

# Setting Regional Budgets for Rail Investment

A report by *Greengauge 21*  
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# Overview

In order to advise the Department for Transport on the rail transport needs of the Midlands and North, the National Infrastructure Commission (NIC) set out to determine what budget should be available for investment.

The Midlands and North account for 5 out of 9 English regions. The others are: East of England, South East England and South West England; London accounts for the 9th.

A question arising is this: what would be the rail investment budget for these remaining English regions—and for Wales—if the same NIC methodology was applied to them? In this short report, we set out to answer this question.

The report can only be considered as a starting point for discussion. While we have drawn on published NIC reports, the approach taken is our interpretation of that taken by the NIC, and Greengauge 21 is solely responsible for the assumptions we make and set out in this report and any errors arising.

Our view is that the NIC set out a persuasive approach to the question of rail needs that has a wider applicability and a continuing relevance. For our part, we will look to engage with the National Infrastructure Commission in responding to its programme of work for the second National Infrastructure Assessment (NIA2). This will include a new baseline assessment of national infrastructure this Autumn before the NIA2 recommendations are published in 2023.



# 1. The approach taken for the North and the Midlands

**The approach used by the NIC to establish an appropriate rail enhancement budget for the North and the Midlands was set out in a technical annex to their [interim report](#) of July 2020. It was driven by the need to ensure that overall investment levels are made consistent with HM Treasury guidance which sets a maximum level at 1.2% of national GDP. For the NIC, this is a 'binding fiscal remit' and thus guides its overall National Infrastructure Assessments, which are periodically updated<sup>1</sup>. As it says in its Interim Report:**

“Government should not be presented with a proposed best option that is unaffordable or would crowd out investment in other infrastructure priorities.” In the [technical annex](#) on budget setting, it added: “The principle of balancing spending on rail against other infrastructure spend remains relevant. The Commission will not reopen other sections of its fiscal remit recommendations to fund strategic rail.”

**In summary, the NIC's approach entailed:**

- » Estimating planned (but not yet committed) rail enhancements expenditure (for which there is an expenditure line in the most recent National Infrastructure Assessment for Control Period 7 plus financial year 2029/30)

- » Taking the Strategic Transport budget line set out in the National Infrastructure Assessment for 2030/1 onwards to 2045. This is a combined allocation for road and rail, a portion of which needed to be allocated to strategic rail enhancements
- » This was calculated by subtracting expected future requirements for road and rail renewals from the total Strategic Transport budget to protect maintenance spending, and then sharing the enhancements budget between road and rail based on their average shares of enhancements expenditure across the period 2020/21 to 2029/30<sup>2</sup>.

The result was that 57 per cent of the Strategic Transport enhancements budget from 2030/31 onwards was allocated to road enhancements, and 43 per cent was allocated to rail.

Next, the Midlands and North share of rail enhancements was calculated. This used (ONS) projected populations for the Midlands and North regions as a percentage of total projected population in England and Wales. This allocated 44% of the England and Wales budget total to the Midlands and North.

The full NIC calculation of annual and total expenditures then added in budget lines for HS2 and Northern Powerhouse Rail (NPR)—the two largest rail projects that benefit the Midlands and North. The overall calculation is shown in Table 1 below.

Table 1: NIC budget set for the Midlands and North Rail Needs Assessment

Average annual expenditure (£million, 2019/20)	2020-2025	2025-2030	2030-2035	2035-2040	2040-2045	Total expenditure 2020/21 to 2044/45 (£million, 2019/20 prices)
HS2	4,600	3,900	900	–	–	47,400
of which: Phases 1 and 2a	3,800	400	100	–	–	21,400
of which: Phase 2b	800	3,600	800	–	–	26,000
Northern Powerhouse	200	1,200	1,700	1,700	–	24,400
Network Rail Enhancements (Control Period 7 + 2029/30)	200	800	–	–	–	4,600
Rail Share of Strategic Transport Fund enhancements	–	–	1,550	2,130	2,120	29,600
of which: North/Midlands share of Network Rail Enhancements and Strategic Transport Fund rail enhancements	100	300	700	900	900	14,900
<b>RNA enhancements budgets:</b>	<b>4,800</b>	<b>5,400</b>	<b>3,300</b>	<b>2,700</b>	<b>900</b>	<b>86,200</b>
HS2 + Northern Powerhouse Rail + North/Midlands share of Network Rail Enhancements and Strategic Transport Fund rail enhancements						

Source: <https://nic.org.uk/app/uploads/RNA-Interim-Report-Final.pdf> (Note, RNA is an abbreviation for Rail Needs Assessment for the Midlands and North).

A key issue with this methodology is the allocation of the costs of HS2 and NPR. While Phases 1 and 2a of HS2 now have Parliamentary Approval and are proceeding, Phase 2b—which is entirely within the North and Midlands—has not reached the Parliamentary Bill stage(s) that authorise construction, nor is its funding confirmed. NPR is at a similarly early stage of development.

