



North Yorkshire County Council

HARROGATE LINE ENHANCEMENT ECONOMIC CASE

Local Growth Fund Business Case





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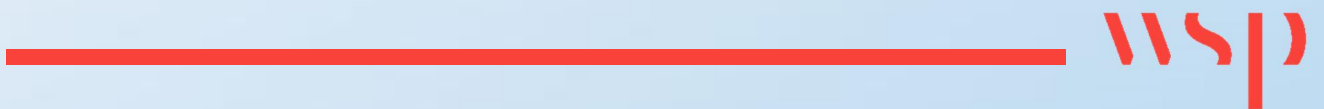
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HARROGATE LINE ENHANCEMENT ECONOMIC CASE



1 HARROGATE LINE ENHANCEMENT ECONOMIC CASE

- 1.1.1. This economic case document develops the business case for various options that are being considered by North Yorkshire County Council, Arriva Rail North and Network Rail for the doubling of service frequency between Harrogate and York. The timetables that have been used to underpin this analysis (and in particular the MOIRA modelling required to estimate rail industry revenue and the value of rail users' time) were originally outlined in Northern's interim timetable study of August 2017.
- 1.1.2. That report contained an Appendix A with a timetable which was based on the concept of accommodating 2 trains per hour (tph) between Knaresborough and York without any infrastructure improvements being required. In the same document, an Appendix B timetable was provided that showed a timetable designed for improved infrastructure, but with a large amount of pathing time in to York for most services from the Harrogate direction (in order to improve operational resilience).
- 1.1.3. At the Project Board meeting on 12th March 2018, it was decided that the following scenarios would be developed and appraised for business case purposes:
- The baseline timetable (against which other options would be compared) would be based on the Appendix A timetable, but with only 1tph between Knaresborough and York. This best represents the timetable that was planned to be implemented in May 2018.
 - Option 1 will use the Appendix A timetable (i.e. with current timings and relatively favourable pathing across Skelton Junction).
 - Option 2 will use the Appendix B timetable (i.e. with additional pathing time in the vicinity of Skelton Junction).
 - Option 3 will represent an ideal scenario in which there is both a reduction of pathing time at Skelton Junction and other journey time improvements between Knaresborough and Poppleton (specifically a reduction in journey time in both directions of one minute between Knaresborough and Cattal and one minute between Hammerton and Poppleton).
- The removal of pathing time and achievement of other journey time reductions would allow the increased frequency of service to be accommodated without the need to deploy an additional unit and train crew (assuming that there are no pathing restrictions between Skelton Junction and York and no insurmountable platforming constraints at York). These journey time reductions would have to be found somewhere between Hammerton and Skelton Junction, and they would have to be supplementary to those already being developed as part of the infrastructure improvements constituting this project.
- At present, Harrogate to York services must wait a considerable period of time at York (usually at Platform 8) before commencing their return journeys; arrivals at York typically fall at quarter to each hour, and wait until eleven minutes past the hour to commence their return towards Harrogate. In Option 3, each train would have 5 minutes to turn around at York before commencing the return journey back to Harrogate and Leeds. (If additional turnaround time is required for performance resilience purposes then further journey time reductions would have to be found along the Harrogate Line.)
- 1.1.4. The reduced journey times which are assumed in Option 3 would allow each train to more efficiently reverse, thus enabling this increased frequency of service to be accommodated without the deployment of additional rolling stock diagrams. This reduces operating costs considerably, to the point where the net cost to government is a small fraction of the socioeconomic benefits, and benefit-to-cost ratios are very high. Indeed, under one optimistic sensitivity test, Option 3 is financially positive (i.e. the additional revenue exceeds the combined capital and operating costs).

