



South of Tyne & Wearside Loop

Strategic Outline Case

September 2022



Executive summary

The South of Tyne & Wearside (SoT&W) Metro project offers the opportunity for a transformational change in economic, social, and environmental outcomes. The southeast quadrant of Tyne & Wear (T&W) is home to a diverse set of places, economic opportunities, and visitor/leisure attractions which require additional 'glue' to make sure they function as a single entity and make their full contribution to the regional and national economies. Building on existing complementary investment proposals for the area, potential investment in new Metro infrastructure will deliver new and more frequent services along with additional stations that provide gateways to communities and opportunities. First/last mile principles will help deliver the desired 'sense of place'. The project will help drive the economic and social 'levelling up' of places in the quadrant to regional and national levels.

The project

The project offers a sizeable opportunity to help transform places and provide new opportunities for people in Washington and the wider North East region. It:

- Directly contributes to Governmental priorities for levelling up, economic growth, place-making, net zero carbon, and clean air;
- Provides new connections, where there are currently none, and enhances access to services and opportunities across a wide area;
- Helps enable and/or accelerate economic development and housing delivery;
- Tackles car dependency and the associated congestion and environmental health issues; and
- Can be phased as a rolling programme of enhancements; and

- Provides a foundation for the wider proposals for the full Leamside Line reinstatement.



WHAT DOES THIS MEAN FOR THE SOUTH OF TYNE & WEARSIDE PROJECT?

The Strategic Outline Case (SOC) is pitched to provide the reader with evidence that a detailed understanding of the various options has been achieved and allow decision-makers to support progression of the project to the next stage of business case development and design. The aim has been to strike the right balance between detail and brevity, avoiding the SOC becoming over-encumbered with detail that will be more relevant at later stages as options evolve.

The proposed solution

The proposed solution has been identified through an option generation and assessment process which reflects the needs of the places served. Options will be developed as the project progresses with the current shortlisted proposals founded on the following principles:

1. Building on the success of the existing Metro network is the most equitable and cost effective way forward, delivering the rapid connections required over medium to longer distance movements
2. A minimum Level of Service (LoS) of 3 trains per hour (tph) for all places on the routes
3. Direct connections between all principal places in the southeast quadrant and to/from the regionally important centre in Newcastle and North Tyneside
4. New stations need to reflect the places they serve, size of the market, and provide the necessary function
5. Be zero emission in operation and seek to minimise embodied carbon during construction

The project would build on Nexus’s track record of delivery on Metro Flow, and integrate closely with national aspirations through Network Rail, or their successor GB Railways, and other partners.

The people and places

The SoT&W quadrant is diverse, with potential for existing and new residents to access a varied range of opportunities and services; however, the principal places are disconnected and isolated, leaving potential unfulfilled.

With over 650,000 residents, the quadrant is home to approximately 1% of the United Kingdom’s population. The City of Sunderland is in the southeast of the quadrant, and is home to 175,000 people in its main urban area and another 100,000 spread across its hinterland which includes Washington and a series of former industrial communities. Washington, with approximately 55,000 residents, is one of the largest towns in the UK without a direct rail connection of any variety, with services on the Leamside Line having ceased in the 1960s. South Tyneside spans the north of the quadrant, with South Shields being the main administrative centre for the district. The majority of the population is located along the River Tyne, in close proximity to the economic opportunities the river used to be home to. In the south there are a series of standalone settlements with stretches of green belt between them and neighbouring places in Sunderland. Gateshead district covers the northern and western extremities of the quadrant, with the town centre being in the northwest on the bank of the River Tyne, adjacent to Newcastle City Centre.

While the SoT&W quadrant has many opportunities, adverse outcomes such as deprivation, lower than average productivity, outward migration, and low healthy life expectancy are all prevalent, reflecting a legacy of a decline in mining and heavy industries which have not, as yet, been replaced.

