



# New trains for the Merseyrail network

What passengers want  
February 2021

# Foreword



**T**ransport Focus has helped Merseytravel listen to what passengers want from new trains throughout the design process. We worked with Merseytravel in 2013 when passengers were asked to help with the initial design stage. The results from this first wave were incorporated into the design which manufacturers bid against. Merseytravel, having appointed a manufacturer, then used a passenger community for a second stage of research.

You can see the outcome of the second stage in this report and how we got there. The passenger community is a group of 40 passengers who completed tasks online and at workshops. Their involvement ensured passengers got the trains they want as it kept their views current while the design was finalised.

Recruited to be the 'voice' of the end user, the passenger community were asked to

provide feedback on a number of key design considerations. What the train should look like, what seats are to be provided, how the new 'flexible' and 'designated spaces' are to operate and what onboard information should be delivered during the journey. This document summarises the views of passengers on those areas. For more detailed analysis of their feedback see the full report.

The influence of the subsequent research on the end product should hopefully be clear to anyone who uses one of the new trains.

This is a bold but welcome step for the rail industry. We would challenge other bodies responsible for designing and procuring trains to adopt a similar approach, putting passenger feedback at the heart of decision making.

**Anthony Smith**

Chief executive, Transport Focus

# Forewords



LIVERPOOL  
CITY REGION  
COMBINED AUTHORITY



METRO MAYOR  
LIVERPOOL CITY REGION

## Merseytravel

**T**he replacement of the Merseyrail fleet has provided a unique opportunity to place passengers at the heart of the design process. These trains have been procured and will be owned directly by Merseytravel on behalf of the taxpayers of the Liverpool City Region. They are intended to remain on the Merseyrail network throughout their working life which has created a clear opportunity to explore how they could best be adapted to the specific needs of our network.

Since the origins of the project, Merseytravel has wanted to ensure that the views of Merseyrail passengers have been understood and used to develop the specification and design of the new fleet. The two phase approach that we have taken, working with Transport Focus, has enabled us to achieve that ambition. What became clear throughout the process is that passengers' opinions are far from uniform and that clear-cut choices are rarely available. Through structured research, we have been able

to make informed choices into design features and, in our opinion, refined and improved on our original concepts. As a consequence of this work, we are confident that our new fleet reflects the aspirations of our passengers.

On a personal note, I clearly recall from my interview for this position back in 2012 being asked by Merseytravel's chairman what features I thought Merseyrail's passengers would want on the new trains. My response was 'I don't know, but it's a central part of the job to work that out.' This body of research encapsulates that approach.

I would particularly like to thank all of the participants in the process, including Transport Focus, Merseyrail and Stadler but most importantly all of the passengers who have participated in both phases of the research. Your views have made a big difference.

**David Powell**

Rolling stock programme director, Merseytravel

## Merseyrail

**I**t has been a pleasure to work with a wide range of customers from across the Liverpool City Region to help develop, what we believe, will be the UK's most co-created train experience. Their input has had a direct impact on the final design of the new trains in a large number of ways from the type, shape and size of seating on offer to the digital displays that will help keep customers informed as they travel around the network in the future.

Transport Focus has helped both Merseytravel and Merseyrail to understand our customer's preferences in an engaging and innovative way.



We believe that when the first trains roll out in 2021 the people of the city region will agree that the new trains benefit from this collaborative approach.

This is supported by the positive feedback received from over 12,000 customers that visited the mock-up of the train during 2018 that featured all of the key elements that our customers have helped to design.

**Greg Suligowski**

Head of customer and stakeholder experience, Merseyrail

## Key findings

### Designated spaces – wheelchairs and bicycles

In the first wave of research passengers identified the step between the train and the platform as a key area for improvement. In response, the new trains will have an intelligent sliding step in every doorway providing step-free access. Looking beyond getting on and off the train, Merseytravel asked the passenger community for feedback on the design of the wheelchair space. This included the seating options to be provided when the space was not being used by a wheelchair user and how best to demarcate the space.

