

Transport Topic Paper

ELC 007 - Appendix 1

Context: NPF Spatial Strategy; NPF4 Policies: Policy 13 (Sustainable Transport); NPF4 Spatial Strategy; National Transport Strategy; Regional Spatial Strategy; Local Transport Strategy

High Speed Rail

Newcastle to Edinburgh Strategic Advice Note – May 2021.

LDP2 requires to be aware of how the railway between Newcastle and Edinburgh can meet the needs of the 2030s and beyond. To comply with Network Rail's Long Term Planning Process, this report assesses the corridor and how to achieve wider societal objectives, such as reducing congestion, decarbonisation, supporting economic growth and connecting people to jobs.

The report takes a holistic view of the wider transport strategies, major investment, programmes and opportunities how to maximise economic benefits. Consideration of government objectives; moving more passenger and freight traffic to rail through a reliable, high capacity railway with reduced journey times is an important part of the process.

This study provides the most up to date strategic advice for the area from Newcastle station to Edinburgh Waverley, building on existing studies including the Newcastle to Church Fenton Strategic Advice. It provides cover for lack of development of SETEC.

The recommendations do not fully reflect locations where infrastructure interventions may be needed to support extra passenger and freight services. For example, Blindwells new town aspirations have not been taken into consideration due to this being aspirational. Consequently, benefits from improved rail connectivity are not locked into the strategic note.

To develop a reliable, resilient network to accommodate government ambitions, growth, and equitable sustainable transport adaptation, several interdependencies and infrastructure constraints were found to be present across all scenarios. Accordingly, to support the core objective of a reliable railway with capacity for further growth, it is therefore recommended the following constraints have further development undertaken:

- Speed differentials between fast and slower services across the corridor, restricting capacity
- Lack of facilities at Morpeth to reverse electric services
- Lack of capacity on through platforms at Newcastle¹
- Lack of capacity at and on the eastern approaches to Edinburgh Waverley

- Lack of capacity at Portobello Junction²
- Speed differentials between local services and other services between Drem and Monktonhall Junctions
- Lack of power supply across the entire corridor to facilitate more passenger services and electrified freight

It is recommended that interventions to relieve these constraints are further strategic business cases are developed.

Further analysis also highlighted the following constraints would restrict the corridor from supporting local and national communities and the economy growth through extra freight and passenger services. In addition, a lack of investment to address the constraint would diminish potential to accommodate housing growth, get lorries off the road, connect people to jobs and decarbonise over the coming decades.

These include:

- Access routes to/from stations for passengers
- Diesel services operating on the corridor because part of their route is not electrified
- Challenges accommodating extra services at Portobello Junction and between Portobello Junction and Edinburgh Waverley
- Accommodation of services between Benton North Junction and Newcastle
- Accommodation of all services at Berwick upon-Tweed reliably in the longer term •
- Accommodation of local services between Morpeth – Berwick-upon-Tweed

Option 15a. High Speed Rail Business Case

The ECML is already at capacity which is limited by the large speed differential between non-stop cross-border passenger services and the slower freight and stopping passenger services. Capacity has also been affected by the cross-border journey time reductions in the May 2023 ECML timetable change, reflecting the superior performance of the Class 800 series express trains. This increases speed differentials to the extent that existing cross-border passenger train paths will be lost without major investment to increase the capacity of the line. The recently published Integrated Rail Plan also forecasts an increase in maximum permitted train speed to 140 mph (225 kph) on some sections of the ECML, which will have the effect of increasing speed differentials even more, further reducing capacity.

Freight Traffic

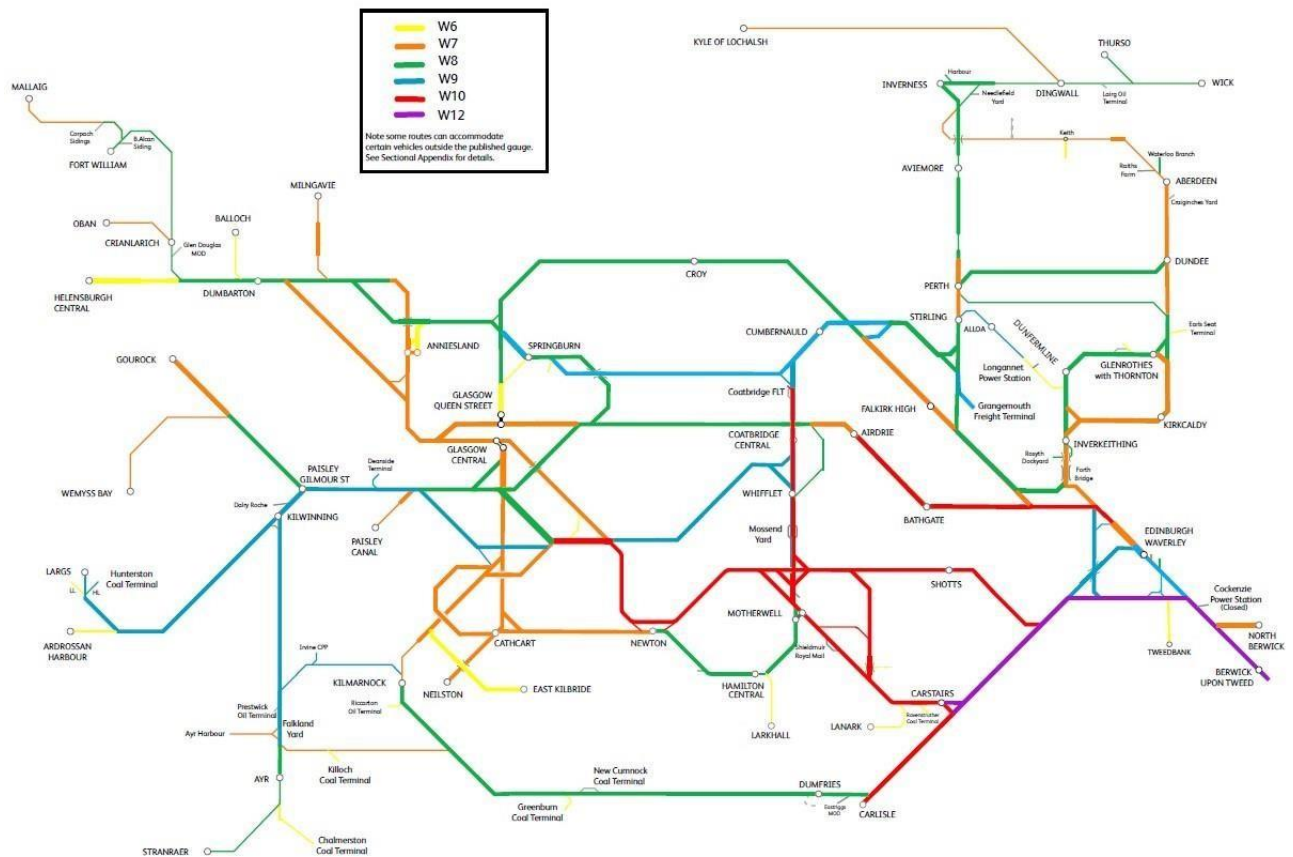


Figure 1 - Freight Gauge Capability of the Scottish Network

The East Coast Main Line (ECML) is by far the more optimal cross border freight route, not least because most of the deep sea container ports handling Scotland's imports/exports are located on the east coast of England. The ECML and Edinburgh to Carstairs are currently the only routes within Scotland that are capable of accommodating the largest W12 Gauge container traffic and the increased freight loading gauge to W12 between Carstairs and Mossend/Coatbridge adds to its strategic importance as a freight route. The ECML cross border route is also relatively flat and straight therefore is more able to sustain a high average running speed. However lack of capacity on the ECML and large speed differentials with long distance passenger trains mean that it currently carries very little freight traffic.