South Shields

Photo

- Circa 50,000 residents
- Administrative, retail, and leisure centre for South Tyneside
- At the mouth of the River Tyne on its south bank

Sunderland

Photo

- 175,000 residents in the urban area
- Retail and leisure centre for wider area
- Home to higher and further education opportunities
- Economic specialism in advanced manufacturing

Washington

Photo

- 1960s ‘new town’ home to 55,000 in immediate urban area and the centre for a wider area covering 70,000+ people
- One of the five largest towns in the UK without a direct rail connection
- Adjacent to opportunities at the International Advanced Manufacturing Park (IAMP) and Nissan

Gateshead

Photo

- Approximately 200,000 residents in the district, with over 100,000 within the main urban centre
- Administrative centre and home to a variety of cultural and leisure based attractions along the south bank of the River Tyne
- Economic specialism in business support and administration

Hebburn & Jarrow

Photo

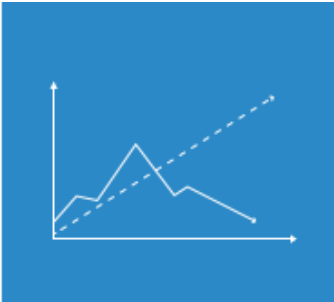
- Two main places in a cluster of communities in South Tyneside district, along the south bank of the River Tyne
- Formerly home to ‘heavy’ industries on the river

The economy

The SoT&W quadrant has multiple, relatively discrete, clusters of population and economic activity, with the latter being diverse in nature. Gateshead and neighbouring Newcastle have specialisms in finance, insurance, and human health. Manufacturing is still important in the economy of Sunderland and Washington. Further north in South Tyneside, the health and education sectors are more prevalent.

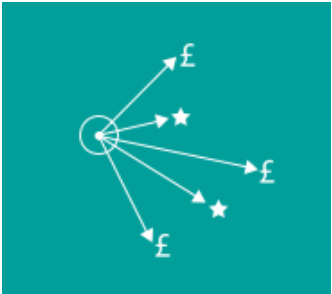
Following the loss of employment in mining and manufacturing opportunities across the area, a lack of connectivity and accessibility to new opportunities has led to the stifling of development and inward investment. Enhancements to Metro services will help address the issues that have been holding back the area, including attracting visitors from elsewhere to the area as part of the regeneration initiatives in South Shields and Sunderland, in turn generating new opportunities for local residents:

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A growing productivity gap

The North East has, at c£17,000 per capita, lower productivity than all national comparators. Gateshead n Sunderland have very similar averages, while South Tyneside is appreciably lower.



The 'brain drain'

Outward migration has led to population decline as opportunities have diminished for those of a working age. Over the last ten years all three districts have, counter to national trends, seen population declines as young people have left in search of opportunities.



Deprivation

The cities and towns across the area are consistently in the worst percentiles of national economic and social deprivation. Communities around Gateshead, South Shields, Sunderland, and Washington are within the top two most deprived deciles in the 2019 Index of Multiple Deprivation (IMD).



Healthy life expectancy

Healthy life expectancies for females and males are up to 15 years lower than national averages. The situation is particularly acute in communities around Gateshead Central, Hebburn & Jarrow, and the City of Sunderland.



Skills

Compared to both the North East and national averages, multiple locations within the corridor have a higher proportion of residents with no or only Level 1 qualifications (GCSE or equivalent). The situation is most acute in Birtley, Gateshead Central, Hebburn & Jarrow, and Sunderland.

Transformational change

Investment in the SoT&W Metro project is seen as a catalyst to lasting change:

1. Enhanced connectivity and accessibility across the South of Tyne and Wearside quadrant
Which supports.....

2. The complementary investment programme in place-making and the economy along the entirety of routes
Which supports.....



