



Turbostar trains interiors: what passengers want

January 2023

Background and research objectives

In June 2022 the train leasing company Porterbrook asked Transport Focus to help understand what passengers think about the interiors of its Turbostar trains. Porterbrook felt that it was important to establish what passengers, the end users, wanted from a proposed refurbishment of the Turbostars. This is particularly in the context of changing passenger expectations which have been reset by the Covid pandemic. The aims of this research were to:

- Find out more about how the pandemic has impacted passenger views and expectations of train interiors and learn what aspects of the Turbostar design they wanted Porterbrook to prioritise in the refurbishment.
- Learn more about passengers' spontaneous thoughts on the current Turbostar rolling stock; what aspects most stand out and which aspects they think are working well or less so.

- Establish what passengers consider to be most in need of improvement in respect of the train interiors and understand more about perceptions of different design detail.

As part of the research Transport Focus heard from passengers using Turbostar trains on East Midlands Railway and CrossCountry networks, as well as other trains which are eventually due to be replaced by Turbostars. We also heard from passengers using the trains for a variety of reasons to ensure that a full breadth of passenger experience was considered.

Findings

Train user priorities

The key need for train interiors is comfort and this begins with the availability and location of a seat. While for most the seat is the start point, all other priorities related to the design of the train interior are dependent on how the passenger intends to use the space. This is very much determined by their reason for making a journey.

"A good train journey is getting a seat and being on time, and a comfortable, quiet journey."

Day tripper

After the availability and location of seating, the nature of the train interior tends to be a secondary concern, and only tends to come to the fore if things are noticeably 'wrong' (for example if the interior appears to be dirty or doesn't offer much space). Most participants involved in the research said that the ideal interior offers a 'neutral' backdrop to their journey.

Alongside the journey purpose, the length of the journey is an important factor in determining passenger priorities. Seats that are close to the door are valued by

those travelling short distances as they are generally more interested in being able to get on and off the train quickly. Those making longer journeys or who intend to work are more likely to prefer seats that are away from others so they are not disturbed.

"If I'm just on it for 20 minutes then it's transport, it's A to B. When I'm on it for an hour then I want to sit down."

Visitor staying away from home

"It's about seats for me on a short journey – you pay the money, so you want to sit down, but that's about it."

Visitor staying away from home

The expectations about the facilities on board also vary depending upon the length of the journey. Those who make shorter journeys will expect to be able to sit down but have less of a need for other facilities such as a table, Wi-Fi or charging points. On longer journeys a seat is a must but travellers also expect charging points, storage for luggage, and somewhere to get refreshments.

“Ideally all the seats should have power – you might want to work, or at least charge something.”

Commuter/occasional business traveller

Priorities vary by different type of passenger

The different features that passengers prioritise within the design of a train interior vary depending upon the ‘type’ of passenger and the purpose of their journey.

For **commuters and occasional business travellers** the initial priority when getting on to the train is to get a seat. If they intend to work then access to a table is important. If privacy is the priority they will look for airline seating. Airline seating is also considered important to have on busy services as it's thought to help maximise the number of seats per carriage. If they do not intend to work then personal space away from other travellers is considered important. Arm rests for example, were valued because they helped separate space.

Visitors/holiday makers share the commuter's desire to get a seat on board the train. Availability of space to store luggage as close to the seating as possible is then considered important, as are aisles which offer plenty of space to move up and down to retrieve items from luggage as required.

Those making **day trips** are keen to be able to find several seats together as they are more likely than others to be travelling in groups. These travellers also prioritise the availability of information on connections between trains and on station layouts. This is particularly if the stations

where connections to other services might be made are unfamiliar.

Parents of under fives are keen to see train designs which allow them to get on and off easily. Also, similarly to those making day trips, finding groups of seats together is considered important. Though this type of traveller would also like to sit close to the doors to enable them to get off the train easily. Those with young children also want storage for pushchairs.

The research indicated that among **disabled passengers** the nature of their disability is key to their priorities for train interior design. For most, trains designs which made boarding and alighting the train easily was important, as was the availability of staff assistance (if required). Accessible seating was mentioned as a priority among many passengers with disabilities included in the research, as was the availability of dedicated wheelchair accessible spaces. The preference was for these to be away from bike and luggage storage, and with access to charging. Many disabled passengers, particularly those with neurological conditions (who told us they require more time to process information), said they required information displays on board to align with audio announcements. This includes both live and pre-recorded announcements.