The National Infrastructure Commission's decision to allocate all of these costs, regardless of project approval status, to the Midlands and North we questioned at the time. Their inclusion accounts for 83% of the developed rail enhancement budget for the Midlands and North. It could be argued that allocating the full costs of both HS2 and NPR to the Midlands and North is a further expression of the wish to re-balance national infrastructure spend. And it means that only the balancing 17% of enhancement expenditure was calculated on the basis of a per capita allocation.

A key virtue of the NIC budget-setting approach, in comparison with an unconstrained analysis in which investments are ranked and selected in terms of their cost benefit ratios, is that it can overcome the inbuilt bias towards investment in London and its surrounds, where traffic levels, congestion and benefits are generally higher. Instead, monies within the fiscal remit for strategic rail enhancements are allocated region by region on a per capita basis—and for named projects (HS2 Phase 2b and NPR), to the regions where the benefits of the expenditure are primarily targeted.

Interestingly, even with the costs of HS2 and NPR fully allocated to the North and Midlands, the NIC concluded that it would be right to test the implications of the resulting £86.2bn enhancement budget total shown in Table 1 against two further budget variants: £86.2bn +25% and +50%. Even at the +50% level, the NIC determined that it would not be possible to implement the whole of HS2 and NPR. The reason for this is that there are also a set of other rail enhancement investments which would not be fully covered by the 17% of budget which is neither HS2 nor NPR. These investments would likely have a high priority and cover:

- » Trans Pennine Route Upgrade
- » Midlands Engine Rail
- » Electrification and other decarbonisation projects
- » East and West Coast Main Line and Midland Main Line enhancements
- » Digital signalling programmes.

While the National Infrastructure Commission (NIC) reports set out the process, it is clear that it was necessary to make key assumptions, with project cost estimates in many cases uncertain and at risk of significant inflation. Projects which cross regional boundaries were the subject of explicit simplifications, with 100% regional allocations designed to avoid the complications of sub-dividing budgets across regional boundaries. Overall, the NIC found that project cost estimates in many cases were uncertain and at risk of significant inflation.

The assumptions used in setting budgets for the Midlands and the North pose some interesting challenges for attempts to replicate the approach for other English regions and Wales, including these:

- » Should part of the project spend for Phase 1 of HS2 be allocated to the South East and to London, where it will largely be incurred?
- » What project budgets equivalent to those set for HS2 and NPR apply to the South and East?
- » Are their projects equivalent to Northern Powerhouse Rail or Midlands Rail Engine arising in the wider south and east, or in Wales?

# 2. Setting equivalent rail budgets for the rest of England and Wales

## Population-based allocations

A full set of regional allocations based on ONS projected populations over the period to 2045 are set out in Table 2 below. Proportions for South and East England and Wales have been calculated by Greengauge 21 and set alongside the NIC's assessments for the North and Midland regions.

In Table 3 below, we set out a calculation following the approach used by the NIC in its assessment of the per capita element of the budget for the North and Midlands, using these regional population-based proportions.

A key assumption made here is the rail proportion of future strategic transport fund enhancements. As in the NIC approach for the North and Midlands, it is assumed that this proportion (the rail share of rail

plus highway enhancement budget) is unchanged from the modal allocations already set for Network Rail control periods and Highways England's RIS2 programme.

On this basis, using a population-based allocation, the following totals for rail enhancement expenditure apply to south and east regions for the period to 2045:

- » East of England £3.577bn
- » London £5.137bn
- » South East £5.229bn
- » South West £3.299bn

and for Wales: £1.755bn.

Overall, this sums to a £19bn rail enhancement budget. But there is a further element to consider.

Table 2: English Regions and Wales population proportions 2020–2045

North & Midlands		South and East England & Wales	
4%	North East	11%	East of England
12%	North West	15%	London
9%	Yorkshire & Humber	15%	South East
8%	East Midlands	10%	South West
10%	West Midlands		
<b>44%</b>	<b>Total N+M</b>	<b>51%</b>	<b>Total S+E</b>
		<b>5%</b>	<b>Wales</b>

Source: Greengauge 21 calculation for S&E England and Wales, NIC for Midlands and North.

Table 3: **Allocation of rail enhancement budgets to south and east regions and Wales**

Period	Average annual expenditure (£million, 2019/20)					Total (£million, 2019/20 prices)
	2020 –2025	2025 –2030	2030 –2035	2035 –2040	2040 –2045	
Network Rail Enhancements (Control Period 7 + 2029/30)	200	800	–	–	–	
Rail Share of Strategic Transport Fund enhancements			1,550	2,130	2,120	
East (11%)	21	84	163	224	223	3,577
London (15%)	30	121	234	322	320	<b>5,137</b>
South East (15%)	31	123	238	328	326	<b>5,229</b>
South West (10%)	19	78	150	207	206	<b>3,299</b>
<b>Total South &amp; East</b>						<b>17,242</b>
Wales (5%)	10	41	80	110	109	<b>1,755</b>

Source: Greengauge 21 calculation.