Washington Meadows

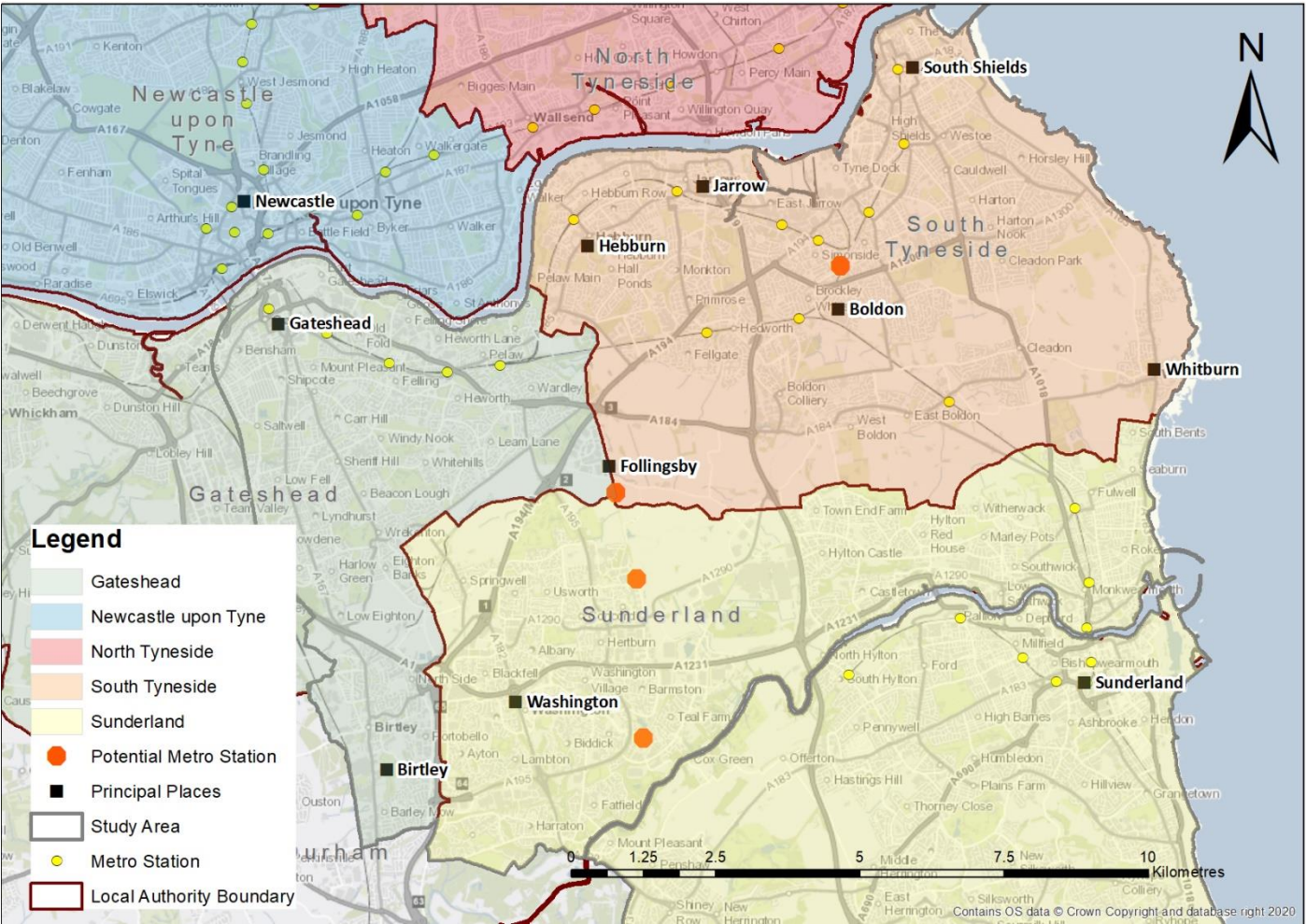


International Advanced Manufacturing Park

4. A change in the attractiveness of the area for inward investment, residents, and visitors
Which enables.....

3. New and diverse opportunities and services for residents of the corridor, and better, more sustainable, means of connecting to them
Which, in totality, provides the best opportunity for lasting transformational change

The area and complementary investment programme



South Tyneside

- £5.96 million from the Future High Streets Fund (FHSF)
- £21 million transport interchange delivered at South Shields
- £9 million invested in regeneration of the South Shields promenade

Sunderland

- £20 million from Levelling Up Fund (LUF) for the 'housing eco-system' project
- £25 million from FHSF
- UK SPF allocation of £16.6 million
- Capital programme to invest £404 million in next four years, focussed on the city centre

