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METROFUTURES

The combined future of
Metro and local rail in the North East

Foreword

Welcome to this brochure, which sets out the aims and objectives of the North East Combined Authority's forthcoming Metro and Local Rail Strategy - as well as exploring how expansion of our region's networks could be achieved.

The Combined Authority's vision for transport has been set out in 'Our Journey', a 20-year transport manifesto for the North East. Here we provide a broader policy context for part of that vision: the business cases for a new Metro fleet and the next phase of essential network renewals. It is important that those two projects be seen alongside the larger possibilities to develop our railways they form a part of.

This brochure has been developed by Nexus in consultation with local authorities within the Combined Authority. It provides a pre-cursor to the full Strategy, which will be considered by the North East Leadership Board in summer 2016.

If you would like to provide feedback on the development of our Strategy up to now and the possibilities we suggest to extend the reach of local rail and Metro into more communities, please get in touch. You can find contact details on the back page.



Tobyn Hughes
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Introduction

Our area's identity was shaped by railways. Not very long ago coal, iron and steel were transported between mines, factories, shipyards and ports using one of the densest networks of rail lines in the world. The same railways transported workers to jobs and knit previously disparate rural communities together to form a distinctive North East identity.

Over the past four decades the local rail network in the North East has developed in two very different ways. Much of the rail network in Tyne and Wear was converted into the Metro system and has continued its role at the heart of the local economy, transporting tens of thousands of people by rail to work, education and other activities each day.

The remainder of the local rail network has soldiered on through decades of closures and cutbacks, maintaining some connectivity but characterised by poor quality rolling stock and low frequencies.

Through the area's Strategic Economic Plan we aim to reclaim our place as one of the most successful economic and cultural centres within a resurgent North. To do that we need to connect people to jobs and education, ease road congestion, and make the North East an easy and attractive place to do business.

Transport for the North is working collectively to transform rail connectivity across key northern economic centres. To maximise the North East

economic benefits it is therefore time to transform our entire local rail network up to an equally high standard. The area's social and economic needs have changed enormously, but the need for fast, reliable, affordable and sustainable transport links has never been greater.

We are working on an updated transport plan for the North East, and we have recently published our draft Manifesto. In it we set out the following ambitions for Metro and local rail services:

- Replace outdated Pacer trains and deliver an essential new fleet for the Tyne and Wear Metro;
- Create a regional express network, with high quality, faster trains and more routes electrified;
- Open new local stations on current lines, re-open key disused lines, consider more Park and Ride stations, upgrade freight-only sections to passenger use and build new routes;
- Devolve greater control to the region, so local rail and Metro can be managed together to deliver a higher standard for stations, information and customer service; and
- Work with rail industry partners to address overcrowding and improve cycle access on trains.

This Metro Futures document addresses a number of these ambitions: a new Metro fleet; re-opening routes and stations; and managing Metro and local rail together as one network.

In 2014 Nexus published a draft Metro Strategy which considered how the system could develop to meet the area's future needs. We are currently updating the draft strategy to reflect the latest thinking and opportunities, as well as to integrate planning over the Combined Authority's wider geography, and we will shortly publish it alongside a business case for a new Metro fleet and for on-going investment in existing Metro infrastructure. We will broaden its scope to cover local rail services.

The draft Metro Strategy explored a number of potential extensions to the Metro network, and we have been considering ways in which extending the network can best be achieved.

The region contains a legacy of disused rail corridors, curves, junctions and spurs and some freight-only lines. Some of these could allow for the expansion of the local passenger rail network, linking to the Metro network in places, at a fraction of the cost of new-build railway or tram lines.

In some cases Metro extensions identified in the draft Metro Strategy could be delivered using this approach. It also gives rise to new options, not previously considered - including to parts of the area that are currently a long way from the existing Metro system.

