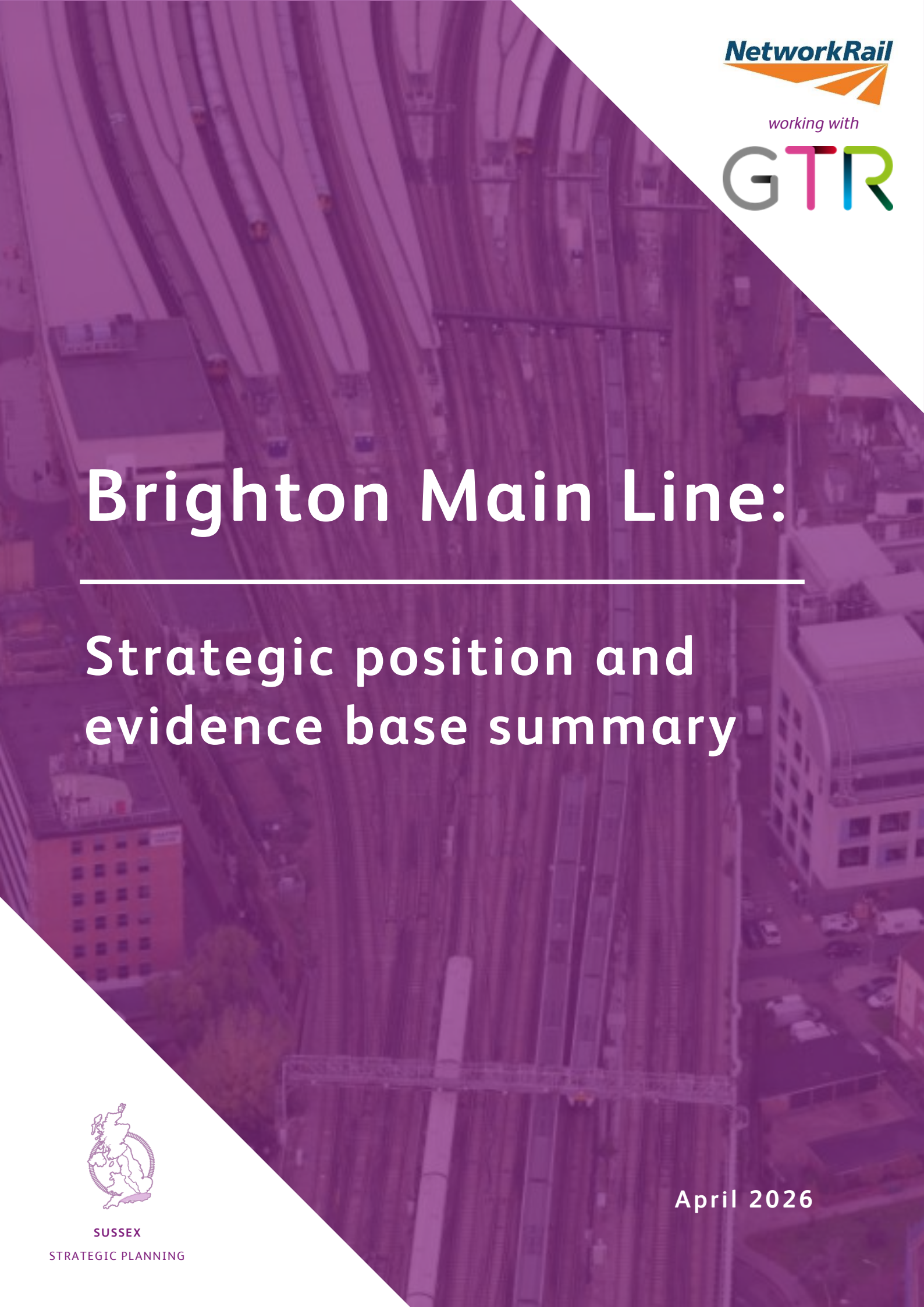


working with

Brighton Main Line:

Strategic position and evidence base summary

April 2026

SUSSEX
STRATEGIC PLANNING

1 Study purpose

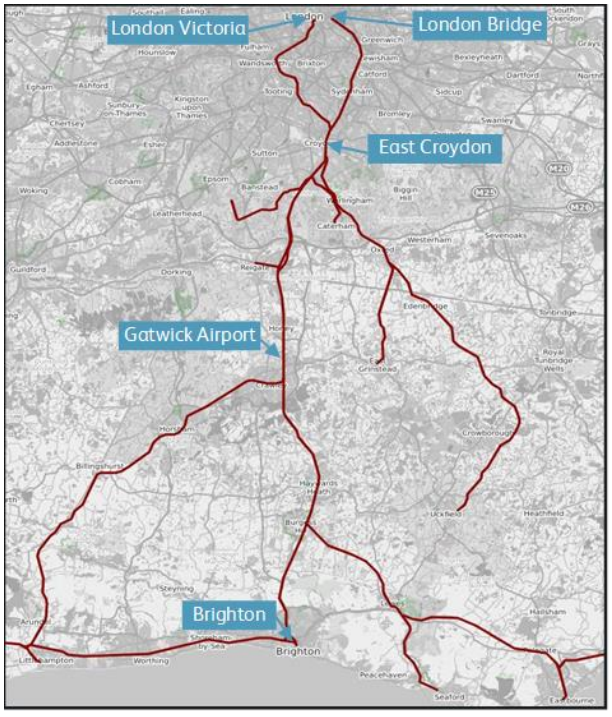
The Brighton Main Line (BML) is one of the most economically important rail corridors in the UK. It is an artery for transport in the South East, connecting major population centres, employment hubs and international gateways with each other. Thameslink services flow from the BML through central London onto the Midland Main Line (MML) and East Coast Main Line (ECML), weaving three strategic routes together and forming an interlinked network; a Greater Thameslink Growth Corridor.

