and 41 per cent of

these passengers satisfied with space available to stand and the provision of grab rails respectively. Better designated space and facilities should be provided (such as grab rails) to improve passengers' perceived safety and comfort whilst standing.

- **Comfort of the seats on-board Merseyrail carriages will also be a crucial factor in the new design;** after sense of space, comfort can be seen as the second priority for the new rolling stock. Seat comfort engendered slightly lower satisfaction (78 per cent) than other aspects, and emerged as the most common spontaneous priority for improvement as stated by passengers (10 per cent). Comfort can relate to both the ergonomic design of the seat itself, as well as related environmental aspects such as look and feel, cleanliness and positioning. A holistic approach is recommended which accounts for all of these aspects.
- **Temperature regulation inside the existing carriages is an issue for some passengers which should be considered by Merseytravel.** Current satisfaction with this is lower than with other aspects (78 per cent) and some passengers spontaneously mentioned this as an area to improve (7 per cent). Without knowing the full range of technological solutions available, passengers suggest air conditioning might be the answer. However, what passengers ultimately want is something to help create and maintain a consistently more ambient temperature on-board, so a range of potential ways of achieving this should be considered.
- **Personal security is a fundamental hygiene¹ factor for passengers,** when deciding to travel by public transport. If they feel their personal security could be seriously compromised, they are likely to find an alternative, where one is available. It is therefore essential that the newly designed trains seek to maintain the high levels of passenger satisfaction (currently 86 per cent amongst Merseyrail passengers) and provide enhancements to security where possible.
 - One suggested enhancement, supported by passengers, would be the installation of help-point intercoms. This was popular with passengers as it would allow them to contact staff at any time, providing peace of mind when travelling late at night or at times when there are fewer passengers around.
- On-board cleanliness is important to passengers, and attracted a number of spontaneous comments. It is expected that cleanliness (as well as general look and feel) will automatically improve as a result of new, unused trains being put into service. However passengers expect measures to be taken in order to maintain this effect for the long-term. One such measure, very popular with passengers, would be the addition of litter bins to carriages.

¹ Using the conceptual framework of a needs hierarchy, 'hygiene' factors are those that are fundamental to passengers' expectations being met. They are basic requirements and failure to provide them is likely to be a cause of dissatisfaction.

- Merseyrail passengers are currently very satisfied with the provision of audio and visual information in the carriage (88 per cent and 90 per cent respectively). Nonetheless, a majority of passengers would welcome the installation of visual information screens to help enhance information provision on the new rolling stock. This could provide additional service information and guidance via a more 'modern' channel. To optimise the value of any such screens, live CCTV footage could be relayed to reassure passengers of measures being implemented to ensure their personal security.
- Merseyrail passengers are generally in agreement with the current policy on the carriage of bicycles on trains: 68 per cent say that full sized bicycles should be permitted on the train at all times of day. Some passengers did however recognise that restrictions may be appropriate at peak times, particularly by those passengers who only travel at this time.
 - When not in use, areas for bicycles (as well as pushchairs and other large items) should be fitted with seating to optimise usage; 64 per cent of passengers indicated that they would prefer fold down, rather than perch seats. Given the mixed views presented in the qualitative research, prompted by confusion over the primary function of the space, passengers need clear instruction. Regardless of the type of seat installed this should be accompanied by prominent signage.
- Proposals for technology such as wi-fi, charging facilities and boosted mobile signal on-board were mentioned by around a quarter of passengers. The characteristics of typical Merseyrail journeys, such as a high proportion of leisure travel² and short journey times, do not lend themselves to heavy usage of such facilities, which can explain the low interest in these facilities. However, demand is significantly higher amongst business passengers and commuters. As the proliferation and potential demand for these services continues to grow in future, some thought should be given to their appropriateness on-board the new rolling stock.

² In the Spring wave of the National Rail Passenger Survey 2013, leisure passengers accounted for 55 per cent of Merseyrail's passengers

2 Methodology

For this quantitative stage of the research, 619 face to face interviews were conducted with Merseyrail passengers. Most interviewing took place in Liverpool city centre, however some shifts were also conducted in the city/town centres of outer locations served by the network (Chester, West Kirkby, Southport and Ellesmere Port) to ensure wide coverage.

Quotas were placed across the sample according to respondents' usual journey purpose when travelling by Merseyrail so that the perspective of commuting, business and leisure passengers is understood. The following numbers of each key passenger group were interviewed:

- Commuters (travelling for up to 20 minutes) = 112 interviews
- Commuters (travelling for 20 minutes or longer) = 109 interviews
- Business passengers = 71 interviews
- Leisure passengers = 327 interviews

The data reported at total level has been weighted to replicate the typical profile of Merseyrail passengers according to journey purpose, age and gender as recorded by the National Rail Passenger Survey.

Within the sample all respondents had travelled on the Northern and/or Wirral lines at least once in the last four weeks and do so at least once every six months. This ensured respondents had recent experience of the current Merseyrail rolling stock and an interest in the design of future rolling stock. None of the respondents only used the City line, as the new trains will not run on this line.

Fieldwork was conducted between Tuesday 27 August and Friday 13 September 2013.

This research was designed to ensure robust sample sizes for analysis. As the survey is conducted with a sample of the target audience we cannot be completely certain that a census of 100 per cent of the population would yield the same results. We can however be 95 per cent certain that differences between 3.5 per cent and 4 per cent are statistically significant for most measures (when asked of the total sample).

Stated preference

A stated preference section was included in the questionnaire. Stated preference is a statistical analysis technique used to determine the relative importance of a number of pre-determined factors. The technique allows a number of aspects to be tested in relation to one another by generating pairs from which the relative importance of a factor in relation to the every other can be derived. This means that the passengers must trade off the benefits of one measure against others, in order that priority can be established amongst several attributes which may well all be desirable. This approach was most appropriate for this

research, as it allows a reasonably high number of different factors to be tested robustly without asking the respondent to state their preference or rank every possible combination. This avoids respondent fatigue, ensuring responses are considered and contextualised.

The outputs generate an index score, whereby a score of 100 signifies the average relative importance. Any score above 100 is relatively more important, and any below 100 is relatively less important.

It is important to note that the stated preference analysis technique is used to determine relative, rather than absolute, importance: that is, whether one factor is more important than another. It does not therefore mean that a factor which scores less than another is not important, just that it is relatively less so.

The question is framed for the respondent as a choice between a pair of two aspects or statements. From these, they choose which they 'prefer' or can select a 'no preference' option if they have no particular opinion for that pair. For this research, the question was framed so as to focus the respondent on the importance to improve each factor on new Merseyrail trains.

This was phrased as follows:

Shown on this card are some aspects relating to the environment inside the train. For each pair, please say which aspect you think most needs improvement on Merseyrail trains?

***Most important to improve
the one on the left***

No preference

***Most important to improve
the one on the right***

Comfort of the seats



*Space for standing in
the carriage*

Results for the stated preference question are in section 4.

3 Passenger perceptions of current rolling stock

In order to understand passenger priorities for the future, it is first important to evaluate their perceptions of the existing Merseyrail rolling stock. This is helpful as it can identify any areas of strength and weakness in the existing design from the passenger perspective. Aspects which are currently working well for passengers should be maintained and enhanced, whilst those performing less well will need to be improved. In order to enhance the passenger experience the new design will need to strike a balance between the 'old' and 'new'.

Merseyrail trains perform well in the National Rail Passenger Survey (NRPS), which records the satisfaction of around 30,000 rail passengers across Great Britain on a twice yearly basis. For train aspects, Merseyrail consistently achieves satisfaction scores which are higher than all other regional train operating companies as well as being above the overall national average. This indicates that there is merit in the design of the existing carriages and that these provide a firm base upon which to build. Existing design functions identified as successful should be brought forward to influence the specification of the new rolling stock.

Overall satisfaction with the train, in rank order of satisfaction

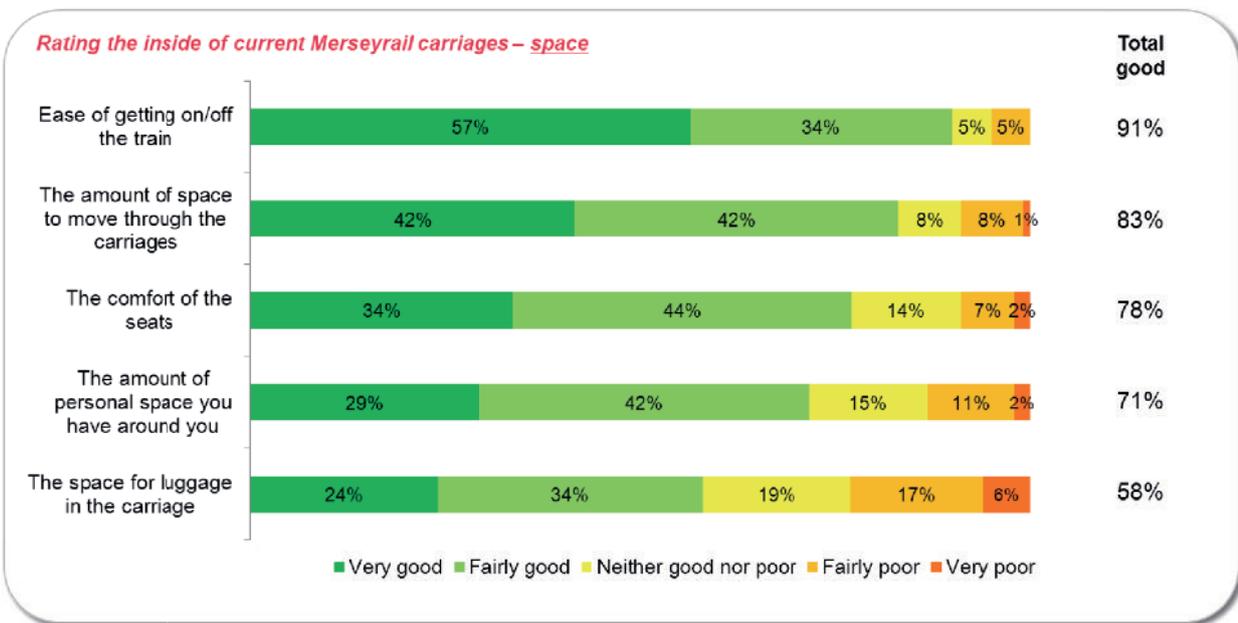
(Source: The National Rail Passenger Survey, Autumn '12 & Spring '13 waves)

Train operating company	% satisfied
Virgin Trains	92
London Overground	92
c2c	91
Merseyrail	89
Chiltern Railways	89
East Coast	88
ScotRail	87
First TransPennine Express	87
East Midlands Trains	86
Arriva Trains Wales	85
CrossCountry	82
London Midland	81
South West Trains	81
First Great Western	80
Southeastern	77
Southern	77
Greater Anglia	71
First Capital Connect	70
Northern Rail	70
National average	80
Regional operator average	80

The high satisfaction reported by NRPS has been mirrored to some extent by this rolling stock research (both qualitative and quantitative) where passengers were also positive about the environment on board the train. However, a more in-depth analysis of the carriage environment has indicated some clear targets for improvement.

Below is a summary of the passenger satisfaction with a number of different themes relating to the on board experience.