The passenger trains that would run on this expanded network will be influenced by a number of significant developments over coming years, which if combined could achieve a transformational result:

The existing fleet of Metro trains is life-expired and needs to be replaced. The new trains will be designed to be flexible enough to travel on the local rail network as well as the dedicated Metro network, providing the opportunity to serve new destinations using Metro trains.
Nexus expects to replace the Metro train fleet in the early 2020s. As of 1 April 2016, the Northern and TransPennine rail franchises that provide local passenger rail services in our area will be managed in partnership by the DfT and 'Rail North', a local authority organisation of which the NECA is a member. Through this arrangement we will develop an option to take direct responsibility for the franchising of local rail services from 2025/6 onwards. This would allow local rail and Metro services to work alongside each other with a common set of passenger standards and ticketing arrangements. It could also potentially see some routes transferred between Metro and local rail or vice versa, or wholly new journey opportunities created.

Continuation of Network Rail's electrification provides an opportunity for diesel-only routes in the area to be electrified, and conversion of the Sunderland-Pelaw section to the national standard of 25kv AC. A new Metro fleet that could operate at different electrification standards would be able to provide a wide range of local rail links sustainably and efficiently, with the same high service standard throughout.

We intend to consider the Metro network, the local rail network, and the passenger trains that operate on both of them as a single local rail system when developing expansion plans for the future. The intention is to create a locally-managed network of passenger services that is integrated and provides a common high standard of service to passengers.

In the future, parts of the network's infrastructure will be provided by Nexus through the locally-owned Metro system, whereas other parts will be owned and managed by Network Rail. Some local passenger services will be provided by Metro trains operated by Nexus, but others in future may be provided by franchised heavy rail operators. However, all passenger services covered by this document will form part of a single North East rail network.

It is important to note that local passenger rail connectivity is served in a number of different ways, for example by long-distance trains serving local

traffic flows within the area. These services are out of scope for this document. Also, in our wider plans we will take account of the need for freight movement. The precious few rail lines that exist in our area today are already congested with a mix of freight and passenger services. Achieving economic success will create a greater need for movement of goods by rail – to, from, through and within our region. As we plan to expand our local rail system we will work with our partners to make sure that the potential for improved rail freight can be maximised.

We will also work with our colleagues in the Tees Valley Combined Authority, with whom we share many aspirations for improved rail services, to ensure that each area's plans enhance and complement the other.

By growing the local passenger rail system to provide faster and more sustainable links to employment, training and other social and economic activity, we can help stimulate the economic growth needed to take the area forward.

This brochure is a statement of intent, to inform key stakeholders in advance of a combined 'Metro and Local Rail Strategy' being produced during summer 2016. Its aim is to set the context for the publication of business cases for Metro fleet replacement and essential renewals.

The Metro network: centrepiece of our local rail system

With 60 stations, around 40 million passenger trips per year and trains running up to 19 hours a day, the Metro network has made a major contribution to the area since 1980.

Thanks to government funding under the 'Metro Reinvigoration' programme to renew the existing infrastructure, much of the network is being renewed so that it can continue as part of Tyne and Wear's fabric.

Phase 1 of Metro Reinvigoration saw the introduction of a new ticketing system and some station improvements.

Phase 2 concerns large-scale renewal of ageing infrastructure such as track, electrical and communications equipment and stations, between 2010 and 2021.

Phase 3 will see us take Metro into the future, developing Metro and local rail services together to enable the North East to thrive economically and socially.

To guide us in this we propose three clear policy objectives:

1. To provide Metro and local rail services that are affordable for passengers, reliable, accessible and comfortable with high levels of customer satisfaction, within available resources;
2. To grow the Metro and local rail network and their modal share as part of an integrated public transport network; and
3. To achieve value for money.

To help achieve these policy objectives we will need to:

- a) Specify, procure and introduce a replacement train fleet;
- b) Design new operating models and procure suppliers;
- c) Continue our essential renewal works for the period 2020-2030;
- d) Expand the Metro and local rail network;
- e) Secure short and long-term financial arrangements; and
- f) Improve integration.