Impact of Covid on train user priorities

At the time of the research participants reported a desire to 'get back to normal' after an extended period where they had been advised that unnecessary travel might put them at risk because of the pandemic. Participants were returning to the railway but their expectations had now been reset by a time where fewer people were travelling and where cleaning was visibly more intensive. In this context participants explained that they have an increased preference for fixtures and fittings that look like they are easy to clean. And less of a preference for materials which are patterned and appear to be designed to disguise dirt. They also preferred to be able to keep some distance from others while travelling and valued improved ventilation.

"Since the pandemic I'm more aware about space, especially if there are older people around. I go for an emptier part of the train and avoid sitting opposite people."

Commuter/occasional business traveller

"Because of the pandemic, I have become a lot less tactile with the world around me...but then I suppose a lot of us have."

Disabled passenger

Train user assessment of Turbostar trains

Those who use Turbostar trains are generally positive about the interior. Participants in the research, making comparisons with other trains running in their area, made several positive comments about the design. In particular they mentioned that:

- The trains can feel more modern and spacious than other rolling stock that they use (particularly when compared against class 156/158 trains). The ride is often smoother and the large windows add to a sense of space and make the interior feel less claustrophobic.
- The trains are relatively accessible, the positioning of the doors make it easy to get on and off the trains and the carriages feel larger which means that wheelchair and scooter users can move around more easily.

"Just by virtue of having doors further down the carriage, it's automatically more open and accessible, so much easier to get in and out of. There's not enough of them!"

Disabled passenger

Despite those using Turbostar trains being generally positive about the experience, some potential improvements are top of mind for these passengers if they are asked. Those that were specifically mentioned spontaneously were:

- **seats** – passengers note that the coverings can be 'dirty' and feel 'scratchy'
- **toilets** – some passengers complain about the smell being notable in the carriage while others are uncertain about the operation of the electric locking mechanism
- **interior decor** – some mention that this is beginning to look 'dated' or 'old fashioned'
- **charging and Wi-Fi** – charging points are increasingly expected and the Wi-Fi which is available is seen as unreliable.

'The fabric seats... To me they just seem unhygienic, they're not wipeable. If they get dirty, where's that dirt going? And they just look old-fashioned.'

Visitor staying away from home

Priorities to update by passenger type

Priorities for the update of specific aspects on Turbostar trains again reflected the differing needs of different 'types' of passengers and types of journey being made.

Commuters and occasional business travellers mentioned that they thought that the seats on Turbostar trains might be improved so that they appeared to be cleaner, had more space around them, and had charging points available to all. This type of train user also noted that the Wi-Fi on the Turbostar trains that they used could be improved and that they would like to see better ventilation available on busier services.

Those using trains **to go on holiday** were also concerned with the cleanliness of seating and also with the access to charging points on board. Those going on longer trips away felt that Turbostar trains could be improved with the inclusion of better dedicated spaces for storing luggage. **Those making day trips** mentioned the cleanliness of seating and access to charging. These

passengers were also likely to mention the increased availability of onboard screens displaying up-to-date information on the journey.

Again, like others, **parents of under fives** felt that seats on Turbostar trains could be improved if fitted with 'wipe clean' materials and that there should be better access to charging points. These travellers also mentioned a desire to see better storage or dedicated spaces for pushchairs.

Among **disabled passengers** the nature of their impairment tended to influence their priorities for train design. However, in relation to Turbostars these travellers mentioned improved/more accessible seating with access to charging points and better/more accessible toilets which were away from dedicated spaces for bikes, pushchairs, or luggage as priorities. They also mentioned the need for improved onboard information displays that were integrated with audio announcements.

Assessment of Turbostar interiors in detail

Seating and carriage layout

For most users of Turbostar trains the seats on board are seen as adequate, particularly for short and medium distance journeys.

When asked for more detail about their thoughts regarding the seats on Turbostar trains, passengers noted that they like the high backs of the seats as they feel that this provides privacy and comfort. When asked about the features of the seats on the Turbostars which are less positive passengers mention that ideally there would be more legroom and that the seats are too upright.