Space inside the existing trains



(Base: 619/613/618/615/532)

Passengers were very satisfied with the ease of getting on and off the train; 91 per cent said they were very or fairly satisfied with this. Passengers often link this to levels of crowding, when other passengers may also wish to access/egress or stand in the vestibule area, rather than the gap between the train and platform. Most passengers (83 per cent) were also satisfied with the amount of space available to move through the carriages. These measures are consistent with the fact that the vast majority of Merseyrail passengers (92 per cent) usually get a seat, reflecting the low levels of crowding on services. However it is important to bear in mind that this may change in the future, when Merseyrail patronage is expected to increase considerably.

Despite the ability of most to get a seat, satisfaction with the amount of personal and luggage space within the carriage is much lower (71 per cent and 58 per cent respectively). It seems therefore that space is a top of mind concern for passengers when evaluating their comfort inside the carriage, and that this is directly related to the carriage design and layout, as well as the number of passengers contained within any one carriage. Whilst it

should be noted that less than one in five passengers interviewed (18 per cent) travel with luggage or large bags, the impact of improved luggage space is likely to impact how all passengers evaluate space within the carriage, by creating a more organised and less obstructed environment.

The perception of space in the carriage varies by passenger group. Those travelling at peak times when trains are usually at their busiest and those who do not usually get a seat are less satisfied with all aspects relating to the space inside the carriage. This is a particularly pertinent finding, as the predicted increase in the number of passengers using the Merseyrail network will mean that more passengers will experience crowded services, particularly during the peaks. Given that infrastructure and financial limitations will prevent the lengthening of trains it is important that the on-board environment itself is optimised to meet future demand.

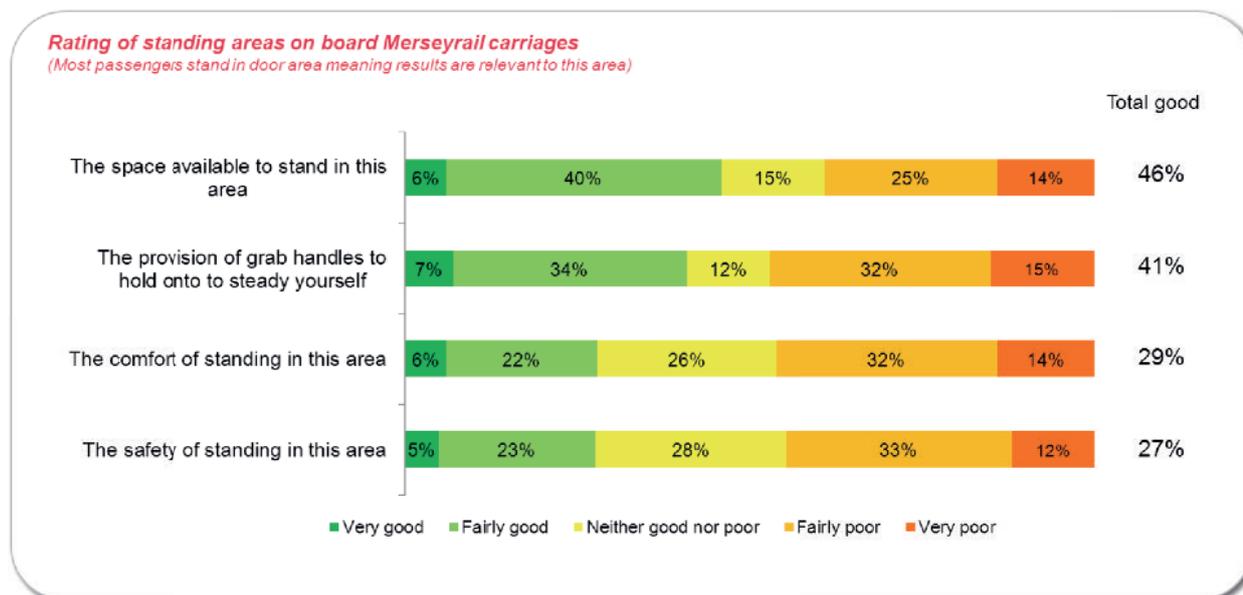
The comfort of the existing seats achieves a satisfaction score of 78 per cent, which although positive, indicates there is some scope for improvement. Whilst certain aspects of the current seat design registered particularly well with passengers in the qualitative research (such as the high seat backs), it is likely that the low score here accounts for a range of factors not necessarily related to design and specification of the seat itself, but which still have some impact on a passenger's comfort whilst sitting in the carriage. This is evidenced by comments made elsewhere in the quantitative research relating to the cleanliness, upkeep, positioning and general look and feel of seats.

Rating the inside of current Merseyrail carriages – space

	<i>by travel time</i>	
	Peak	Off peak
Ease of getting on/off the train	90%	90%
Amount of space to move through carriages	82%	86%
Comfort of the seats	70%	83%
Amount of personal space around you	71%	75%
Space for luggage in the carriage	57%	61%

(Base: 110/287)

Standing areas and facilities



(Base: 47*)

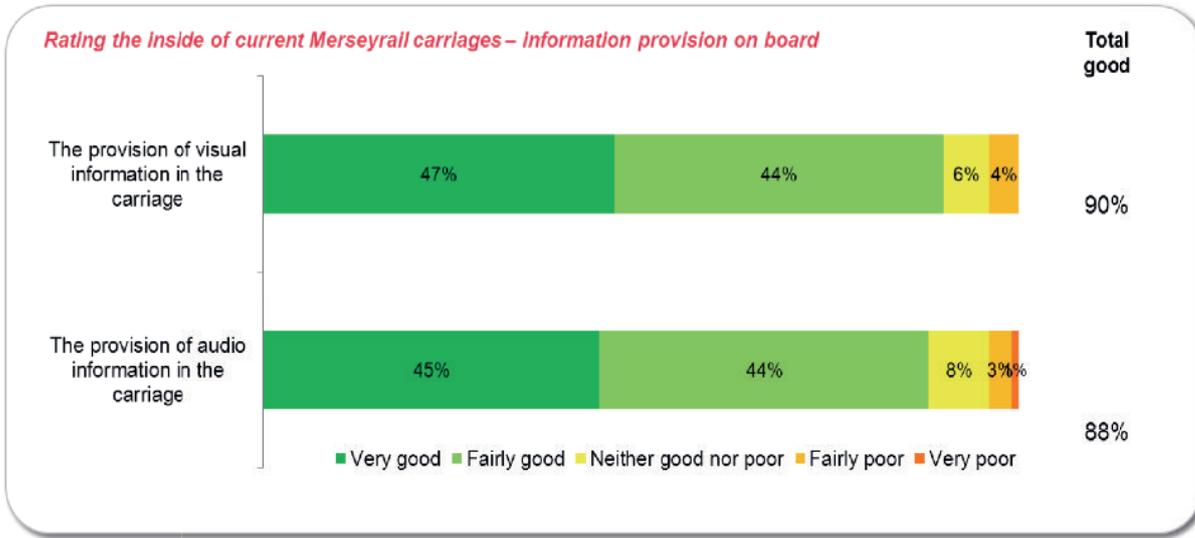
*CAUTION: VERY LOW BASE SIZE

The vast majority of Merseyrail passengers (92 per cent), always or usually get a seat on their journeys. However up to one in five passengers who travel at peak times report standing on some journeys. The majority of these passengers usually stand in the vestibule area near the carriage doors (72 per cent), very few move further down the carriage to the aisles or wheelchair, bicycle and pushchair space. It was revealed by the qualitative research that passengers feel there are few options for standing, which may be understandable as the trains were not designed for high numbers of standing passengers. However, providing safe standing accommodation is a necessary requirement for a service of this nature where there is a frequent stopping pattern. When service providers fail to make adequate provision for standing passengers throughout the carriage passengers often end up congregating near the doors, which in turn leads to congestion.

Whilst standing passengers are still a minority, the current on-board experience for those that choose, or have to stand on-board Merseyrail trains can be quite unpleasant. Only 46 per cent of standing passengers are satisfied with the space available to them whilst just 41 per cent are satisfied with the provision of grab handles. These low levels of satisfaction reflect a lack of facilities for standing passengers on the current trains and help explain why many standing passengers feel both uncomfortable and unsafe (only 29 per cent and 27 per cent were satisfied with each of these elements respectively).

Although a reasonably small proportion of passengers are directly affected by this at present, the poor standing experience will be important to address as the number of standing passengers is set to increase as passenger numbers rise. It is logical that better provision for standing passengers will improve their sense of both comfort and safety whilst travelling, which the new rolling stock should aim to achieve.

Information provision on board

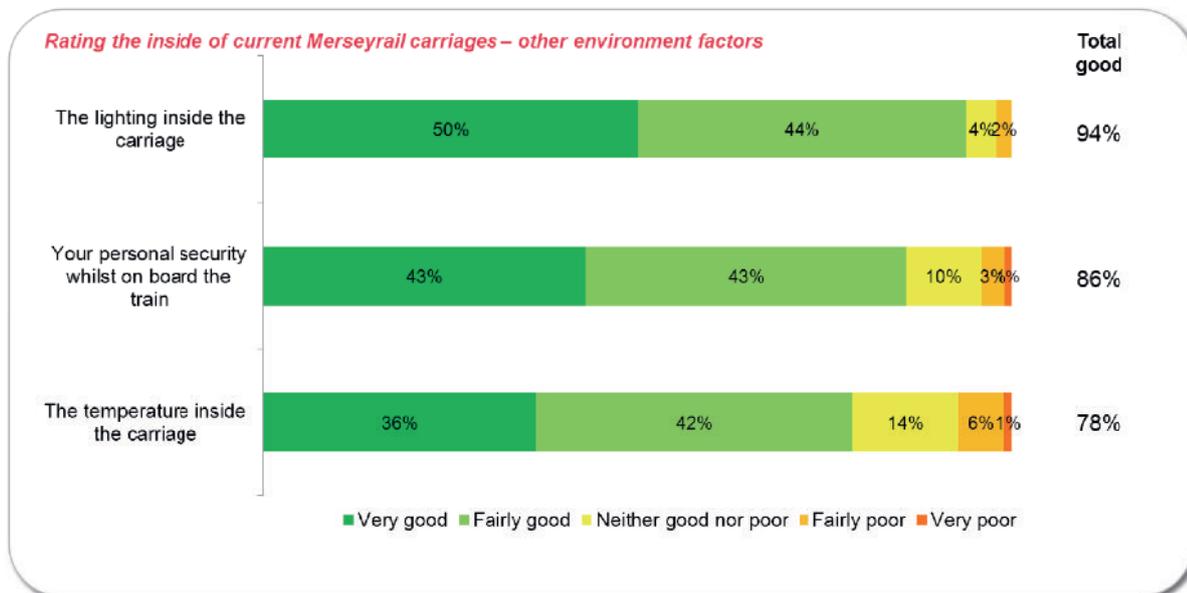


(Base: 611/612)

Passengers are very satisfied with the current provision of information on board: both visually (including electronic and printed information) with which 90 per cent are satisfied and audio information (including staff and automated announcements) with which 88 per cent are satisfied.

Given the high satisfaction scores, and the fact that information provision is something which passengers increasingly expect from rail operators, it will be important to maintain the current high standards. The design of the new rolling stock should account for the likely shifts in demands and expectations from passengers relating to communication. In large part this is influenced by the rapidly expanding use of technology. Failure to future proof this aspect of the design may lead to a drop in satisfaction at a later date.