The BML hosts some of the biggest single passenger flows in the country, delivering substantial income to the rail industry and covering its operating costs. Network congestion threatens the operational and financial sustainability of transport systems and the BML is no exception. Passengers are already being left behind at stations on some services due to overcrowding, and there are passengers regularly standing from as far south as Haywards Heath – over 45 minutes from London. By the early 2030s, passenger demand driven by population growth, housing delivery, economic expansion and increased international travel will outstrip current capacity. Additional rolling stock is a key initial intervention to increase capacity towards pre-covid levels, with a multi-year lead time for implementation.

The BML will become increasingly congested by the late 2030s, with the bottleneck around Croydon a constraint to strategic service growth across the BML, MML and ECML. This report explains the choices available to government and industry, highlights the consequences of inaction, and recommends a pathway that supports sustainable growth across the South East. Without a decisive investment strategy, economic growth, network reliability, financial sustainability and the region's international competitiveness are at risk.

2 Scope

The geographic scope of the BML strategy is shown to the right – covering **mainline, metro and freight services which operate through the Croydon area**. The scope broadly aligns with the areas which were to benefit from the Brighton Mainline Upgrade Programme (BMUP), which included the Croydon Area Remodelling Scheme (CARS). This project closed in 2022.



Key interfaces are Great Western Railway (GWR) services between Reading and Gatwick Airport, freight flows and Southern services between Tonbridge and Redhill.

The strategy focuses on peak demand, as this determines the required network capability, but recognises where there are off-peak growth opportunities.

3 BML market overview

The BML enables some of the largest economic hubs in the South East to grow sustainably. Revenue from the line underpins the financial sustainability of UK rail.

Commuters into London

- Around 30,000 people arrive into London on fast BML services in the mid- week high peak hour.
- Fast and frequent services extend the commuter catchment deep into Sussex.
- Some services are already overcrowded.
- All of London's key employment zones can be reached within 20 minutes of arrival from the BML.

Gatwick Airport & East Croydon stations are the 21st & 22nd busiest in Britain.

Metro services within Greater London

- Limited TfL network coverage in south London, with the National Rail network providing most inner and outer suburban services.
- TfL highlight the importance of service frequency, reliability and passenger experience in increasing rail demand and meeting London's growth and sustainability needs.

East Croydon & Brighton had the 6th highest number of delay minutes, with each minute estimated to cost [redacted] (FY24/25).

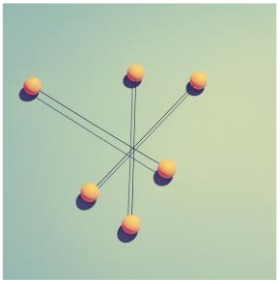
International gateways

- 12 fast trains an hour serve Gatwick off peak; each taking 30 minutes to central London.
- Connections at Farringdon for Heathrow Airport and direct services to Luton Airport.
- Direct links to St Pancras International.
- Port of Newhaven for ferries to Dieppe, France.

Revenue from the BML covered operating costs in FY24/25, with a surplus forecast for FY25/26.

Strategic inter-urban connectivity

- 1.7m people live in districts and boroughs served by the BML outside London. A further 1.8m livie in the the London Boroughs on the line.
- Fast and frequent travel for leisure and business travellers - sustainable socio-economic links.
- In-bound commuting into hubs such as Brighton, Croydon and the Gatwick area.



The BML makes up 5 % of the Southern Region network but delivers a quarter of its revenue (FY24/25).

