

# Research on Long-Term Passenger Demand Growth

## For the Railway Industry Association

**Final Report**  
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**steer**

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# Purpose of this research

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**The purpose of this work is to consider the potential passenger demand growth over the longer term in the context of the ongoing recovery from the COVID pandemic and considering a range of scenarios representing future outcomes.**

The pandemic resulted in a major impact on rail use and, although passenger numbers and revenue are both recovering, there are currently no official forecasts of rail passenger growth in the public domain. This hampers the ability of the rail industry and government to plan and invest, and is exacerbating uncertainty in the industry. Examination of actual travel data shows a steady and continuing recovery, but it is likely we have not yet reached a post-pandemic equilibrium. Also, the market for rail is different in many ways to that which existed prior to the pandemic, and this will need to be reflected in forecasts.

This work considers two inter-linked issues:

- The time period over which recovery to pre-pandemic levels of rail usage can reasonably be expected; and
- The longer term outlook for rail.

Recognising the uncertainty associated with the factors that drive the use of the rail network, we have developed scenarios to demonstrate a range of plausible growth outcomes for the rail market over the next 30 years. Whilst not precise forecasts, it is reasonable to expect that the level of rail usage will sit within the range of these scenarios.

The findings have implications for setting a long-term transport strategy – both planning for capacity requirements and highlighting the potential for proactive interventions to stimulate rail use and associated revenues.

# Context for growth in the rail market

**Understanding growth under a range of scenarios can support the industry and help government recognise the potential journey and revenue growth for rail in Great Britain and the case for rail reform initiatives and investment.**

Up until the pandemic in early 2020, rail had seen sustained growth in passenger volumes of 3.7% per annum on average since privatisation with associated revenue growth of 4.6% pa (nominal, 2.6% pa real)<sup>1</sup>. The pandemic has had a direct impact on the finances of the rail industry with significant government subsidy<sup>2</sup> required to facilitate continued running of services, with passenger revenue below pre-pandemic levels. As the recovery progresses this government subsidy has, and will continue to, reduce. **The question is: what is the long-term demand for rail use as a basis for planning?**

It is reasonable to assume that the level of rail usage growth over time and in different markets will be influenced by a range of factors including:

- Economic activity, socio-demographic factors and competition with other modes;
- Service and customer offer (including fares and ticketing, timetable), utilisation of new/upgraded infrastructure;
- Policies that directly or indirectly impact rail, for example net zero/decarbonisation.

Over the longer term, economic activity and population will continue to grow, as underlined by official forecasts. Therefore, the strong link between these factors and underlying rail use will be a stimulus to future growth.

We have developed four scenarios to demonstrate the range of **plausible outcomes for growth in the GB rail market**. These scenarios set out in the rest of this report, are necessarily dependent on assumptions and whilst they are not precise, it is reasonable to expect that future levels of rail usage will sit **within this range**.

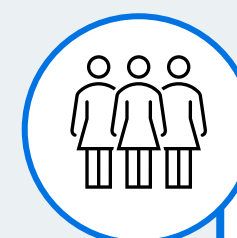
<sup>1</sup> <https://dataportal.orr.gov.uk/statistics/usage/passenger-rail-usage/>

<sup>2</sup> Net passenger operator support 2022/23 of £4.4bn (in 2021/22 prices) <https://dataportal.orr.gov.uk/statistics/finance/rail-industry-finance/> . The equivalent figure in 2021/22 was £6.7bn and in 2020/21 was £10.2bn.



# Scenarios for future growth in the rail market (1/3)

It is reasonable to assume that growth in the rail market will occur as a result of economic activity and population growth. So, we have used this as a baseline in an **Underlying Growth** scenario which represents a reasonable expectation of long-term growth due to factors external to the railway, without significant intervention or investment to develop the customer or service offer. We have then assessed different 'pathways' for growth in the **Customer Offer** and **Behaviour Change** scenarios which build on this **Underlying Growth**.



## Customer offer

This scenario assumes that there will be **additional growth stimulated by activities and policies that enhance the customer and service offer and provide an attractive product** including revenue management, marketing, fares and ticketing. These will have most predictable impact in growing the market over the next decade. Some of this growth will be facilitated by further structural reform, but it is not a prerequisite. Greater collaboration and alignment across operators and the industry, facilitated by a degree of flexibility and appropriate incentives in contracts, should allow the realisation of opportunities to grow both the rail market and its revenue.



## Behaviour change

In this scenario we have assumed that there will be **additional growth stimulated by modal shift to rail which arises from both greater environmental awareness, and from decarbonisation policies that encourage rail use**. It also assumes some changes to existing behaviour with some additional movement back towards office working and stimulation to business travel over the medium term. It is likely that additional investment would be required to accommodate this growth and so represents a potential market.