"It's too straight, too upright. Just being able to recline a bit would help."

Disabled passenger

While passengers do not have a long list of issues with the seats on Turbostar trains, they felt that it was time to replace the seat coverings. Some passengers say that the fabric material feels 'old fashioned' and that the patterns look as if they are designed to hide dirt and stains rather than to be easily cleaned.

Across passenger types the Covid precautions that were introduced, during the pandemic, have set

expectations. Passengers now feel that seat coverings should be easy to clean, and most passengers feel that a leather (or a leather-type alternative) finish would enable this. Passengers involved in the research often referred to the materials used in cars and on newer buses in particular as a point of comparison.

"Sometimes the material looks so stained and when the train is busy, and you've only got a few seats to pick from I feel uncomfortable sitting on them."

Commuter/occasional business traveller

"Post covid I think there's a heightened level of hygiene and as soon as I look at soft furnishings, I'm thinking how many people have sat there, what have they been doing. Wipe clean is a big thing for me now."

Day tripper

Overall, passengers felt that a refurbishment of the current seats was preferable to a full replacement. Many sensed that replacing the seats would be costly, and some felt this could potentially lead to higher fares. Others felt that replacing the seats completely was unnecessary and therefore wasteful in this context. Some passengers highlighted that seats on newer trains can be hard and were concerned that replacing the current seats might lead to something less comfortable.

"Why don't we just recover them and save thousands of pounds and thousands of tonnes of landfill, it doesn't make sense to change something that isn't broken, they just need cleaning properly."

Day tripper

"I have no problem with the current chairs themselves – they don't need replacing. I don't see an issue with the seats. The older ones are more spongy and have a more homely feel. I don't want them to be harder."

Commuter/Occasional business traveller

As with the seats themselves, passengers are broadly happy with the way that seats and tables are currently arranged in the Turbostar trains. Where passengers did express opinions on the layout of Turbostar carriages, this tended to align with their own priorities and reasons for making a journey. For example, leisure travellers such as those making day trips and travelling with others were keen to see groups of seats so that they could sit together. Others, such as some commuters who tend to travel on busy services expressed a desire for more airline seating and fewer tables. Some suggested that if they would like one row of seats per carriage to be removed, in order to provide slightly more legroom to all the remaining seats.

"They could have more space but then they'd have less seats on the train, so it's a catch 22 a little bit."

Day tripper

"I think the seats need a bit more legroom. Maybe lose a row of seats out of each carriage and just extend."

Day tripper

Interior decor, flooring and lighting

Passengers involved in the research tended not to mention noticing the interior decor of the carriage when entering the train – getting a seat was the primary concern. Once on the train, passengers reported that their interest is going online, reading or looking out of the window so the interior is incidental to the journey.

Given that the interior decor simply forms a 'background' to the journey, passengers generally report that they prefer it to be clean, well maintained and,

"The only things I'm bothered about are power points and comfy clean seats, because everyone is looking at their phones or out of the window, and not the decor."

Commuter/occasional business traveller

crucially, neutral. The quality of the decor on the train is only noticed if it feels distracting or 'wrong'. For this reason, simple variants of creams or greys, perhaps with an accent colour, are mentioned as appropriate by some.

"Normally it would work better with a neutral colour scheme – keeping everything in neutral tones of whites and greys, then maybe an accent colour of the branding, but otherwise keeping it quite clinical to make it feel cleaner and a bit more modern."

Day tripper



who want to be able to see to work and those who want a more relaxing experience. Less bright and more dimmed lighting is also preferred by those with some impairments, particularly the neurodiverse.

Passengers note that on Turbostar trains natural light is plentiful and some expressed a desire for curtains or blinds that could reduce light levels on the brightest days. There was a recognition however that this created a tension between what the individual passenger might want and what the rest of the carriage might want.

The ideal solution was felt to be a situation where overall lighting was determined by the crew but with a degree of autonomy given to individual passengers in terms of what light they could provide for themselves during the journey.

"It might be nice to have the light dimmed at night – when the sun goes down, like an airline with a light above and a fan vent and reading light."