Other on-board environmental aspects



(Base: 615/613/617)

Passengers were asked about several other aspects that contribute to the overall on-board environment. The vast majority of passengers were satisfied with lighting (94 per cent) as they were with their personal security whilst on board the train (86 per cent). Whilst performing well at the moment, personal security must remain a focus for Merseyrail as passengers reported that this was extremely important to their overall perception of the service (see section 4).

The temperature inside the carriage fares less well than other attributes in terms of satisfaction: 78 per cent of passengers are satisfied with this on the existing rolling stock. Whilst this is a relatively respectable level of satisfaction there is still room for improvement. We would recommend that the opportunity is taken to explore how the existing design can be improved in relation to temperature control.

4 Passenger priorities for improvement

The quantitative research sought to understand the relative importance to passengers of a range of possible improvements that Merseytravel could look to incorporate in the design of any new rolling stock. Respondents were asked a series of questions about which particular attributes were important to them.

This was asked in two ways:

- an open, unprompted question in which passengers could suggest any one improvement
- a stated preference question in which passengers chose their priorities for improvement from a number of pre-determined attributes.

The following sections detail passenger responses to each of these.

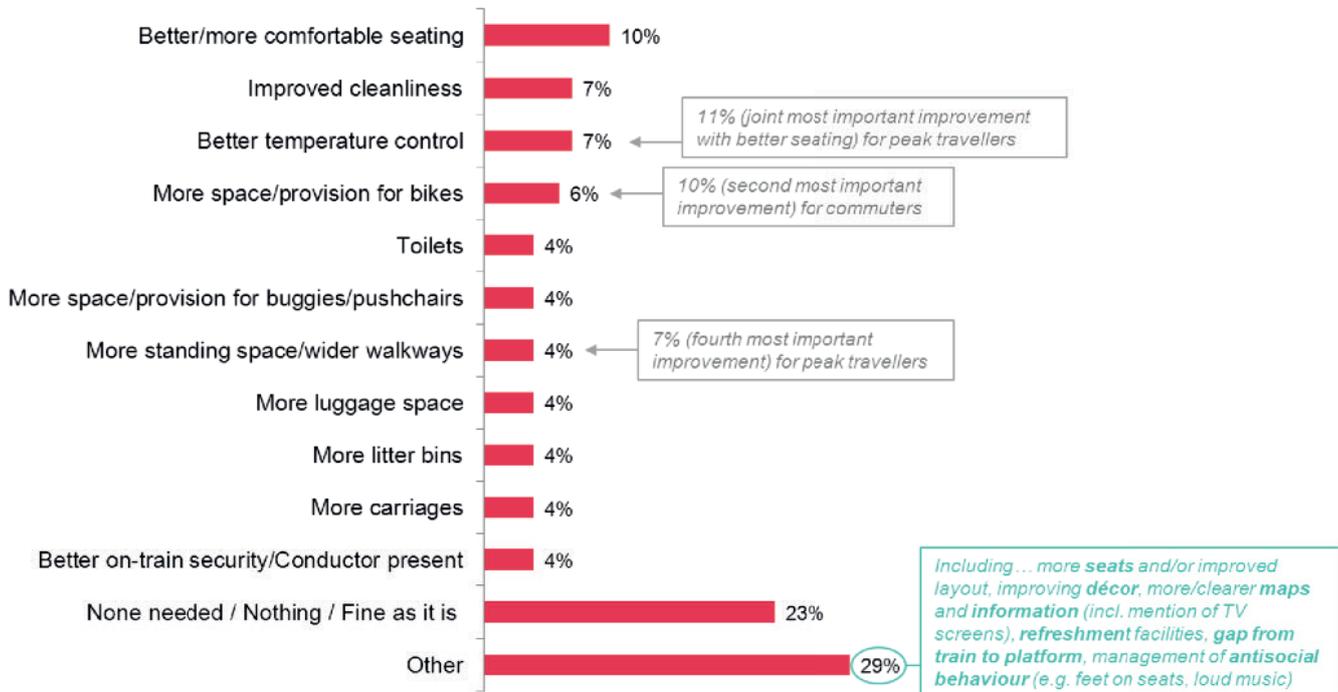
4.1 Passengers' spontaneous suggestions for improvements

In an open, unprompted question, passengers were asked to suggest one improvement they would like to see made to the on-board environment in a modernisation of the fleet.

Before highlighting which future improvements passengers suggested it is important to note that, when asked, almost a quarter (23 per cent) of passengers said that they would not improve anything about the current Merseyrail carriages. For some, this simply may have been that they 'couldn't think of anything' specific at the time, but it is also a likely indication of the reasonably good satisfaction levels amongst Merseyrail passengers. To some passengers these trains seem fit for their current purpose and capacity. However there are ways that they can be improved upon – particularly in the context of changing capacity demands in future.

For those passengers that offered comment on possible improvements, suggestions centred on the themes of space, comfort and cleanliness.

Priorities for improvements to environment inside Merseyrail trains



Base: 619

Comfort of the seating

‘Better’ and more comfortable seating was the most mentioned single priority for improvement (10 per cent of respondents suggested this). When coupled with the slightly lower satisfaction score registered for comfort of seating on the current rolling stock, this strengthens the case that seating comfort ought to be a key consideration in future carriage design. However, as some of the spontaneous verbatim comments reveal, from the passenger perspective there are several factors which can all affect the ‘comfort’ of the seats aside from the actual ergonomic design of a seat itself (although this is clearly also important). Several comments refer to seating comfort in conjunction with it being ‘cleaner’ and ‘nicer’ generally – both of which can relate to the look, feel, upkeep and repair of the seat as much as the ability to sit on it without being caused physical discomfort. Other factors mentioned relate to the layout of seats, such as surrounding space and legroom. It is therefore important to take a holistic view of factors which can affect seating quality in order to improve comfort for passengers.

“Cleaner seats and thicker cushions.”

“Comfy, cleaner seating.”

“More space for your feet, especially when there are four people facing.”

Space within the carriage

Several factors relating to space within the carriage also figured prominently in passengers' spontaneous suggestions for improvements. These include the space/provision for bicycles (mentioned by 6 per cent), space/provision for pushchairs (4 per cent), more standing space and wider walkways (4 per cent) and more luggage space (4 per cent). Interestingly, when combined, these 'space-related' attributes become the most prevalent type of comment from passengers, amounting to 'space' being mentioned by almost one in five passengers (18 per cent).

Although it should be noted that a relatively small proportion of passengers currently travel with bicycles (7 per cent), pushchairs (8 per cent), or luggage (10 per cent), or usually stand (5 per cent), there is clearly an expectation that there should be adequate and improved facilities for such passengers. If space for these larger items and those who stand is well designed and integrated, this is likely to improve the general perception of space for all passengers by minimising general obstruction and awkward placement in the carriage. However, since increased space for larger items may result in less seating capacity, care should be taken to strike the correct balance so as to properly accommodate the variety of journeys made on Merseyrail services.

As passenger numbers increase, space will come at an even greater premium making the design of the standing areas particularly important. This is especially true for passengers travelling in the peak, 7 per cent of whom mentioned standing space as a priority for improvement compared to just 3 per cent amongst off-peak travellers.

"More space for standing with luggage."

"Wider aisles / More space in aisles."

"Needs more space during peak times."

"Space in peak hours."

Cleanliness of the carriage

Improved cleanliness is also a key suggestion (mentioned by 7 per cent) as well as the linked recommendation of providing litter bins (4 per cent) and 'dealing with litter and rubbish' (2 per cent). To take these measures together, cleanliness was mentioned by 13 per cent of passengers overall.

Again, cleanliness is measured in a number of ways by passengers: some comments referred to litter such as food packaging being left on trains, dirty windows and upholstery or chewing gum on seats, whilst others referred to cleanliness alongside the need for a 'general update' and modernisation. An overall refurbishment was the priority for 3 per cent of passengers.

It is anticipated that the very fact that the new rolling stock will be unused and clean will improve passenger perceptions of this aspect, at least for the short term. The challenge will

be to maintain this over as long a period as is possible after the launch of the new carriages. Litter bin provision on board new carriages is likely to assist in this by encouraging passengers to dispose of litter in the bins, but other measures should also be considered.

“Cleaner carriages.”

“Make it cleaner, litter bins.”

Other notable suggestions included:

- **Improved temperature control**

This was suggested by 7 per cent of passengers, which increased to 11 per cent (becoming the joint most important single improvement, alongside better seating) for passengers travelling at peak times.

This is consistent with lower passenger satisfaction with temperature on board the carriage. It seems that problems with temperature control are worsened at the busiest (peak) times and are not aided by the fact that staff cannot change temperature settings according to weather conditions. This should be considered a priority to address, as left unresolved there is potential for it to get worse as passenger numbers increase.

- **Better on-train security**

This was suggested by 4 per cent of passengers, with approximately half of these comments mentioning the presence of guards or conductors. Whilst the vast majority of Merseyrail passengers currently feel safe and secure on board, this remains a front of mind concern for passengers (emerging particularly in the stated preference). Whilst the presence of staff is not strictly a design feature, the eventual design should make it easier for staff to pass through the train and be seen by passengers. This need for staff to be more visible was also referred to by respondents in the qualitative research.

- Additionally, a small number of comments referred to the step down from the train to the platform which is often wide and high. This supports findings from the qualitative research whereby passengers considered this to be not only undesirable and uncomfortable but a safety concern.

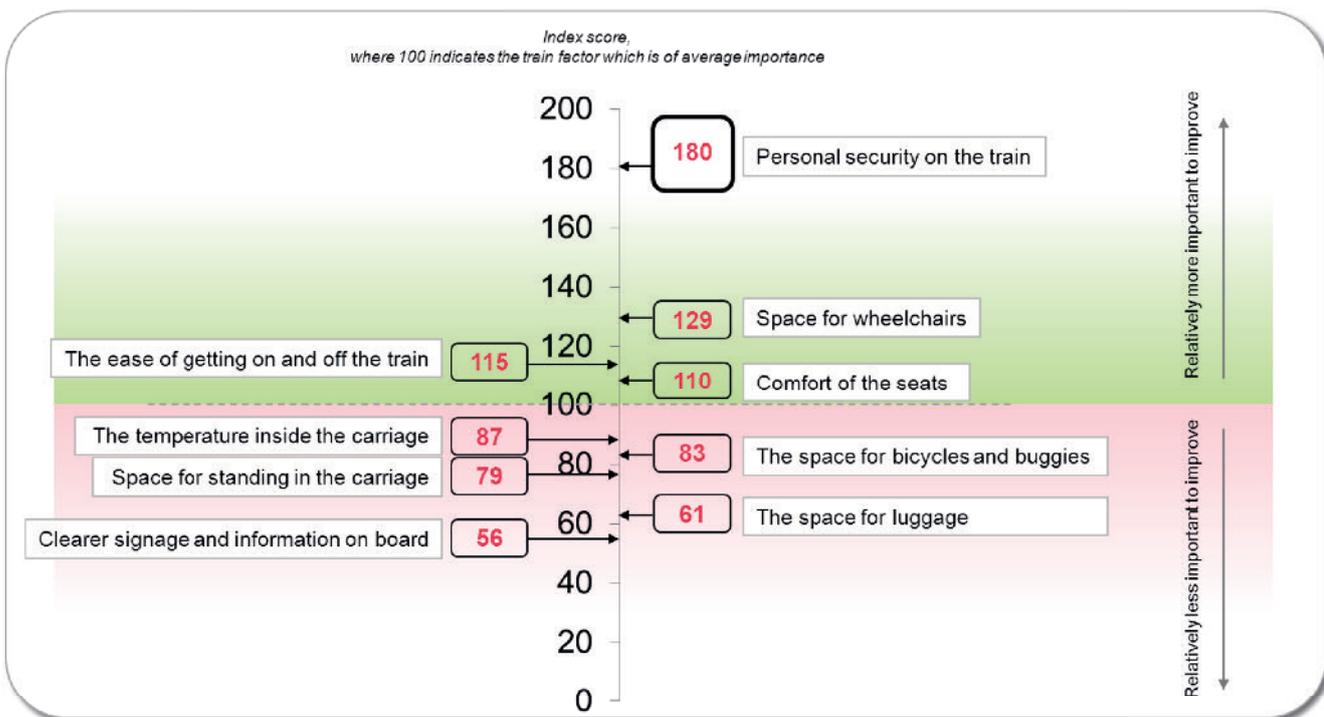
4.2 Passengers' 'stated preference' of potential improvements

The stated preference section of the research tested the passenger perspective on the relative importance for improvement of the pre-defined list of aspects relating to the environment inside Merseyrail carriages detailed below. These are in no particular order, and were posed to respondents in randomly determined pairs.