The **Customer Offer** and **Behaviour Change** scenarios are **alternative pathways**, so whilst components of each could be included in the other they are not strictly additive.

# Scenarios for future growth in the rail market (2/3)

Both the **Customer Offer** and **Behaviour Change** scenarios include a number of assumptions about growth in the rail market that are stimulated by changes in behaviour e.g. office working, business travel, as well as travel by rail as opposed to other modes or not travelling at all. We have also developed a further scenario “**Sluggish**” Growth which includes these factors but assumes that the beneficial impact on rail travel is more moderate and as such leads to a lower forecast.



## → “Sluggish” growth

This scenario envisages lower growth in rail demand in two main respects. Externally it assumes that the economy performs less well than the current forecasts assume over the next decade, and there is lower population growth. It also assumes that there is some further recovery of commuter and business markets, but that this and the beneficial impact of customers’ experience of rail travel is more moderate.

*It is reasonable for us to hypothesise that rail volumes will sit within the range of these scenarios. On balance, factors external to the rail industry will continue to lead to growth and this could be further stimulated by factors that are part of the rail industry offer to its customers and require investment and/or optimisation. Attracting additional travel by rail through modal shift and behaviour change also offers real opportunity to increase passenger demand.*

*Higher levels of growth are likely to require greater levels of investment, but it is reasonable to assume that there is much the industry can do to optimise its service offer.*




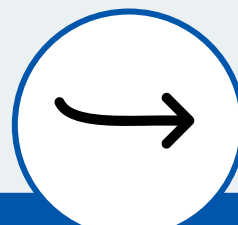


# Scenarios for future growth in the rail market (3/3)

These four scenarios demonstrate a range of plausible outcomes for growth in the rail market over the next 30 years.

- A combination of individual demand drivers that may represent exogenous and endogenous factors acting over different time periods;
- Individual scenarios are not necessarily “additive” but component demand drivers can be put together to form other scenarios; and
- Scenarios do not include the impact of major infrastructure projects like HS2, East West Rail (EWR) or Northern Powerhouse Rail (NPR) which would act to stimulate rail use.

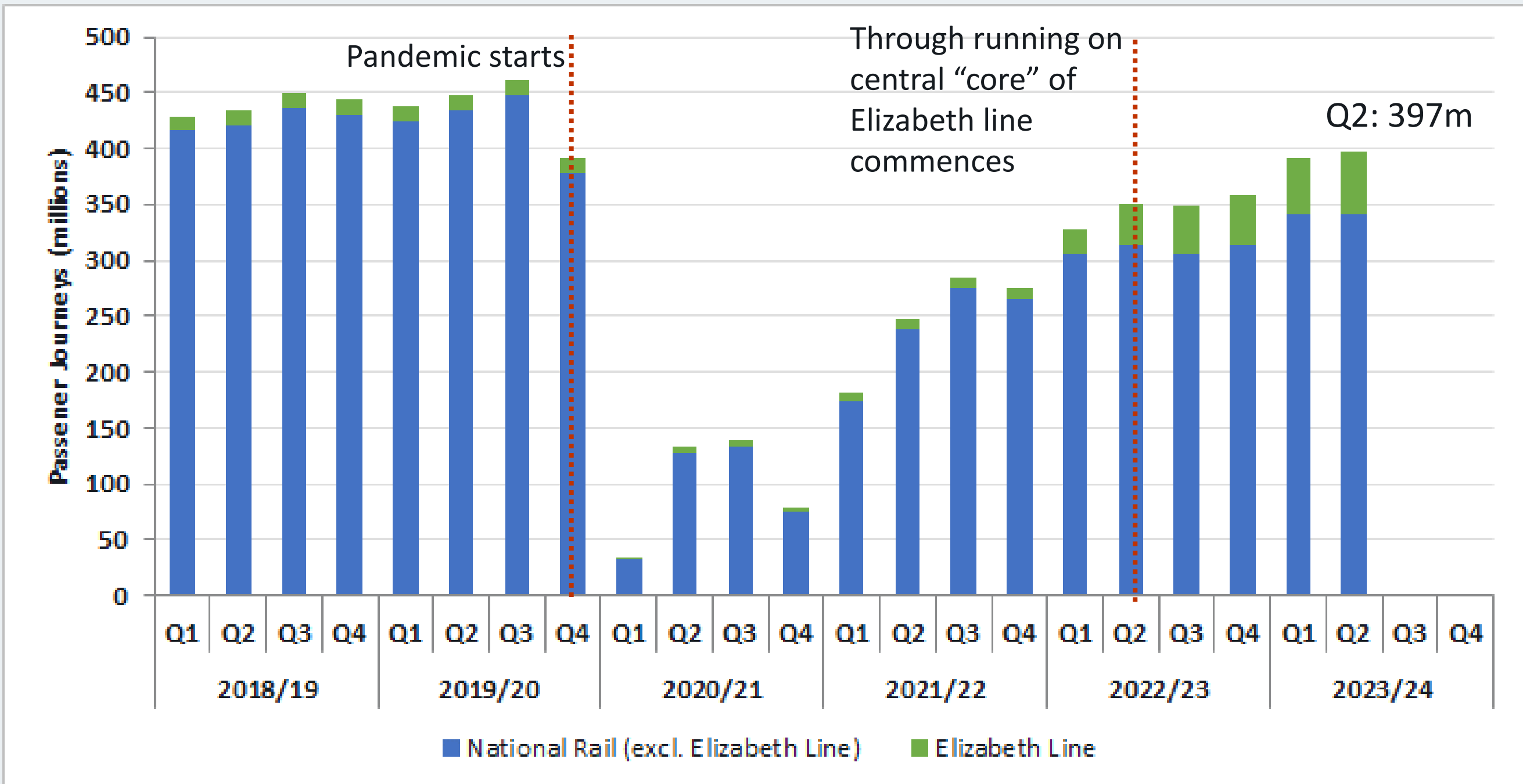
Whilst not precise forecasts it is reasonable to expect that the future level rail usage will sit **within the range** of these scenarios.