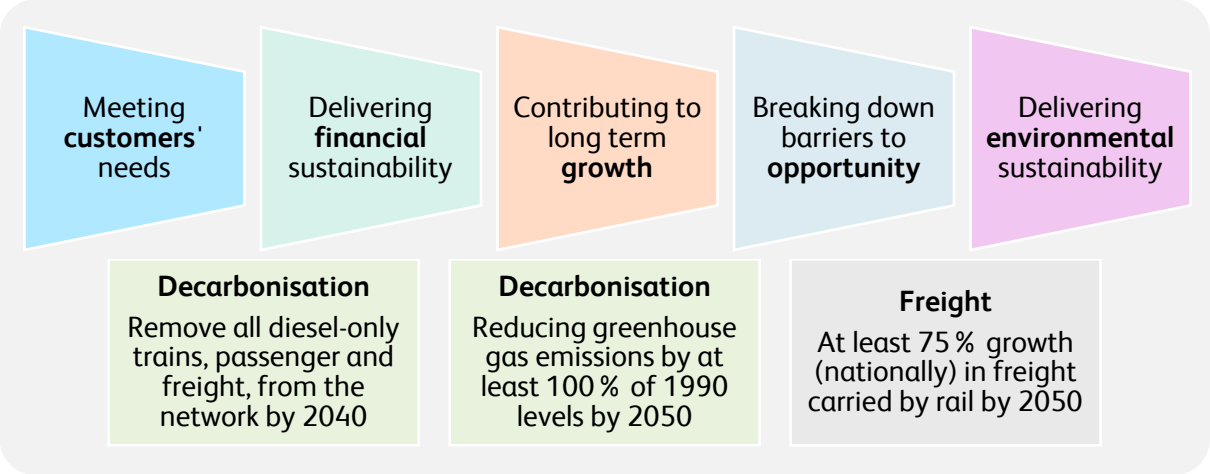
Sustainable freight

- Five active aggregates freight terminals served by the line.
- Additional terminal at Salfords due to open by 2029.
- Routing of international rail freight services from Clapham Junction to Redhill via East Croydon.

6.6 % of national revenue and 8 % of demand is attributed to the BML (FY24/25).

4 Policy and strategic context

The Department for Transport (DfT), the primary funder of BML rail services and infrastructure, has five overarching objectives for rail. These are supplemented by specific objectives set out in other policy areas. These are summarised below:



There are three strategic stakeholders who are dependent on a successful BML to achieve their goals. Key objectives associated with the BML are summarised below:

The local planning authorities served by the BML[1] are also reliant on an effective railway to meet transport objectives (such as journey times, emissions, mode share and congestion) and economic growth outcomes (such as housing and job growth). NR have considered known growth plans in the development of this study.

Local government reorganisation is underway and there are proposals for the region served by the BML. NR will monitor the policy landscape to align with future strategies.

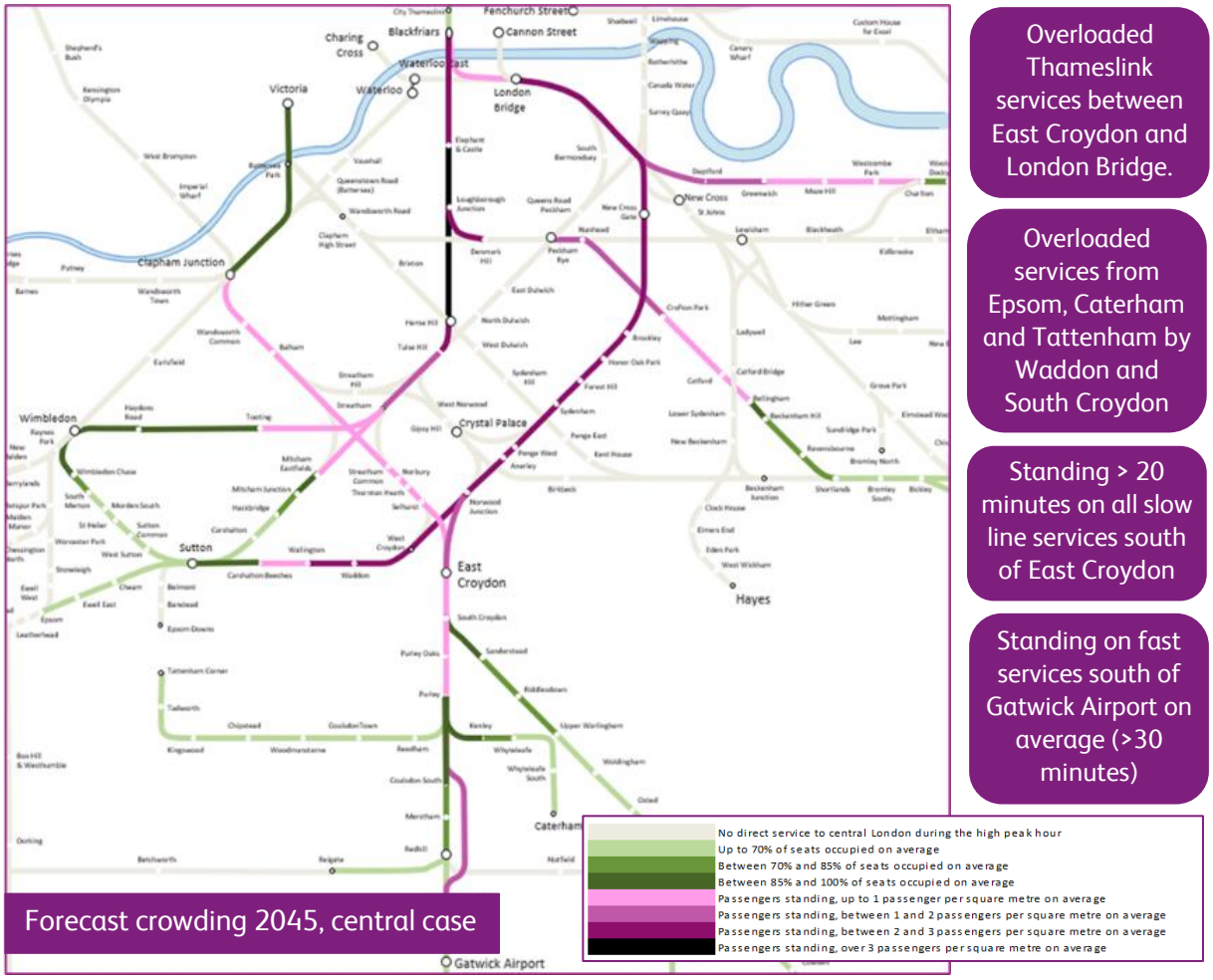
[1] Districts and Boroughs: Adur, Arun, Brighton & Hove, Crawley, LB Croydon, Eastbourne, Epsom and Ewell, Horsham, LB Lambeth, Lewes, Mid Sussex, Reigate and Banstead, LB Southwark, LB Sutton, Tandridge, LB Wandsworth, Wealden, City of Westminster and Worthing. County/Mayoral authorities: Greater London Authority, East Sussex, West Sussex, Surrey County Councils and Brighton & Hove Combined Authority.