Virtually all of Scotland's cross-border rail freight runs over the West Coast Main Line (WCML). This is despite this route being less capable (W10 Gauge), more sinuous and much hillier; Figure 3

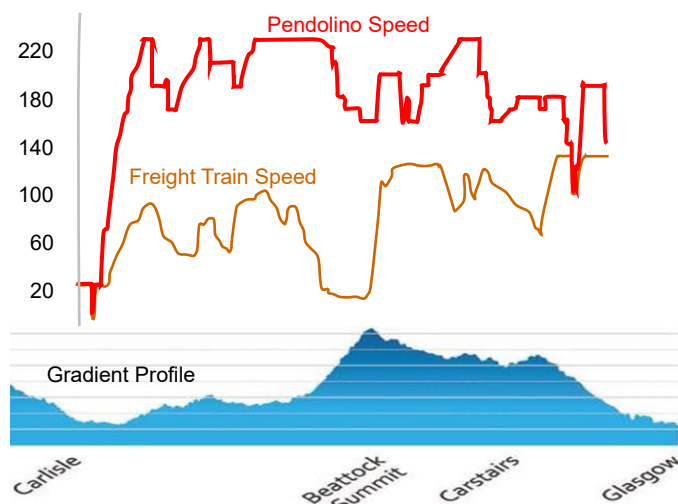


Figure 2 - Terrain and Speed Comparison

illustrates the much greater impact that a hilly terrain has on freight trains. A Class 6 diesel hauled freight train can be slowed to as little as 20 kph by the time it reaches Beattock summit and can take well over 30 minutes to traverse it. In comparison passenger train speed is not affected by the gradient and Pendolinos can run at or close to line speed and traverse the summit in less than 6 minutes. This large speed differential has an enormous impact on route capacity, which is only partially mitigated by 'fighting' fast and slow trains together.

Passenger Traffic

The ECML route section between Monktonhall and Drem Junctions is already at capacity and is restricting demand. Whilst a half-hourly local stopping service can be run to North Berwick at the weekends, this is restricted to hourly on weekdays because of conflicts with non-stop long distance cross-border trains. These conflicts also restrict the number of stopping trains that can be run to Dunbar and the new stations at East Linton and Reston may extend these conflicts further south.

If the significantly growing cross-border passenger, freight and regional passenger train demand is to be met, and conflicts between the various train types resolved in the medium to long term, consideration will need to be given to bringing forward one of the two 4-tracking options in the South East to England Connectivity (SEtEC) Pipeline. This would enable segregation of fast non-stop, cross-border passenger trains from the slower freight and local passenger trains, which have a similar average speed, making it easier to integrate the necessary train paths to accommodate them on the same line. A study to determine whether there would be a business case for implementing either of these 4-tracking options will be undertaken as part of the larger High Speed Rail Business Case, recommendation for which is expected to be confirmed on completion of the STPR2 consultation.

The short term priority is however to enhance the capacity of the ECML within and closer to Edinburgh Waverley.

Enhancement of ECML Capacity

Edinburgh Waverley

Over the past decade new and extend platforms plus enhancements to the western approaches to Edinburgh Waverley has significantly increased capacity to meet the growing demand on these routes. Platforms 5 and 6 in the east of the station were also recently extended for the introduction of the longer Class 800 series cross-border trains. Further enhancements to increase the capacity of the station and its eastern approaches are detailed in the Edinburgh Waverley Master Plan, so are not discussed further in this paper.

Musselburgh to Edinburgh 3-Tracking Route Section

It would be extremely challenging to 4-track the ECML between Edinburgh and Musselburgh, which would require substantial demolition and extensive infrastructure enhancement. A 3-track option would however require very little demolition, have less impact on Craiginney Depot and require much less infrastructure enhancement so could be feasible.

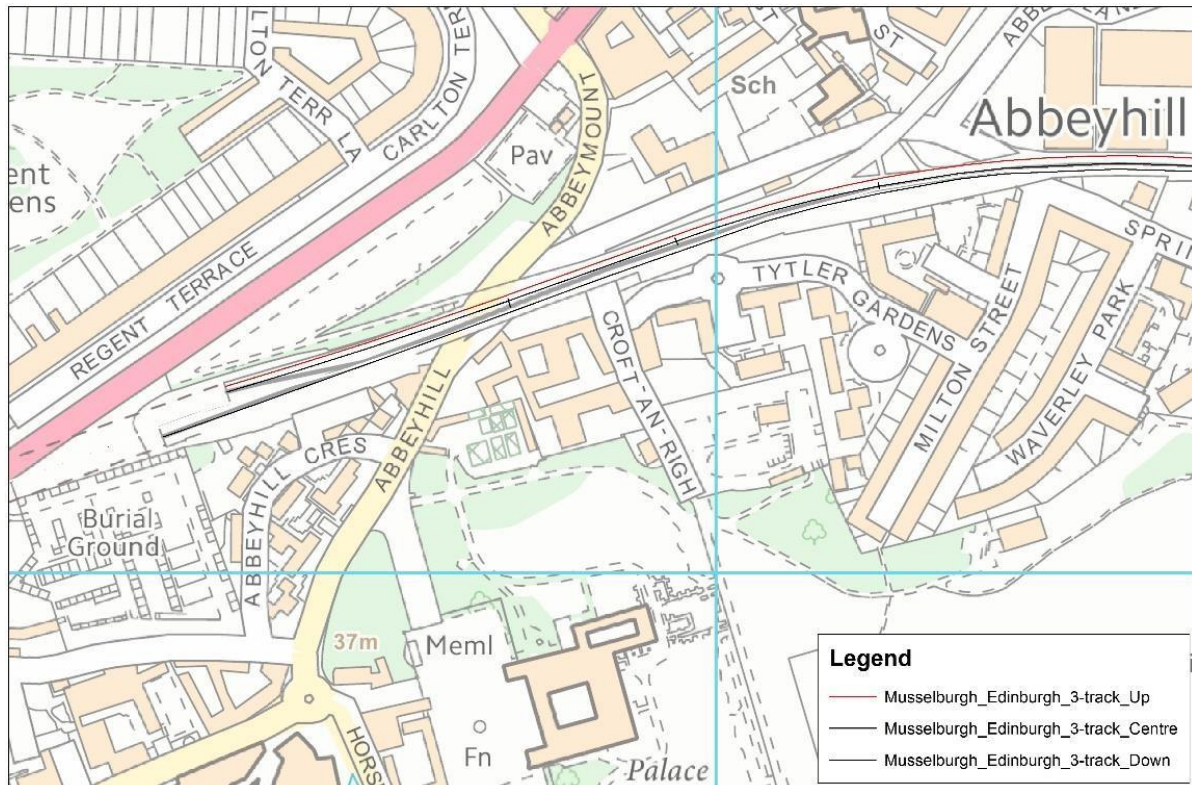


Figure 3 - ECML 3-track Alignment between Abbeyhill and Calton Tunnels

The north Calton Tunnel could easily be redoubled, however concrete rings installed to strengthen the south tunnel structure in the late 1980s mean that it would be challenging to redouble it, so is likely to remain single for the foreseeable future. The existing railway solum between the Calton Tunnels and Abbeyhill Junction was previously 4-track so would not require any widening to accommodate a new 3rd track.

As illustrated in Figures 4 to 8, a new 3rd track could be constructed along the northern edge of the existing ECML between Edinburgh and Musselburgh. The 3 track centres are drawn to scale with 3.5 metre track centres on existing track giving a standard 1830 mm 'sixfoot' and 4.5 metre track centre between existing and the new 3rd line giving a standard 3 metre 'ten foot' so would be compliant with current standards.