	 Underlying growth	 Customer offer	 Behaviour change	 “Sluggish” growth
Description	Represents a plausible baseline level of growth in rail market based on external economic/demographic factors.	Represents potential for growth from activities and policies that enhance the customer offer and provide an attractive product.	Represents change arising from green agenda (modal shift/integration) and other behaviour change (some recovery in commuting/business propensity)	Represents a more conservative view on some drivers – external and internal.
Assumptions	Economic (GDP/Employment) & Demographic (Population). Takes a conservative view of economic factors.	Revenue optimisation activities – marketing, revenue management; some form of fares, ticketing, retail reform and improved customer experience.	Factors that encourage movement to rail travel – return to office, business travel recovery, modal shift from car/air due to green policies/consciousness.	Lower economic growth, moderated leisure recovery, more conscious travel decisions for business/commuting.
Purpose	Acts as a ‘plain vanilla’ trajectory with no significant intervention.	Demonstrates growth that could be achieved with intervention, or incentives, to provide a better customer/service offer. Some of these may be delivered by reform - although reform is not essential.	Represents an “external” driver of additional growth through behaviour change.	Demonstrates that even taking a more moderated view on future drivers is likely to exceed the Underlying Growth scenario.

# Base position for scenarios

- The years 2021/22 and 2022/23 and the current year, 2023/24, have seen a significant recovery in rail revenues and journeys following the pandemic.
- Assessing the recovery of rail revenues and journeys, especially when making comparisons with the pre-pandemic position, is impacted by a range of factors including the introduction of through running on the Elizabeth Line from May 2022 with the full timetable being phased in and fully operational by May 2023<sup>3</sup>. There have also been substantial periods of industrial action which have led to reduced levels of service and therefore travel over recent years and, at the time of writing, are still having an effect.
- In Q2 2023/24 journeys were 89% of the equivalent quarter in 2019/20 and 79% excluding the Elizabeth Line. Year-on-year growth for Q2 was 9% excluding the Elizabeth Line<sup>4</sup>.

Passenger Journeys in Great Britain (1 April 2018 to 30 September 2023)



Source: ORR Passenger Rail Usage

- **We have included adjustments in our forecasts to produce a “jumping off” point for 2023/24 which reflects the emerging position over the first half of 2023/24 for the whole year. This incorporates the Q1/Q2 reported journeys and represents 8% additional growth in 2023/24 on 2022/23 in aggregate (including the Elizabeth Line).**

<sup>3</sup> <https://www.theguardian.com/business/2023/apr/24/elizabeth-line-to-be-fully-running-from-21-may-crossrail> Twenty-four trains an hour and direct service from Essex to Heathrow on timetable.

<sup>4</sup> ORR reports journeys by operator <https://dataportal.orr.gov.uk/media/bbrpxkon/passenger-rail-usage-jul-sep-2023.pdf> The impact of the Elizabeth Line will have been to attract journeys from the Underground and other TOCs as well as journeys that would not have otherwise been made.