Gateshead

- £1.1 billion for investment in homes
- Gateshead Quays development
- UK SPF allocation of £12.6 million

Newcastle

- £20 million LUF investment in Grainger Market and Old Eldon Square
- Hub for HS2 and other interurban services in the North east
- City Centre Transformation Programme (CCTP) for a cleaner, greener heart of the city
- £600 million of investment proposed around Central Station at the Stephenson Quarter, Helix, and Pilgrim Street sites

The options

To identify the preferred way forward for the project and deliver greatest Value for Money (VfM), option assessment and appraisal has sifted a 'long list' of alternatives down to a 'short list'. These options have been developed and appraised in more detail, including identifying ways of increasing affordability. The resulting Metro options are comprised of a package of infrastructure works which can be delivered as a single project or as part of a phased

DS6: Wearside Loop ++

Services:

- 3tph from South Hylton to Monkseaton
- 3tph from South Hylton to Sunderland via South Shields

New stations at:

- Follingsby
- Washington North
- Washington South
- Green Lane (Boldon)

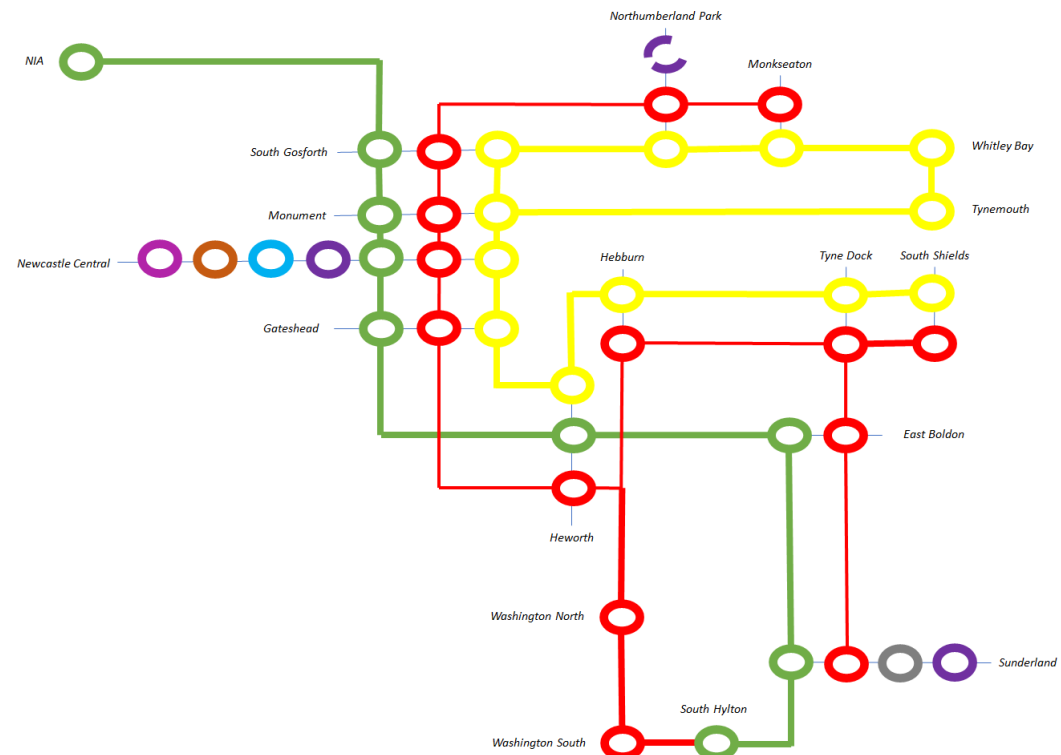
Main works:

- Reinstatement of former lines from Pelaw to South Hylton
- Connection between Follingsby and South Tyneside
- Boldon Cord (E)
- South Shields and Sunderland stations

Direct Investment Cost: £750 to 865 million (2021 prices, excluding inflation, and risk or optimism bias), depending on the extent of OLE, future proofing for 'hybrid' operation with heavy rail services on the Leamside Line, and potential Minimum Viable Product (MVP) opportunities.

programme. All options, in line with the existing network are zero carbon in operation, with opportunities for bi-mode technology to avoid additional Overhead Line Electrification (OLE).