The new 3rd track would become the ECML Up (southbound) Line, the existing Up Line would become a bi-directional ECML Centre Line and the other line would remain as the ECML Down (northbound) Line.

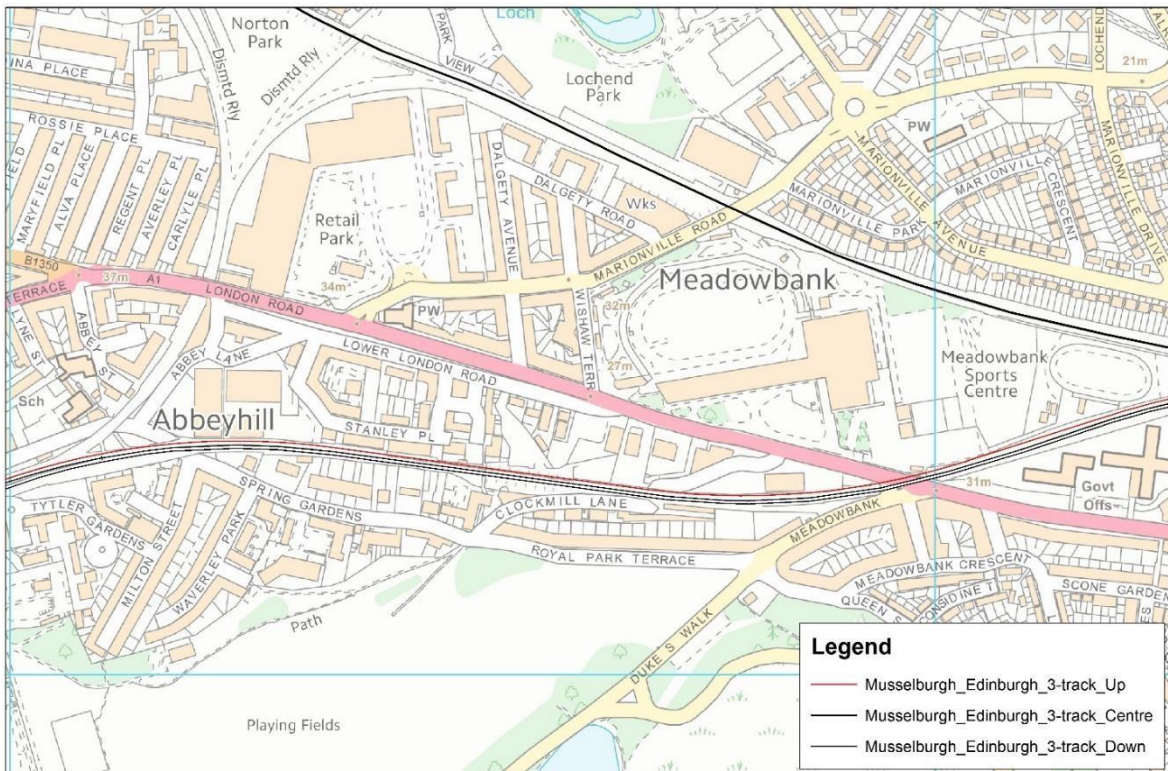


Figure 4 - ECML 3-track Alignment between Meadowbank and Abbeyhill

Adding a new 3rd track along the northern edge of the ECML would likely require the widening of the bridge over Spring Gardens and rebuilding of the A1 (London Road) overbridge bridge. The railway solum would also require widening, which would impact on the properties along the railway boundary to the south of Abbey Lane, Stanley Place and at the east end of Clockmill Lane. The widened railway solum would also encroach into the grounds of Meadowbank sports centre, potentially impacting on the Velodrome.

The railway solum between Meadowbank Sports stadium and Fishwives Causeway, including the bridge under Portobello Road, was previously 4-track so would not require any widening as there would already be adequate space for the new 3rd track.

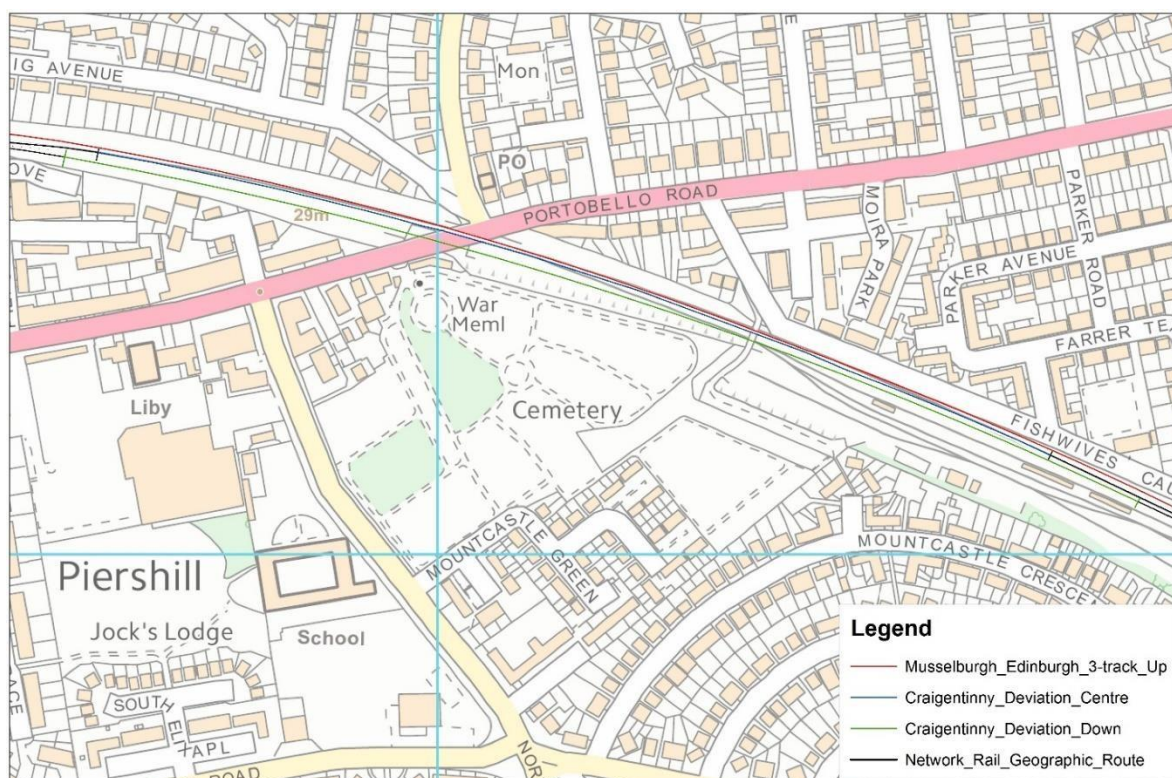


Figure 5- Deviation of ECML Down Line along pre-electrification alignment beneath stone arch bridge

The existing two ECML tracks previously passed under the southwest stone arch span of the A1140 (Portobello Road) bridge but were realigned to pass under the flat metal girder northeast span in 1988/1989 to minimise electrification costs. The northeast span was previously occupied by the Powderhall branch lines; the connection to which was moved further west towards Meadowbank leaving a disused railway solum under the southwest bridge span. Reinstating the ECML Down Line through the centre of the stone arch would probably provide adequate electrification clearance but may require the disused railway solum to be lowered prior to relaying to comply with the current electrification standards.