# Drivers of demand: External factors to the railway

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The scenarios are based on the following assumptions regarding **external factors**:

- Historical journeys data until September 2023<sup>3</sup> taken from ORR's Passenger Rail Usage publication, which includes the introduction of through running on the Elizabeth Line.
- To calculate growth the 2022/23 base year is normalised to reflect emerging actual 2023/24 demand and the assumption that future years will have much reduced industrial action:
  - Emerging 2023/24 demand: Q1 and Q2 uplifts for 2023/24 are based on ORR Passenger Rail Usage data.<sup>5</sup>
  - Industrial action: The impact has been estimated using ORR's record of the number of impacted trains.<sup>6</sup> The impact in Q1 and Q2 is very similar in both 2022/23 and 2023/24.
- The impact of external socio-economic factors has been assessed using standard forecasting approaches:
  - The GDP per capita forecast is based on DfT's Transport Appraisal Guidance (TAG) databook.<sup>7</sup>
  - The employment forecast is based on the OBR forecast<sup>8</sup> for the next five years, extrapolated as for 2028/29.
  - The population forecast is based on the TAG databook.
  - Elasticities to these drivers quoted in TAG<sup>9</sup> and also detailed in the TAG databook<sup>7</sup>.

<sup>5</sup> <https://dataportal.orr.gov.uk/media/bbrpxkon/passenger-rail-usage-jul-sep-2023.pdf>

<sup>6</sup> <https://dataportal.orr.gov.uk/media/2203/passenger-performance-jan-mar-2023.pdf>

<sup>7</sup> <https://www.gov.uk/government/publications/tag-data-book>

<sup>8</sup> <https://obr.uk/efo/economic-and-fiscal-outlook-november-2023/>

<sup>9</sup> <https://www.gov.uk/government/publications/tag-unit-m4-forecasting-and-uncertainty>



# Drivers of demand: Cost compared to other modes

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The scenarios are based on the following assumptions regarding **modal competition**:

- Modal competition has been assessed using the standard forecasting approach, focusing on car costs:
  - The car cost forecast based is based on DfT's Transport Appraisal Guidance (TAG) databook<sup>10</sup> which forecasts a 44% reduction in car cost over the forecast period, mostly due to an increased share in electric vehicles with lower operating costs.
  - Elasticities based on the Rail Demand Forecasting Estimation (RDfE) study<sup>11</sup> quoted in TAG.
  - We have also tested alternative car cost assumptions reflecting possible Government policy changes to mitigate the loss of tax income from vehicle excise duty:
    - no change; and
    - an increase equal to the decrease specified in TAG.
- The impact of changes in average real fare levels has been assessed using the standard forecasting approach:
  - High level fare elasticities based on those quoted in public sources.<sup>12,13</sup>
  - The scenarios assume no real increase and a 1% per annum real reduction to stimulate growth, by contrast with historical changes of RPI+1%.

<sup>10</sup> <https://www.gov.uk/government/publications/tag-data-book>

<sup>11</sup> <https://www.gov.uk/government/publications/rail-demand-forecasting-estimation-study-phase-reports>

<sup>12</sup> <https://www.racfoundation.org/wp-content/uploads/2017/11/pdfh-worsley-dec2012.pdf>

<sup>13</sup> <https://trl.co.uk/uploads/trl/documents/TRL593%20-%20The%20Demand%20for%20Public%20Transport.pdf>

# Drivers of demand: Post-pandemic market restructure

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The scenarios are based on the following assumptions regarding the **rebalancing of the market structure post-pandemic**:

- Commuter demand recovery from behaviour during the pandemic: Research suggests that employers are pushing for more time in the office:<sup>14</sup>
  - Office workers currently assumed to average 2.5 days per week (dpw) in the office.
  - Move to 'guided flexibility' assumed to move to 3 dpw.<sup>15</sup>
  - Office workers with this flexibility assumed to constitute 50% of all rail commuters.<sup>16</sup>
- Business demand recovery from behaviour during the pandemic: recovery from the current low level
  - Current market share 6.7%.<sup>17</sup>
  - Pre-pandemic market share 9.8%.<sup>18</sup>
  - Full market share recovery would constitute a 46% increase. The scenarios assume a more conservative level of recovery.