Train fleet

Metro is badly in need of a new fleet of trains. The current 90-car fleet was constructed in the late 1970s and many components are life-expired. This is contributing to a very unstable operating environment, with train failures leading to delays and trains being withdrawn from service.

An outline business case for investment in a new train fleet has been prepared and will be presented to the Combined Authority for its approval in July 2016, along with a draft specification for new rolling stock. The target date for the introduction of a new fleet is the early 2020s.

The cost of a fleet capable of replicating the current timetable is estimated to be in the region of £300 million. An associated upgrade to the signalling system may cost an additional £100 million, updated depot facilities could cost in the order of £50 million, and upgrades to the electrification equipment could add a further £100 million. The total cost of new fleet could therefore be around £550 million.

The rolling stock specification will focus on providing a new fleet of Metro cars which will provide a step change in customer experience and be future proofed to provide reliable and affordable Metro services for the next 30 years. In order to achieve our policy objectives we must achieve high levels of reliability and comfort in order to build passenger satisfaction with the system. We will also aim to reduce Metro's carbon footprint.

However given the Metro system's reliance on public subsidy and, because of the important role Metro plays in underpinning the local economy our desire to maintain fares at affordable levels, we also need to keep on-going operating costs to a minimum and deliver value for money.

This involves specifying a Metro fleet that shares as many common features with other fleets as possible, basing our design features on customer feedback and lessons learned by other Metro systems, and examining the potential for new technology to deliver operating efficiencies.

We will also future proof the fleet for future developments, including specifying dual voltage to allow for running on lines electrified to Network Rail's UK standard, non-electric variants to allow for running on non-electrified lines, and the ability to procure additional vehicles to support route extensions.

Both First TransPennine and Arriva Rail North have ordered new and refurbished 'as new' train fleets as part of their current franchise obligations. These trains are due to come into service from 2020.



Future operating model

The future arrangement for Metro operations is likely to be built around the acquisition and deployment of a new fleet of trains, to be operational in the early part of the 2020's. This is likely to be a very different proposition to the one in place today, in which the operator is responsible for delivering a wide range of operational and customer-related activities.

The OJEU process to procure a new operator effective from 1 April 2019 would need to commence around June 2017, by which time funding for the new fleet and on-going revenue support would need to be confirmed. An outline business case for investment in a new train fleet has been produced in draft form, and we are now working with the government and the North East Combined Authority to identify funding options.

The current concession arrangement is proposed to end in March 2017. Nexus is developing an interim arrangement to cover the period April 2017 to March 2019, which will involve Nexus managing the Metro system directly. During the two year period of direct management, the Metro business will be re-shaped so that it is ready for the introduction of new trains.

Local rail services in the North East are provided by a franchise operator, currently Arriva Rail North. Through the process of devolution, this rail franchise (along with TransPennine Express) is jointly managed through a formal partnership arrangement between the Department for Transport (DfT) and Rail North Ltd (RNL). Rail North Ltd is a new body made up of 25 local transport authorities in the North of England, including the NECA. It is expected that over the next seven years control over decision-making and financial risk will progressively pass from the DfT to RNL through this arrangement.

A further devolutionary step has been agreed for the North East of England, which is that Arriva will create a Business Unit dedicated to the area, and this will have a strong interface with a North East Rail Management Unit (NERMU) representing the NECA, the Tees Valley, Cumbria and North Yorkshire. The purpose of this arrangement is to have local accountability for operational performance, and to create a strong local focus for further investment.

As part of the formation of Transport for the North as a statutory sub regional transport body, it is proposed to seek the full devolution of franchising powers from the Secretary of State to Rail North and by inference the North East Rail Management Unit. As we look into the future therefore we believe that Rail North and the NERMU hold the potential for the North East to take full control of its local rail services by direct management of the franchise arrangement beyond 2025. This would allow local rail and Metro services to work alongside each other with a common set of passenger standards and ticketing arrangements. It could also potentially see some routes transferred between Metro and local rail or vice versa, or wholly new journey opportunities created. This would be particularly facilitated by the introduction of a new Metro fleet that could operate in various different modes, including different electrification and signalling standards and on non-electrified routes.