There is a border between the western end of Craigentinney depot reception lines and the current ECML alignment, so it is possible that Down Line could run along this footprint avoiding the need for the new 3rd track to encroach upon the western end of Fishwives Causeway. If not, it is possible that the new 3rd line would encroach slightly, which would cut-off the vehicular access to the rear of property Number 28 located at the bend in Fishwives Causeway. There would still be the original and existing on-street parking available at the front of Number 28 and sufficient width of the Fishwives Causeway would remain to accommodate a footpath/cycle way at the pinch-point. No other properties bordering Fishwives Causeway have vehicular access from it and it would appear that the vehicular access from Fishwives Causeway to Number 28 was opened up through the boundary wall in more recent times.

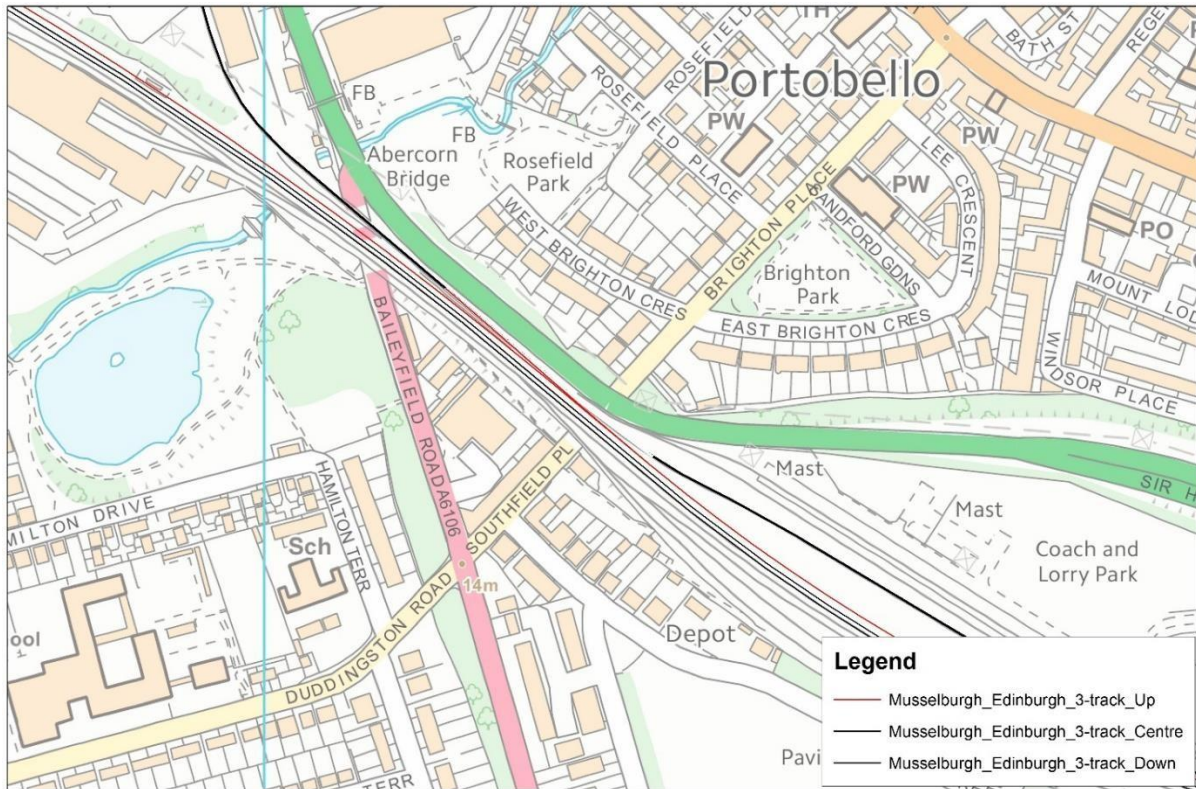


Figure 6 - Leith Branch Junction Reinstated on Previous Alignment

The track power feed across the track from Craightenny depot, illustrated in the top left hand corner of Figure 7, would likely require moving. The Leith Branch bridge line runs southwards from the top of Figure 7, crossing over the A6106 (Baileyfield Road), which was previously double track, so there is likely be sufficient footprint to widen the mainline bridge to carry the new 3rd ECML track. This would require realignment of the Leith Branch bridge deck, which is at a lower level than the mainline bridge and was renewed as a single line bridge span in the mid-1980s when the A199 Sir Harry Lauder Road was constructed alongside it. The Leith Branch connection to the ECML would be reinstated in its previous location between the Baileyfield Road and Southfield Place underbridges.

There is sufficient land already in Network Rail ownership to accommodate the new 3rd track (the ECML Up Line) between Southfield Place underbridge and the A199 Sir Harry Lauder Road, which would also bypass Portobello Junction removing conflicts between southbound cross-border trains and trains to and from Tweedbank.

The ECML Centre Line would be signalled for bi-directional operation.

If the ECML Down Line was also signalled for bi-directional operation between Edinburgh Waverley and Portobello Junction, this could increase both capacity and flexibility as it would permit trains to and from Tweedbank to operate in both directions on this line removing all conflicts with crossborder trains and easing pressure on Portobello Junction.

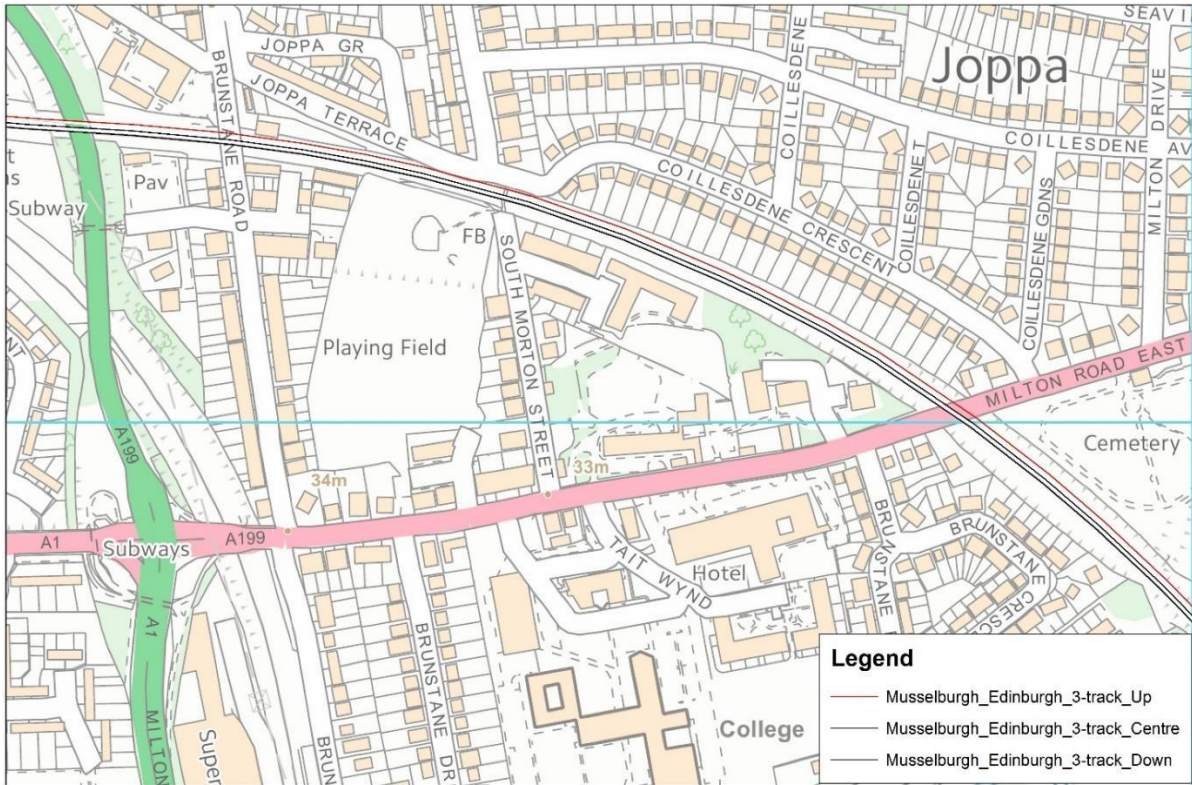


Figure 7 - ECML 3-track Alignment through Joppa

The A199 (Sir Harry Lauder Road) overbridge already has a 3 tracks running beneath it, so would not require alteration. The Brunstane Road bridge, the South Morton Street footbridge and the A199 Milton Road East overbridges would however require reconstruction to accommodate the new 3rd track. The single property adjacent to the railway boundary to the south of Joppa Terrace would require demolition, however there is likely to be sufficient footprint to enable the new 3rd track to be accommodated without impacting on Joppa Terrace itself but would likely require a retaining wall to be built.