The direct investment costs are shown in (undiscounted) 2022 prices and are based on delivery by Nexus, inclusive of all preliminaries, design costs, overheads and profits, real terms construction inflation, and an allowance for Optimism Bias (OB).



DS8: Wearside Loop+

Services:

- 3tph from South Hylton to Monkseaton
- 3tph from South Hylton to South Shields

New stations at:

- Follingsby
- Washington North
- Washington South

Main works:

- Reinstatement of former lines from Pelaw to South Hylton
- Connection between Follingsby and South Tyneside
- South Shields station

Direct Investment Cost: £590 to 705 million (2021 prices, excluding inflation, and risk or optimism bias), depending on the extent of OLE, future proofing for 'hybrid' operation with heavy rail services on the Leamside Line, and potential Minimum Viable Product (MVP) opportunities.

DS10: Washington Metro Loop

Services:

- 3tph from South Hylton to Monkseaton
- 3tph from South Hylton to Heworth

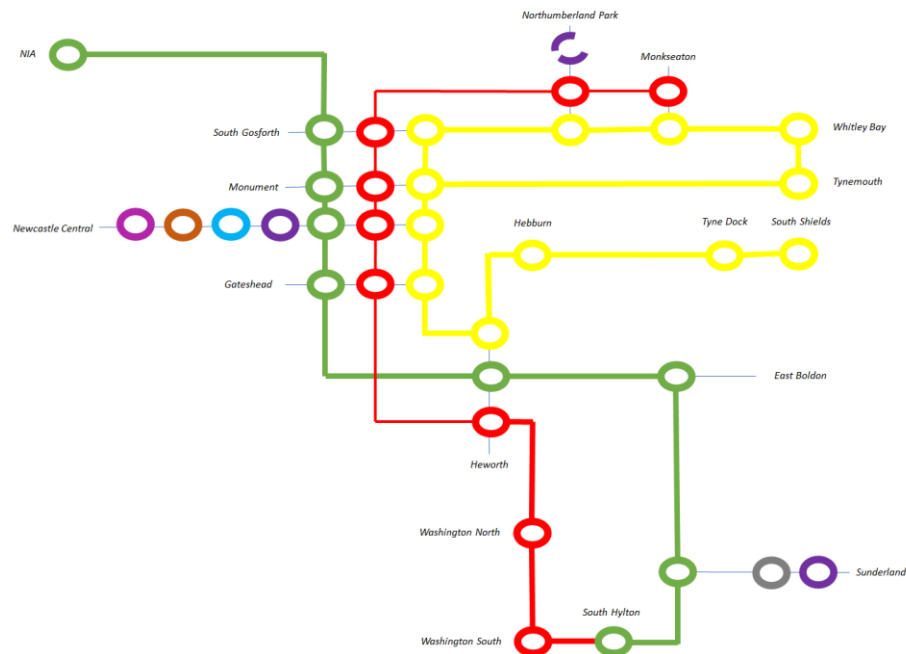
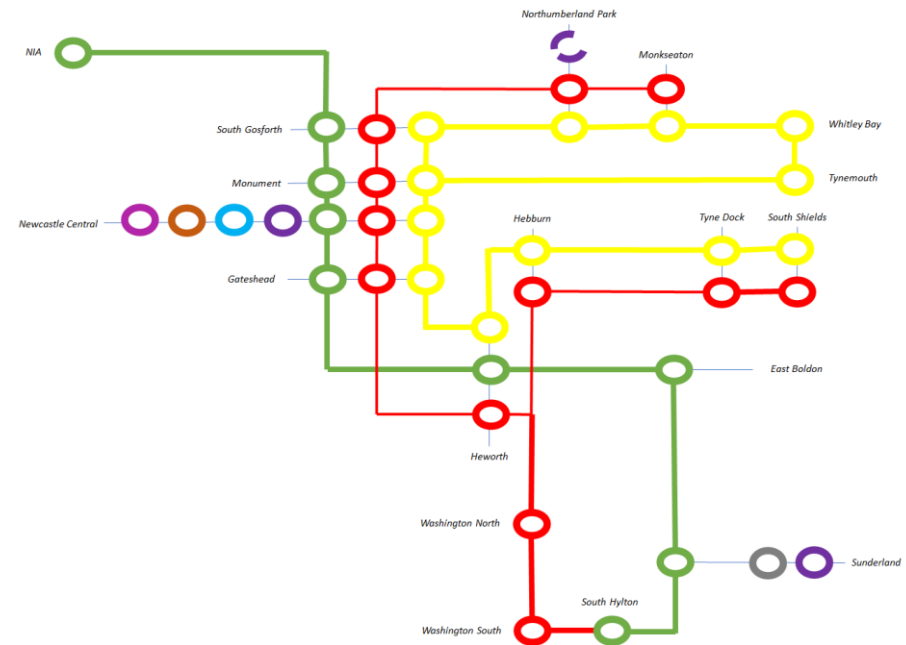
New stations at:

- Follingsby
- Washington North
- Washington South

Main works:

- Reinstatement of former lines from Pelaw to South Hylton

Direct Investment Cost: £505 to 615 million (2021 prices, excluding inflation, and risk or optimism bias), depending on the extent of OLE, future proofing for 'hybrid' operation with heavy rail services on the Leamside Line, and potential Minimum Viable Product (MVP) opportunities.

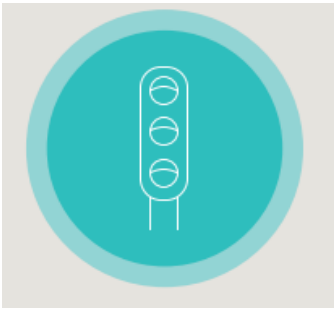


The works

The proposed project seeks to enable a modern, efficient, and reliable passenger service, while also maintaining the possibility for future passenger or freight services via the Leamside Line corridor. The proposed investment looks to holistically address the current connectivity deficit, directly addressing national, regional, and local priorities for the economy, society, and the environment, further detail on how the various parts of the project will help achieve outcomes is set out within Section 9 and 10 of the SOC.

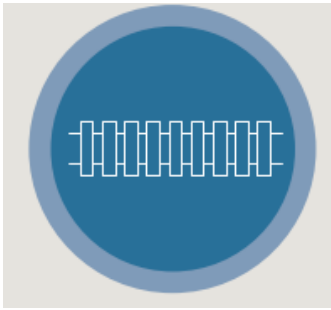
The required enhancements, to ensure services deliver the desired outcomes and impacts, are not trivial. Washington and its surrounds lost their regular passenger services in the 1960s. Although the alignments are extant, a lot of the major infrastructure still dates from the time of closure or has been modified to address intermediary needs. The proposed direct Metro works, which are not mutually exclusive, have been costed at between £540 and £930 million (2021 prices, inclusive of inflation, preliminaries, overheads, design, risk or optimism bias) depending on the package of enhancements and the phasing of different components.

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Signalling & traction power

The extensions will require adaptations to the Nexus Metro and/or Network Rail signalling system and infrastructure, potentially in tandem with the resignalling of the wider Metro network. The (minimal) level crossings will also require risk assessment and potential works. Traction power will be via OLE or a bi-mode solution using batteries along the new extensions.



Track works

Reinstated track would be required between Pelaw, Washington South, and the current Metro terminus at South Hylton. The junction at Pelaw would require remodelling to provide direct connectivity to the Metro network, while works are required at South Hylton to grade separate the Metro from the local and regional highway networks.



New and enhanced stations

Three new stations along the corridor through Washington, with option DS6 also offering the opportunity for a new station at Green Lane (Baldon). Opportunities will be sought to enhance the role of existing stations as hubs for the community and the local economy. First and last mile principles will support active mode use.