Essential renewals 2020-2030

We are currently mid-way through 'Phase 2' of the Metro Reinvigoration programme, and through this we are renewing and rebuilding many parts of the Metro system. Track, embankments, signalling, ducting, bridges, tunnels, stations, IT and communication systems and many other features all make up the fabric of the Metro system. Many of them were built and installed during the 1970s although large parts of the system are much older than that, including structures that were built by the Victorians over 150 years ago.

The Metro Reinvigoration programme is designed to progressively replace and renew life-expired assets to reduce the risks of infrastructure failure, to improve operational reliability and efficiency, and to ensure that the system can keep operating long into the future.

Our current arrangement with the government has seen over £200 million invested since 2010, out of a total £350 million programme, to be delivered through to 2021. This however is far from the end of the story. The investment need will remain, on an on-going and permanent basis if we are to keep the Metro's fabric in a suitable condition to operate a reliable train service.

We are therefore preparing a business case to obtain government funding in the Metro infrastructure owned by Nexus, for a further ten-year period. This investment will continue to be based on asset condition, as it has been throughout the renewal programme so far.



Expanding the Metro and local rail networks

Our industrial heritage has left behind it a network of disused railways that thread across the region. Some are former passenger lines, although many are freight routes connecting mines and factories to ports. As new developments take place around them some will once again become important transport arteries, helping to move people around the North East along unobstructed, uncongested route corridors.

Most disused routes remain free from intrusion along their path, although in some cases new roads and buildings cross the alignments and would require a business case as to the costs of restoring a route versus the expected benefits.

Nexus believes that existing and disused local rail corridors can be combined with the Metro network to create a single Metro and local rail network, at a lower cost than new-build railways. There are also a number of areas where the existing Metro network can be upgraded to create a more effective service.

This will only happen if a strong blueprint is developed by the NECA and its partners, and used to co-ordinate land use and transport planning actions by a wide range of players over the forthcoming years and decades: economic and strategic plans for housing, business and industrial growth; investment decisions by Network Rail, Nexus and local authorities; funding plans from the NECA, the national government, the

NELEP, the EU, and local businesses; and train service developments by Nexus, Rail North, Train Operating Companies and Freight Operating Companies.

The following sections describe opportunities to grow the Metro and local rail system. Some of these are relatively simple to introduce and could be achieved within five years if funding were to be made available. Others will take many more years to plan and achieve because of their cost and complexity.

Nexus is preparing a combined 'Metro and local rail strategy', bringing together all of these elements. We expect to have this ready for publication by the summer, after which work should start immediately to assess the feasibility of these options and to create the plans necessary for them to be funded and built.

Routes to the Airport

Newcastle International Airport is a hugely important strategic transport asset for our area, and high quality, sustainable transport links to it are integral to our area's future economic success, as is the expansion of its catchment area. The existing Metro service provides a fast, frequent and direct link to Newcastle and Sunderland city centres. Many of the opportunities described elsewhere in this document could provide new rail links to serve the Airport - for example to Washington and Belmont in Durham, and to South Tyneside.

Three further opportunities are worthy of exploration:

- expanding the 'depot avoiding line' at the current Metro depot in South Gosforth, so that direct services could be provided between the Airport and North Tyneside, and potentially to South East Northumberland;

- reinstating a disused curve at Benton to connect the west-facing Metro line to the East Coast Main Line

- considering whether the current airport line could be extended to serve Ponteland.