<sup>14</sup> <https://media.raildeliverygroup.com/news/research-suggests-rail-industrys-post-covid-recovery-gathering-pace-but-underlines-need-for-reform>

<sup>15</sup> <https://www.thetimes.co.uk/article/civil-servants-ordered-back-to-the-office-for-three-days-a-week-zpr76wnkw>

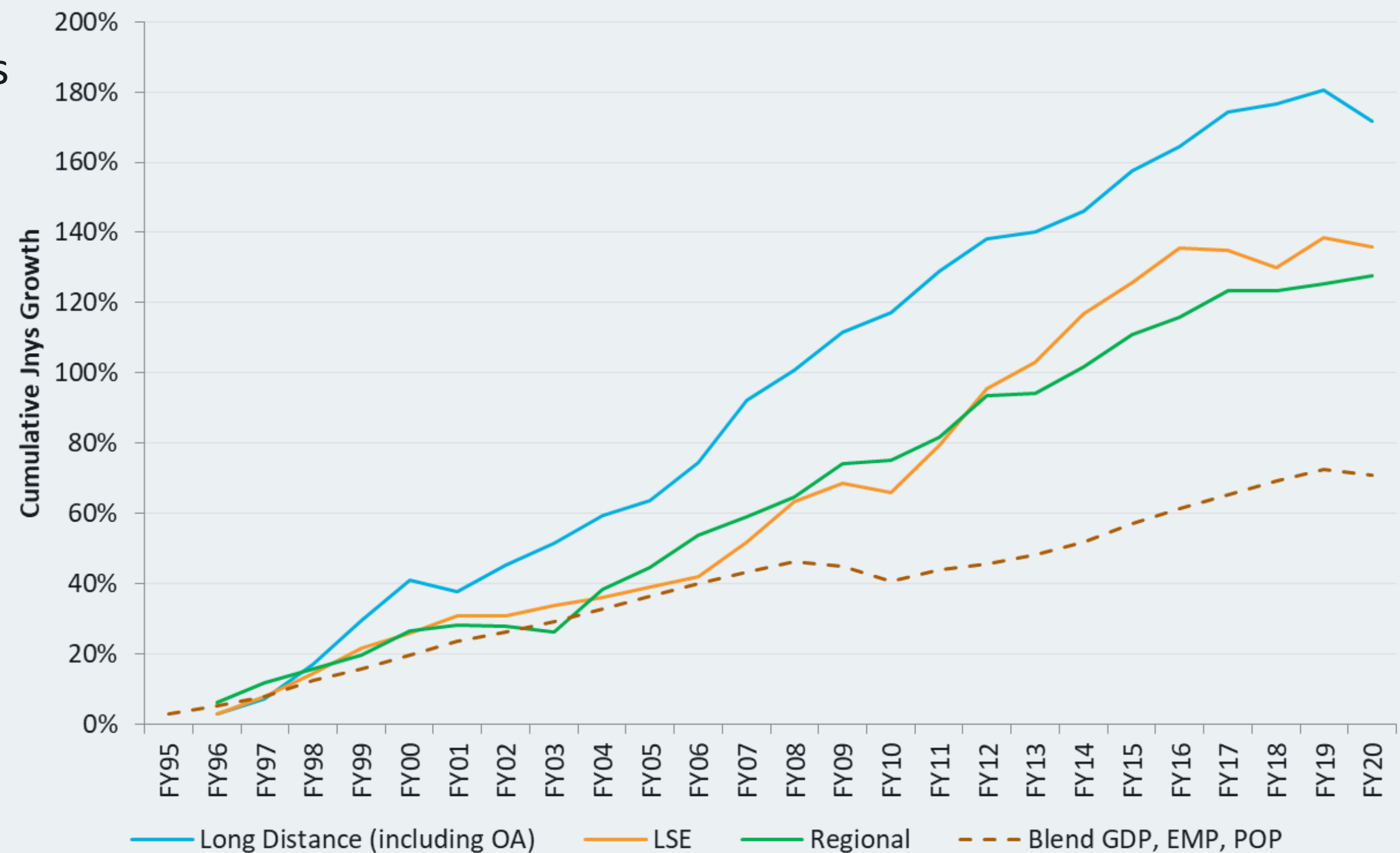
<sup>16</sup> <https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/datasets/characteristicsofhomeworkersgreatbritain>

<sup>17</sup> <https://media.gbtt.co.uk/news/leisure-travel-helps-boost-quarterly-rail-revenue-by-gbp-295-million>

<sup>18</sup> <https://www.gov.uk/government/statistics/national-travel-survey-2019>

# Drivers of demand: Capturing the total impact of other drivers





- These scenarios are not seeking to capture the impact of other drivers of demand growth in detail. TAG<sup>19</sup> describes a number of ‘endogenous’ drivers which in a “Business as Usual” world might be expected to drive growth additional to the underlying changes described hitherto. These include changes to timetable, performance, crowding, rolling stock and stations.
- In the 20 years following privatisation we estimate that demand growth outstripped underlying growth by 1.8% per annum – see chart. This additional growth can be attributed to a combination of investment by Train Operating Companies (TOCs) and delivery incentivised by privatisation and societal factors.
- The scenario forecasts attribute a similar level of growth to estimate the impact of:
  - Medium term incentivisation of TOCs to grow demand (1.5% pa over five years); or
  - The longer term impact of societal changes associated with climate change (1.8% pa over 15 years)