Number 2a at the western end of Colliesdene Crescent may require demolition, but there is likely to be sufficient footprint for the new 3rd track to be built without impacting on the remaining residential gardens but would likely require a retaining wall to be built. Likewise, there is likely to be sufficient footprint for the new 3rd track to be built without impacting on the cemetery, but it may also require a retaining wall to be built.

The route between the cemetery and the A6095 Newhailes Road to the northwest of Musselburgh station is bounded by farmland so it would likely be possible to procure a strip of land to accommodate the new 3rd track.

Musselburgh to Drem or East Linton 4-Tracking Route Options

The A6095 Newhailes Road bridge to the northwest of Musselburgh station would require rebuilding to accommodate the new 3rd track. All three tracks curving under the A6095 Newhailes Road bridge are all illustrated by red lines in Figure 9 to indicate that they would all require realignment to enable the new ECML 3rd Up (southbound) Line curve to connect end-on to the existing ECML Up Line at the beginning of the Musselburgh Station straight, illustrated by the northeast black line to indicate that it would not require alteration.

The ECML Centre Line curve would connect end-on to the existing ECML Down Line at the beginning of the existing Musselburgh Station straight, illustrated by the southwest black line to indicate that it would not require alteration.

The ECML Down Line curve would be slued to the southwest, illustrated by the southwest red line in Figure 9 to create space between it and the existing ECML for a new 4th track.

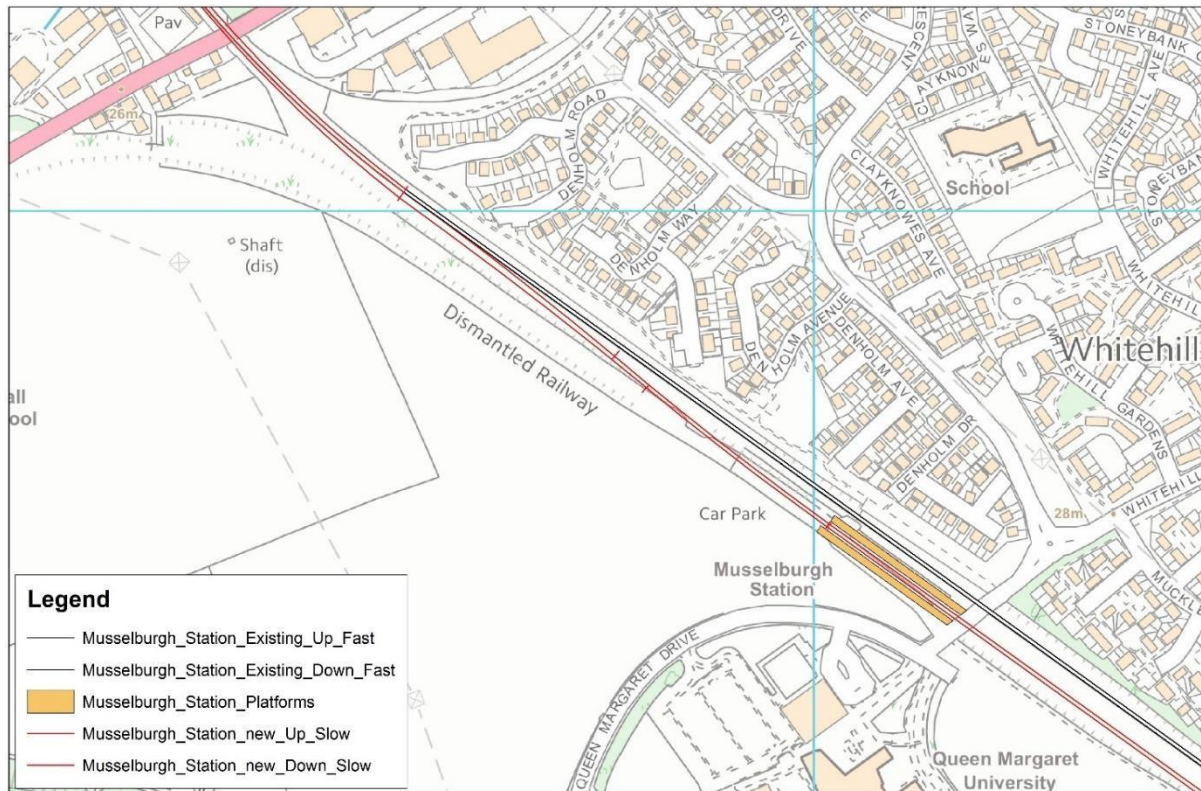


Figure 8 - Musselburgh station and Junction

The two existing ECML lines, illustrated by the black lines in Figure 9 would become the Up Fast and Down Fast Lines carrying the non-stop cross-border passenger trains. The two new lines, illustrated by the red lines in Figure 9, to indicate new track, would become the Up Slow and Down Slow Lines which would carry stopping ScotRail passenger trains. Since stopping trains approaching Musselburgh station from the north would likely be running on the Centre Line on the 3-track section only a single turnout, illustrated by the northeast red line in Figure 9 turning out from the beginning of the existing Musselburgh Station straight, would be required to create the 3-track to 4-track junction.

The new Up Slow and Down Slow Lines would run along the disused railway solum through what is currently the Musselburgh station car park, which would need to be relocated. Two new station platforms, illustrated by the orange rectangles in Figure 9, would be built on the new ECML slow lines. The existing platforms could either be abandoned or could be retained for use during perturbed operation.

As the area bound by the ECML, Queen Margaret University, the A1 and Newcraighall Road is earmarked for development, a portion of land along the disused railway solum would need to be Safeguarded, as would the land between Queen Margaret Drive and the new Musselburgh Station platforms for a relocated Car Park.

The 3-track and 4-track lines of the ECML to the north and west of Musselburgh have been illustrated by individual thin lines in Figures 4 to 9, however for clarity each pair of lines in the 4-track section east of the ECML to the east and south of Musselburgh are shown as one thicker red line representing the two new tracks (the ECML Fast Lines) and one thicker black line representing the two existing lines which would become the ECML Slow Lines.