## Major Rail enhancement projects in the South and East

We need to consider whether there is a basis for regarding any major rail enhancement expenditure sum as being appropriate to add to these regional (and Welsh) budget totals, in the way that HS2 and NPR were treated in the Rail Needs Assessment for the North and Midlands.

The following projects have been considered:

- » HS2 Phase 1/2a
- » London’s Crossrail 1 and Crossrail 2
- » East West Rail Link
- » Great Western Electrification Programme (GWEP)

## HS2 Phase 1/2a

HS2 Phase 1/2a (Euston–Birmingham–Crewe) was priced in the National Infrastructure Commission’s work on the Midlands & North at a net cost of £37bn.<sup>3</sup> It could be reasonably argued that a proportion of this amount (say half of it) should be allocated to London and South East regions where much of the expenditure (and some of the benefit) will accrue. But while this would inflate budgets for rail expenditure in the south and east, it would mean that the budget calculations for the rail needs of the North and Midlands would need to be re-visited and reset downwards. And in any event, since HS2 expenditure where it arises in the wider south east is already committed with construction underway, it would not change the overall funding available for anything else in the wider south and east.

We conclude there is no purpose served by re-allocating a South/East element of a project that is already funded and proceeding: simpler to take it as a given.



## London's Crossrail projects

London's Crossrail 1, costed by the NIC last year at £18.7bn, we believe should also not feature, but for a different reason. True there is some Crossrail expenditure in 2021/2 (current year), but the large bulk of its cost pre-dates the period of analysis, and there is no realistic option to choose not to proceed with the project at this late stage.

Crossrail 2 would have been considered in-scope had the south and east regions been under examination in earlier years. In summer 2020, when the NIC prepared its overall budget of the Rail Needs Assessment work, it appears that Crossrail 2 was being regarded as an outstanding 'commitment' although there are no Parliamentary powers to build it. Crossrail 2 was treated then as a part of the national rail budget rather than placed under an 'urban public transport' heading. Not all of its cost (lately, around £40bn, but £26.5bn included when NIC's fiscal remit was set) would have been provided for since up to 50% of its funding would have been assumed (as per Crossrail 1) to come from London ('local') sources. Its inclusion here in the regional assessments would have had a dramatic impact on budgets for London and surrounding shire counties (Surrey and Hertfordshire).

But the situation has moved on since. As November 2020's National Infrastructure Strategy makes clear, Crossrail 2 is now frozen. Indeed, the Strategy has already earmarked funds previously set aside for Crossrail 2. The thinking is that<sup>4</sup>:

"[in contrast with London] ... in regional cities ... access ... by public transport lags behind continental peers. This is why the government will invest in the North, Midlands and South West to help rebalance the UK economy.

The government is continuing to address capacity issues in the capital, by financing the completion of Crossrail, but has agreed that Transport for London will stop development on Crossrail 2. **This frees up investment to raise the performance of public transport networks in the regional cities towards London's gold standard.**" (emphasis added)

The NIS explains that Crossrail 2 funding is already being switched to a variety of other programmes, including "£5 billion announced for buses and cycling over this Parliament ... [and] ... eight city regions will also benefit from £4.2 billion government investment in five year funding settlements for local transport starting in 2022–23... City regions that will receive settlements, subject to appropriate governance, include Greater Manchester, Liverpool City Region, West Midlands, West Yorkshire, Sheffield City Region, Tyne and Wear, West of England and Tees Valley."

While these allocations may only partly use up the funding previously allocated to Crossrail 2, the NIC also points to a series of upcoming Government strategies<sup>5</sup>, and these could draw on any remaining ex-Crossrail 2 funding and be incorporated in the next Spending Review. They include: the Union Connectivity Review, the Integrated Rail Plan (where it might be used to deliver the +25% over baseline budget case for the Midlands and North), the transport decarbonisation plan and the electric vehicle charging infrastructure strategy.

In short, it must now be assumed that Crossrail 2's budget will not become available for possible re-allocation in London or the wider South East for other, better rail (or other transport mode) investments. Its freezing and presumed cancellation reduces the total rail infrastructure investment funding to be allocated to the southern/eastern regions and London which might have been as much as £15–20bn higher were it to still proceed.

Meanwhile, we note that London's transport connectivity will shortly gain a huge boost from the (delayed) opening of Crossrail 1, with connectivity across the wider south-east benefiting from the combination of the Thameslink and Crossrail 1 projects with their intersection at Farringdon in central London.

## East West Railway

Implementation of the East West Rail link is underway, although only some planning powers and consents have so far been obtained. It is judged to be in-scope here, and it carries a budget estimate of £5bn in 2019 prices. This amount should therefore be added to the south/east total, split between the South East and East of England regions. EWR is a project that is recognised in the National Infrastructure Assessment, and this treatment is exactly analogous to the process that the NIC used for its North & Midlands Rail Needs Assessment for Northern Powerhouse Rail.

## Great Western Electrification

The GW electrification programme remains incomplete, with parts of the programme to serve Oxford, Bath and Bristol outstanding<sup>6</sup>. It is unclear what budget remains for these works, but it would be right to add an allowance for them into the regional allocations. For simplicity, we have added a nominal £1bn to the budget for South West England.