2 BENEFICIARIES

2.1.1. This project will provide the benefits described below to the specified beneficiaries:

- Rail users travelling along the section of the Harrogate to York line east of Knaresborough will benefit from an increased frequency of service, and in the case of Option 3, a significantly reduced “in vehicle” (on train) journey time if their journey extends towards York. All rail journeys to or from Cattal and Poppleton will experience an approximate doubling in opportunities to travel, as will rail journeys between York and Knaresborough, Starbeck, Harrogate, Hornbeam Park, Pannal and Weeton. (For Harrogate Line stations closer to Leeds, it would still be faster on occasion to travel via and change at Leeds when travelling to York.)
- It is anticipated that these changes would attract additional passengers to use Harrogate Line rail services, with circa 100,000 additional rail journeys per annum under Option 1, 80,000 additional rail journeys per annum under Option 2, and 145,000 extra journeys per year under Option 3. (This is before any additional demand arising from housing growth along the corridor is added.)
- Using the Department for Transport’s standard Web Based *Transport Analysis Guidance (WebTAG)*, it would be expected that approximately 30% of the rail passenger miles travelled would be diverted from use of private cars. This would lead to a reduction along the corridor in several externalities created by car use, which would be a benefit enjoyed by many residents. These include:
 - Traffic congestion (particularly along the A59);
 - The cost of road infrastructure maintenance;
 - The socioeconomic cost of road accidents;
 - An improvement in local air quality;
 - A reduction in noise pollution; and
 - A reduction in greenhouse gas emissions.
- Train operating companies would receive approximately £610,000 in additional revenue (at 2017 prices and demand levels) under Option 1, £500,000 under Option 2 and £800,000 under Option 3. It is assumed for the purposes of appraisal that this revenue is returned to the Treasury in the long run through the franchising system, so it is netted off from the capital and operating costs of the project.
- The core economic cases for each option assume that the housing land identified as available at Knaresborough and Green Hammerton is developed over the next 20 years, as detailed in Harrogate Borough Council’s *Strategic Housing and Economic Land Availability Assessment* of December 2017. Sensitivity tests also provide the results where all identified land to be used for housing (including developments very close to the stations at Cattal and Kirk Hammerton) is developed. The residents of these new developments will thus benefit from improved rail connectivity to York and Harrogate.
- Two forms of wider economic benefit have also been calculated in this economic case. The increased prosperity that will result from the enjoyment of these benefits would improve the welfare of the residents of Harrogate District and the City of York in particular. These benefits are:
 - **Output change in imperfectly competitive markets:** The existence of transport costs is a deviation from the conditions of a perfectly competitive market, so a reduction in business user transport costs is assumed to reduce the inefficiencies associated with the abnormal profits arising from market distortions.
 - **Productivity increases through agglomeration effects:** A reduction in the generalised cost of rail transport between Harrogate District and the City of York produces a small decrease in the overall cost of transport between and within these areas. This is assumed to produce opportunities for business to business interactions which will improve the productivity of workers, particularly in the following sectors (which are modelled individually):
 - Construction;
 - Consumer services;
 - Manufacturing; and
 - Producer services.

3 OPTIONS ANALYSIS

- 3.1.1. As described in the introduction, it is thought that it may be possible to operate various timetables on the rail infrastructure that will be provided by this project. This is largely dependent upon the interaction of Harrogate Line services with trains on the East Coast Main Line in the vicinity of Skelton Junction.
- 3.1.2. In all cases, the options are appraised by comparing the costs and benefits of each against the scenario of the May 2018 Harrogate Line timetable continuing for the foreseeable future (i.e. similar to the Appendix A timetable, with an increase to four trains per hour between Leeds and Harrogate, but only one train per hour between Knaresborough and York).
- 3.1.3. The option benefits and costs have been calculated using the following methods, within the general framework provided by the Department for Transport's WebTAG. (This uses discount factors reflecting the time value of money drawn from HM Treasury's Green Book).
- 3.1.4. Unless stated otherwise, all monetary or monetised figures cited are at 2010 prices discounted to 2019 (the assumed year of implementation). The calculation of wider economic impacts is discussed in the next section.

CAPITAL EXPENDITURE

- 3.1.5. The capital expenditure costs for the signalling, track and other infrastructure works required have been agreed between North Yorkshire County Council and Network Rail. Network Rail has indicated that circa £12.5 million (at current prices and including a 60% uplift for optimism bias and risk) should cover the physical implementation works. An additional £135,000 has been estimated for remaining design and business case works, so it has been decided to enter £12.6 million as the CapEx in this appraisal.