<sup>19</sup> <https://www.gov.uk/government/publications/tag-unit-m4-forecasting-and-uncertainty>



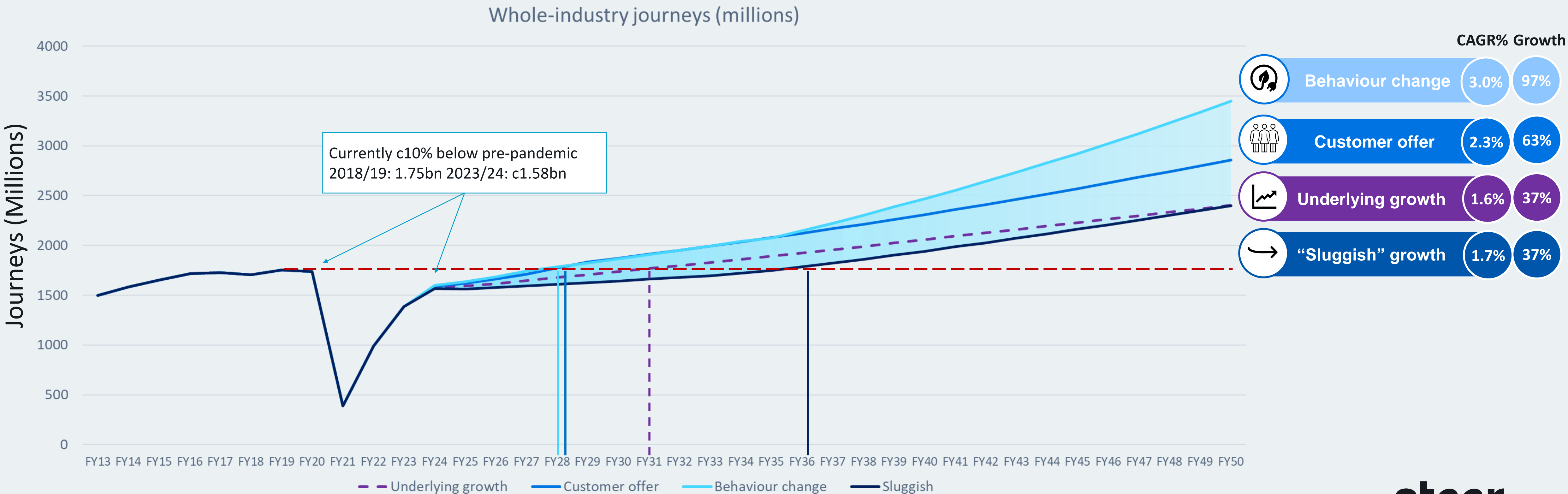
# Scenario Forecasts – Summary of Assumptions

	 Underlying growth	 Customer offer	 Behaviour change	 “Sluggish” growth
Socio-Economic	Economic (GDP/Employment) & Demographic (Population) using official Govt forecasts and elasticities	Economic (GDP/Employment) & Demographic (Population) using official Govt forecasts and elasticities	Economic (GDP/Employment) & Demographic (Population) using official Govt forecasts and elasticities	Economy growth 0.5%p.a lower for next 10 years. Govt low view on population growth
Car costs	No change	Follow DfT TAG guidance which recommends significant reduction in costs due to introduction of electric vehicles	No change. Assume that Govt costs do not decrease so as to help encourage behaviour change	Follow DfT TAG guidance which suggests significant reduction in costs due to introduction of electric vehicles.
Rail fare levels	No change	1% pa real fare reduction	Rise in line with inflation	Rise in line with inflation
Covid bounce back	No change	No change	Commuting: 2.5 dpw-3 dpw for 50% of rail commuters over next 4 years Business: back to pre-Covid levels over 10 years	Commuting: 2.5 dpw-3 dpw for 25% of rail commuters over next 4 years Business: recovery half way to pre-Covid levels over 10 years
Driven by environmental concerns	No change	No change	1.8% pa growth from 2035	0.9% growth from 2035
Growth driven by CX	No change	1.5% pa growth over five years. Operators incentivised to go for growth	No change	No change

# Scenario Forecasts

The impact of the scenarios on demand growth up until 2050 is illustrated below with annual average growth rates (CAGR) varying between **1.6%** and **3.0%**. This equates to between **37%** and **97%** more journeys than the pre-pandemic maximum.<sup>20</sup>