The 'Leamside line'

The disused Leamside alignment is important for a number of the NECA's ambitions for rail-based connectivity. The current alignment runs from Pelaw Junction to Ferryhill in County Durham, and passes through a number of locations that currently lack rail services, in particular Washington. Another disused alignment, running west from the current Metro terminus at South Hylton, joins the Leamside alignment just south of the river Wear. Acting together, these two alignments offer potential to provide:

- A 'Wearside loop' Metro-style service connecting Sunderland and Washington (described below);
- Local rail links between Durham (Belmont), Sunderland, South Shields and Newcastle (described below);
- Along with an upgraded Durham Coast line, additional capacity for passenger and freight services to relieve pressure on the East Coast Main Line; and
- In the longer term, a potential route for a high speed rail link from the North East to Yorkshire and beyond.

The Leamside alignment remains in Network Rail's ownership and is free from obstructive development, although much of its condition is not currently known to any great degree.



Pelaw: The mothballed Leamside line (centre right) meets busy Metro and rail routes from South Shields and Sunderland

South East Northumberland

Restoring passenger train services to the Blyth, Bedlington and Ashington areas is an agreed priority for the NECA because of its potential to regenerate the area it serves by connecting people to a wide range of jobs, services and training. Northumberland County Council is currently leading a project with Network Rail to examine re-opening the route for passenger traffic by 2020.

The project would upgrade an existing freight-only route which begins in Woodhorn (with an option to extend north to Newbiggin-by-the-Sea) and then passes through Ashington, Bedlington, Bebside, Newsham (for Blyth), Seaton Delaval and Seghill,

before arriving at Northumberland Park where an interchange station would enable easy access to the Metro system. The route then joins the East Coast Main Line five miles north of Newcastle city centre.

The line is a mixture of single and double-track and is not electrified, but over the longer term Nexus believes that it should be double-tracked and electrified to the Network Rail standard of 25kV AC, as well as there being a physical link to the Metro being constructed in the Northumberland Park area.

This would allow the line to be served by dual-voltage Metro trains and link onto the Metro system, in addition to the initial offering of conventional rail services to Newcastle Central Station - and possibly further, for example to the Metrocentre and Hexham. It would also increase freight capacity and offer efficient diversionary routes via Choppington or Butterwell to the East Coast Main Line.



Northumberland Park: The current freight-only line to Ashington curves away to the left of Metro tracks

Sunderland re-electrification

Nexus and the NECA believe that the full Durham Coast line should be electrified to the Network Rail standard of 25kv AC.

A key part of the Metro system provides services in Sunderland, using track and infrastructure owned and operated by Network Rail. This section was opened in 2002, is electrified using Metro's 1500v DC overhead power standard, and has stations that are managed by Metro (except Sunderland itself). All other aspects of the section, including signalling and operating standards, are in line with normal Network Rail practices.

Nexus believes that the best long-term approach is to convert the electrification of this line to the Network Rail standard of 25kv AC. This should make it easier and more cost effective for Network Rail to maintain and manage, and may have wider benefits by enabling the Durham Coast line (including the section from the south side of the High Level Bridge in Gateshead to Pelaw Junction) to be electrified in the longer term.

Electrification south from Sunderland, through Ryhope and Seaham towards the Horden/Peterlee area, would allow these centres of population and business to be served by a Metro-style service. It could also facilitate better long-distance links from cities and towns along the Durham Coast line to other parts of the North.

The re-electrification of the Sunderland line would require Metro trains to be dual-voltage, so they could run on both Metro and Network Rail infrastructure. Therefore Nexus will specify that the replacement Metro fleet should have dual voltage capability.

South Tyneside 'Track Dualling'

Despite operating at very high frequency throughout the day, the Metro system has a lengthy section of single track at the core of its operation between Jarrow and Pelaw. This limits the timetable that can be offered, severely hampers recovery of the operation when disruption occurs, and limits growth – for example new stations cannot be placed on the single-track section.

Most of this section has a single track Network Rail freight line running alongside it to the currently disused Jarrow Oil Terminal. Nexus believes that it should be possible to convert the freight-only line to be part of the Metro system, although we will take into account any continued or new use of the line for freight traffic.