5 The challenge ahead

1. Capacity for passenger and revenue growth

Passenger demand for peak time, fast BML services into London Bridge and London Victoria is expected to grow between +19-49 %[2] by 2045; up to [redacted] more journeys in the morning high peak, each day. This is driven by population and demographic change, house building, increased economic activity, disposable income, and growth at Gatwick Airport.

Capacity constraints suppress demand and revenue growth by pushing customers to other times of day, other modes, deterring travel altogether and limiting the quality of the timetable that can be provided. Rolling forward today's capacity is forecast to cost at least [redacted] in cumulative nominal revenue foregone by 2045 – approximately [redacted] per year from crowding alone. Conservative analysis indicates that improving connectivity through a better timetable (Do Minimum) is worth at least an additional [redacted] in revenue in 2045, more than double the revenue generated from crowding relief. The map below highlights where the most significant crowding issues are forecast to be in a conservative, central case forecast.



Forecast crowding 2045, central case

Overloaded Thameslink services between East Croydon and London Bridge.

Overloaded services from Epsom, Caterham and Tattenham by Waddon and South Croydon

Standing > 20 minutes on all slow line services south of East Croydon

Standing on fast services south of Gatwick Airport on average (>30 minutes)

[2] The Government defines three scenarios (Low, Central, High) to account for uncertainties in long term demand forecasting, which results in the range of potential impacts

2. Mind the capacity gap: impact of maintaining existing capacity

The number of passengers standing on fast BML services in the morning high peak hour is expected to more than double by 2045. The number of passengers standing longer than 20 minutes is forecast to more than double by 2045, tripling[3] in a high growth scenario. By 2045, up to three-fifths (58 %) of standing passengers would be doing so for more than 20 minutes, compared to around two-fifths (44 %) today. Congestion is focused on the London Bridge line, which accounts for 75-80 % of the total challenge.

Metric	2024 Base	2030 Central growth	2045 Central growth	2045 High growth
 Passengers standing (total)	[redacted]	[redacted] (36 % ↑)	[redacted] (95 % ↑)	[redacted] (140 % ↑)
 Passengers standing > 20 minutes	[redacted]	[redacted] (49 % ↑)	[redacted] (138 % ↑)	[redacted] (214 % ↑)
Do nothing – rolling forward December 2024 capacity				

There is a short-medium term opportunity to provide capacity relief through rolling stock investment. Govia Thameslink Railway (GTR) withdrew c.200 vehicles from Southern during the Covid-19 Pandemic, reducing service frequencies and train lengths to match demand levels. BML services have been incrementally restored since then.

The December 2019 timetable (Dec-19) was the maximum operable quantum on the current infrastructure. As of December 2025, the following services are not running or are running at shorter lengths in the morning high peak hour. GTR and NR have modelled the performance impact of reintroducing some of these services. This indicated that there would be a deterioration in reliability, due to increased infrastructure utilisation.

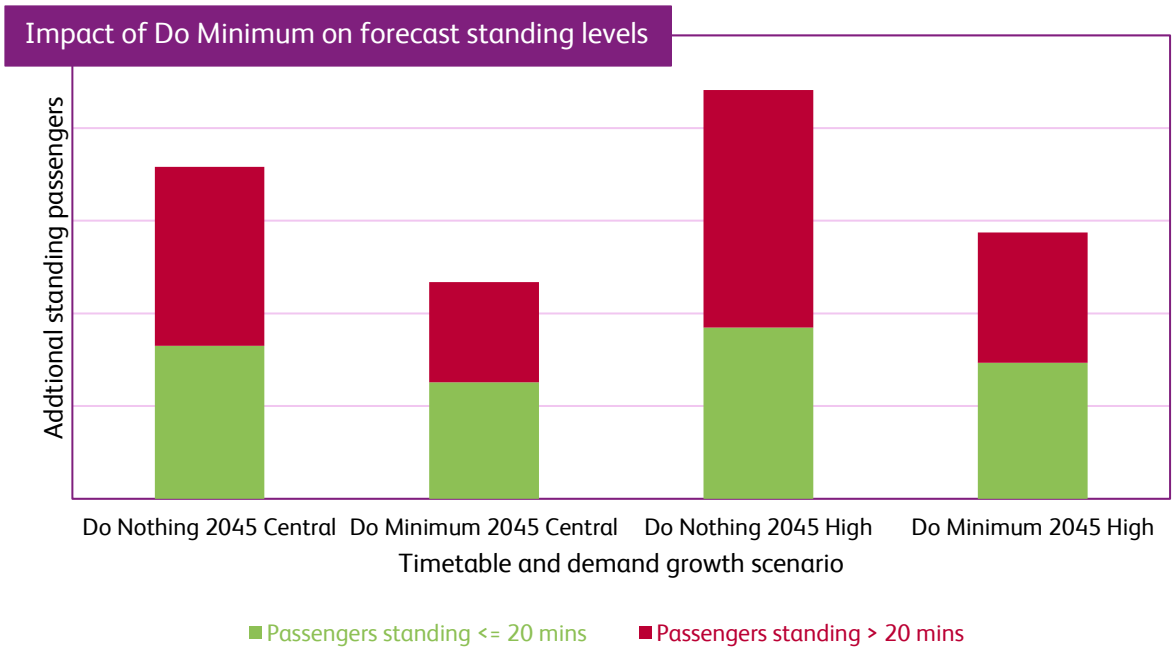
- Gatwick Express: 2 Victoria to Brighton services do not operate, and 2 are formed of 8 carriages, having previously been 12-car.
- Thameslink: 2 fewer services between 07:30-08:30 from East Croydon towards Bedford (previously from Littlehampton).
- Southern (London Bridge): shorter trains in the high peak hour, including from Uckfield, Bognor Regis, Eastbourne and Littlehampton.
- Southern (Victoria): Caterham/Tattenham Corner services do not operate. One high peak service from Hastings is 8-car.