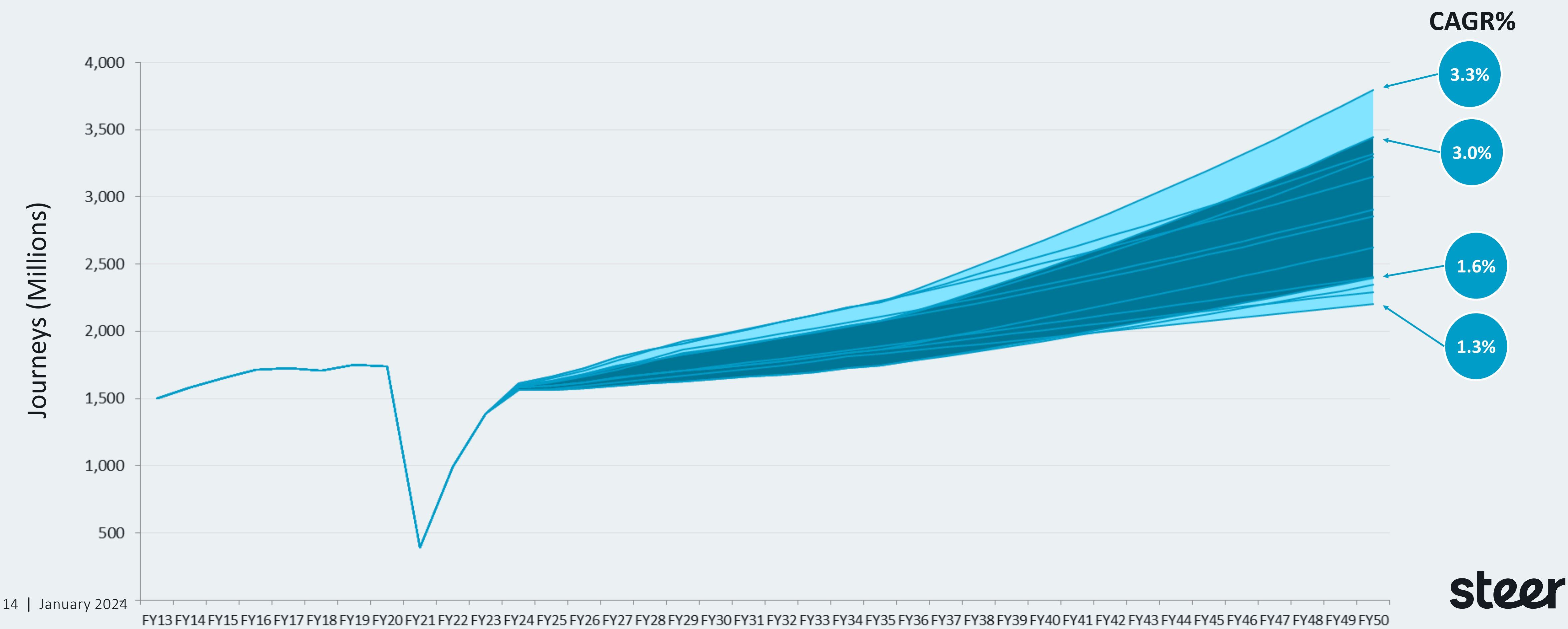
The **Underlying Growth** scenario has demand reverting to maximum pre-pandemic levels by 2030/31. Under the growth assumptions assumed in the **Behaviour Change** and **Customer Offer** scenarios the industry returns to pre-pandemic levels 3 years earlier in 2027/28.



# Scenario forecasts - Sensitivities

The forecasts are robust to a series of alternative assumptions for these drivers:

- It is worth noting that all of these scenarios forecast annual average growth rates over the next 26 years that are lower than the annual average of 3.7% pa observed in the circa 25 years between privatisation and the pandemic.
- The range represents between a 25% uplift and more than doubling the number of journeys by 2050 compared to pre-pandemic levels.





# Summary

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The rail network exists to move people (and goods) between places and facilitate the undertaking of activity. Forecasting rail passenger usage (and associated revenue) requires an understanding of the reasons why people travel and how decisions to travel by rail are made. This is influenced by a range of factors, external and internal to the railway and the offer to its customers. These factors and associated trends change over time. Events like the pandemic can have a profound impact on the rail market. As yet, it is unclear whether this will lead to enduring behavioural impacts over time or have little long-term effect. However, in either case it is reasonable to expect demand growth. **The scenarios developed here explore a range of plausible outcomes covering external factors and rail-specific policies and investment, customer and service offer, and how well it is delivered.**

Until the pandemic, rail had seen sustained growth in passenger usage since privatisation. The rail market has already recovered to around 90% of pre-pandemic volumes and our scenarios show it is likely there will be a **full recovery to pre-pandemic levels in 4 to 7 years**. The level of growth over time and in different markets will be influenced by a range of factors including the economy, socio-demographics, modal competition, the customer service offer (including fares and ticketing, timetable), new/upgraded infrastructure and other policies that directly or indirectly impact on rail.