Cobalt Corridor

The Cobalt and Silverlink areas are major growth engines of the North Tyneside economy but are poorly located in relation to rail-based links. An opportunity exists to deliver Metro services through the centre of this corridor, through the re-use of an old freight line formerly used to transport coal to the banks of the River Tyne. By linking to the existing

Metro Coast loop at Northumberland Park and in the Percy Main area, the opportunity exists to provide through services in both directions - and even potentially from the Ashington, Blyth and Tyne route – as well as opening up new service possibilities such as an 'inner loop' connecting Wallsend with Cobalt and Four Lane Ends.

Team Valley – A1 Park and Ride

An excellent opportunity exists to leverage existing Network Rail infrastructure to provide direct train services to and from the Team Valley area. This would require the reinstatement of the short Bensham curve in the Gateshead area to allow rail access down an existing freight-only line to the east side of Team Valley, running parallel to the ECML without conflict with Intercity services.

The route serves 20,000+ jobs in the Team Valley area and continues south towards Lamesley where proximity to both the ECML and the A1 offers the potential of a parkway-style interchange, "A1 Park & Ride". This could offer strategic benefits for the relief of trunk road congestion - the A1 in the Team Valley area suffers from one of the worst congestion hotspots in the country, although an improvement scheme is currently under construction by Highways England, it is not considered likely than any further capacity enhancements will be possible. Heading south from Lamesley there is potentially space adjacent and west of the ECML to allow local services to continue in parallel towards Birtley and Chester-le-Street if a new station were to be

established in the area where new housing development is planned.

This option could be further developed by greater use of the section of line running parallel to the south bank of the Tyne through Gateshead. This line offers a southbound route from Newcastle using the High Level Bridge over the Tyne, feeding onto the Tyne Valley Line with minimal conflict with the East Coast Main Line. It could also facilitate the development of a railway station in central Gateshead, and offer through services between Sunderland, South Tyneside, Gateshead, Metrocentre and Team Valley.

The use of the line running alongside the ECML should not come at the expense of increased capacity and resilience of the ECML itself. The ECML is of the highest strategic importance to the economic aims of the NECA, and it already struggles to meet the demands currently placed upon it. The NECA will continue to work with



Bensham: Electric power lines over a freight-only line track curving from the Team Valley towards Metrocentre

Transport for the North, Network Rail and the government to make the case for major investment in the line's capacity and resilience for carrying long-distance passenger and freight traffic.

Sunderland City Centre to Doxford Park

Consideration of a route between Doxford Park and Sunderland city centre suggests it may be possible to provide rail connections between the two by the use of the former Hetton Colliery railway which used to transport coal to the banks of the River Wear.

Doxford Park is an established Sunderland suburb, and is also home to the city's biggest business park, Doxford International, a 51 ha site that provides 8,000+ jobs. The area surrounding the site experiences peak traffic congestion which impacts upon the adjacent A19 trunk road. Bringing Metro-style services to the Doxford area would offer an attractive alternative to car use.

Most of the route between Doxford and the city centre is free from development however routes beneath or over Durham Road and Premier Road would need to be constructed, as well as a means of connecting with the existing Metro network west of University.

New Routes from South Tyneside

South Tyneside is already well served by the Metro network, but direct links between the borough and the south of the area by rail are absent.

The South Shields and Sunderland Metro routes are within 3km of each other in the Tyne Dock and Brockley Whins area. Running between them is a single-track freight branch serving Port of Tyne from a junction east of Brockley Whins. There is therefore the potential to use this existing alignment so that services could be provided between these locations.

In the Tyne Dock area a connection with Metro could be achieved on existing railway land. The continuation of freight traffic along this route as well as Metro would be achieved through twin-tracking. At Brockley Whins junction the Network Rail line to Sunderland could be used. Existing and planned employment opportunities in the area include Sunderland Software City, Port of Tyne, and the regeneration of South Shields town centre.