- Ease of getting on/off the train
- Comfort of the seats
- The temperature inside the carriage
- Space for wheelchairs
- Space for standing in the carriage
- Space for bicycles and pushchairs
- Space for luggage
- Clearer signage (for example wheelchair space)
- Your personal security on the train

It is important to note that the stated preference analysis technique is used to determine relative, rather than absolute, importance: that is, whether one factor is more important than another. It does not therefore mean that a factor which scores less than another is not important, just that it is relatively less so. The following section should be read in this context. More detail on this technique can be found in the Methodology section.

At an overall level, the results were as shown in the chart below:



(Base: 619)

Personal security is a key priority for Merseyrail passengers: this is a strength to maintain in the future

Across the sample as a whole, the factor which emerged as the relatively most important to improve from the passenger perspective was personal security on the train, which reached an index of 180 (compared to 100 which signifies the average relative importance). As described earlier, current passenger satisfaction with personal security whilst on the train is high (86 per cent) indicating that this aspect is a strength upon which it is important to maintain focus and development.

It is likely that the high degree of importance attached to personal security reflects the fact that it is considered a 'hygiene' factor, fundamental to the decision of whether to travel or not. If passengers feel genuinely threatened, it is likely that they will choose a different mode of travel, where available. Whilst some may have little choice, others may choose not to travel at all. It is therefore natural that when presented with a choice between this design feature and an alternative option, which although desirable, is less critical to the decision of whether to travel or not, that a passenger would consider security to be the relatively more important priority. This interpretation is demonstrated by the fact that just 4 per cent of passengers mentioned personal security spontaneously – suggesting that it is not threatened at present; but that when compared directly to other less fundamental factors, it becomes relatively more important as a priority to improve. As passenger perception of personal security is currently a strength, this indicates that there is no need for drastic change, just careful consideration to maintain and develop this in the future, since the importance of this measure to passengers suggests that if satisfaction with personal security were to decrease in future, this would likely have a severe negative effect on overall satisfaction with the service as a whole.

Regardless of current high satisfaction, the relative importance of personal security on board the train is further heightened amongst those travelling at off-peak times (reaching an index score of 195). This is likely attributed to their increased sense of vulnerability when there are fewer passengers around. For those travelling at peak times, the most relatively important area for improvement is the comfort of the seats (143), followed by personal security (136) and space for standing (130). This demonstrates how passenger priorities change according to which aspects are most fundamental to their particular journey.

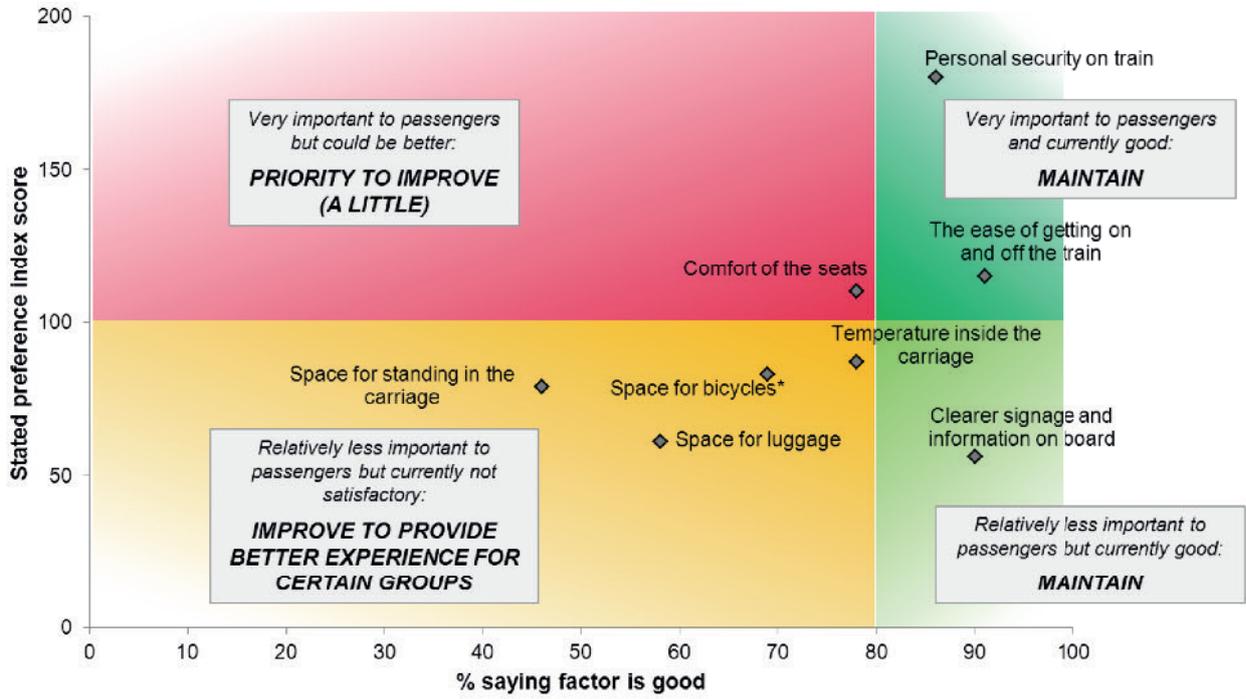
The second overall priority, in terms of relative importance, relates to the provision of space for wheelchair users (a score of 129), indicating passengers believe that wheelchair users merit improved on-board provision. This comes above other space-related factors, such as space for bicycles and pushchairs, space for standing and space for luggage (which score 83, 79 and 61 respectively). We know from elsewhere in the research that space in general remains a priority. The relatively lower scores for other space aspects simply reflect the more critical nature of other factors, as perceived by passengers.

Stated preference index scores can be mapped against the current performance of each of these aspects in terms of satisfaction, to reveal those areas that should be the primary focus. This is shown in the quadrant chart below.

Satisfaction scores are shown along the horizontal axis (so the further an attribute is to the right of the chart the higher the satisfaction it achieves currently) and the stated preference index scores are shown along the vertical axis (so the further an attribute is towards the top of the chart, the higher the priority for improvement this is considered to be amongst passengers). There are a few things we can conclude from this way of presenting the data.

- Attributes in the top right quadrant of the chart are considered the greatest priority to passengers, but they currently also achieve the highest satisfaction at present. Despite the strong performance of these factors at present, the fact these are considered a priority for passengers indicates that they are important to maintain and ideally to gradually develop going forward
- Attributes in the top left are also considered of above average importance to improve, and they currently score less well in terms of passenger satisfaction; therefore these are priority areas for improvement
- Those in the bottom two quadrants were considered relatively less important to passengers at the overall level (although clearly these can still be important to the overall experience, and can be more important to some groups than others). Whilst a little less of a priority than other factors, improvements should be sought in these attributes where possible, particularly for those attributes to the left where satisfaction is lowest, or where certain minority groups might benefit even if the attribute is not a priority to the majority.

Looking at priorities in context of current provision



(Base: 619)

5 Passenger reaction to proposals relating to carriage layout

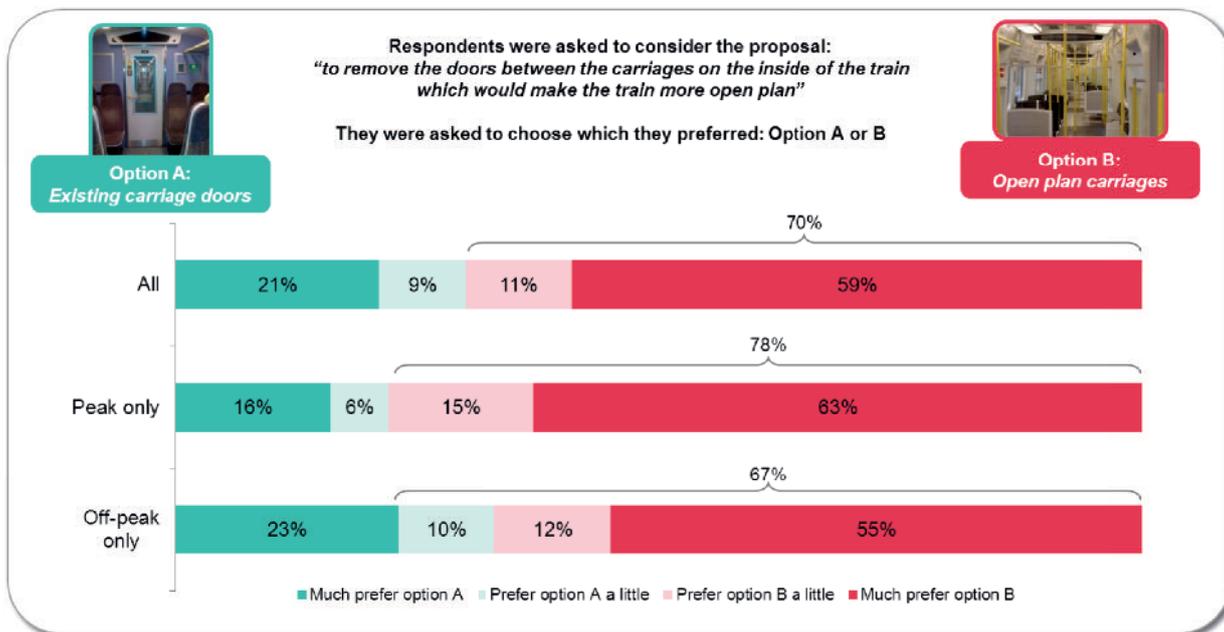
The quantitative research also sought to understand passengers' reactions to and appetite for a number of carriage layouts which have been proposed. Each of these seeks to create the optimal on-board environment for passengers on the new rolling stock.

This section details the passenger perspective on proposals relating to the layout of the carriage:

- open-plan trains versus dividing doors between carriages
- layout of seating.