OPERATIONAL EXPENDITURE

- 3.1.6. Pending the provision of more up-to-date and detailed estimates by Arriva Rail North, it has been agreed that the standard OpEx rates from Network Rail's programme of Route Utilisation Strategies shall be used. These costs have been adjusted to 2010 prices in the appraisal.

Table 1 - Operational Expenditure Estimates

OPERATIONAL EXPENDITURE		2008 Q3 PRICES	
Category	Item	Unit cost	Description
Mileage	Vehicle maintenance	75p	Cost per mile per car of maintenance for a DMU
Mileage	Fuel	32p	Cost per mile per car of fuel for a DMU
Rolling stock	Lease	£107,759	Cost per year per car for leasing a DMU
Staff	Driver	£59,862	Annual staff costs for a driver (with 4 drivers per additional unit)
Staff	Guard	£32,652	Annual staff costs for a train guard (with 3 guards per additional unit)

- 3.1.7. The operational costs have been based on the assumption that the Option 1 and 2 timetables would require an additional unit; this is assumed to be a 3-car DMU, which would run the 17 miles between Knaresborough and York an additional 24 times each day for 363 days per year. Under the Option 3 timetable, the same number of additional vehicle miles would be travelled, but without the need for an additional unit.

REVENUE AND USER BENEFITS

- 3.1.8. The additional revenue received by the TOCs and the value of rail users' time have both been calculated by using the Rail Delivery Group's MOIRA timetabling and economic analysis software. (Permission for this has been granted by Robert Fickling and Jim Bamford of Rail North).
- 3.1.9. Separate timetables were input in to MOIRA Timetable Manager for Options 1, 2 and 3, which were compared to a base representing the May 2018 timetable. Revenue per journey is assumed to remain the same in 2010 prices for the duration of the appraisal period, but the value of users' time is assumed to increase in line with the figures given in the WebTAG Databook "Annual Parameters" table.

MARGINAL EXTERNAL COSTS OF CAR USE

- 3.1.10. The MOIRA modelling also generated results for the number of additional rail passenger miles travelled. These were assumed to reduce road vehicle miles in accordance with the diversion factors in WebTAG Databook Table A5.4.5. The socioeconomic benefits resulting from reduced car use (namely reduced traffic congestion, road maintenance, accidents, noise and greenhouse gas emissions, and improved air quality) were then calculated using values from WebTAG Databook Table A5.4.2. As the Harrogate to York line is an alternative to the busy A59 road, the values for an urban 'A' road were used.

SHIFT OF EXPENDITURE

- 3.1.11. It should be noted that a cost to government is included due to the shift in consumer expenditure towards rail fares. As there is no indirect tax in the price of rail transport, but there may be in the other products or services on which passengers were previously spending their resources, a loss of government indirect tax revenue is assumed to occur at a rate of 14% of the increased rail expenditure.

EXOGENOUS DEMAND GROWTH

- 3.1.12. Exogenous passenger growth will be assumed to follow the forecasts of Network Rail's October 2013 Long Term Planning Process: Regional Urban Market Study, with a 114% figure for peak passenger growth in to Leeds (p40) from 2012/3 to 2042/3 being used. The optimistic economic scenario "Prospering in global stability" will be assumed in the base model, with the other scenarios being used to produce sensitivity tests if required. This produces an underlying annual passenger growth rate of 2.57% from 2016 until 2043.
- 3.1.13. These projections for annual passenger growth may seem high, but they are lower than the actual growth rates which have been experienced on this section of the Harrogate Line over the last decade. The table below shows the increase in passenger numbers that has been seen at the relevant stations in the 2006/7 to 2016/7 period. (A sensitivity test in the results section provides the outcome if similar levels of growth were experienced for the next 10 years.)