The triangular junction at Brockley Whins also opens up the possibility of direct journeys between South Shields and the new International Advanced Manufacturing Park (IAMP), Washington and Durham Belmont, through the construction of a new spur heading south before Pelaw junction.

Wearside Loop

The re-use of former rail lines offers the potential to deliver a circular Metro-style service covering Sunderland and Washington.

The existing route from South Hylton could be extending westwards towards Penshaw using a former mineral line, and then connected with the 'Leamside line' heading northwards through

Washington, and past the Nissan site and nearby the location of the planned 5000-jobs International Advanced Manufacturing Park within the A19 Ultra Low Carbon Enterprise Zone. Just before Pelaw junction a new spur would be created to the west, joining up with the existing Network Rail line heading back towards Sunderland via East Boldon.

A new connection would be required to connect the former Sunderland to Durham railway corridor with the Victoria Viaduct over the River Wear which formerly carried part of the Leamside route.

Because of the aim to change electrification on the existing Pelaw to Sunderland route, any planned new routes in the Sunderland area should be assumed to be electrified at 25kV AC.

West Newcastle

An opportunity exists to use the original Carlisle line out of Newcastle Central station, then via a new alignment alongside Scotswood Road. This would potentially extend the reach of local rail into West Newcastle, electrified at 25kV AC but integrated with the Metro system using dual-voltage trains. The area could also be linked to the Metrocentre via a bridge across the river Tyne.

Recent developments in the Gallowgate area mean that the potential to extend the Metro system further westwards from St James is greatly reduced, and would be very expensive given the need to create new tunnels below deep building foundations and arterial highways.

Metro to Metrocentre

Metrocentre is a major leisure, retail and employment site as well as acting as a transport hub for Western Gateshead. The existing rail service provides frequent links to Newcastle and Hexham, and hourly to Sunderland. Some of the opportunities described in this document could provide new rail links to serve Metrocentre - for example to South East Northumberland.

Two further opportunities are worthy of exploration: using the line through Gateshead to access Heworth, South Tyneside and Sunderland directly, avoiding the congested Newcastle Central Station; and using an existing freight spur between Bensham and Team Valley to connect to the route to the new A1 Park and Ride site.

Durham Belmont to Sunderland/South Shields/ Newcastle

The former Leamside alignment could be used to facilitate direct local links between Durham Belmont, Fencehouses and Penshaw, with options to link to South Hylton and Sunderland city centre; and to the Washington, International Advanced Manufacturing Park, Pelaw and South Shields area.

Durham Belmont's location at the A1/A690 interchange is ideal for bus interchange and Park and Ride, and serves as a catchment for the eastern side of Durham City but also a wide area of east and central County Durham. Fencehouses and Penshaw are areas of new housing activity and

would benefit from new local transport links that avoid the need to use the congested A1 and A19 trunk roads.

Work undertaken for the IAMP development suggests a high level of demand from County Durham residents for links to jobs in this area, and this route option opens up a number of new commuting possibilities along a corridor somewhat neglected by existing public transport. Much of the north of County Durham is within easy commuting distance of Tyne and Wear, and the existence of this corridor makes the creation of local rail links with the Sunderland and South Tyneside areas a realistic possibility.



Durham Belmont: The mothballed Leamside line passes an existing Durham City Park and Ride site

Funding arrangements

Metro is a vital public service which will cost £95.0m to operate in 2016/17. Whilst almost half of Metro's total operating costs are covered by fare income, it places heavy reliance on a sizeable amount of public subsidy in the form of revenue grant from central government and the NECA (£24.7m and £4.2m respectively in 2016/17). In addition, capital investment in Metro has traditionally been funded from capital grants, meaning that £21.7m of depreciation chargeable to Metro operations in 2016/17 is also financed from central government. Looking ahead, it will be important to secure an ongoing long-term commitment to a continuation of this level of public subsidy and discussions are underway to understand the government's position.