***In summary, there are two budget additions to make for major rail investments: £5bn to cover the expected cost of EWR and £1bn for the completion of the GW electrification project.***

# 3. Regional budget synthesis

The equivalent budget for the wider south east, south west and Wales, based on this analysis, is set out in Table 4 below. One major project budget is taken into account—East West Rail, allocated 70:30 to the East of England:South East regions, and a nominal £1bn is allocated to GW electrification programme completion (for simplicity, entirely to the South West region).

Overall, the rail enhancement budget for the four southern & eastern English regions plus Wales, using what we judge to be a similar methodology to that used by the NIC for the North and Midlands rail needs assessment, totals £25bn for the period to 2045.

Table 4: Rail enhancement budgets for South and East England and Wales

Region/Nation (population share of England & Wales)	Share of Network Rail CP7 Budget and rail share of Strategic Transport Enhancement Budget (£bn)	Major Projects: East West Rail and GW electrification (£bn)	Total
East (11%)	3.6	3.5	7.1
London (15%)	5.1		5.1
South East (15%)	5.2	1.5	6.7
South West (10%)	3.3	1.0	4.3
<b>Total South &amp; East</b>	<b>17.2</b>	<b>6.0</b>	<b>23.2</b>
<b>Wales (5%)</b>	<b>1.8</b>		<b>1.8</b>
<b>Overall total</b>			<b>25.0</b>

Source: Greengauge 21 analysis.

## 4. Discussion

The approach used here is an attempt at mimicking the calculation used for the English northern and midland regions. It allocates rail enhancement budgets up to 2030 and the rail share of strategic transport budgets thereafter on a per capita pro rata basis. It provides £17.2bn for rail enhancement schemes in the southern and eastern regions to 2045 and £1.8bn for Wales in the period to 2045.

To these totals, we added in an amount—much smaller than that allocated to the North and Midlands—for major projects: in this case, for East West Rail and for the outstanding part of the GW electrification project. This generates a total rail enhancement budget of £23.2bn for the southern and eastern English regions and £1.8bn to Wales for the period out to 2045. This total of £25bn may be contrasted with the £86bn level set by the NIC for the Midlands and North.

We note that much of the investment in the Midlands and North is likely to be taken up by major new rail lines, needed to overcome historic weaknesses in the inherited, largely unmodernised, network. Network limitations in the North and Midlands were seen by the NIC as inhibiting the scope for an overlapping set of major cities to expand their labour markets. Taking aside London, where new network capabilities are shortly to come on-stream, the other English regions (and Wales) under examination here have fewer and less-clustered areas of major urban development. The type of contribution that rail investment can make is therefore likely to be less overall than the NIC found for the North and Midlands.

But there are some sub-regions in the South and East where similar circumstances to those in the North & Midlands do arise—a prime example being the overlapping city catchments of the Bath/Bristol–Newport–Cardiff–Swansea corridor across the Severn Estuary where the need for rail investment that can help relieve the overloaded M4 motorway has been identified.<sup>7</sup> The Solent area might be another

The pattern of regional differentiation and likely scale of benefits is not, however, the reason why the overall rail enhancement budget has been calculated to be so much lower for the southern/eastern regions plus Wales (although it helps explain why the Midlands and North should be accorded higher levels of investment funding). New lines are, of course, expensive, but, taken in the round, they are simply less needed in the south/east and Wales.

## Baseline rail investment budgets and 25% and 50% increases

The £86bn baseline budget set by the NIC for the Midlands and North was found to be insufficient to meet the costs for completing HS2 and building NPR without impacting other important priorities.

In the Midlands and North Rail Needs Assessment, the NIC seemed to be comfortable with the possibility of funding at a +25% level above baseline. This adds £21.6bn to rail enhancement funding for the North and Midlands. If a similar treatment was made for the regions of the South and East, London and Wales, based on the analysis here, additional funding at a rate of 25% over baseline would add £6.25bn. If the parallel to be drawn is based on the need for 'levelling up' at a regional/devolved nation level, then London, the South East and East of England regions would probably be excluded. Additional funding at a +25% rate would, however, add £1.1bn to South West England's rail enhancement budget allocation and £0.6bn to the allocation for Wales.

As noted earlier, the allocation of the strategic transport budget elements followed the NIC assumption of no change in the balance between highways and railway spend proportions. This assumption would now be questioned by many across the transport planning profession because plans for major highway enhancement cannot be expected to help achieve carbon reduction targets, whereas investment in improving rail services that lead to reduced use of diesel/petrol-powered road vehicles could help reduce overall transport sector carbon emissions. Further rail expenditure could therefore be allocated to some extent at the expense of highway investment, but this should, we suggest, be a matter for the sub-National transport bodies to determine (see next chapter).

## Climate change and rail electrification

In practice, the key question for rail investment over the period to 2045 will likely centre on electrification. While there is some potential for a hydrogen/fuel cell approach, its intrinsic energy costs are high, power/weight ratios are unappealing and travel range is limited. This is true for heavy road vehicles (HGVs and buses) as well as rail.<sup>8</sup> Battery-equipped trains are quite suitable for decarbonising train services over shorter distances, but range limitations again rule this approach out over longer distances.