Day tripper

The view that the interior decor should be neutral and not immediately noticeable extends to opinions on the flooring and lighting inside the carriage. Although lighting preferences tend to vary depending upon the time of day and the purpose of the journey. Again, in terms of flooring, cleanliness was noted as important as many expressed a dislike of patterned carpets, mentioning that they felt that they were included on trains to disguise how dirty they are.

Among those particularly concerned with the cleanliness of the train, many expressed a preference for hard, wipe-clean, flooring surfaces. This view was not shared by all however, and others considered that carpeting was preferable in consideration of the fact that they don't expect to touch the floor with bare skin and that it offers the best compromise in terms of being non-slip and sound deadening.

"Easier to clean flooring – a bit like the Underground vinyl – it's easier to mop down. But something with grip – not too slippery."

Commuter/Occasional business traveller

"Having more mood based lighting, being dimmer and also helping the environment. Have it light and vibrant when it's parked up so you know where you're going, then more soothing as it goes on."

Visitor staying away from home

"Moving forward I would desperately recommend that they have LED lighting and not fluorescent because of the amount of problems that does cause for people with health concerns. Anything from migraines to seizures... there's even now evidence around fibromyalgia, myopathy, even autism will suffer from fluorescent lights."

Disabled passenger

In terms of the onboard lighting passengers believed lights should be bright when they are boarding or leaving the train so that they can see what they are doing. During the journey however, passenger needs diverge between those

Toilets

Most passengers considered toilets on trains to be a necessary evil; something that is best avoided but which need to be present. Passengers overall have low expectations of onboard toilets, though they do expect them to be easily accessible and to be kept reasonably clean. A further area of concern regarding toilets is the door and the possibility that it might open when the toilet is in use. Many do not trust the electronic locking mechanism and express a preference for a traditional lock despite hygiene concerns relating to having to manually operate these.

"I always have the fear on the train toilet that the door will just open, so that puts me off using it. Because it's just the press of a button. A normal lock would be better."

Day tripper

"I just find them to be really small and I think if I was with my child, I'd struggle to help them to get on without having to open the door or something."

Commuter/occasional business traveller

In terms of access and location some expressed the view that the toilets on Turbostar trains are cramped, which is a particular problem for those travelling with small children. Others also felt that the seats near to the toilets should be removed and this space re-used as dedicated space for storing luggage. This view was enforced by the opinion that the seats located by the toilets are unpopular and generally avoided anyway.

While discussion of the onboard toilets covered several themes, in terms of improvements passengers generally focused on cleanliness. Some participants in the research noted that they would like to see evidence that the toilets are cleaned regularly by having a cleaning log on display. Others mentioned that automatic air fresheners should be installed so that the room 'communicates hygiene'. In this respect, the sense of the toilets being clean was felt to be as important as any substantial refit work.

"They could have air freshener release every time somebody used it. You can do that at home so I'm sure they can do something like that."

Day tripper

Ventilation

As noted, the presence of ventilation has become a greater concern to passengers after the Covid pandemic. While some preferred windows that could be opened to provide fresh air, others felt that improved air conditioning was acceptable as long as it is drawing air from outside the train. Some were keen to be provided with the ability to control their own access to airflow from supplies positioned above seats, just as this is available on aeroplanes and coaches.

"I would like individual air con, so you control your own air supply."

Commuter/occasional business traveller

"My expectations of ventilation have changed since Covid."

Commuter/occasional business traveller

Dedicated space (luggage, bikes, buggies, wheelchairs)

Passengers involved in the research said that they found the luggage storage on Turbostar trains to be adequate but not ideal. Currently they use both the overhead and carriage end storage spaces, though the ideal situation for passengers is to have their luggage close to them. This is for two reasons; for security and, more specifically for those making longer journeys, so that they have access to their belongings.

Those using storage space above seats did have some concerns about their ability to lift items into this space and about the risk of items falling during the journey. Therefore, some thought that luggage storage improvements might include making this space deeper or attaching guard rails to the front. Others mentioned the creation of other storage spaces for smaller items under seats or between seat backs.

"Do it like planes – store luggage above and be able to close it. I have security issues if my luggage is by the door – I get paranoid."

Commuter/occasional business traveller

"If it was a better design where people could put something of substance up on the shelves it would be a better use of the space. You see some things up there at the moment and you're waiting for them to fall down."

Visitor staying away from home

"It would be good to have storage underneath your seat – at the moment I put my coat on the floor."