Metro Reinvigoration, phase 2 has provided a step change in investment in essential renewals through the Asset Renewal Programme since 2010; 90% of the current level of capital investment is provided in the form of capital grant from the government, with a 10% local contribution sourced from a combination of 'IT Block' grant and reserves held by the NECA on Nexus' behalf. As we plan our programme of renewals for the years 2021/22 onwards, we are also discussing future funding arrangements with the government.

Investment in a new fleet will be significant as described above. The current fleet is almost fully depreciated and the limited depreciation costs it does have are fully funded; therefore unless the acquisition of a new fleet can be funded in its entirety from capital grant, any future financing charges will represent new, on-going costs that are not currently a feature of Metro's operational budget. We therefore expect that, subject to a suitable business case, the government will make a significant contribution to the acquisition of a new fleet. We will also be seeking to reduce operating costs through lower energy usage and more efficient fleet utilisation, which together with additional fare revenue associated with a more reliable service, may provide some flexibility for a local contribution.

The cost of expanding the Metro system will also be significant. Although the options identified in this document aim to explore the opportunity of using existing assets, nevertheless the capital construction costs of any new railway lines are likely to run in the hundreds of millions of pounds, and new operating costs will be added. To achieve expansion of the system, investment decisions by NECA, Network Rail, Nexus and local authorities will need to be aligned, and other opportunities such as the devolution of management of the Northern Rail franchise taken at the same time.

As part of the work to develop feasibility, Nexus will develop funding options looking at a wide variety of local, national and international sources of finance for both capital investment and associated operational costs. These could potentially include developer contributions, planning gain, and investment from private sector partners.

Integration

The Metro system was designed to be the cornerstone of a simple, integrated local transport system, and as we look to the future it is important that this feature remains.

The planned ambitious expansion of the Metro and local rail network will deliver improved connectivity in itself, but the effect of this will be magnified by growth in interchange with private cars (through both park and ride and passenger drop-off points), taxis, bicycles (through high quality cycle storage), walking (through safe walking routes), buses, and longer-distance rail services.

Therefore interchange points will be designed into expanded Metro and local rail routes wherever possible, offering a wide range of onward travel opportunities.

The Metro system has always maintained the highest accessibility standards for disabled people and people with reduced mobility, and this will continue to be the case as the new fleet is specified and new stations constructed. In addition the acquisition of a new fleet offers an opportunity to explore whether the carriage of bicycles and mobility scooters can be achieved.

The Metro system already benefits from a smart ticketing system through use of the Pop card, and wherever possible this will be expanded onto other modes of travel in particular local rail and bus services. In the longer term, Nexus expects to develop contactless payment on public transport, and by working with Transport for the North, 'account-based ticketing' will be able to offer an integrated travel payment system that joins up transport across the North of England.

Summary

This is an ambitious vision; equally importantly, it is considered deliverable and worthy of the investment. The NECA area has deep-rooted issues that need to be addressed by targeted infrastructure investment to widen the reach of sustainable accessibility. But we are also realistic. There will be many competing demands on transport expenditure in years to come, and all will be subjected to rigorous scrutiny to ensure value for money. The vision we have outlined takes a pragmatic and incremental approach to network change; leveraging existing assets and service provision to achieve maximum benefits, advocating strong marketing and promotion of key regional rail routes, and using the combination of rail franchise renewals and Metro fleet replacement to create a single local rail brand that delivers safety, quality, reliability and certainty.

The rewards will be considerable. The NECA area covers a combined population of almost 2 million people, the majority of whom live or work within easy access of a potential rail or Metro station. Ensuring that the transport links within the region are as good as those to other areas of the country is vital for the delivery of our economic growth plans.



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Nexus is the public body delivering local transport services for Tyne and Wear, on behalf of the North East Combined Authority. To find out more about this project, and our wider programme, contact Lynne Robinson at: lynne.robinson@nexus.org.uk



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