Merseyrail passengers would prefer open-plan carriages

Currently, Merseyrail trains have internal doors between the carriages which passengers open and close to pass through into the adjacent carriage. However, open-plan carriages have been implemented on other networks, such as London Overground. They are thought to enhance the sense of space by removing barriers thereby simply creating a more spacious look aesthetically and providing extra areas to stand in, as well as enhancing security by improving sight lines throughout the train. Passengers were asked to consider a proposal to remove the internal carriage partitions and doors, making the train more open-plan.



Seven in ten Merseyrail passengers (70 per cent) were in favour of the open-plan carriages. It is likely that the key driver of this is the enhanced sense of space which would be delivered. This conclusion is supported by the fact that the removal of the internal partition/doors between carriages was even more popular amongst those travelling at peak times only, 78 per cent of whom were in favour of the proposal. For these passengers, we

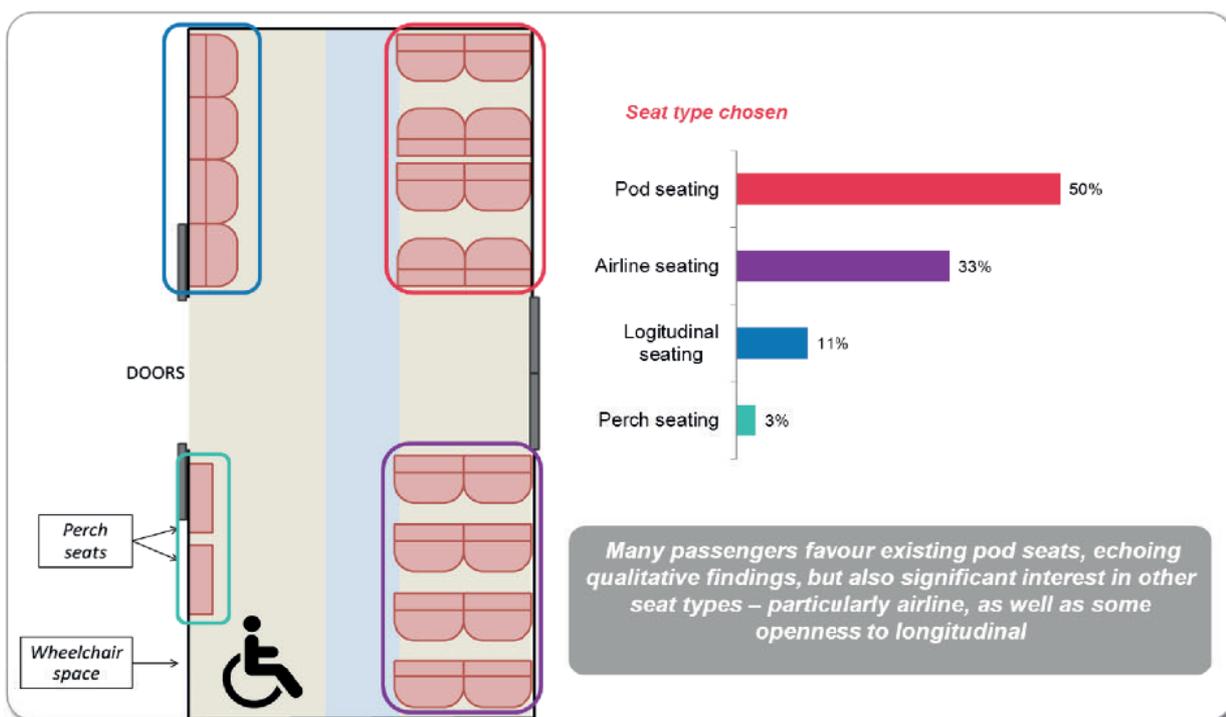
know that space is an even greater priority due to the higher number of passengers travelling at these times. It is therefore clear that proposals which lead to a perceived space creation will be well received.

A mixed seating layout is most appropriate for Merseyrail carriages

Seating on Merseyrail carriages is arranged in 'pods' of four seats, with rows of two seats facing each other (bay seating). This is repeated on each side of the aisle and throughout the length of the carriage with the exception of the designated spaces for wheelchairs and bicycles (where there are currently two fold-down seats). Different seating configurations are being considered for the design of the new rolling stock. In addition to the original pod-seating, these consist of:

- airline seating: rows of two seats all facing in the same direction
- longitudinal seating: rows of seats that run down the length of the carriage facing inwards towards the aisle of the carriage, the backs of which run along the interior wall
- perch seats: a padded ledge positioned at waist height, designed to be lent on as opposed to tip up seats that allow someone to sit down

In this research passengers were shown a mock-up seating plan of how a carriage could be arranged to include all four of the above seat types, and were then asked on which individual seat they would choose to sit. Respondents could choose any seating type, but were asked to think about travelling at a busy time when other seats in the immediate vicinity may also become occupied.

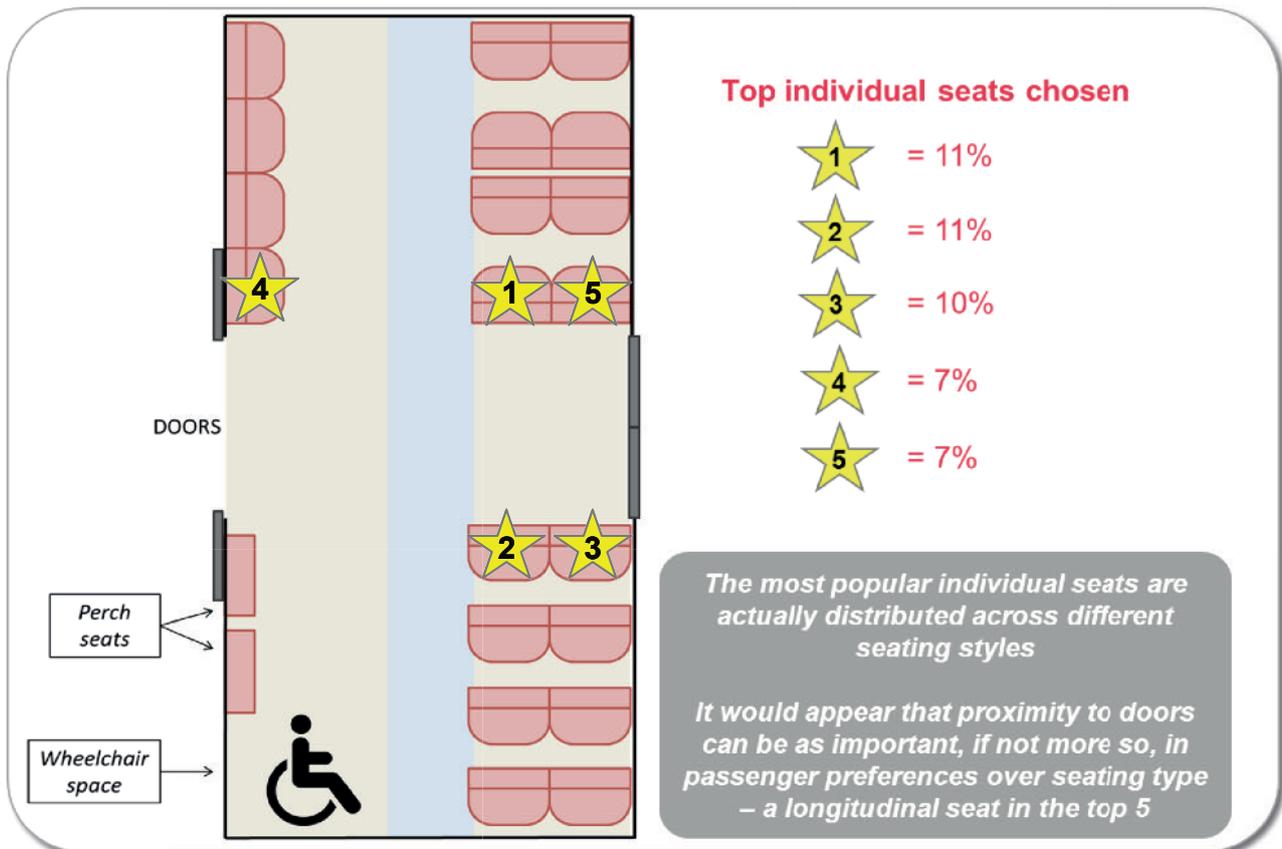


(Base: 619)

When aggregated according to each of the seating 'styles', the findings show fairly wide support for the existing pod style of seats (50 per cent of passengers chose to sit in these seats) but there was significant appetite for 'new' seating styles. One in three passengers (33 per cent) chose to sit in rows of two seats facing in the same direction (airline), whilst a little over one in ten (11 per cent) chose to sit in longitudinal seating which ran down the side of the carriage facing in towards the aisle. There was little appetite for perch seating (3 per cent). Seating preference followed a similar pattern according to journey purpose, although longitudinal seating was less popular for leisure passengers.

The preference for pod-seating echoes the qualitative research which found there were some unexpected advantages of this seating style, such as being able to chat with those facing you. However it is also important to make the distinction between preference and hypothetical action (the latter was measured in this research): just because a passenger may sit in one kind of seat, does not mean they will actively reject another.

Interestingly, when the data is examined at individual seat level, the most popular individual seats in the carriage did not all belong to one layout style. For example one might expect that all or most were within the pod-seating area, given that this was the most popular area overall, but this was not the case. Whilst the most popular individual seat chosen within the carriage was a pod seat, the second and third choice seats were airline, whilst the fourth was longitudinal. Although the preferences expressed suggest a desire for different types of seat, what all the most popular seats had in common was their proximity to the carriage doors. These 'end' seats situated close to the carriage doors, allow less chance of having fellow passengers close by, in every direction, or potentially being 'blocked in' by other passengers. This indicates that beyond the seating style itself there are other factors which influence a passenger's decision on where to sit. Chief amongst these factors is space and the effect this has on a passengers' perceived level of comfort.



(Base: 619)

We would therefore advocate that a mixed-seating approach is adopted on board the new Merseyrail rolling stock. This is beneficial because it allows passengers some level of individual choice over where they sit. Although there is a preference for pod-seating, not all passengers are universally agreed on this, with some even giving spontaneous comments which highlight the drawbacks of this particular layout (such as limited legroom when there are passengers sitting directly opposite, or the ability of other passengers to put feet on the seats when those opposite are unoccupied). Allowing passengers the opportunity to make a choice is likely to please a wider range of passengers than when presenting them with just one type of seat.

A mixed-seating layout comprising several options naturally creates some areas for standing passengers, since seating density will be lessened in some areas. This can then be tailored to meet the needs of standing passengers, by providing sufficient grab rails and hand holds. This would go some way to prevent the discomfort and safety concerns experienced by standing passengers on the current trains. A strategically arranged mixed-seating layout may also enhance any open-plan look and feel, which may be established with the removal of the internal doors/partition between carriages.