[3] Growing passenger numbers affects these metrics exponentially, as once available seats and standing space are occupied, all additional passengers will be standing in increasingly dense conditions.

This study considered non-infrastructure interventions to make best use of available capacity on the BML, including reviewing route or brand-specific fares, first class provision, rolling stock configuration (standing and seat capacity), and calls at Clapham Junction in Gatwick Express services. Sensitivities related to Gatwick Airport were also considered, including without expansion, different demand profiles and higher rail mode share.

The study identified that calls at Clapham Junction in Gatwick Express services could assist with the distribution of passengers on services into Victoria. This formed a 'do minimum' alongside additional rolling stock to restore capacity to Dec-19 levels. Commercial changes alone could not resolve the capacity gap, though could assist in a high growth scenario.

The Do Minimum interventions can address around a third of the forecast additional crowding by 2045, having a more significant impact on the duration of standing reflecting the importance of operating additional services beyond Croydon, to Gatwick and Purley.



There remains a capacity gap on the network by 2045, which this study expresses as additional train pathways. Growth will occur incrementally over time, and beyond 2045.

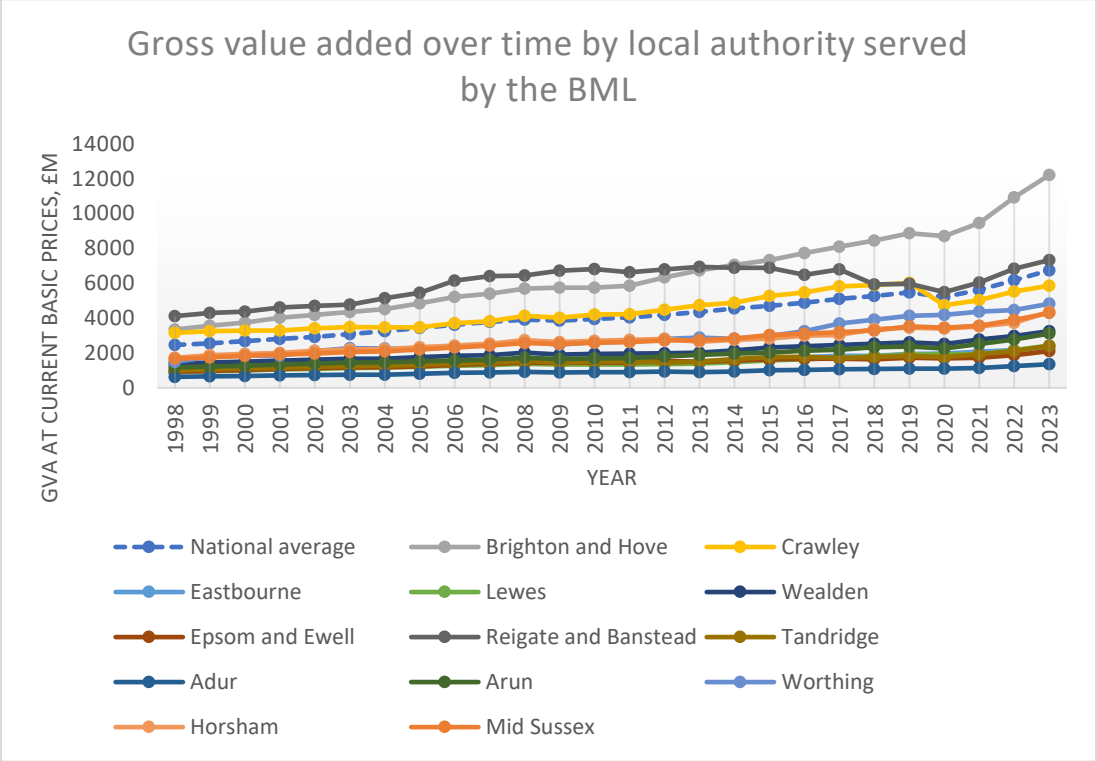
Number of additional services required by growth scenario and problem