Table 2 - Passenger Growth on the Harrogate Line

ELR	Mileage	Station	Entries & Exits 2006/7	Entries & Exits 2016/7	Growth 2006/7 to 2016/7	Annual rate
HAY1	18m 27ch	Starbeck	128,590	186,198	44.8%	3.8%
HAY1	16m 50ch	Knaresborough	248,655	383,118	54.1%	4.4%
HAY1	10m 20ch	Cattal	46,285	60,646	31.0%	2.7%
HAY1	8m 61ch	Hammerton	23,655	26,086	10.3%	1.0%
HAY1	2m 72ch	Poppleton	51,998	61,456	18.2%	1.7%
		TOTAL	499,183	717,504	43.7%	3.7%

Source: Office of Rail and Road

DEMAND GROWTH FROM NEW HOUSING

- 3.1.14. The increase in rail demand arising from the background economic growth of Harrogate and York is assumed to be subsumed in the exogenous growth trend described above. However, there are a number of potential housing developments in close proximity to stations between Knaresborough and York which have been selected for separate consideration.
- 3.1.15. These are the potential sites identified in Harrogate Borough Council's Harrogate District Local Plan: Strategic Housing and Economic Land Availability Assessment of December 2017 as being located in Knaresborough, Cattal, Kirk Hammerton and Green Hammerton.
- 3.1.16. New housing units are assumed to be occupied at a rate of 2.37 people per dwelling (which was the mean for the Ribston Ward at the 2011 census). The rail demand increase that would result from their development is calculated using a trip rate methodology derived from the Rail Delivery Group's Passenger Demand Forecasting Handbook, whereby different demand weightings are applied to population located within concentric zones around the station (PDFH v6.0, Dec. 2017, Section B9.3.2).

- 3.1.17. Following the academic research used to support the PDFH methodology (described in Section C2.7), the weightings used were dependent upon whether the site is within 800m, 2km or a longer distance from the nearest station. The decay factor was based upon the national results of the 2011 census regarding propensity to travel to work by rail.
- 3.1.18. These factors were used to calculate a weighted population for each station catchment, and the demand increase was assumed to be proportional to the increase in weighted population generated by the housing developments. These figures are shown in the tables below. It should be noted that, due to the proximity to the stations of the potential new housing at Cattal and Hammerton (as compared to the population within the existing catchments of these stations), it is possible that demand at these stations could triple over the 20 year timescale outlined in the Strategic Housing and Economic Land Availability Assessment.

Table 3 - Population Weighting Factors

Distance from station	Propensity to use rail	Weighting factor
Up to 800m	6.86%	1.00
800m to 2km	3.61%	0.53
Over 2km	1.48%	0.22

Table 4 - Weighted Populations of Station Catchments

Station	Weighted population (2011)	Potential weighted population increase (from Harrogate SHELAA)
Knaresborough	10,741	374
Cattal	3,186	7,110
Hammerton	2,462	5,108

- 3.1.19. The core results provided assume that the developments in Knaresborough and Green Hammerton proceed, but not those in Cattal and Kirk Hammerton.

COST-BENEFIT ANALYSIS

- 3.1.20. The costs and benefits described above have been used to support an appraisal aligned with the DfT's WebTAG methodology. As the results of these are presented as a benefit-to-cost ratio (BCR), the final outcomes are included in the "Value for Money Assessment" section of this report.

4 ECONOMIC IMPACT ASSESSMENT

4.1.1. As described in the “Beneficiaries” section above, two techniques have been used to calculate the wider economic benefits arising from this transport scheme.

OUTPUT CHANGE IN IMPERFECTLY COMPETITIVE MARKETS

4.1.2. A reduction in business user transport costs is assumed to reduce the inefficiencies associated with the abnormal profits arising from market distortions, as transport costs are an impairment to the ideal conditions of perfect competition. The DfT’s TAG Unit A2.1: Wider Economic Impacts Appraisal of December 2017 indicates that these WEIs should be estimated as 10% of business user benefits.

4.1.3. The proportion of ‘user value of time’ that related to business use was thus derived from the number of additional full, reduced and season ticket journeys (indicated by the MOIRA modelling) using WebTAG Databook Table A5.3.2, and an additional 10% uplift was calculated. In 2020 (at 2010 prices), the value of this benefit was deemed to be £25,851 for Option 1, £20,014 for Option 2 and £31,037 for Option 3.