In the past, there has been a tendency in the UK to focus rail electrification on the busiest lines since business cases were based largely on the scope to reduce costs—lower fuel/energy and train maintenance costs. As a consequence, London has a near-fully electrified national rail network, and the South East (especially) and the East of England regions benefit from a lot of existing electrified rail lines into London. But, the East of England, for example, also has some key electrification gaps including its strategic cross-country freight routes to the nation's largest container port at Felixstowe and the East Coast Main Line diversionary freight route through Lincoln. In comparison, South West England and Wales have been very substantially neglected in this policy application, as have cross country railways in general.

Electrification priorities set historically to the busiest routes may have made sense in past, but such approaches now are unlikely to deliver the best balance of expenditure against the de-carbonisation obligations the country has set itself. Neither will budgets set on a pro rata to population basis. What is needed is a prioritisation of longer distance lines, especially those that can attract a modal switch away from road use – away from longer distance car use and long-distance HGVs.

For the Midlands and North, the NIC noted three categories of generic rail enhancement project which it said would need to be prioritised, if necessary ahead of specific schemes such as the Trans-Pennine Route upgrade and the Midlands Rail Hub. It foresaw the following investment priority needs for the Midlands and North:

- » Ongoing electrification (£15bn)—potentially, part of ‘infrastructure programmes for decarbonisation’ (priced at £18bn)
- » Digital signalling (£3bn)
- » Early wins (£2bn).

The rail network of the South and East is much more extensively electrified than that serving the North & Midlands. Nevertheless, there are some **electrification** gaps.

#### **A group of three interconnected inter-regional links:**

- » Basingstoke–Reading/Oxford–Banbury (serving the key container port of Southampton)
- » Chiltern Main Line, Marylebone–Banbury–Birmingham
- » East West Rail (partly under construction) Oxford–Bedford–Cambridge

#### **the main lines of the South West:**

- » Bromsgrove(Bristol)–Exeter–Plymouth–Cornwall
- » Newbury–Taunton

#### **Key strategic long-haul freight routes**

- » Felixstowe–Nuneaton

While Network Rail has set out a decarbonisation strategy, the DfT policy on the subject is awaited (it is due shortly). For rail, much will depend on where priorities are set, with the question of decarbonising freight a particular issue.

In Wales, electrification is minimal, yet route distances over main lines (Cardiff–West Wales, the North Wales Coast and Newport–Crewe) are lengthy and cry out for at least partial electrification. The same is true for the South West, where electrification of Bristol/Newbury–Penzance (route length 298

miles) is likely to be a high priority. Another key focus should be the primary NE/SW cross country route. As argued in earlier Greengauge 21 reports, electrification of the Bromsgrove–Bristol Parkway line (74 miles) could be regarded as an infill project, that in association with an expanded Midlands Rail Hub (included in the NIC’s Rail Needs Assessment) could serve to bring better balance to the ‘Y’-shaped HS2 network, making it a more valuable ‘X’ shape.<sup>9</sup>

In tackling the need for the electrification of main lines, the lessons of previous electrification projects, some of which have seriously overshot budgets, will need to be learned. A ‘discontinuous approach’ may be appropriate in places where electrification implies costly adjustment to historic structures, for instance.

In summary, rail electrification expenditure is of importance to the South West, to Wales and (especially for freight flows) to the East of England, but of less importance to (the largely electrified) South East England (where some infill schemes would be useful) and of virtually no significance to London (where there remain a few very short electrification gaps to be addressed).

Overall, these priorities are poorly addressed by population-based allocations, as here, but need to be taken up by the National Infrastructure Commission in taking forward updates to its rail investment allocations going forward. Modal transfer to improved, decarbonised (electrified) rail routes would reduce the call for investment funding for charging points for road vehicles and for national grid strengthening (because rail use per passenger-mile or per tonne-mile is less energy intensive).

The allocations set out here for rail investment in the South West and Wales (and probably the East of England too, when account is taken of the need for additional budget to cover the East West Rail project) will need to be increased to cover the likely costs of electrification and associated improvements for longer distance main line and strategic freight routes.



# 5. Sub National Transport Bodies

In England, it now seems that the various regional—sub-national—transport bodies are not to be granted formal budget-setting status. But they will still have an important advisory role on transport budget allocations, and all of them have either produced or are in the process of producing regional transport strategies. These are probably now the more relevant areas for developing regional rail transport budgets than the historic regional definitions we have used in the analysis presented here. But they don't map straightforwardly onto the standard planning regions.