The key concern for the passenger community was for the design of the new trains to address the balance between wheelchair users needing to use the space and non-disabled passengers making use of it when it wasn't already occupied. They were therefore asked to consider whether there should be no seats, tip-up seats or perch seats (those which you lean on while standing up) provided within the designated spaces.

The group felt that passengers were less likely to vacate fold-up seats when the wheelchair space was needed.

Perch seats were considered 'less permanent' and passengers were less likely to 'feel entitled' to them. And therefore, more likely to move. No seats at all was seen to be a waste of space.

*"I think that seats suggest that anyone can use the space..."*

After wider consultation with its Disability Reference Group, it was clear to Merseytravel that the need to minimise the risk of conflict between different passenger groups was key. On that basis, it was decided to have no wall mounted seating or perches in the wheelchair space.

However, Merseytravel did select perch seats for the bicycle space because it agreed that passengers were more likely to give them up quicker and they would help reduce potential disagreements over use of the space. This was important as it was felt the bicycle space was more likely to be used for reasons other than its intended purpose.

*[Which is your preferred seating option? Why?]*

*"Perch seats. Easier and quicker for persons to vacate the area when a wheelchair user comes along."*

*[Which is your least favourite?]*

*"No seats."*

*"Why?"*

*"Because when there are no wheelchair users it offers a secondary use of space"*

### Signposting

The community stressed the need to clearly signpost and provide instructions for use of the wheelchair and bicycle areas. They were therefore asked to consider the tone and format of those instructions.

*"Whatever choice of seat in the wheelchair area is settled upon, I think that an absolute priority must be to have clear signage both on the floor area and overhead that this area is for wheelchair users first and all others, be they with cycles, pushchairs or just regular passengers, second."*

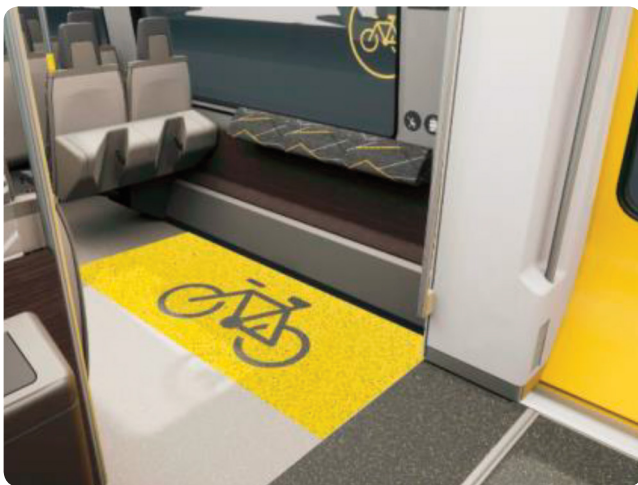
Their response was that they preferred a polite but firm tone and that the messages needed to be succinct. They felt that the tone could be more formal and direct in the wheelchair area but more 'friendly' in the bicycle space to encourage people who didn't need the space to move.

As a result, Merseyrail has used intuitive icon based designs with a direct but minimal text approach.

## Markings

On the current Merseyrail trains neither space has any floor markings to indicate what their primary purpose is. Overall the community felt that having some markings would help produce the right outcome for those passengers with a bicycle or wheelchair. At the very least they would give someone asking passengers to move something to help 'legitimise' their request.

Of the six options provided the design shown in the picture was preferred as it was thought to define the two spaces best. Following this feedback, Merseytravel settled on this design.



## Additional space for luggage and pushchairs

The first wave of research highlighted the contribution that passengers with luggage and pushchairs made towards congestion inside carriages. Most notably in the areas around the doors. The new design attempted to address this partly by providing areas of flexible space using tip-up seats inside a bay of four seats.

The community were asked whether additional designated spaces should be provided and, if so, how many there should be.

The idea of providing a flexible space that helped address the needs of those with buggies and/or luggage was generally welcomed. However, there was some concern over the impact that this might have on seating capacity and the politics of 'who will have priority'. Also, it must make sure that buggies or luggage could be stored securely in the space and that neither could roll out into the aisles.