Scenario	To meet standing density challenge	To meet standing duration challenge	Commentary
2030 Central	+4	+2	6 pathways is in line with available capacity. Additional rolling stock would be required.
2045 Central	+6	+2	A further 6 and up to 12 pathways above the 2030 position are required, which exceeds network capability.
2045 High	+9	+3	

3. Underpinning a successful and growing regional economy

The BML is critical to the functioning of the economy in the South East. Alongside the A23/M23 corridor, the BML links employment hubs in central London, Croydon, Gatwick and Brighton with each other (agglomeration and business travel) and expands the commuter catchment of employment centres across Sussex. The tourism economies on the South Coast and in central London are buoyed by a reliable railway, and fast and frequent rail connections increase opportunities for education, training and employment, particularly for areas at risk of Transport Related Social Exclusion along the South Coast.

The figure below illustrates the economic metric of Gross Value Added (GVA) since 1998 across the Districts and Boroughs served by the BML (outside London). This highlights the significance of Brighton & Hove to the national economy, with GVA accelerating at a much faster rate than the national average. Crawley and Reigate & Banstead, the two authorities neighbouring Gatwick Airport, reported a reduction in 2020 reflecting travel restrictions at the time but are now reporting recovery in line with the national average.



Congestion on the BML is forecast to increase in the future, leading to reductions in service reliability and quality, a cap on passenger capacity and revenue growth and an increase in passenger's actual and perceived journey times. This could suppress travel or transfer further demand to the road network – acting as a drag on regional economic productivity.

Increasing network capability in step with forecast demand is required to continue growth in the South East and beyond given the cross-London linkages Thameslink provides.

Congestion on the BML could also frustrate the realisation of economic growth across London, Sussex, Surrey, the South Coast and wider South East region. Whilst economic development is not always dependent on the railway, increasing rail travel times and deteriorating reliability would place further pressure on the road network to accommodate transport arising from development. The Thameslink service is also critical to serving growth on the MML and ECML, meaning service options on these routes are also constrained to varying degrees by the network through Croydon.

An overview of known strategic growth aspirations relevant to the BML is provided below.

Housing

- Government's new standard method suggests 34,000 homes are required to be delivered each year across Local Authorities served by the BML. This is a material increase in requirements in Horsham, Wandsworth and Westminster compared to the previous method.
- Opportunity areas: 14,500 additional homes in Croydon and 20,000 new homes around Vauxhall, Nine Elms and Battersea.
- Over 5,000 homes poposed at each of: Horsham to Crawley corridor (Kilnwood Vale and West of Ifield), Burgess Hill (inc. Wivelsfield) strategic development, Barnham/Ford stations and expansion of Bognor Regis and around Chichester.

Economic

- Gatwick: passenger numbers +55 % without and +86 % with the northern runway between 2024 and 2047.
- Central London: draft New London Plan signals up to 800k additional jobs by 2050.
- Opportunity areas: an additional 10,500 jobs in Croydon and 20,000 additional jobs in Vauxhall Nine Elms Battersea area (served by Clapham Junction).
- Brighton: city-wide distribution of significant growth.
- High Transport-Related Social Exclusion around Hastings, Eastbourne and Bexhill where rail can reduce journey time/cost barriers and expand access to opportunities.

Greater Thameslink Growth Corridor

- Luton Airport expansion proposes to double passenger numbers to 32 million a year by 2043.
- Universal Studios expected to open in 2031, with 8.5 million annual visitors and 28,000 staff
- A new station and town at Tempsford on the East Coast will be served by Thameslink, with further strategic growth at Cambridge.
- East West Rail will bring new connectivity and growth at the northern end of Thameslink network.