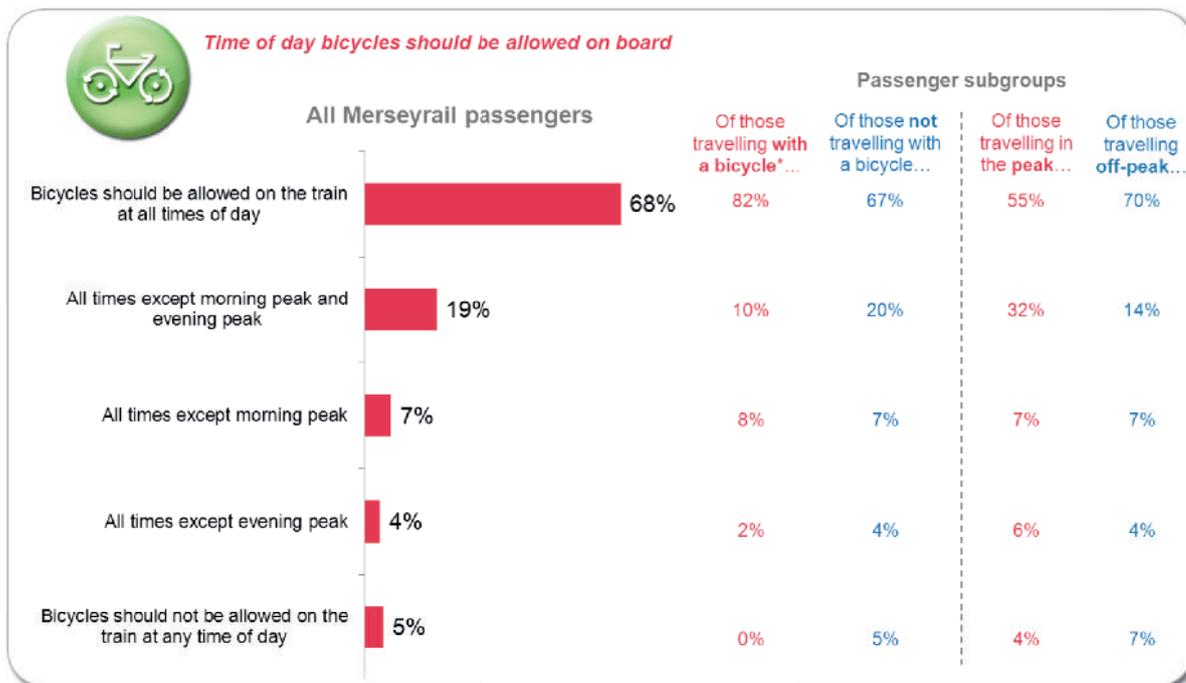
These last two points are particularly pertinent in the context of passenger volume projections on Merseyrail. Increasing patronage will put even greater pressures on space, so every effort should be made in the new carriages to enhance this, allowing the carriages to stand the test of time in terms of capacity demands.

6 Passenger reaction to proposals relating to bicycle provision

Passengers' attitudes towards the carriage of bicycles on trains and the seating arrangements in the areas made available to them, as well as other large items including pushchairs, were also quantified in the research. This section explains passenger reactions to these factors.

A majority of Merseyrail passengers support allowing bicycles on board

Merseyrail/Merseytravel have made considerable investment in cycling infrastructure across the network in the recent past. This has seen improvements to facilities for passengers travelling with bicycles, and has led to a significant increase in the number of secure cycle parking spaces at stations. The current Merseyrail policy continues to support the carriage of bicycles on trains. Given the projected demands on capacity in future and the rolling stock renewal programme, it is pertinent for Merseyrail to consult its passengers in order to understand whether they are in agreement with the current policy: that full size bicycles are allowed on the train at all times.



(Base: 619/55*/564/110/287)

*CAUTION: LOW BASE SIZE

The research demonstrated that just over two thirds (68 per cent) of Merseyrail passengers feel that bicycles should be allowed on board trains at all times of day. Around a third (30 per cent) felt that bicycles should be prohibited at some point during the day: morning peak (7 per cent), evening peak (4 per cent) or for both peaks (19 per cent). Only 5 per cent of those interviewed felt that bicycles should not be permitted on Merseyrail trains at any time.

Whilst a majority of passengers support the unrestricted carriage of bicycles on trains, 30 per cent of passengers would like to see some kind of restriction during the busiest times of the day. It is likely that this can be attributed to the heavier demands on space within the carriages at these times. This is evidenced by the increased proportion of those who travel at peak times only – when space is more limited – supporting restrictions. Almost half (45 per cent) of these passengers would prefer some restrictions on the carriage of bicycles during the two peaks, whilst a further 4 per cent of peak passengers support a total ban at all times of day.

It is important to state that only 9 per cent of those interviewed had travelled with a bicycle in the last six months, and even fewer (7 per cent) had very recent experience of doing so in the last month. This demonstrates that the tolerance for bicycles on board Merseyrail trains spans far wider than the cycling community alone, which is in itself relatively small. Unsurprisingly, support for the carriage of bicycles on board increases even further amongst those who currently travel with a bicycle on Merseyrail services: 83 per cent of these passengers believe bicycles should be allowed on board at all times, only 20 per cent believe there should be any kind of peak-time restriction, and none of these passengers would advocate a complete ban.

Merseyrail passengers have a preference for fold-down seats in bicycle areas

In the designated space for bicycles and pushchairs on Merseyrail carriages, there are currently two fold-down seats which help provide additional space when not in use. These allow passengers to sit in the area when it is not being used for its primary purpose of accommodating bicycles and larger items. As highlighted in the qualitative research, there appears to be some confusion amongst passengers over when these seats should be used and by whom.

Instead of fold down seats, passengers were asked to comment on two possible alternatives:

- perch seats: narrow padded ledges positioned at waist height, designed to be leant on, as opposed to tip up seats, which allow a passenger to fully sit down
- no seating in this area.

Preferred seating in bicycle/wheelchair space



Fold down seats

which can be stowed away when not in use (as currently)

64%



Perch seats

(so that it is easier for passengers with bicycles/buggies to access that space)

25%

Remove all seating from this area

(so that it is clearly for passengers with bicycles/buggies only)

5%

Not sure

7%

(Base: 619)

The research revealed that 64 per cent of all passengers would prefer fold down seats in this area, as in the existing carriages. A quarter (25 per cent) would prefer perch seating whilst only 5 per cent would prefer all seating to be removed from these areas. Therefore it is clear that there is strong passenger desire and expectation for seating in this area.

Whilst it is perhaps unsurprising that passengers would choose to be able to fully sit down rather than perch, given the choice, this preference should be considered in the context of the broader design priorities expressed by passengers. As we have seen, space in particular is a key concern and priority, so the seating provision here should aim to enhance and maximise this. Peak travellers, who have a greater preoccupation with carriage space, as well as those travelling with luggage or with a bicycle, have a slightly stronger preference for perches – 30 per cent, 31 per cent and 32 per cent of these groups respectively would prefer perch seats. It is important to highlight that improved signage to aid passengers' understanding of the area's purpose will be key to any seating in this area, as explored in the qualitative research.

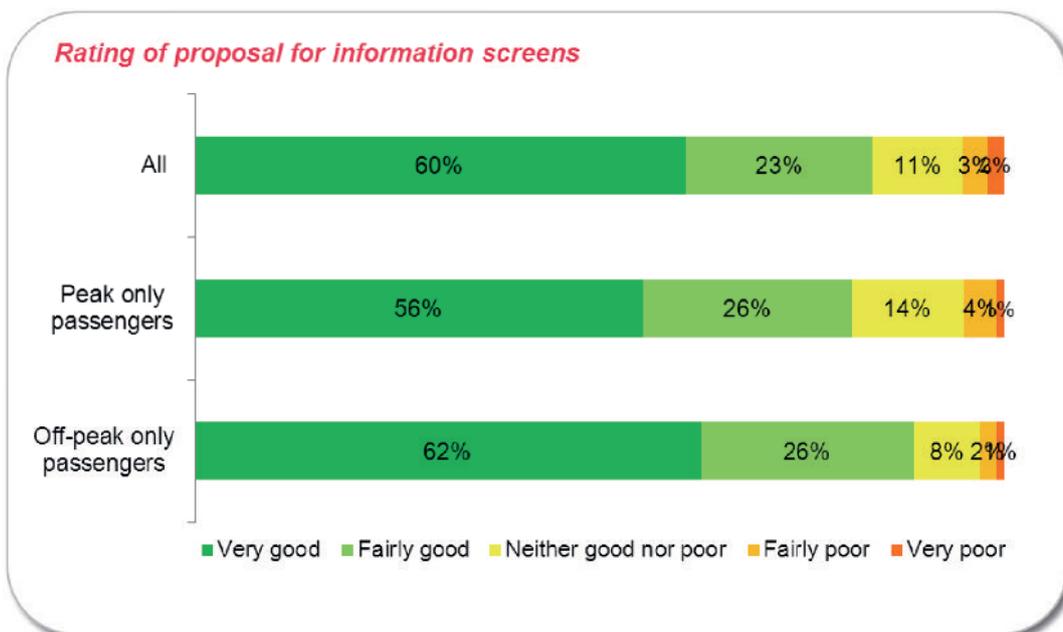
7 Passenger reaction to potential comfort and environment additions

The renewal of the rolling stock on the Merseyrail network provides an opportunity for Merseytravel to consider the addition of features and facilities that could 'optimise' the passenger experience. Given the costs involved and the desire to provide value for money Merseytravel naturally wanted to test passenger demand for such facilities. Passengers were therefore asked to consider how desirable some of the features were.

Information provision would ideally be enhanced by visual information screens

Passengers were asked to rate the appeal of new visual information screens/monitors in carriages. These would be mounted like large television or computer monitors and show visual information (they would not play sound), such as:

- next station stop and onward journey information (for example buses from that station preferably with real-time departure information)
- reminders to consider other passengers (for example by keeping feet off seats and minimising music/mobile phone volume)
- next station facilities (such as ticket retailing, cycle lockers and toilets)
- live CCTV footage relayed from the inside of the train.

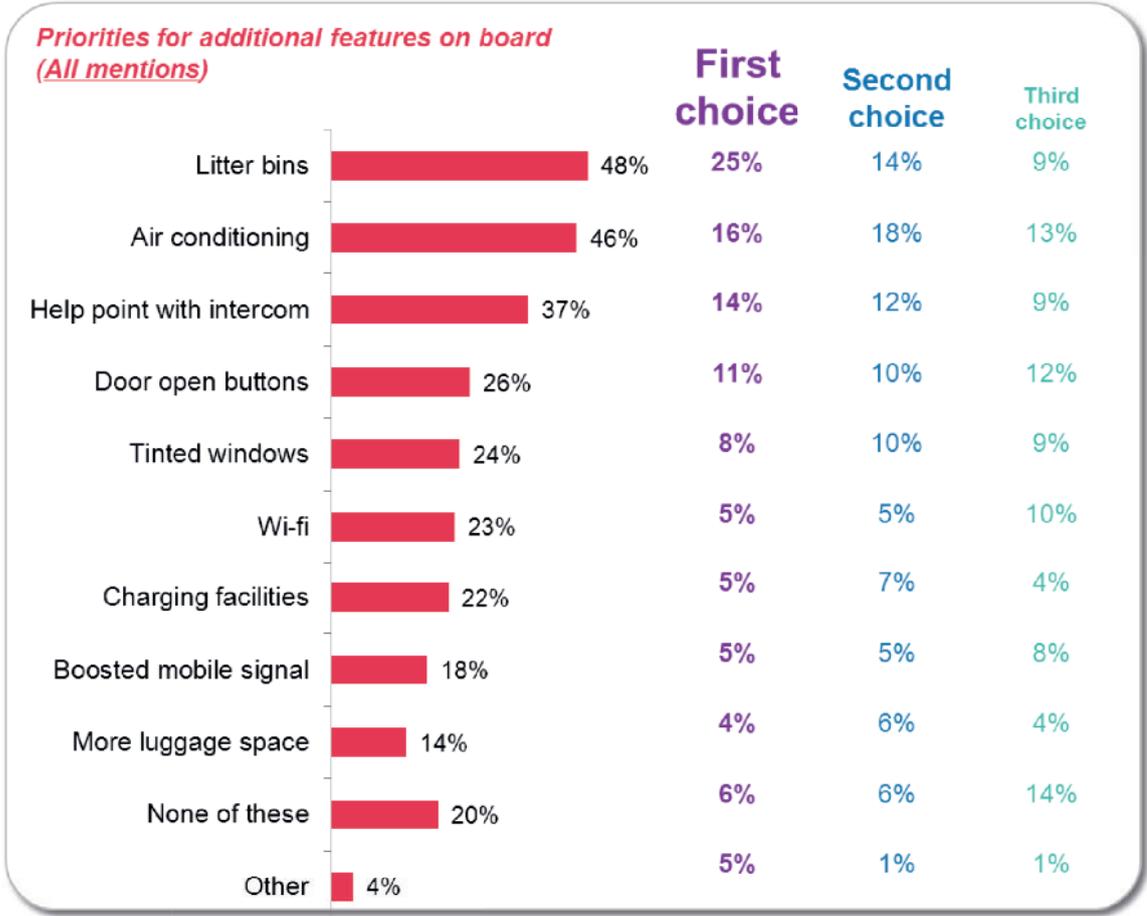


(Base: 619/110/287)