The community understood that passengers with luggage/buggies wouldn't want to have to squeeze past others in the aisles. So, they suggested that the dedicated spaces be located by the doors and that it should be easy for passengers to reach an alternative space if the first one was full.

*"Dedicated luggage/pushchair bays with tip-up seating offers the best use of the space. Tip-up seats take the least space and will still allow space for luggage when required."*

The group recognised that travelling with luggage, a pram or a bulky item could be challenging. However, they felt it best to avoid adding further complexity by introducing more rules. Instead, simply having a luggage/buggy symbol in these areas was thought to be enough to suggest what the area should be used for.

*"Tip-up seats are an added bonus of the new trains and you don't want a rule book that comes with buying a ticket."*



Merseytravel has said overhead luggage racks will be provided throughout the train, and that there will be under-seat storage. Each carriage will also include one bay of four seats with flexible seating to accommodate buggies or bulky luggage.

Verbal announcements explaining how the space can be used will be made, as well as information and staff training to help minimise the risk of conflict between passengers.

## Seating

In the 2013 research passengers rated the existing seats as 'adequate'. However, when asked about priorities for improvement 'better/more comfortable seating' was mentioned most.

When the passenger community were brought together at the workshops, members had an opportunity to test three different seat width options (430mm, 440mm and 450mm). They were asked to choose between two models of seat with slightly different back supports and seat bases. They were also invited to give feedback on the type of fabrics and colour scheme.



Many of the community took their relatively short length of journey into account when commenting on the current and future seats. The average journey length of passengers on Merseyrail services is 20 minutes. So, while important, the quality of the seat was not a top concern.

A fabric upholstered seat with support for the head was preferred. Overall the community favoured the widest of the seating options. Despite appreciating the impact that the seat width had on aisle space, they didn't feel that the aisle width suffered as a result of the 450mm seats.



Both wheelchair users in the community were able to move up and down the aisle unobstructed. Other community members also experimented with a suitcase and pushchair and found that these too were manoeuvrable down the carriage. Some tried passing down the train whilst there were standing passengers in the aisle and remarked that they felt there was enough space to be able to pass.

Between the two seat designs the one that felt most 'ergonomic' was selected, though the group asked whether it could be developed to feature increased cushioning in the seat base.

Merseytravel followed the community suggestions for seat model 2 with additional padding to the base, a flat-weave fabric for seat covers and headrests in leather. The width of 450mm was chosen as it was felt this maximised the aisle width while also taking into account seat comfort which was important to the community.

## Tables

Although tables were not previously identified as a priority, Merseytravel wanted to make sure that the final design reflected the needs of passengers. The community was therefore asked to consider four different options for tables in bay seating areas.

Community members confirmed the results of the earlier research by agreeing that tables weren't really needed. However, if they were to be provided, the key consideration was that they didn't get in the way of



passengers getting in and out of seats.

At a workshop in February 2018, the community had a chance to test both the bay and airline seat configurations to get a sense of the space that the new layout would provide. The legroom in both types was felt to be sufficient, with some remarking that there was noticeably more room than on the current trains.

The small table has been adopted for the bay seating areas and, following concerns, the height has been raised.

The community identified the need for accessibility symbols (to indicate where the wheelchair and bike spaces are located) to be clearly visible on appropriate parts of the train as well as a moderately sized logo.

The need for the doors to visually stand out as well as a sleek design were the main factors determining the choice of colour scheme.

*"I think that the yellow and grey combination allows for the doors to be yellow, which I think stands out much more on grey, than the grey doors on yellow and this will assist people to the doors."*

Yellow was a slightly polarising colour. As such the design which incorporated it to define the doors against a grey body of the train (yellow on grey) was more popular than the reverse (grey on yellow).

## Colour schemes – inside and out

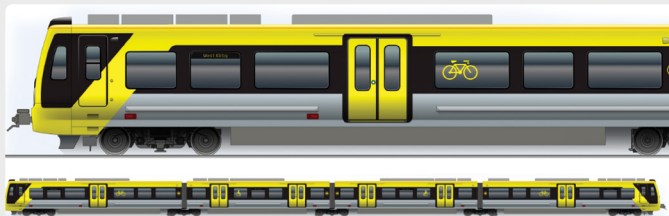
### Outside

Merseytravel presented some designs for the outside of the train at the first workshop. These were then refined based on the feedback received and narrowed to a choice of two. They were then presented to the community online to ask which one they preferred.