4. Asset condition, maintenance and resilience

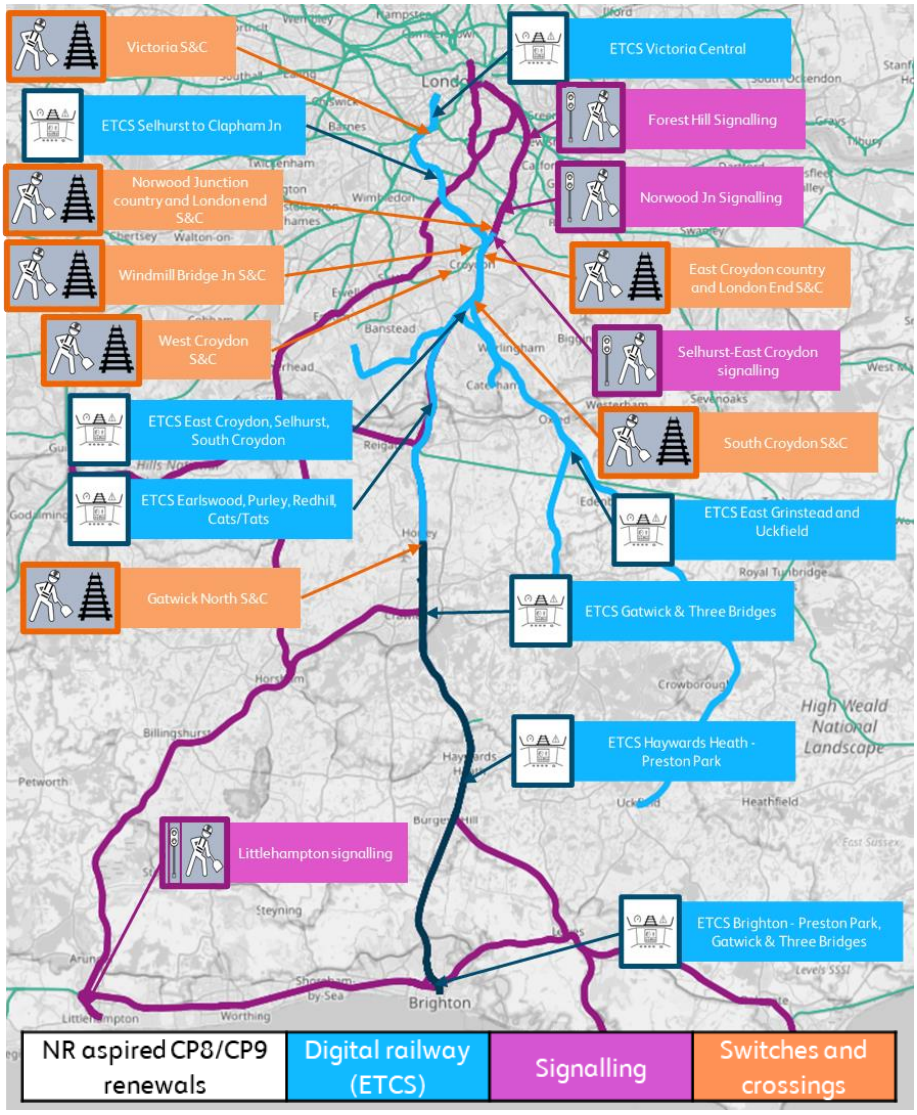
Asset condition and climate change combine with forecast increases in network usage to introduce a strategic risk to the reliability of the railway. There are many assets approaching life expiry on the BML. Renewals are a priority for NR as ageing assets can fail, leading to irregular disruption – for example to deliver repairs or applying restrictions such as line speed to preserve the infrastructure for longer.

Infrastructure renewals offer an opportunity to deliver a change in capability, but NR is not funded to deliver enhancements.

The map to the right shows some of the largest renewals that NR have prioritised for future control period (CP) funding asks.

Whilst not committed, the largest renewals planned for CP8 (2029-2034) will require development during CP7, meaning there is a limited window to develop enhancements.

Aligning renewals and enhancements would minimise passenger and freight disruption, limit abortive spend and optimise asset life.



In maintenance, NR is constrained to narrow windows for network access, which limits productivity. Looking ahead, Gatwick is a clear growth opportunity, particularly for earlier and later services. This will place further pressure on existing access arrangements.

Climate change and increasingly severe weather events are also driving the need for extra access for maintenance. This is expected to increase in the future.

6 Strategic outcomes

The graphic below summarises the outcomes that future changes to services, commercial products, rolling stock and infrastructure should seek to deliver, aligned to the DfT objectives for rail. The second graphic summarises some of the network constraints which suppress these outcomes.

Meet customer needs	Financial sustainability	Catalyse economic growth	Reduce inequality	Support environmental sustainability
•Minimise additional forecast crowding •Reduce network congestion •Reduce forecast crowding and improve passenger experience	•Grow core markets: London to Brighton, Redhill, Eastbourne and Arun Valley •Reduce subsidy Tattenham Corner, East Grinstead, Wivelsfield to Eastbourne and Crawley to Horsham	•Improve inter-hub journey times (London-Croydon-Gatwick-Brighton) •Maintain Thameslink connectivity •Faster journeys: East Grinstead, Horsham, West Coastway, Arun Valley, Caterham •Improve journey times to Brighton •Unlock West and East Croydon development •Improve off peak frequencies from Uckfield	•Improve connectivity to London for national and international connections •Increase number of accessible stations •Improve services from London and Gatwick Airport to Ore, Hastings, Bexhill, Eastbourne, Worthing, Littlehampton and Bognor Regis •Increase connectivity through cross-regional services	•Wthdrawal of diesel-only trains •Improve climate change resilience •Increase rail freight capacity •Earlier/later services to Gatwick Airport •Frequent Metro services via Norbury •Metro connectivity to East Croydon •Interchange at New Cross Gate, Clapham Junction, Norwood Junction, Balham, Battersea Park, Old Oak Common •Faster journeys Horsham / Redhill / Crawley to Brighton

Rolling stock	Terminal capacity	Signalling headways	Network congestion
•Availability of EMUs and Class 171s •Depot and stabling capacity •Power supply •Uckfield self-powered	•London Victoria •London Bridge •Thameslink Core •Brighton	•Three Bridges to Brighton •Clapham to Croydon (Slow Lines) •New Cross Gate to Croydon (Slow Lines)	•5 track railway East Croydon to South Croydon, 4 tracks to Purley, 2 track Three Bridges to Brighton •Uckfield single line