PRODUCTIVITY INCREASES THROUGH AGGLOMERATION EFFECTS

4.1.4. The methodology presented in the DfT’s WebTAG Unit A2.4: Appraisal of Productivity Impacts was used to calculate the additional prosperity that would arise from a reduction in transport costs encouraging “business to business” contact which improves workers’ productivity. This is based on the assumption that although the reduction in rail generalised journey time between Harrogate and York makes only a small impact on the general transport costs within and between those two areas, this affect can be spread across the entirety of various productive sectors, making a significant difference to total GDP in the long run.

4.1.5. The DfT methodology involves:

- Calculating the change in average generalised cost of transport in each area;
- Estimating the impact that this has on the “effective density” of the 4 key industrial sectors in relation to the adjoining area, as determined by the sensitivity of each sector’s business to business contact to transport costs (modelled by the “decay parameter”);
- Deriving the impact on productivity per worker by using the elasticity of that sector’s productivity to agglomeration effects; and
- Multiplying this by the number of workers in each sector and the expected GDP per capita of each worker to calculate the total GDP uplift that will result from increasing effective density.

4.1.6. Using this methodology, the forecast increases in GDP in 2021 (at 2010 prices) for each sector in each Local Authority District were as follows:

Table 5 – Forecast Productivity (GDP) Increases for 2021 (£s)

District	Sector	Option 1	Option 2	Option 3
Harrogate	Construction	4,011	3,889	5,785
	Consumer services	13,418	13,011	19,355
	Manufacturing	1,905	1,847	2,747
	Producer services	48,176	46,716	69,494
	Total	67,509	65,463	97,383
York	Construction	2,460	2,385	3,548
	Consumer services	8,745	8,480	12,614
	Manufacturing	1,552	1,505	2,238
	Producer services	30,313	29,394	43,726
	Total	43,069	41,764	62,126

5 VALUE FOR MONEY ASSESSMENT

- 5.1.1. The three options described are deemed to provide “value for money” on account of the fact that they generate benefit-to-cost ratios (BCRs) that are classed as “very high” by the Department for Transport’s criteria.
- 5.1.2. The figures generated by the techniques described above are shown in the tables below, and it can be seen that under the core scenario Option 1 has produced a BCR of 2.8, Option 2 yields a BCR of 1.9, and Option 3 produces a very high BCR of over 40. A number of sensitivity tests have then been carried out, showing how the BCRs change if some of the base assumptions are altered.
- 5.1.3. As explained above, these tables show the Net Present Values (in £ million) of cashflows discounted to 2019 (the presumed year of implementation) at 2010 prices, over a 30-year appraisal period.

Table 6 – Appraisal Results under the Core Scenarios

Item	Option 1	Option 2	Option 3
Capital expenditure	£11.1m	£11.1m	£11.1m
Operational expenditure (relating to units)	£12.5m	£12.5m	£0.0m
Operational expenditure (relating to mileage)	£9.8m	£9.8m	£9.8m
Revenue	£15.2m	£12.0m	£19.5m
Net cost to government	£18.3m	£21.4m	£1.4m
User benefits	£40.0m	£30.7m	£50.8m
Non-user benefits (marginal external costs)	£10.4m	£7.9m	£13.6m
Shift of expenditure	-£2.3m	-£1.8m	-£2.9m
Total benefits (excluding WEIs)	£48.1m	£36.8m	£61.5m
BCR (excluding WEIs)	2.6	1.7	42.9
Output change in imperfectly competitive markets	£1.0m	£0.8m	£1.2m
Productivity	£2.7m	£2.7m	£4.0m
Total benefits (including WEIs)	£51.9m	£40.3m	£66.7m
BCR (including WEIs)	2.8	1.9	46.5