*"I don't like the look of the all yellow option. It is too garish for my taste."*

### Q1. Which option do you prefer? Why?

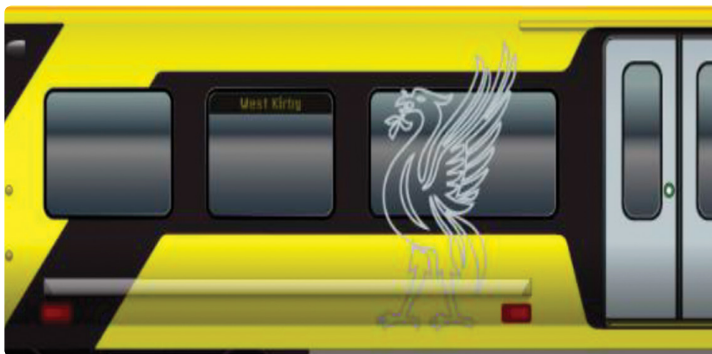
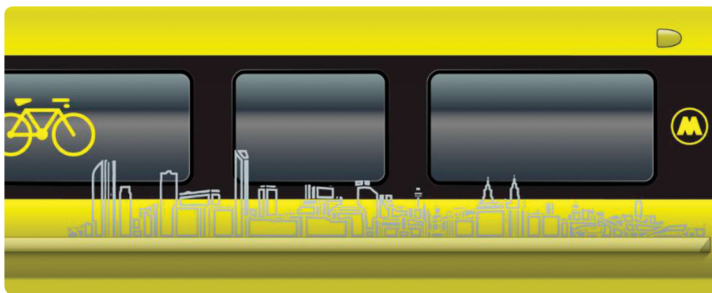
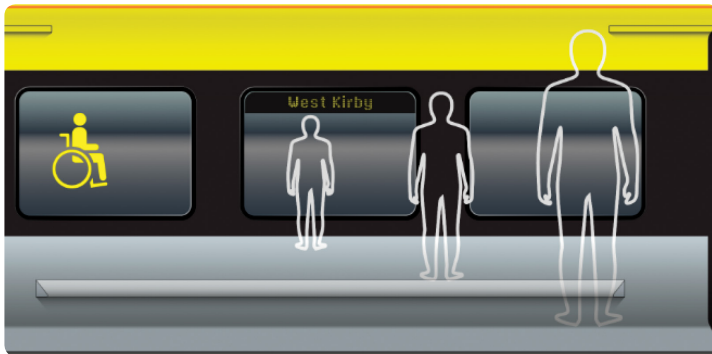
#### Option 1 Yellow & grey combination



#### Option 2 Full yellow



The community asked Merseytravel to consider adding some artwork to provide a sense of local identity to the train. There was a positive reception towards the ideas presented by Merseytravel once it had opportunity to work up some designs. These included silhouettes of a Liver bird, the city skyline and the Anthony Gormley sculptures on Crosby beach.



*"I don't like that the example artwork only refers to Liverpool. This will be Merseytrain, not Liverpool train. The artwork should make visual references to landmarks from all Merseyside boroughs."*

It was felt that if any of the designs were chosen, they needed to fit the look of the train and have a resonance in the wider Liverpool City Region.

As the local artwork was clearly liked Merseytravel has suggested this could be part of the fleet's future after the initial launch.

### Inside

As with the exterior, reactions to the internal colour scheme were influenced by the overall look of the design, potential for keeping it fresh and smart, as well as reactions to the amount of yellow used as part of the branding. More community members were drawn to the options that were mostly grey with yellow highlights, rather than the reverse. Whilst a light and bright carriage was important, the need for seating to resist any wear and tear was strongly expressed.