Commuter/occasional business traveller

The parents that were involved in the research noted that they try not to take pushchairs on their train journeys as this is just something else to worry about. Parents are particularly concerned about how they will be able to store these items or how they will be able to stay close to the pushchair if their child is asleep in it. They say that in an ideal world there would be seats alongside a dedicated space for pushchairs and this dedicated space would

be away from those assigned for wheelchairs to prevent competing claims. Even when folded, parents can find that it is tricky to store pushchairs and so many mention that it would be ideal to have larger spaces to store them beneath seats.

"I always try and have mine [pushchair] folded up before we get on the train, and then I just try and get it somewhere secure and get the seat, how easy it is all depends on how busy the train is."

Passenger travelling with a child under five

While most passengers involved in the research recognised that the needs of cyclists should be accommodated on trains, there was some divergence of opinion concerning dedicated spaces for bike storage on trains. Most non-cyclists preferred there being fold-down seats in bicycle storage areas so that these could be used if no bikes were on board. However, some people mentioned that they would be unlikely to use such seats as they would then need to move if a bike was brought on board. Some cyclists also said they did not like having to ask people using seats in these spaces to move.

"If it was a full train and I got on with my bike I would feel so bad if there were people already sitting in the bike space seats. I wouldn't know what to do, I would feel awful getting them to stand up, so for me a backrest would be better."

Commuter/occasional business traveller



Some people suggested that they felt that passengers with bikes are less important than those in wheelchairs or those with pushchairs and so there was a sense that some would be more likely not to give up space for those travelling with a bike. In any case many felt that it was important for shared dedicated spaces to have user priority clearly displayed so that people could decide whether to use them and to help avoid conflict.

"I'm not sure I'd get up for a bike. It's helpful to have signage for bikes and wheelchairs, so I can decide to sit somewhere else."

Commuter/occasional business traveller

Among users of wheelchairs there is a strong desire for dedicated spaces which communicate that this type of passenger is valued and not being treated as an afterthought. This means that wheelchair spaces should include facilities such as charging points and tables which are provided for passengers elsewhere on the train.

Some wheelchair users expressed a desire not to have fold-down seats in the area dedicated to them, so that it is clear to others that they are the priority in this space. That

said, non-disabled passengers all said that if a wheelchair user came on board, they would vacate any seating in the area without complaint. Whether some seating was included in the dedicated wheelchair space or not, all wheelchair users expressed a desire that this dedicated space should be clearly defined by floor markings and signage so that the potential for any conflict over the space was reduced.

"The ideal would be spacious, comfortable, and accessible. Opening it up so you feel more like a passenger and not a spare part."

Disabled passenger

"Fold away chairs often don't work properly. Bikes, bikes and more bikes get in the way. Families with prams and multiple children can be an obstacle. Bike hangers get in the way. Lack of or badly designed tables that fold or not should be improved."

Disabled passenger

Information

Passengers involved in the research had a limited recall of the information present on onboard train displays aside from that which indicated what the next station was or what they should do in an emergency. While passengers struggled spontaneously to think of other visual information that they might need, there was interest in that which gave some the sense of progress along the journey and information around onward connections and timings to make these connections. Passengers indicated that they currently use apps to get information on onward connections and noted that their preference would be to have this information provided on the train itself. They mentioned that poor Wi-Fi and limited charging on trains can make finding this information difficult and they often end up using their own data and battery charge.

"I've been on the Nottingham buses, they've got a screen almost like which stop is next and then after that, because sometimes you've got no idea where you are on the train, and I've gone on Google maps to work out where I was."

Day tripper

"When it's just the rolling display it's not that useful. Sometimes the train shows if it's on time, the next stops, and sometimes what the connections are...that's really useful."

Commuter/occasional business traveller



Most passengers involved in the research believed audio announcements on trains were important. Some, for example those with visual impairments, considered them to be vital. While few complained that there were too many announcements on trains, some did describe them as occasionally intrusive and so preferred if they were kept to a minimum.

In general passengers expressed a preference for 'live' announcements from staff onboard rather than those that are pre-recorded. They thought information delivered in this way was likely to be more important and up to date. This being said, others complained that the sound of live announcements onboard trains can often be distorted, and they sometimes struggle to hear what is being said. For this reason, many passengers, including those with neurological conditions (who need more time to process information) suggested that they would like to see audio information being integrated with visual display to avoid any confusion about what is being announced.