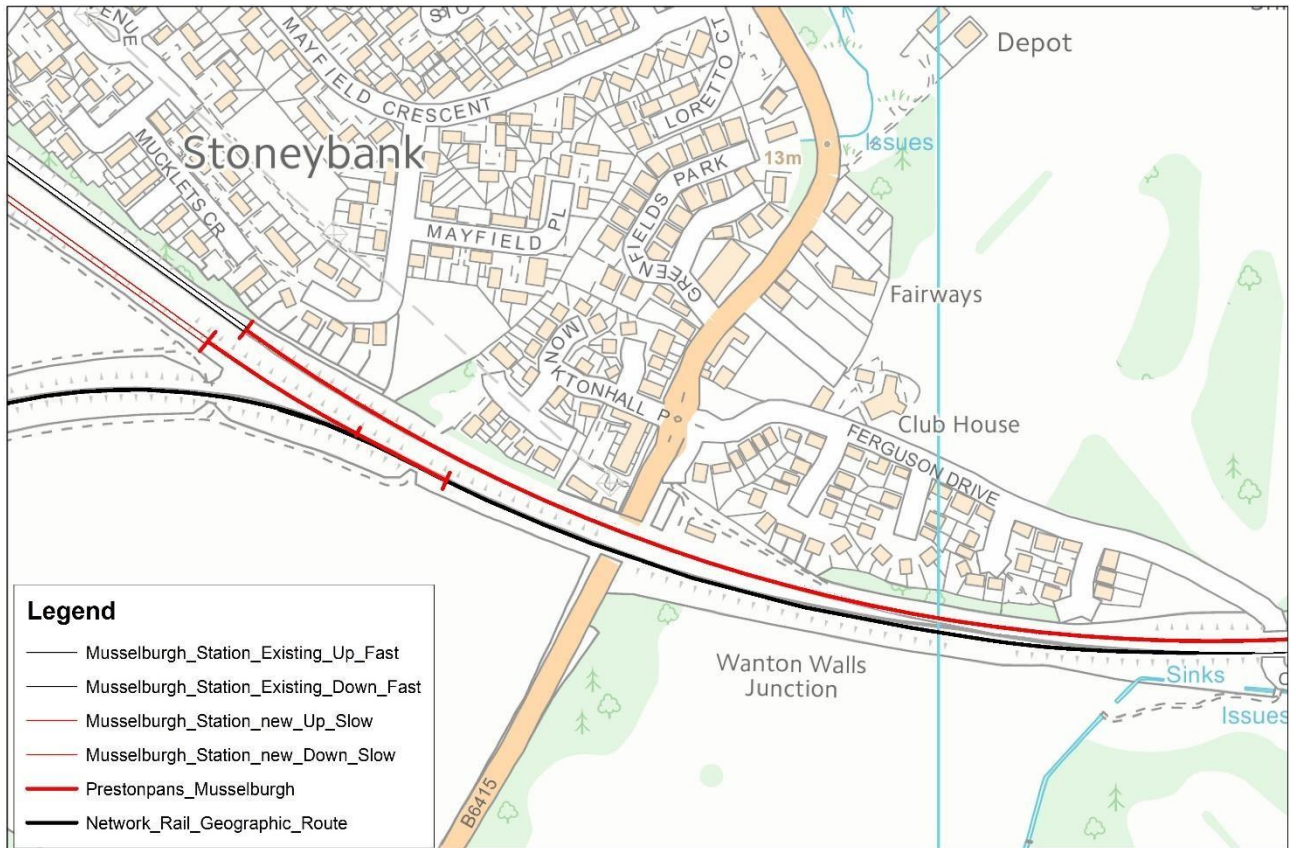


Figure 9 - Wanton Walls Junction (Monktonhall)

The current alignment of the ECML crosses over the northern span of the B6415 overbridge and over the southern span of the Ferguson Drive Overbridge, this existing alignment has been deleted for clarity. Wanton Walls Junction, which is currently situated between the B6415 and Ferguson Drive Bridges has also been deleted for clarity and Figure 10 illustrates the proposed relocation of Wanton Walls Junction to the west of the B6415 overbridge. The northern span of the Ferguson Drive overbridge currently carries a disused railway solum.

The thick red line between the Musselburgh Up and Down fast lines and the Ferguson Drive overbridge, illustrates the proposed realignment of the ECML along its historic alignment, so is coloured red illustrating that this is a track realignment. The thick red line between the new Musselburgh station Up and Down Slow Lines and the repositioned Wanton Walls Junction is also coloured red to illustrate that this is new track. The thick black line illustrates the existing Network Rail Geographical Route freight line between Millerhill Depot and the current location of Wanton Walls Junction just to the west of the Ferguson Drive overbridge.

Since the Freight lines would not be connect to the new ECML Fast Lines, the cant through the realigned curve could be increased to at least maintain the existing 90 mph line speed through what would be a slightly smaller curve radius.

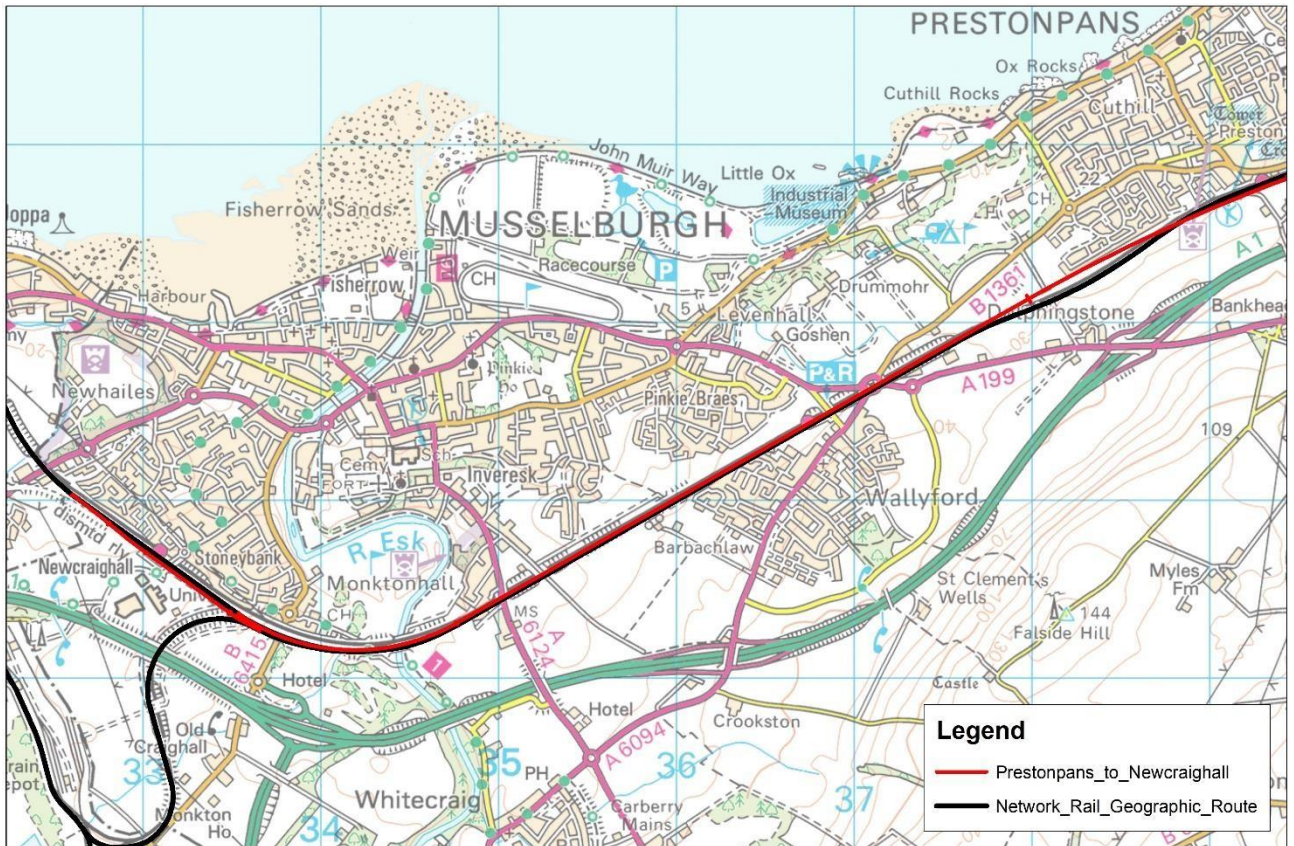
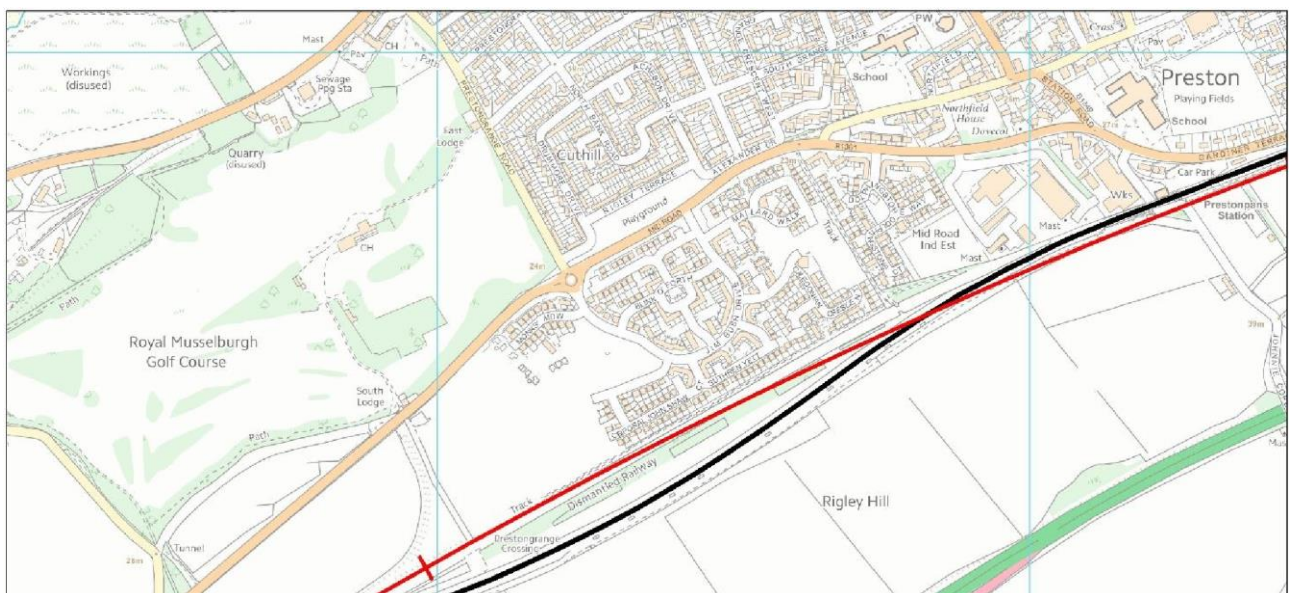