Services

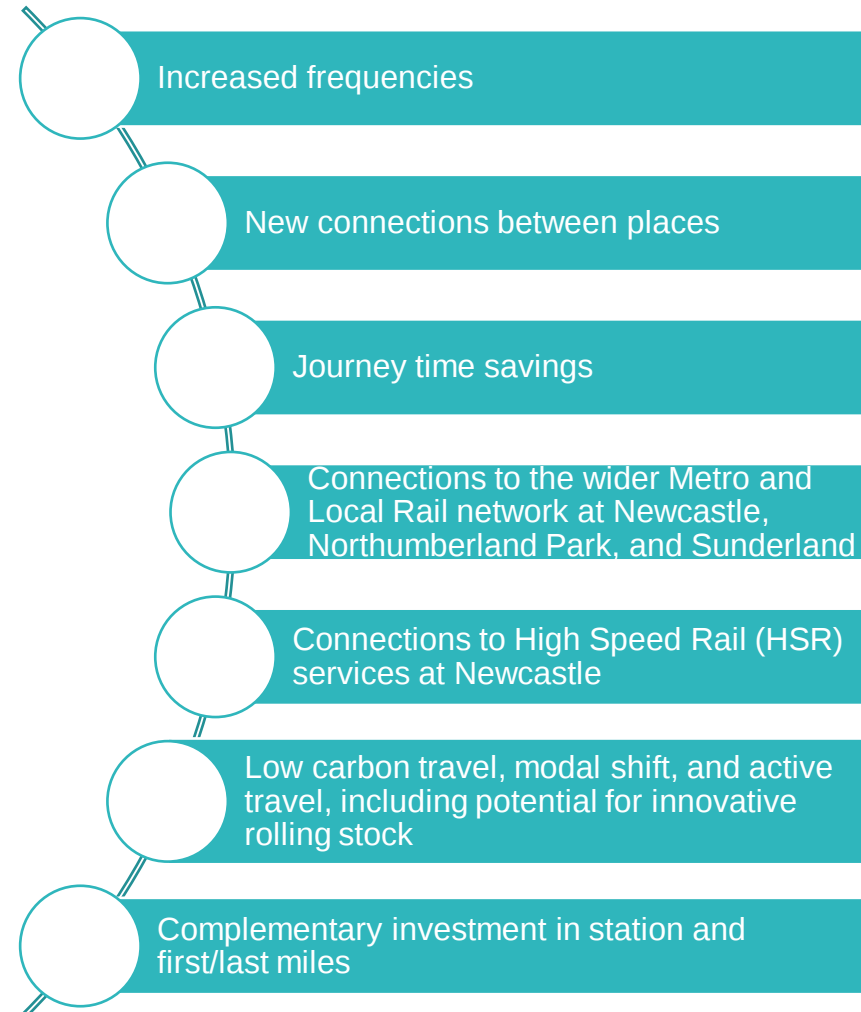
Proposed Metro services would seek to connect the principal places at a minimum of three services per hour. All options would enhance the frequency on the core section of the network between Pelaw and South Gosforth, with additional services also added between Longbenton and Monkseaton. The additional services will be operated using the new Class 555 rolling stock being deployed on the wider network or future variants thereof.

Outcomes and impacts

Depending on the package of enhancements taken forward for the SoT&W area, the project could, over 60 years, deliver between:

- 7.7 and 9.0 million additional trips per annum, with circa 2 million of these to and from the new stations
- Net UK benefits of, depending on the final package, between £415 million and £530 million (2010 present values and prices), consisting of:
 - Economic efficiency gains for commuters, business users, and other users, including road decongestion due to mode shift;
 - Reductions in road traffic accidents and noise due to mode shift;
 - Cuts in Greenhouse Gas (GHG) emissions and local air pollutants; and
 - Increases in physical activity leading to reductions in mortality and absenteeism.
- Option & non-use values for 6,000 previously disconnected households of £33 million (2010 present values and prices)
- Impacts for the local places, which support the regeneration and place-making programme, consisting of up to:
 - 1,000 jobs across the area served;
 - 3,500 accelerated or additional dwellings;
 - Total regional Gross Value Added (GVA) of circa £65 million per annum (2021 undiscounted values and prices); and
 - £865 million of GVA over 60 years (2010 present values and prices).
- Approximately 70% of these additional jobs would be in deprived areas. Applying a UK Government willingness-to-pay of £1,200 per annum results in a benefit of £17 million (2010 present values and prices)

The investment could enable the following changes in services



Why invest?