"There's a lot of autistic and disabled people who struggle with sound at the best of times, and if they are a garbled speaker, they will not be able to pick out any details of it. That includes me quite a lot of the time, so a written one is always good."

Disabled passenger

"I don't mind a mix of recorded and real – it's fair enough for the next stop to be automated, but if it's talking about delays then it's better from a real person."

Day tripper

While passengers recognised information announced by onboard staff as likely to be more important than pre-recorded messages, they had a clear priority ordering for different types of messaging. Passengers particularly considered messages that directly linked to their current journey as important. This included messages related to connecting services and information about which platform the train was arriving at and where other services were departing from. Similarly, messages regarding reasons for any delay and how busy services are likely to be were also considered to be of interest.

"Before I've seen it where it's been telling people what their connections are – it would be really useful on a train from Matlock to know where you've got to go to get to the Nottingham train – in what time from which platform, maybe the top 5 destinations for people arriving at Derby from Matlock."

Day tripper



Security

Passengers do not perceive that the trains they use are lacking security provision and in general security is not a top-of-mind concern for passengers. Accordingly, there is little knowledge as to the extent security measures such as CCTV feature on trains compared to buses where its use appears more justified since there is no staff apart from the driver.

In general passengers do not think that screens should be used to show CCTV footage of the inside of the train as they often are on buses, because this feels intrusive. However, some do think that screens and CCTV could be used to show onboard staff responding to any issues and thereby provide reassurance to passengers.

"Ideally, I would like more of a human presence on the train but at least if I knew the driver had CCTV in his carriage, it doesn't need to be visible to everyone."

Commuter/Occasional business traveller

In relation to security provision, the ability to see and be seen is a key priority, and while the high-backed seating on Turbostar trains is praised by some for providing privacy, others note that this prevents passengers from having a clear line of sight down the interior of the train carriage.

Just as passengers relate a sense of security onboard trains to the presence of staff, there was strong interest in being able to easily call assistance if needed. This is particularly the case amongst disabled passengers who might need to contact staff not only in an emergency, but for reassurance that booked passenger assistance is in place.

Among the passengers involved in the research there was little awareness of the presence or location of help buttons on the train. Many presumed that they can be found in the space near to the doors but suggested that they might be relocated to within the carriage itself to allow easier access. Access to help buttons is a particular concern for disabled passengers with wheelchair users keen to point out that they need to be placed at a height appropriate to them.

"Staff often hide themselves away, especially on busy times, and use of the Emergency call buttons are either ignored or frowned upon. Being a wheelchair-user I can't go looking for staff."

Disabled passenger

Charging

The passengers involved in the research very much expected access to charging and power points on trains. This is particularly true of those making longer journeys. The location of these ports on trains is important as passengers have experienced trains where there is only one charging point per pair of seats and most passengers expect that each seat would have access to a charging point.

"The problem with the Cross Country Turbostars is that there are no power points at all in standard class, they only have them in first class."

Day tripper

"Every place should have charging points now, as standard. I'd like to see them on every table, and at every group of chairs."

Disabled passenger

How we did this research

In June 2022 Transport Focus commissioned the independent research company Define to undertake qualitative research to understand more about passenger perceptions of Turbostar rolling stock. In July Define spoke with a total of 80 passengers, undertaking a total of 17 'quads' (groups with four participants) with different types of passengers and a further 12 in-depth interviews with disabled passengers.

In recruiting participants to the research Define ensured that those involved were making journeys on routes where Turbostar trains were often used and that they had used a train of this type within the last three months. Quotas were set on the types of journeys that participants were making and on whether they tended to travel by themselves or with others. This was to ensure a spread of 'passenger type' within the sample of those participating in the research.

Age	Journey / passenger type				
	Commuter / Occasional business traveller	Day tripper	Visitors staying away from home	Passengers travelling with small children	Disabled passengers (12 in-depth interviews)
18-30	2 quads	2 quads	2 quads	2 quads	4
31+	3 quads	3 quads	3 quads		8
Total participants	20	20	20	8	12
80 participants					

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