Figure 10 - Prestonpans to Musselburgh

The new ECML Lines, illustrated by the red line in Figures 11 and 12, would run along the northwest edge of the existing ECML (Network Rail Geographical Route) between Musselburgh and Prestonpans. As the Up Platform of Wallyford Station would be impacted upon by the new ECML Fast Lines, the existing ECML lines through the station would require realignment to accommodate the repositioned platforms.



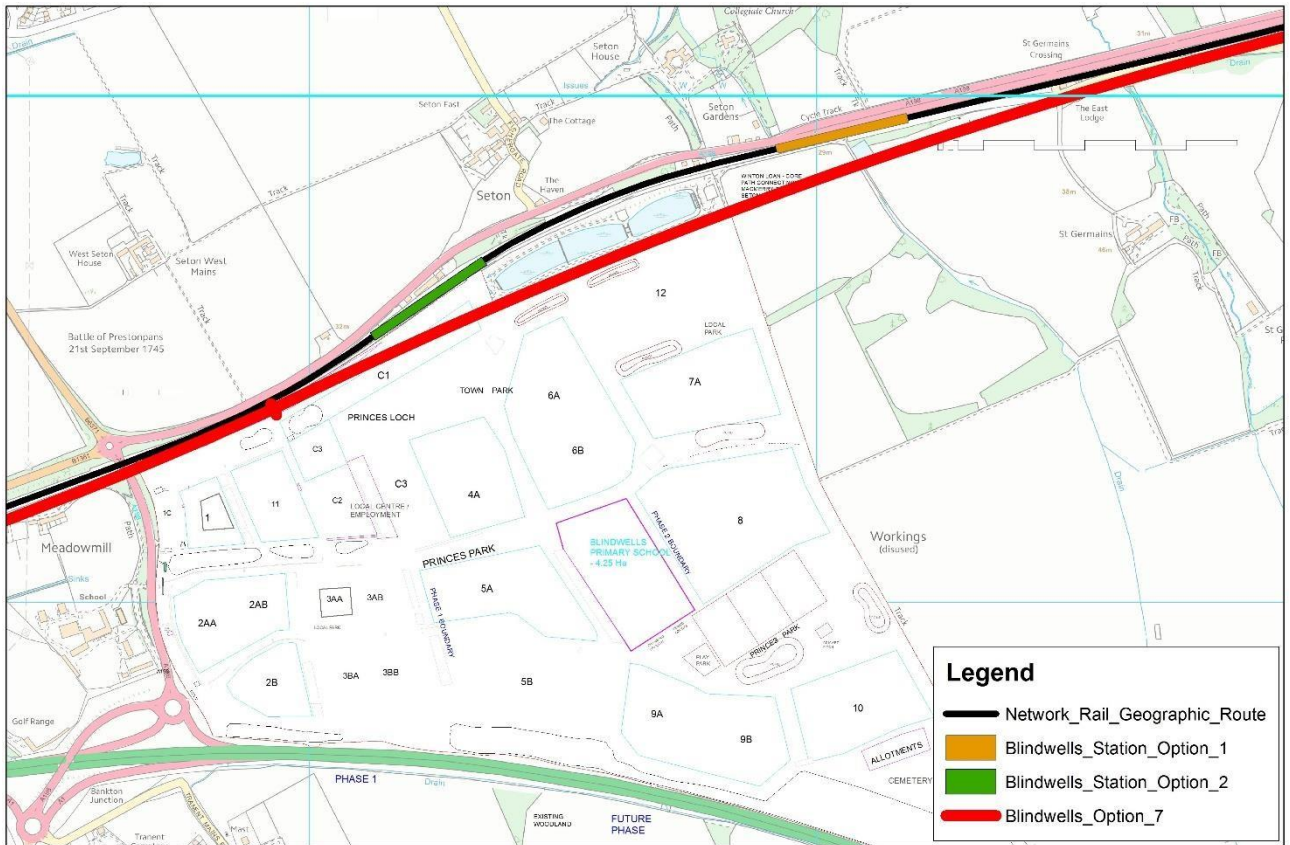


Figure 12 - Alignment through Blindwells Development Site phase 1

The two additional tracks for the 4-track alignment through the northern edge of the Blindwells development site, illustrated by the red line in Figure 13, is common to both the proximal and nonproximal 4-tracking alignment options discussed further in the next chapter. It cuts through part of Development Zone C1, which has outline planning for non-specific industrial units, then along the southern edge of the National Coal pumping station reed beds.

East Lothian Council is in discussion with the developer regarding the potential to safeguard this new route alignment on their behalf (not a Transport Scotland led safeguarding). Access to the reed beds could be from a new bridge over the ECML and A198 being planned by East Lothian Council to link the A1 to the Blindwells Development and a new industrial development on the site of the former Cockenzie Power Station.

There are two options for a potential station site:

- Option 1, illustrated by the orange rectangle in Figure 13, is closer to the likely location of the new overbridge and is also situated at the western end of a straight track section which would meet the standards requirement for new station platforms to be built along a straight piece of track wherever possible.
- Option 2, illustrated by the green rectangle in Figure 14, located on the double reverse curve further to the west could be a feasible alternative as the curve radii are large, however access between the station, car park and the overbridge would be further.