At the second workshop the community were presented with a choice of six interior themes. Whilst there was a clear favourite, pictured below, there were some reservations about a suggested wooden side panel. The use of wood in some of the options, when in combination with the floor and side panels, was disliked by the majority.



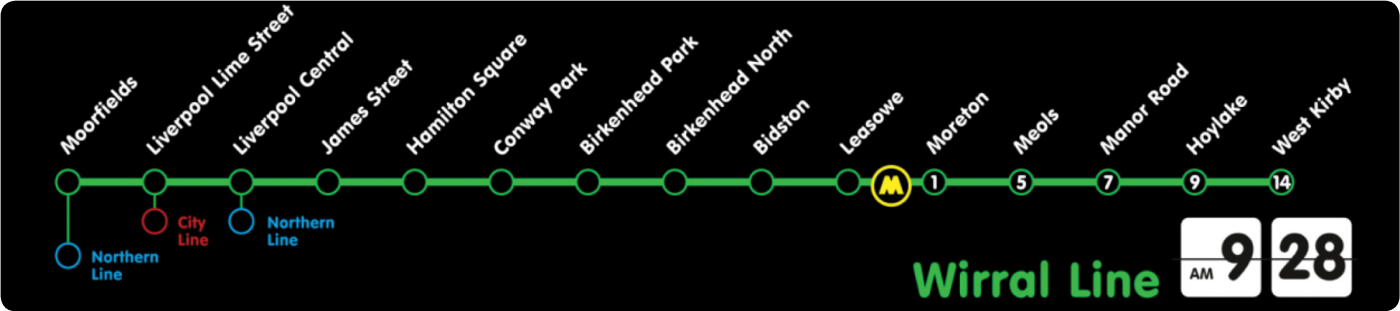
Merseytravel went with the community's choice of 'Mersey Diversity' for the seat design. It was preferred for the darker seat, the line colour and design.



# Passenger information onboard

Passenger information onboard the train provides the ability to give up to date information during times of disruption.

## Option 1



There were overwhelmingly positive reactions to the proposed dynamic route map. That is, a map that would follow the train's progress rather than remain static. Further developments of the proposal showed that a map

with the entire route could alternate between this and another image with upcoming destination information. The community thought that this was a good combination to pursue.

## Option 2



Showing how a train in the platform would line up with station facilities, information about delays, and the route was highly valued.

When asked about the possibility of having live CCTV footage within the carriage, the community welcomed this proposal. There were however questions

over how it would work. Some of those concerns were offset by the explanation that the CCTV would be monitored remotely. In addition, it was explained to the group that when a passenger alarm was activated Merseyrail's control centre would see live footage of the passenger activating it.

## Option 3



The overriding message from the community was to 'keep things simple' and for the information to be dynamic – that is for it to be provided in real time (almost to the second). The quantity of the information must be balanced, that is, not so detailed it became overwhelming or so sparse that it was only of limited use. Too much interchange information for example was not thought to be helpful, nor was a proposed 'live' news feed (unless highly relevant in an emergency) or adverts.

The recommendation from this second stage was therefore to explore in more detail the ideal combination for switching between option 1 and option 2, and the best way of managing the legibility of option 1 (particularly on routes with most stations).

## Overall experience

Community members expressed a strong sense of pride in the development of the design and welcomed their involvement in the process. Most agreed that the process had allowed for the development of their ideas and had helped ensure that passenger views were central to decision-making.



"Seeing the mock-up in September made me really proud of what we had been involved in and influenced, so I couldn't wait to show off to my family the train mock-up when it was in display at Lime Street."

"The final thing I will say that it has been a pleasure to work with Merseytravel, Transport Focus and especially the members of the panel that have come together to help agree on ideas and solutions for the trains."



## Conclusion

The final design of the new Merseytravel trains show strong links to the views expressed by passengers in both stages of the research.

We hope that the passengers who come to use them, day-to-day, will benefit from that. Involving passengers throughout the design process so comprehensively is a bold, but welcome, step for the rail industry. We would encourage other organisations that are looking to build and buy new trains to follow the example set by this Merseytravel project.



## Contact Transport Focus

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Transport Focus is the operating  
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