Station constraints	Flat junctions	Train lengths	Freight
•East Croydon •Clapham Junction •Norwood Junction •New Cross Gate	•Selhurst triangle •Gatwick North •Stoat's Nest •Three Bridges •Keymer Junction •Redhill North / South	•8-car Caterham and Tattenham branches •10-car Epsom •4-car Reigate	•Propelling moves from the main line into Crawley and Purley •Redhill to Clapham part of diversionary Channel Tunnel route

7 Recommendations

There are broadly three pathways available to funders:

1. **Grow in line with demand** – delivering interventions which aim to maintain crowding below unacceptable thresholds (density and duration) and securing the primary objectives for the railway – **NR and GTR's preferred scenario**

2. **Avoid infrastructure** as far as possible – increasing crowding levels and making best use of the network by redistributing capacity, in likely contradiction to some of the other outcomes and objectives in section 6

3. **Transformation** – seek to deliver a radically improved network and address all strategic challenges, from capacity to connectivity and decarbonisation

Interventions which support a strategy to grow the railway in line with demand:

Core interventions	Potential timescale	Next steps	Owner
Additional rolling stock to reinstate Dec-19 quantum	c.2030	• DfT rolling stock strategy • Subsequent procurement of additional vehicles / replacement trains as required	GTR / DfT
Metro-style interiors on suburban routes	Mid 2030s		
Additional capacity on Uckfield services	Mid 2030s		
Replacement of Class 171	By 2040		
Gatwick Express calls at Clapham Junction	Mid 2030s	• Not required in the short term	GTR / DfT
Recast to optimise existing BML services	c.2030	• GTR-DfT through business plan	GTR / DfT
Maintenance strategy	c.2030	• GTR and NR joint access strategy • Aligned to Gatwick expansion timescale (early / late services)	GTR / NR
Additional capacity in the Croydon area	Phased: mid-2030s into 2040s	• PACE 1 development of infrastructure in the Croydon/Selhurst/Norwood Junction area	NR / DfT
London Terminal Enhanced Renewals	Phased	• Victoria (Sussex) – business case in time for CP9 renewals	NR / DfT
24tph Thameslink	Mid 2030s	• Subject to network capacity and rolling stock availability	GTR / DfT / NR
Digital Railway roll out	Phased	• Secure funding allocation for CP8 delivery	NR
Headway optimisation Three Bridges to Brighton	Mid 2030s	• ETCS proposed for delivery in CP8 – opportunity to remove constraints	NR / DfT
Climate Adaptation Pathway	2027	• Region-wide adaptation pathways in development	NR
Clapham Junction capacity	TBC	• Station capacity interventions under review	NR
Norwood Junction accessibility	TBC	• Dependent on enhancement scheme development	NR / DfT
Enabling infrastructure (power, depots, stabling)	TBC	• Dependent on enhancement scheme development	NR / DfT

Interventions that would be necessary in an avoiding infrastructure scenario

- Allow serious deterioration in customer experience and journey quality.
- Integration of Gatwick Express into Southern, removing fare and operator restrictions to spread passenger demand and make best use of network capacity.
- Fares harmonisation across BML services to spread passenger demand.
- Removal of First Class on inner/outer Metro, Thameslink and, if required, Main Line services.
- Terminating West London Line trains at Clapham Junction.
- Review the Thameslink service map to optimise use of limited capacity.

These alone do not completely resolve the capacity gap, with 3-4 additional pathways above Do Minimum still required by 2045, so this option is **not preferred**. These interventions may be required in addition to infrastructure in a high growth scenario.

Further choices for a transformed railway for growth

This strategy has prioritised strategic outcomes against the Government's objectives for rail and reflected the wider affordability challenge for rail network enhancements. There are further choices for funders to address wider policy outcomes. Some have benefits which are largely independent of resolving the bottleneck at Croydon.

Interventions with potential standalone benefits:

- Reigate platform 3 / lengthening platform 2 – remove splitting and joining at Redhill, reduce journey times and improve Thameslink service efficiency.
- Uckfield line partial redoubling and decarbonisation.
- Additional crossovers at Crawley New Yard and Salfords Yard to allow direct access into the freight terminals from the north, decongesting the BML Slow Lines.
- Accessibility enhancements (step-free) to stations on the BML (except Norwood Junction) can be delivered in isolation to wider capacity programmes.

Strategic interventions which are dependent on resolving the bottleneck at Croydon first:

- Turnback improvements at or near Haywards Heath, Oxted and / or Crawley.
- Capacity enhancements in central London to unlock additional terminus capacity.
- Grade separation or junction capability improvements at Keymer Junction, Gatwick North, Three Bridges, Stoat's Nest Junction.
- A 6-track railway East Croydon to South Croydon / Purley.
- Extending the provision of 4-track railway south of Three Bridges - to allow faster London to the South Coast journey times, enable a timetable to be constructed around inbound travel to Brighton and support extended North Downs services.
- Reducing the headway on the slow lines Clapham Junction to Selhurst and New Cross Gate to Norwood Junction through enhancing aspired infrastructure renewals would increase capacity - to support Metro and freight service enhancements.
- An additional platform at New Cross Gate – would enable calls in fast line services.
- Grade separation of Gloucester Road / Selhurst junctions – to grow Metro service.

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