In the south and east, there are five SNBs (alongside London) and they comprise:

» **England's Economic Heartland**

Area covered: Bedford, Buckinghamshire, Cambridgeshire, Central Bedfordshire, Luton, Hertfordshire, Milton Keynes, Northamptonshire, Oxfordshire, Peterborough and Swindon

» **Peninsula Transport**

Area covered: Cornwall, Devon, Plymouth, Somerset and Torbay

» **Transport East**

Area covered: Essex, Norfolk, Suffolk, Southend-on-Sea and Thurrock

## English Regional Transport Bodies

There are currently eight sub-national (or regional) transport bodies in England. Outside London their membership is formed from a mix of local highways authorities, Local Enterprise Partnerships (LEPs), local airports, Highways England, Network Rail and Department for Transport. They also work closely with Chambers of Commerce and other business interests. While they are normally led by local authority leaders, there is very little input, if any from the voluntary or social and environmental sectors.

Source: <https://transportactionnetwork.org.uk/campaign/regional-transport-bodies/summary-of-regional-transport-bodies/>

» **Transport for the South East**

Area covered: Berkshire Local Transport Body, Brighton & Hove, East Sussex, Hampshire, Isle of Wight, Kent, Medway, Portsmouth, Southampton, Surrey, West Sussex

» **Western Gateway**

Area covered: Bath and North East Somerset, BCP Council (Bournemouth, Christchurch & Poole), Bristol, Dorset, Gloucestershire, North Somerset, South Gloucestershire and Wiltshire.

Of these five SNBs, the **English Economic Heartlands** maps least readily onto the standard English planning regions: it covers parts of the East of England and South East England, but also parts of the East Midlands (Northamptonshire) and South West England (Swindon). Its geography was intentionally set by the Oxford-Cambridge arc, and some authorities have an associated, rather than full, membership status.

**Peninsula Transport** and the **Western Gateway** are adjoining regions which form two logical subsets of the South West region—a sort of ‘near west’ and ‘far west’ arrangement. **Transport East** covers East Anglia and lies entirely within the East of England region.

**Transport for the South East** is in effect the South East England region minus areas north of the Thames (Oxfordshire & Buckinghamshire).

Whatever regional structures are used, the geography of the national rail network can be an uneasy fit. The English Economic Heartlands, built around the Oxford-Cambridge Economic arc, is handily centred on East West Rail, but cuts across multiple London radials: the East & West Coast Main Lines, the Midland Main Line, the Chiltern Main Line, and a key catchment of the Great Western Main line too. This and the other sub national bodies make good sense in terms of shared economic interest, however.

In some cases—such as for Peninsula Transport and the Western Gateway—budgets could be readily developed, split out from the South West regional allocation presented here. But, just as is the case with HS2 going northwards from London, rail investment on routes going westward from London gives rise to questions of expenditure in one region generating benefits in the next region.

We chose not to attempt an allocation to the sub national body areas in this report for this reason and because of the indeterminacy of some parts of their coverage, and because parts of two SNBs have already been accounted for as part of the East Midlands budget allocation in the NIC’s work on the Midlands and the North. But this is an area to which further analysis could usefully be applied if the SNBs wished to adopt the NIC-style approach adopted here.



# 6. Conclusions and Recommendations

The south and east regions of England – broadly those that lie below a diagonal line drawn from the Severn estuary to the Wash – have been examined, along with Wales, in an exercise which has sought to apply an equivalent methodology to that used by the National Infrastructure Commission in its December 2020 report where it set out a rail enhancement budget for the English North and Midlands. Our aim was to take a first step towards equivalent ‘Integrated Rail Pans’ for these regions, or for each of the sub-National transport bodies they contain.

Following the NIC’s assessment of a rail needs budget for the North and Midlands, we made allowances for future rail investment on a **per capita** basis for the South and East regions. We noted that, south of the Severn-Wash diagonal, there is much less planned and available rail enhancement expenditure than for regions to its north. But we also identified the noticeably different needs for rail investment in the regions we studied in comparison with those arising in the North and Midlands.

In summary, these differences are:

- » the pattern of large cities with strong city centres providing the basis for expanding regional economies is not replicated in the wider south and east or Wales to anything like a similar extent.<sup>10</sup> Instead, London dominates and while its rail commuter network has been essential in creating Europe’s largest single labour market, a lot of investment has gone into bringing this network up to date
- » the North and Midlands have extensive but largely unmodernised (and unelectrified) rail networks that are not fulfilling their potential to support the growth of a set of large city economies
- » the need for better connectivity across the North and Midlands is only partially addressed by the HS2 scheme. HS2 and other major schemes involving new lines as well as upgrades are likely to feature in the upcoming Integrated Rail Plan
- » in the wider south east, the current rail network is centred on London. Nearly all lines have been electrified, and many have been modernised too, with much improved central London stations. The soon-to-open Crossrail and Thameslink combination should transform connectivity across London and the surrounding regions
- » there are some routes where electrification remains needed in the wider south east, including those which serve the busiest container ports where rail freight movements are diesel powered at present
- » in the South West and Wales, there is minimal electrification or modernisation of main lines and major stations, a situation that will need to be rectified
- » new lines (high-speed or otherwise) are much less likely to feature.