Table 7 – Option BCRs under Sensitivity Tests

Sensitivity test	Option 1	Option 2	Option 3
All housing growth identified in the <i>Strategic Housing and Economic Land Availability Assessment</i> occurs (at Cattal and Kirk Hammerton as well as Knaresborough and Green Hammerton)	3.2	2.1	Very high
The “Prospering in isolation” macroeconomic scenario is used	2.1	1.5	12.5
The “Struggling in global turmoil” macroeconomic scenario is used	2.3	1.5	15.3
The “Struggling in isolation” macroeconomic scenario is used	1.8	1.2	8.0
Operational expenditure is based on a 4-car unit	2.2	1.5	14.1
An additional 20% is added to the capital expenditure	2.5	1.7	18.3
Exogenous passenger growth continues at 3.7% per annum for the next decade	3.4	2.5	Financially positive
It is not possible to run the Option 3 timetable without an additional unit	N/A	N/A	4.8
Vehicle lease costs are 30% higher than the baseline rate applied (and an extra unit is required in Option 3)	2.6	1.7	4.2

6 PROJECT OUTPUTS

6.1.1. Template B of the Local Growth Fund Business Case requires that project benefits be quantified over the foreseeable future. This is shown in the tables below. Only the GVA increase, infrastructure maintenance costs and rail industry revenue represent actual monetary flows. The remaining items are monetised benefits (as defined by WebTAG). All figures are in 2010 prices.

Table 8 – Project Outputs (Option 1)

Outputs	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	Future Years	Total
New Direct Jobs Created (fte)	0	0	0	0	0	0	0	0	0	0	0
New Indirect Jobs Created (fte)	0	0	0	0	0	0	0	0	0	0	0
Jobs Safeguarded	0	0	0	0	0	0	0	0	0	0	0
Private Sector Leverage (£)	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0
Hectares Land Developed (Ha)	0	0	0	0	0	0	0	0	0	0	0
Industrial/Commercial Floorspace Created	0	0	0	0	0	0	0	0	0	0	0
Refurbished Buildings Floorspace Refurbished	0	0	0	0	0	0	0	0	0	0	0
New Roads Built (km)	0	0	0	0	0	0	0	0	0	0	0
Increase in GVA to Local Economy (£)	£107,867	£110,578	£113,357	£116,207	£119,128	£122,122	£125,192	£128,358	£131,603	£3,703,822	£4,778,234
Rail industry revenue	£588,999	£604,370	£620,143	£637,277	£654,883	£672,972	£691,558	£710,656	£730,682	£20,446,758	£26,358,299
Rail user value of time	£1,199,468	£1,242,600	£1,288,527	£1,346,417	£1,405,523	£1,470,954	£1,540,561	£1,613,867	£1,691,820	£59,929,930	£72,729,667
Congestion (road traffic)	£226,010	£243,972	£262,720	£282,760	£303,713	£325,614	£349,010	£373,456	£399,200	£14,417,519	£17,183,974
Infrastructure maintenance reduction	£1,621	£1,697	£1,776	£1,861	£1,949	£2,041	£2,149	£2,260	£2,378	£76,739	£94,471
Accident reduction	£48,625	£50,906	£53,274	£55,825	£58,477	£61,233	£64,458	£67,814	£71,345	£2,302,184	£2,834,141
Local air quality	£388	£369	£350	£329	£307	£283	£290	£297	£304	£9,097	£12,014
Noise	£3,242	£3,394	£3,552	£3,722	£3,898	£4,082	£4,297	£4,521	£4,756	£153,479	£188,943
Greenhouse gas emission reduction	£9,545	£9,743	£9,944	£10,166	£10,392	£10,624	£10,860	£11,101	£11,353	£424,097	£517,825

Table 9 – Project Outputs (Option 2)