The proposed investment will directly address hyperlocal, local, regional, and national priorities for the economy, society, and the environment:

Access to opportunity

- Much enhanced travel opportunities and quality of offer for places across Gateshead, South Tyneside, and Sunderland
- A step change in connectivity for residents to access jobs, education, services, and other opportunities
- A focus on places in need of 'levelling up'

Economic development

- A catalyst for investment in housing and economic development across the area
- Growth in productivity and economic activity amongst residents
- Improved economic standing of deprived communities and places across the area
- Connections to the region's major hubs for interurban travel

The environment

- Reductions in greenhouse gas emissions from transport to move towards carbon neutrality and net zero
- Better use of existing assets to help protect natural and built environment assets
- Mode shift to reduce local air pollutants and contribute to the 'Clean Air' priority

Place

- New or enhanced hubs and gateways to places and communities
- Increased 'pride in place', putting them 'back on the map'
- Complementing other planned investment as part of the areawide programme to deliver better socio-economic and environmental outcomes

Build back better

- A 'better' network which leads to increased satisfaction amongst the travelling public
- More reliable and resilient travel

Five Dimension Summary

Strategic Dimension

The need to invest outlined on the previous page is grounded by a strong evidence-based case for change highlighting the key issues and opportunities across the southeast quadrant:

- The study area is home to 650,000 people – over 1% of the GB population.
- Deprivation, low healthy life expectancy, lack of access to a car, and outward migration are all prevalent.
- While sectoral strengths remain, the area has suffered from the loss of ‘heavy’ industries and mining.
- Unemployment is high and productivity lower than the average. There is a clear need to enhance access to current and emerging opportunities across the Tyne & Wear area, providing more and higher value employment and training.
- Car dependency is prevalent for those who have one. Congestion, poor air quality, and severance impact across the area.
- All districts have declared a climate emergency with targets for carbon neutrality to complement the national Net Zero goal.
- The project is well aligned to national, regional, and local priorities and offers a significant opportunity to contribute to Government aspirations for clean economic growth that helps to level up the UK.
- Significant complementary investment is proposed through current ‘levelling up’ and shared prosperity’ funding streams coupled with private sector investment focussed on Gateshead and Newcastle centres.

Economic Dimension

An assessment of the project’s costs and benefits has been undertaken in line with the DfT’s TAG suite and accompanying GB rail industry guidance. To reflect uncertainty, the project has been appraised under multiple scenarios.

- BCR of the best performing option is greater than 1.0.
- Economic efficiency gains for users are highly skewed towards large time savings (≥ 5 minutes), due to the ‘step change’ in connectivity the service offers.
- Support for up to 1,000 jobs and an additional or accelerated 3,500 dwellings.
- Potential regional GVA impacts of up to £865 million over 60 years (2010 present values and prices)

Financial Dimension

Investment Cost Estimates (£ millions in 2022 Q1 prices), including real terms construction inflation and risk allowance:

Option	Estimate
DS6 – Wearside Loop++	1,115
DS8 – Wearside Loop+	880
DS10 – Washington Metro Loop	745

In the long run, following demand ramp up, revenue is sufficient to cover operating expenditure estimates.

In addition to UK Government grant allocations, including potential devolution allocations, there are other potential funding and finance alternatives, particularly linked to new station opportunities.

Commercial Dimension

Principal outputs include:

- Reinstatement of approximately 13km of track.
- Up to four new station ‘hubs’.
- Additional zero emission Metro vehicles, potentially using bi-mode vehicles
- First/last mile measures

It is likely that the project would be procured through Nexus’s standard frameworks for design and build, although options exist for Network Rail involvement.

Management Dimension

Project delivery would be led by Nexus, with Transport North East acting as the lead sponsor.

The most significant risks to the project are Metro network capacity at key ‘pinch points’ and the known infrastructure constraints on the former rail alignment between Washington and South Hylton.

Key stakeholders have been engaged and are supportive of the project, a wide range of letters of support are appended.