Overall, we conclude that the NIC-style approach to identifying rail needs helps achieve a move away from allocating transport budgets to places where congestion (and so project benefits) are highest, which in the past in practice has meant, for the rail sector, investment in and around London. Using a regional population-based approach is fairer. But it remains poor at addressing the emerging biggest challenge the transport sector now faces, decarbonisation, because of the uneven coverage of electrified railways across the nation.

Some of the challenges ahead are not as great as for those regions north of the Severn-Wash diagonal: much of the rail network in the south east is already electrified.

### Budgets by region (and nation)

The English region by region national rail enhancement budgets out to 2045 we have assessed are as follows:

- » East of England £7.1bn
- » London £5.1bn
- » South East England £6.7bn
- » South West England £4.3bn

and for Wales, £1.8bn.

These could be increased by +25%, if the approach that looks likely for the Midlands/North is followed—at least for those regions/nations that share the need for levelling up and where rail could contribute more to economic performance, and this means to the South West and Wales, for which the budgets would become £5.4bn and £2.4bn respectively.

The NIC, when it comes to update its National Infrastructure Assessment, will also need to take into account the emerging views from the Union Connectivity Review, which is pointing towards a need for better cross-border rail links between England and both South and North Wales (as well as Scotland).

## The policy agenda for transport is shifting to address climate change

A very significant proviso in considering the appropriateness of these allocations is the extent to which electrification and decarbonisation challenges that arise across the regions could be met by them. Budgets, as of April 2021, are not yet set for these challenges<sup>11</sup>, but the regional allocations of rail investment budgets identified here could be largely consumed by this area of investment. This could address the lack of electrification of:

- » key cross country freight routes—Felixstowe–Nuneaton, Southampton–West Midlands and possibly East West Rail too—and the key NE-SW cross country passenger route including Birmingham–Bristol (needed to create the more valuable ‘X’ formation from HS2)
- » the unelectrified main lines of South West England, Wales west of Cardiff and along at least parts of the North Wales coast, as well as from Newport to Crewe along the Wales-England border.

There is also a network resilience question in relation to climate change. In the case of the South West, budget might also need to be allocated to create a second main line between Exeter and Plymouth, to mitigate the effects of climate change (sea level rises and more extreme weather events) that make the existing coastal route *via* Dawlish vulnerable. This is probably the UK’s number one transport priority in terms of investment needed for climate change adaptation. The so-called ‘northern route’ was costed at £875m in 2014 by Network Rail.

There are many other projects that could be funded by this longer term rail enhancement budget, including infill electrification schemes and other smaller scale projects including—as the NIC identified for the North and Midlands—some ‘quick wins’. But it would not support major new lines, such as further high-speed routes, or new large-scale inter-regional links such as Northern Powerhouse Rail.

## London

The budget assessed for London to 2045 is nowhere near sufficient to cover a major project such as Crossrail 2 (now ‘on ice’, with a projected budget of c £40bn). But London has proven capable of raising its own funding sources for rail project investments to match central Government contributions, and TfL is subject to separate budget provisions under a city/metropolitan heading. Meanwhile, for London, it would be worth looking for medium size projects, such as Crossrail 1 extension to Ebbsfleet rather than fresh ‘mega’ rail projects. Orbital cross-connections in outer London, for example, as being implemented across the Paris City region, would be worthy of support because of the greater scope to replace car use and a wider decarbonisation policy. Some of these may fall, however, under a city metro budget, and utilise light rail or busway technologies, rather than conventional rail. Others may prove essential to support HS2 opening plans.<sup>12</sup>

The London super-region (East of England + South East England + London) formed the geography of BR’s Network South East, and on this basis it would have a rail investment budget of £18.9bn for the 2020–2045 period. But there is little virtue in planning at this ‘super region level’ currently. Unlike with the North and Midlands, there are no rail projects in the wider south east at present that cannot be examined better at a regional or a SNB level.

## Wales

The analysis here has included Wales because it is a part of the NIC budget geography not covered in the Midlands and North work of 2020. Currently Transport for Wales has a number of ambitious programmes underway, under a ‘Metro’ heading, most significantly for South East Wales, but also for North Wales and potentially, Swansea Bay/West Wales too.<sup>13</sup> Strategic rail investment is a major outstanding concern. With the prospect of rail investment in part being used to replace the planned Newport M4 bypass, there is good reason to consider a higher rail enhancement budget than shown here, based on a switch of spending from strategic roads to rail.<sup>14</sup>

## Wales

We developed a budget for Wales of £1.8bn for the 2020–2045 period. Clearly Transport for Wales (TfW) is best placed to develop its own priorities having confirmed a budget allocation of around this level. As with the English SNB areas, there is scope to increase this budget if TfW is prepared to reduce its highway investment budget (and the opposite also applies).

In practice, funding allocations for Wales, since devolution, have continued to use Barnett formula allocations. While these are population based, they do not provide a proper needs-based assessment. In the case of rail investment in Wales, it may be that a new stream of funding emerges from the current Union Connectivity Review headed by Sir Peter Hendy (for instance for electrification of the North Wales Coast main line), and, as we would recommend here, from a decarbonisation of transport fund that centres on electrification and improvement of longer distance railways as an inescapable part of the necessary policy mix.