Outputs	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	Future Years	Total
New Direct Jobs Created (fte)	0	0	0	0	0	0	0	0	0	0	0
New Indirect Jobs Created (fte)	0	0	0	0	0	0	0	0	0	0	0
Jobs Safeguarded	0	0	0	0	0	0	0	0	0	0	0
Private Sector Leverage (£)	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0
Hectares Land Developed (Ha)	0	0	0	0	0	0	0	0	0	0	0
Industrial/Commercial Floorspace Created	0	0	0	0	0	0	0	0	0	0	0
Refurbished Buildings Floorspace Refurbished	0	0	0	0	0	0	0	0	0	0	0
New Roads Built (km)	0	0	0	0	0	0	0	0	0	0	0
Increase in GVA to Local Economy (£)	£104,598	£107,227	£109,922	£112,685	£115,518	£118,421	£121,398	£124,468	£127,615	£3,591,572	£4,633,422
Rail industry revenue	£478,210	£490,558	£503,225	£518,161	£533,532	£549,351	£565,630	£582,384	£600,292	£17,429,828	£22,251,172
Rail user value of time	£959,041	£993,148	£1,029,461	£1,078,744	£1,129,248	£1,185,095	£1,244,589	£1,307,371	£1,375,309	£51,352,946	£61,654,952
Congestion (road traffic)	£177,346	£191,382	£206,026	£222,269	£239,304	£257,163	£276,284	£296,322	£317,697	£11,999,311	£14,183,104
Infrastructure maintenance reduction	£1,272	£1,331	£1,393	£1,463	£1,536	£1,612	£1,701	£1,794	£1,893	£63,839	£77,832
Accident reduction	£38,155	£39,933	£41,778	£43,883	£46,076	£48,361	£51,026	£53,808	£56,779	£1,915,160	£2,334,957
Local air quality	£305	£290	£274	£259	£242	£224	£230	£236	£242	£7,566	£9,866
Noise	£2,544	£2,662	£2,785	£2,926	£3,072	£3,224	£3,402	£3,587	£3,785	£127,677	£155,664
Greenhouse gas emission reduction	£7,490	£7,643	£7,798	£7,991	£8,188	£8,390	£8,597	£8,808	£9,035	£353,145	£427,086

Table 10 – Project Outputs (Option 3)

Outputs	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	Future Years	Total
New Direct Jobs Created (fte)	0	0	0	0	0	0	0	0	0	0	0
New Indirect Jobs Created (fte)	0	0	0	0	0	0	0	0	0	0	0
Jobs Safeguarded	0	0	0	0	0	0	0	0	0	0	0
Private Sector Leverage (£)	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0
Hectares Land Developed (Ha)	0	0	0	0	0	0	0	0	0	0	0
Industrial/Commercial Floorspace Created	0	0	0	0	0	0	0	0	0	0	0
Refurbished Buildings Floorspace Refurbished	0	0	0	0	0	0	0	0	0	0	0
New Roads Built (km)	0	0	0	0	0	0	0	0	0	0	0
Increase in GVA to Local Economy (£)	£155,598	£159,509	£163,518	£167,629	£171,842	£176,162	£180,590	£185,156	£189,838	£5,342,767	£6,892,608
Rail industry revenue	£797,496	£827,183	£857,975	£890,285	£923,812	£958,601	£994,700	£1,032,157	£1,059,166	£28,995,374	£37,336,748
Rail user value of time	£1,625,270	£1,701,798	£1,783,651	£1,880,917	£1,981,547	£2,092,882	£2,212,108	£2,338,729	£2,444,975	£83,931,310	£101,993,187
Congestion (road traffic)	£314,173	£342,805	£373,134	£405,426	£439,623	£475,823	£514,881	£556,209	£593,217	£20,882,918	£24,898,208
Infrastructure maintenance reduction	£2,253	£2,384	£2,522	£2,668	£2,821	£2,983	£3,170	£3,367	£3,534	£111,181	£136,883
Accident reduction	£67,593	£71,529	£75,664	£80,043	£84,645	£89,480	£95,092	£101,000	£106,019	£3,335,425	£4,106,489
Local air quality	£540	£519	£496	£472	£444	£414	£428	£442	£452	£13,181	£17,387
Noise	£4,506	£4,769	£5,044	£5,336	£5,643	£5,965	£6,339	£6,733	£7,068	£222,362	£273,766
Greenhouse gas emission reduction	£13,269	£13,689	£14,123	£14,576	£15,043	£15,524	£16,021	£16,534	£16,871	£614,107	£749,757

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