There was strong support for this proposal amongst Merseyrail passengers: 84 per cent of whom thought this to be a good idea (of which 60 per cent felt it was a very good idea). Both visual and audio information are currently rated highly by Merseyrail passengers, but it seems clear that passengers feel this could be enhanced with the installation of information screens. This may be down to the more 'modern edge' it would give to the existing information provision, but also because of the additional information which would be made available to passengers via the screens.

The idea was even more popular amongst off-peak travellers (88 per cent of whom were in favour), which suggests that a screen could provide extra security reassurance when travelling at quieter or more vulnerable times. For this reason, the relaying of CCTV footage via such screens could be particularly beneficial to passengers. Spontaneous passenger comments about anti-social behaviour on-board, such as passengers placing their feet on the seats, playing loud music and an otherwise lack of general courtesy, also indicate that 'behavioural guidance' may be another pertinent use for this equipment if pursued.

Litter bins and improved temperature control are passengers' most requested additional features for Merseyrail trains



(Base: 619)

From a pre-defined list of possible features which could be introduced in carriages (shown in the chart above), the most popular, requested by almost half of all Merseyrail passengers (48 per cent), was the addition of litter bins. Whilst this seems like a basic request, when compared to some of the other proposals tested amongst passengers (including technological advancements such as improved internet connectivity) it seems that this simple and cost-effective addition would be welcomed by passengers using the network for all purposes. Moreover, this should help the service to meet passengers' expectations for cleanliness in the carriage by encouraging passengers to dispose of their own litter rather than leaving it elsewhere on the train, which, as discussed, is a priority for some.

The improved management of on-board temperature was also desired by passengers of all types: almost half (46 per cent) requested the addition of air conditioning as the feature from the pre-defined list they would most like to see implemented. It is consistent that so many would consider this a preferable addition, since the current satisfaction with temperature is lower and some passengers made spontaneous comments that the temperature on board (which can be both too warm in summer, and too cool in winter) should be a priority for change.

Two additional options which might also assist in creating an ambient on-board temperature were considered to be desirable by some passengers. Passenger operated doors with open/close buttons, which might prevent excessive change in temperature caused by the doors opening at every single stop, and tinted windows to reduce glare from the sun, were both requested by around a quarter of passengers (26 per cent and 24 per cent respectively). Given the preference for air-conditioning and the additional support for these two features it is clear that measures to regulate the internal carriage temperature should be one of the chief considerations for designers. Whilst passengers readily saw the installation of air conditioning as the way for this to be achieved, all options which best meet the needs and demands of the service should be considered.

Another proposed feature which proved relatively popular amongst those presented to passengers was the addition of a help point in the carriage with an intercom facility: 37 per cent of passengers wished to see this on the new trains. This would allow passengers to speak through the intercom to a member of staff if they need assistance or advice.

Perhaps the most obvious benefit to the inclusion of this feature is an enhanced sense of security that it may provide. It has already been demonstrated that personal security is a high priority for passengers in the future – so developments should be considered to optimise this going forward. Around half of all the spontaneous comments collected from passengers in relation to security referred to the need for an increased, visible, human presence on board trains (such as guards or transport police). Whilst a more open-plan carriage (discussed in section 5) would increase the ability of passengers to see down the length of the train, the addition of an intercom, through which passengers could speak direct to Merseyrail/security staff would be seen as a welcome addition because of the peace of mind it would help create. For those travelling off-peak, when there are fewer passengers around, a help-point intercom is even more popular, with 42 per cent of off-

peak only passengers suggesting this. Similarly, a higher proportion of leisure passengers suggested this addition (43 per cent).

A number of technological advancements which could in theory be included on board any new rolling stock were also put to passengers: 23 per cent selected wi-fi on board, 22 per cent requested the installation of charging facilities, and 18 per cent wished to see a boosted mobile signal in the carriage. The popularity of these features is significantly higher amongst business travellers and commuters (with 35 per cent, 33 per cent and 28 per cent of both commuting and business passengers choosing on board wi-fi, charging facilities and a boosted mobile signal respectively).

Whilst there is some appetite for these features, particularly with non-leisure passengers, this is more limited compared to some other suggestions which are more explicitly linked to passengers stated priorities for the network. Journeys on Merseyrail tend to be relatively short (almost three quarters of all journeys recorded in the research lasted 30 minutes or less) and there is also a very small proportion of business travel on the network (8 per cent). Both of these journey characteristics are likely to dilute both passenger expectations for and actual use of these services. It would be prudent to bear in mind that increasing exposure to such facilities in public places is likely to generate greater expectation for them to be provided on trains too. Projected actual use for any of these services was not however measured by the research.

Consideration must be given to the technological specification of the carriages as it will be important to strike a balance between 'future-proofing' and tailoring the carriages to the specific nature of Merseyrail journeys. Whilst they are not a key priority for Merseyrail passengers at present, potential demand looks set to continue to expand rapidly, so it is possible they may become more important in the future.

8 Conclusions and recommendations

By commissioning this work Merseytravel has recognised that any new rolling stock operating on the Merseyrail network should be designed with passengers' requirements and overall journey experience in mind, so journeys will be as comfortable, convenient and enjoyable as possible. It is therefore important to understand passenger perceptions of the current service and their perspective on proposals for the new rolling stock in order to ensure that the design meets both the needs of current passengers and the likely demands and expectations of those in the future. This research illustrates that whilst Merseyrail passengers are at present largely satisfied with carriages, there are several ways in which the on-board environment can be further developed and enhanced.

One crucial contextualisation for this research is that passenger numbers are expected to increase significantly across the Merseyrail network in the foreseeable future. This will change the typical passenger journey experience, as well as passenger requirements. Whilst very few Merseyrail passengers currently stand on their journeys, the need for an increasing proportion of Merseyrail passengers to stand will become a reality; the new rolling stock must address this by ensuring that passengers will be able to stand in both comfort and safety. Whilst carriages with very low density seating arrangements (like those on commuter services in London and the South East), may not be necessary or popular with passengers, failure to cater for an increase in passenger numbers will lead to significant dissatisfaction in future.

Seating layout will be central to the availability of space and therefore comfort for all passengers, including those who stand. Passengers showed some preference for 'pod'-style seats as well as interest in other options (including 'airline' and to a lesser extent 'longitudinal' seating) and we recommend that a mixture of all three styles should be included. This mixed approach creates a multi-functional environment, able to effectively engineer space to cater for those who sit, stand and carry large items on board the train. Importantly, a mixture of seating styles empowers passengers to select a seating option most comfortable or appropriate for them, and the variance in passengers' preference for seating style makes this a significant consideration. We recommend that the inclusion of more grab-rails and hand holds in areas of the carriage where it is comfortable and convenient for standing passengers to congregate would improve the experience for standing passengers, which is at present unsatisfactory.

In terms of carriage layout, passengers indicated a strong preference for an open-plan design – to be created by removing the internal doors and partition between carriages. We recommend this not only because of the enhanced sense of space it will create (aided by a mixed seating pattern) but also because improved sight lines throughout the train are likely to generate a greater perceived sense of personal security. Whilst the majority of passengers are satisfied with their personal security when travelling on Merseyrail, this remains a priority for improvement amongst passengers since it is fundamental to their use of the service. Measures which enhance security in the future will therefore be welcomed by passengers; so it will be important to show development in this area.

The research also indicated that a majority of Merseyrail passengers are in favour of the existing bicycle policy operated on Merseyrail, which allows passengers to take full sized bicycles on board trains at all times of day. There is however some feeling (particularly amongst peak passengers) that bicycle carriage should be restricted during the peak times when space is more limited. Given the projected growth in passenger volume, we would recommend that both the feasibility and the passenger perspective on the policy be monitored and reviewed in future. This will ensure that any policy remains appropriate. However, at present, support amongst passengers suggests that the new carriages should cater for the carriage of bicycles, but that the design and prioritisation of space be improved.

The qualitative element of this research indicated some issues around the spaces for bicycles (and pushchairs, etc) in the current carriages, relating to the seating and passenger understanding of priority for this area. The quantitative research revealed high passenger expectation for seating in this area, with a majority favouring 'fold down' seats (as on the current trains). We recommend that seating is provided in this area, and that it should follow passenger preference where possible. However, any decision should be taken in the interests of overall space creation for the carriage as a whole (seating is not the primary purpose of this area). Whichever seating is installed should be accompanied by prominent signage providing clear guidelines for usage, in particular, protocol concerning which passengers should be given priority access to this area.

It will be important to maintain the strong provision of visual and audio information on board the new trains. Although passenger satisfaction with these attributes is high at the moment, passengers strongly supported the proposal for electronic information screens to provide an increased amount of visual information. We recommend this is pursued in order to show an improvement upon the existing trains and modernisation amidst the on-going rapid proliferation of technology, which looks set to continue. One particularly pertinent use of the screens would be to relay live CCTV images, from within the trains. This would help enhance perceptions of personal security, in line with passengers' priorities for improvement.