Under the scenarios, **volume growth in the rail market would grow between 37% and 97% between the pre-pandemic peak and 2050 (equating to between 1.6% and 3.0% average growth per annum)**. Whilst these scenarios are necessarily dependent on assumptions and not precise forecasts, it is reasonable to expect that the level rail usage will sit **within this range** and are robust to variations in assumptions reflecting uncertainties. In short, **we are confident that under any scenario GB rail demand will grow well beyond the capacity provided for today, growth that government policy, rail services and operators will need to accommodate.**

# Appendix

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# Appendix A: Evidence of comparable historical growth rates

It is also worth comparing average annual growth rates with the forecast and outturn growth rates during recent periodic review processes. Forecast and outturn growth rates are all above our underlying average growth rate forecast of 1.7% pa – except for CP6 which has been significantly impacted by the pandemic.

	Sector			
	Long Distance	London & SE	Regional	Total
CP3 2004-2009				
Actual	6.1%	4.4%	4.7%	4.6%
CP4 2009-2014				
NMF for HLOS (January 2008) <sup>21</sup>	3.9%	2.6%	1.6%	2.8%
Actual	2.8%	3.0%	5.2%	4.5%
CP5 2014-2019				
Initial Industry Plan (Sep 2011) <sup>22</sup>	2.9%	2.4%	3.1%	2.6%
Actual	2.7%	1.9%	2.2%	2.1%
CP6 2019-2024				
Initial Industry Plan (Sep 2011)	2.6%	2.9%	3.7%	3.1%
Strategic Plan <sup>23</sup>				2.8%
Actual impacted by Covid				

**Notes:**  
21 <https://webarchive.nationalarchives.gov.uk/ukgwa/+http://www.dft.gov.uk/about/strategy/whitepapers/whitepapercm7176/railwhitepapersupportingdocs/networkmodellingframe.pdf>  
22 [https://www.railwaysarchive.co.uk/documents/NR\\_IIP2011.pdf](https://www.railwaysarchive.co.uk/documents/NR_IIP2011.pdf)  
23 15% over 5 years



# Appendix B: Full list of references

1. <https://dataportal.orr.gov.uk/statistics/usage/passenger-rail-usage/>

2. Net passenger operator support 2022/23 of £4.4bn (in 2021/22 prices) <https://dataportal.orr.gov.uk/statistics/finance/rail-industry-finance/> . The equivalent figure in 2021/22 was £6.7bn and in 2020/21 was £10.2bn.

3 <https://www.theguardian.com/business/2023/apr/24/elizabeth-line-to-be-fully-running-from-21-may-crossrail> Twenty-four trains an hour and direct service from Essex to Heathrow on timetable.

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5 <https://dataportal.orr.gov.uk/media/bbrpxkon/passenger-rail-usage-jul-sep-2023.pdf>

6 <https://dataportal.orr.gov.uk/media/2203/passenger-performance-jan-mar-2023.pdf>

7 <https://www.gov.uk/government/publications/tag-data-book>

8 <https://obr.uk/efo/economic-and-fiscal-outlook-november-2023/>

9 <https://www.gov.uk/government/publications/tag-unit-m4-forecasting-and-uncertainty>

10 <https://www.gov.uk/government/publications/tag-data-book>

11 <https://www.gov.uk/government/publications/rail-demand-forecasting-estimation-study-phase-reports>

12 <https://www.racfoundation.org/wp-content/uploads/2017/11/pdfh-worsley-dec2012.pdf>

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14 <https://media.raildeliverygroup.com/news/research-suggests-rail-industrys-post-covid-recovery-gathering-pace-but-underlines-need-for-reform>

15 <https://www.thetimes.co.uk/article/civil-servants-ordered-back-to-the-office-for-three-days-a-week-zpr76wnkw>

16 <https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/datasets/characteristicsofhomeworkersgreatbritain>

17 <https://media.gbrrtt.co.uk/news/leisure-travel-helps-boost-quarterly-rail-revenue-by-gbp-295-million>

18 <https://www.gov.uk/government/statistics/national-travel-survey-2019>

19 <https://www.gov.uk/government/publications/tag-unit-m4-forecasting-and-uncertainty>

21 <https://webarchive.nationalarchives.gov.uk/ukgwa/+http://www.dft.gov.uk/about/strategy/whitepapers/whitepapercm7176/railwhitepapersupportingdocs/networkmodellingframe.pdf>

22 [https://www.railwaysarchive.co.uk/documents/NR\\_IIP2011.pdf](https://www.railwaysarchive.co.uk/documents/NR_IIP2011.pdf)

# Thank you

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