## Who should determine regional rail enhancement budgets?

Setting budgets for a 25-year period—as the NIC did for the Midlands and North—is of value. Plans based on such budgets need to be, as the NIC suggested ‘adaptive’—that is, responsive to changes in circumstances in the years ahead. But the flexibility this implies need not detract from the virtues of setting longer term investment budgets, which include the opportunity to plan ahead for efficient project delivery and the encouragement of wider private sector investment.

For the Midlands and North, the National Infrastructure Commission considered not just a baseline budget—as we have sought to replicate here—but also +25% and +50% variants of the baseline budget. In the case of the English South and East, and Wales which have smaller baseline budgets, the impact of equivalent variant budget uplifts would be less marked. But along with re-balancing spend across strategic roads and rail, such variants could also be contemplated—and most especially for regions and sub-regions where ‘levelling up’ has a clear resonance as in the North and Midlands. This applies most self-evidently to Wales and the South West (especially for the Peninsular), and we showed that £1.7bn could be added to the rail enhancement budget for Wales/the South West at a +25% over baseline budget level.

No doubt the views of the National Infrastructure Commission would be of importance on this matter.

***We recommend that the Sub National Bodies (SNBs) should be given a formal advisory role in setting rail investment priorities and budgets. They should develop budgets using the work that the NIC carried out for the Integrated Rail Plan Rail Needs Assessment as a template.***

Like the NIC, the SNBs could then avoid the old problem of generating a lengthy project wish-list, with the focus instead being on ranking priorities within budget ranges. It is clear both from the NICs report on the North and the Midlands, and the assessments that we have made, that real

choices will need to be made. The SNBs would need to work closely with Network Rail and the Department for Transport in fulfilling their representative functions.

This report represents a first attempt at a budget estimation process at SNB level. The budget allocations could – and we suggest should – be developed for use by the sub national transport bodies which are producing transport strategies across England. In doing this work, SNBs will need to work closely with Network Rail and DfT in a constructive partnership. Greengauge 21 would welcome an opportunity to discuss this report with all of these parties.

Without the input from SNBs, DfT/Network Rail will not be able to tailor rail investment priorities to address identified regional and local challenges. Equally, without the rail sector’s knowledge of wider plans and operational realities, the SNBs risk promoting unrealisable ambitions.

## Endnotes

1. The Commission's binding fiscal remit requires it to demonstrate that all its recommendations for economic infrastructure are consistent with, and set out how they can be accommodated within, gross public investment in economic infrastructure of between 1.0 per cent and 1.2 per cent of GDP each year between 2020 and 2050. While the allocation for the North And Midlands as calculated in the Rail Needs Assessment implies overall investment expenditure up to the 1.2% limit in the period to 2035, thereafter there is some headroom, allowing for as yet unallocated sums in areas such as responses to the climate crisis.
2. The rail share of enhancements was calculated to include expenditure on Network Rail enhancements including Control Period 6, Northern Powerhouse Rail and the central section of East West Rail. The road share included expenditure on Highways England enhancements including Road Investment Strategy 2 (RIS2), and the Oxford to Cambridge Expressway (which has since been largely abandoned).
3. While this sum formed a key component of the NIC's £86bn baseline budget for the Midlands and North, it was deemed to be a commitment and out of scope for strategic assessment.
4. See National Infrastructure Strategy 'Fairer, Faster, Greener', National Infrastructure Commission, November 2020 p35. Note that urban public transport funding does not fall under the NIC's fiscal remit. [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/938049/NIS\\_final\\_web\\_single\\_page.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/938049/NIS_final_web_single_page.pdf)
5. Ibid, p95.
6. The Cardiff-Swansea extension was dropped, but see <http://www.greengauge21.net/the-first-passenger-railway-in-the-world-and-whats-needed-next/>
7. This might build on ideas from the Welsh Government's Burns Commission as picked up in an interim statement of the Union Connectivity Review.
8. Electrification of some sections of motorway/main road has been trialled in Sweden and Germany, but this is not seen as being a likely solution except for specific flows (for instance Hamburg-Lubeck, where there is a significant road-based port access container traffic).
9. See [http://www.greengauge21.net/wp-content/uploads/Beyond\\_HS2WEB.pdf](http://www.greengauge21.net/wp-content/uploads/Beyond_HS2WEB.pdf). The Bromsgrove-Bristol Parkway line lies partly in the West Midlands, partly in the South West region
10. Although Swansea-Cardiff-Newport-Bristol-Bath was noted as an example of where overlapping city employment catchments overlap, in the manner that is widespread across the North and Midlands.
11. See [UK must begin 'immediate' rail electrification to hit net-zero goals | Construction News](#), April 22nd, 2021
12. TfL believes that additional Crossrail trains are needed to support the planned additional 6 train/hour service to the new HS2 station at Old Oak Common.
13. See <http://www.greengauge21.net/the-first-passenger-railway-in-the-world-and-whats-needed-next/>
14. <https://gov.wales/south-east-wales-transport-commission-final-recommendations>.



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