There are several other aspects contributing to the overall environment on-board which emerged as important to passengers. We therefore recommend the following are considered in the design and specification of the new rolling stock:

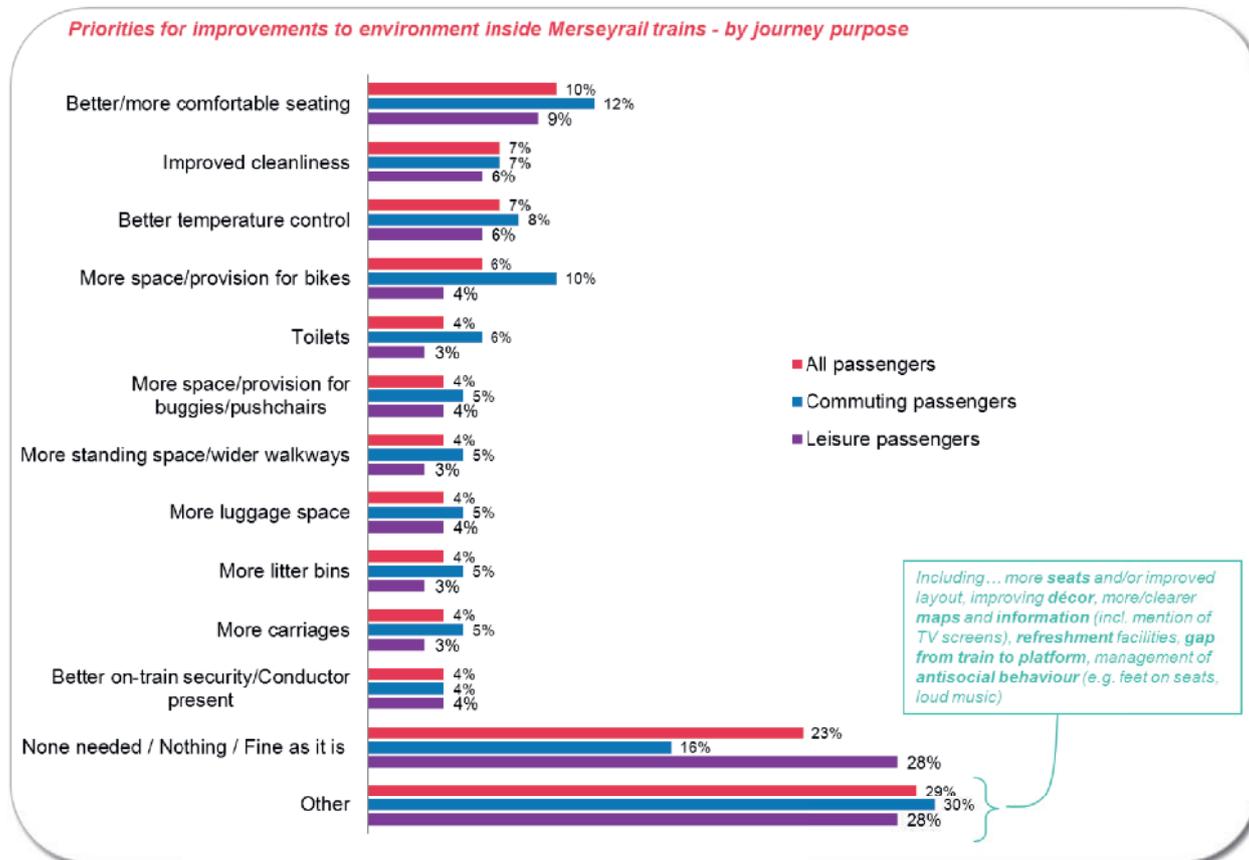
- The comfort of the seating – for passengers this relates to several elements including look and feel, spaciousness, upkeep and positioning as well as the ability to sit without physical discomfort. The qualitative research suggests passengers appreciate some of the current design elements, such as the high seat backs, but a holistic view should be taken to ensure maximum comfort to passengers going forward.
- The cleanliness of the inside of the train is important to passengers, so this should be maintained throughout the lifetime of the new rolling stock (the launch of which is itself likely to create an improvement in passenger perception of this aspect since it will be

new and unused on introduction). It is recommended that litter bins should be included on board, as requested by passengers, and will assist in the upkeep of a clean and tidy environment.

- We recommend a full range of options to better create an ambient temperature on board be evaluated and the most appropriate installed on the new rolling stock. Temperature control emerged as a problem for some passengers and many requested the addition of air conditioning for (and to a lesser extent other measures which may assist such as door-open buttons and tinted windows). It is clear that the end result, a better acclimatised carriage temperature, is more important to passengers than methods employed to achieve it; provided that they are efficient and effective.
- Passengers' priority for personal security improvement was also mirrored in the popularity of help point intercoms being installed on trains, allowing passengers to contact staff remotely. We recommend this is also considered for inclusion to help drive forward advancements in the area of personal security, which is so crucial for passengers.
- Features to improve connectivity on-board were requested less frequently by passengers (although these were more popular amongst business and commuting passengers). We recommend thought is given to the future-proofing of the new carriages as uptake of mobile devices looks set to continue, which in turn is likely to increase passenger expectation. However, this should not be considered a priority for the new rolling stock since passenger profile and preferences suggest there are other areas upon which to focus.

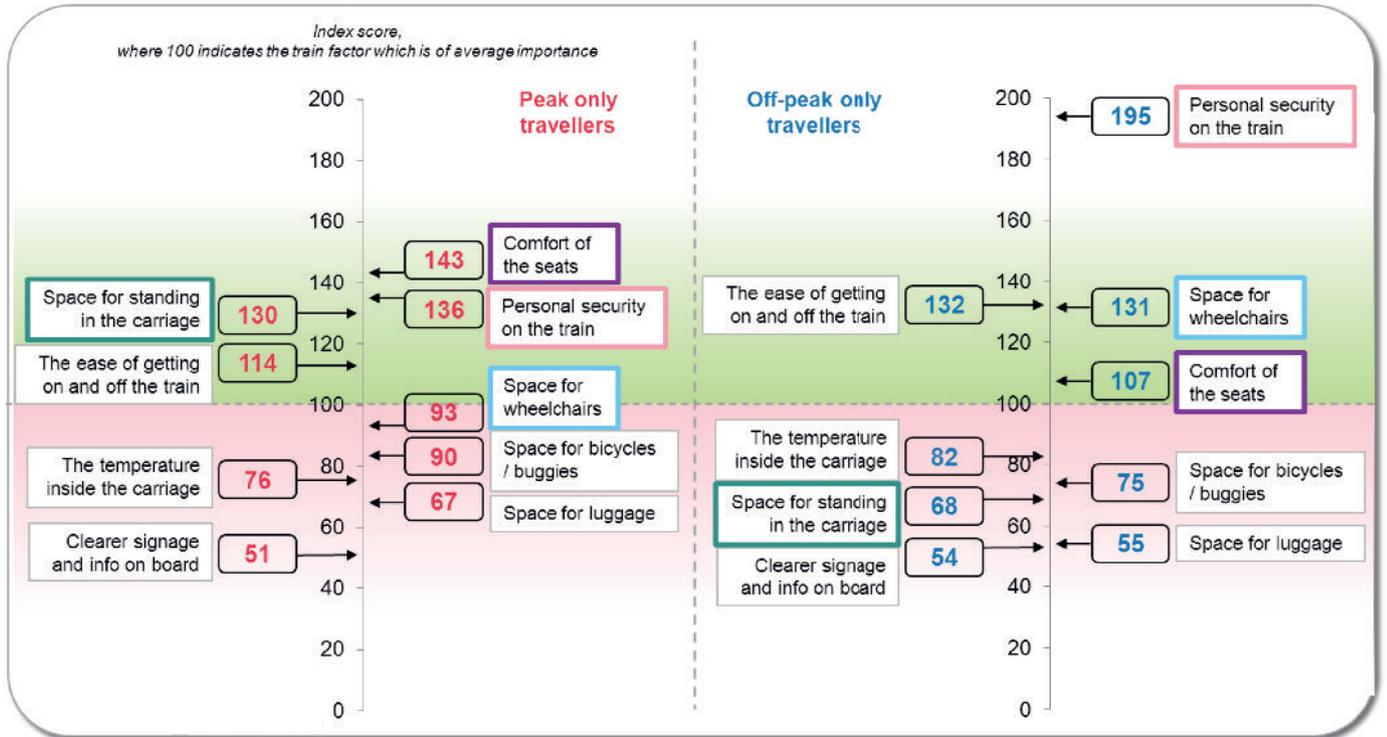
9 Appendices

A. Passenger priorities for improvements to the environment inside Merseyrail trains, by journey purpose



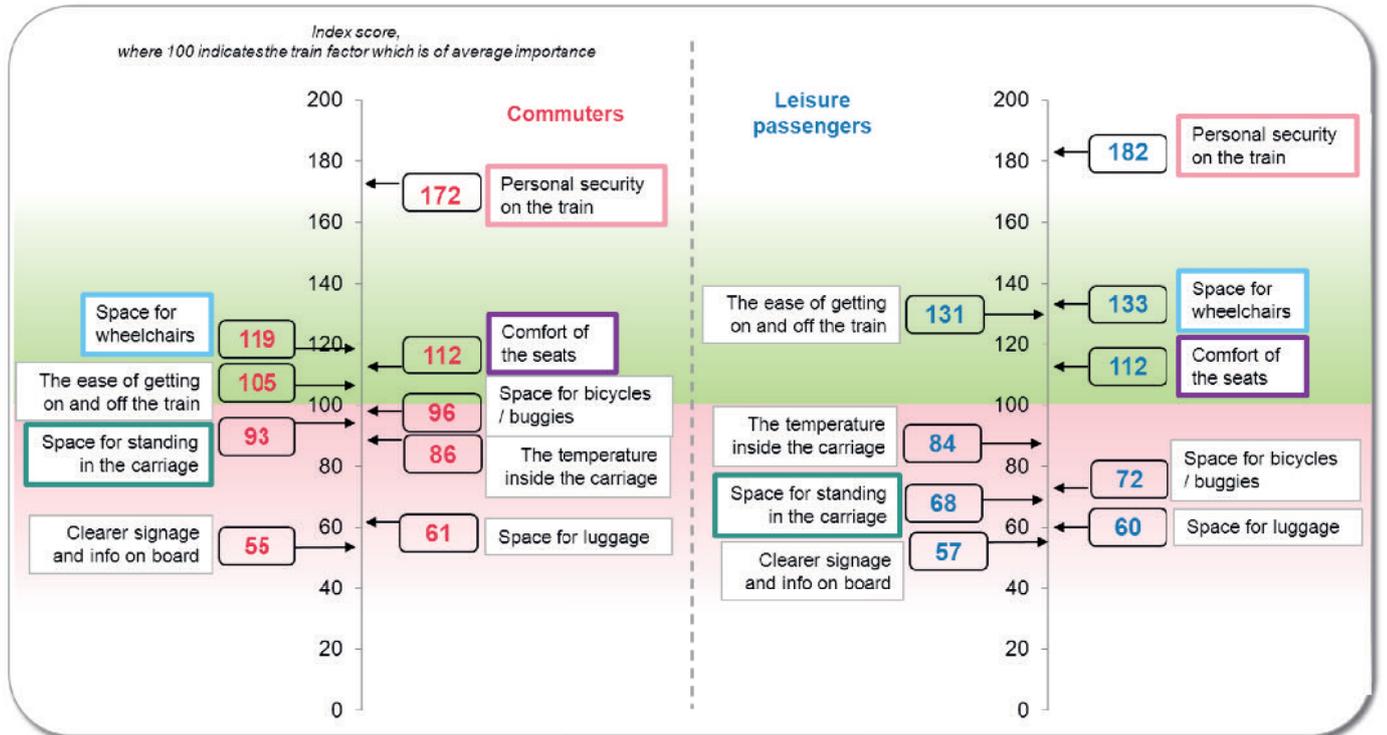
(Base: 619/221/327)

B. Passengers' 'stated preference' of potential improvements, by time of travel



(Base: 110/287)

C. Passengers' 'stated preference' of potential improvements, by journey purpose



(Base: 221/327)



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