The St Germain's hamlet would also be accessed from this new bridge, enabling the last remaining level crossing on the ECML between Edinburgh and the border to be closed.

Earlier Transport Scotland and Network Rail Feasibility Studies have identified two options for increasing the capacity of the northern part of the ECML between Prestonpans and East Linton to remove conflicts between fast non-stop cross-border trains and the slower freight and stopping trains serving the intermediate stations. The 3 and 4 tracking options between Edinburgh and Blindwells share a common alignment and both of the 4-tracking options between Blindwells and East Linton have a similar cost per linier route kilometre.



Figure

13 - Comparison of the 4-tracking options between East Linton and Musselburgh

The 4-tracking NR option parallel with, and proximal to, the existing ECML route between Prestonpans and Drem Junction is illustrated by the yellow and black line in Figure 14.

The non-proximal 4-tracking option, illustrated by the red line in Figure 14, has a more direct alignment between Prestonpans and East Linton which, having a more southerly connection with the ECML is therefore longer so would have an overall higher capital cost, but would deliver additional benefits. Both options would remove conflicts between non-stop cross-border trains and trains stopping at Musselburgh, Wallyford, Prestonpans and a potential new station at Blindwells. The non-proximal route would additionally remove conflicts at Longniddry, Drem and East Linton stations and would also remove conflicts with freight trains at Wanton Walls Junction in Musselburgh and East Linton.

The non-proximal route would provide an opportunity for a new through station at Haddington, illustrated by the yellow circle in Figure 14, located approximately 900 m north of the town centre at the A1/A199 (Abbotsview) Junction. This location would be significantly closer than the 3 km distant branch line station option illustrated by the green circle in Figure 1 and would also give Haddington connectivity in both directions to Edinburgh, Berwick-upon-Tweed and beyond. The non-proximal route being straighter and faster would deliver significantly reduced journey times for cross-border trains due to them being able to run at their higher 140 mph operating speed. The non-proximal

route could also form the first phase of a high-speed line between Edinburgh and Newcastle, which would be capable of a 45 minute journey time.

Mass Rapid Transit

In 2019 the programme for government announced a long-term investment to form Bus Partnerships in accordance with the Transport Scotland Act. A fund of £500m was made available to address increased congestion and declining patronage by improving journey times through targeted interventions of strategic routes and local roads. This strategy formed part of the response to the government's climate emergency and potential integration with option 12 – mass transit through Bus rapid transit proposals.

The funding is designed to deliver outcomes to improve bus journey times and improve reliability by prioritising bus over car. The fund would allow greater investment by operators to provide highquality bus services that meets the 4 national transport priorities. By enhancing the network, through tackling pinch point's journey times will improve removing bus traffic from congestion and reducing volumes. This consequently reduces emissions increases patronage where more people are walking and cycling to their destinations.

The Edinburgh and southeast of Scotland city deal was awarded £3.03m from the BPF in June 2021 to develop a Strategic business plan to improve the bus corridors linking to the city. Following a successful gateway check the outline business cases will be developed for each recommendation.

The strategic business case corridors for East Lothian are the A1 and A199 to Edinburgh city centre. The key constraints are Musselburgh High Street, which impacts services travelling to the city centre.

High-level appraisal of the interventions has identified several improvements to ELC transport network for further technical evaluation and sifting.

Specifically, ELC interventions are defined in A1/A199 Package A grouping:

Table 4: A1/A199 Package A grouping

Strategic Business case – Tram Route 3

Option 12 of STPR2 is the development of Edinburgh Mass transit option requiring upgrading public transport within the Edinburgh city region taking into consideration, bus rapid transport, tram, light and heavy rail.

STPR2 signalled Transport Scotland willingness to works with regional partners to "develop and enhance" cross-boundary public transport connectivity. This would complement and integrate with the Region's current bus, tram and heavy rail networks, to provide improved connectivity between Edinburgh and the surrounding communities in the Region, as well as more direct connections between communities outside Edinburgh.

The city of Edinburgh has commissioned Jacob's to develop a strategic business case for Edinburgh Strategic Sustainable Transport Study 2 (ESSTS2), a preliminary analysis of Tram route 3 to the southeast quadrant linking to Edinburgh Royal infirmary (ERI), bio-quarter, Dalkeith and QMU at Musselburgh.

The Edinburgh South east Scotland Mass Transit (ESES MT) system would increase the public transport options for cross-boundary travel in order to facilitate end-to-end sustainable travel

choices, reducing the need to change between modes and services, leading to lower public transport journey times which are more competitive compared than travel by private car.

It is envisaged the system could potentially comprise a mix of tram, rail and bus-based transit modes, including Bus Rapid Transit (BRT), and involve reallocating existing road space to reduce the impact of congestion on public transport journey times and reliability.

The system would complement and integrate with the region's current bus, tram, heavy rail and active travel networks. The system would also connect with existing and new Mobility Hubs/Transport Interchange locations in the region, alongside the wider local network at the micro level to further facilitate the cross-boundary connectivity provided by this recommendation across the region. This would extend the reach of mass transit and improve connectivity for more rural as well as urban areas to encourage mode shift from car to public transport and other more sustainable travel options.

The ESES MT would include cross-boundary routes along key corridors of demand, including where congestion impacts on existing bus services, where public transport is more limited and where more congested parts of the local network connect with the strategic network. This would also improve the accessibility of public transport in areas that are more disadvantaged and where the population has been identified as experiencing higher levels of transport poverty to promote a greater dependence on public transport, increase travel choices for to key destinations (employment, education, healthcare and other services) and help to address inequalities.

The system would also help facilitate a 'step-change' in spatial accessibility, including access to the strategic sites set out within the Region's development plans and reflected in the Edinburgh and South East Scotland City Region Deal, as well as developments of national significance identified in NPF4 such as Edinburgh Waterfront.

The STAG focuses on the western sector of East Lothian as most of the trips to and from the wider area converge there; it also focuses on Haddington to explore the possibility of a rail connection for it, and seeks transport solutions for the area around Blindwells and former Cockenzie Power Station site given the growth and benefits from those strategic growth assets which are part of the focus for the Edinburgh and South East Scotland City Regional Deal. The STAG is being developed to explore technically sound strategic transport infrastructure and service solutions that have buy-in from national agencies that can be justified and included in relevant plans and proposals, and that can be delivered to enable these strategic projects. The broader cross boundary issues would be a matter for LDP development, but discussions with Transport Scotland confirms that the STAG, and its associated modelling work, would provide a firm foundation for the development of a Local Development Plan Transport Appraisal. The outcomes from the modelling considering the reference case and future demand assessments will provide a robust base to develop any LDP2 development proposal additional to or instead of being considered as part of the STAG appraisal.

The STAG is therefore needed to support the promotion of the Council's strategic growth assets and ambitions. It is being progressed to contribute to development of the Scottish Government's Strategic Transport Projects Spending Review (STPR2), National Planning Framework 4 (NPF4), the interim Regional Spatial Strategy, Regional Prosperity Framework and its Delivery Plan and Prospectus, and SEStran's Regional Transport Strategy. It can also support the development of East Lothian's Local Development Plan 2, the East Lothian Economic Strategy review, the next Local Transport Strategy, a Blindwells Business Case and associated work, and the former Cockenzie Power Station site project.

The STAG study needs to identify such solutions that integrate with, add value and complement and that do not undermine the Scottish Government's ambitions for National Development 18: High Speed Rail as set out in NPF4, and Recommendation 45 of STPR2, in East Lothian.

Delays to the Preliminary Appraisal meant the Detailed Appraisal did not conclude in time for East Lothian's STAG have a material influence on national plans and recommendations defined in STPR2.

Consequently, and irrespective of high level recommendations, further technical work will be required to develop the strategic business case into an outline business case in line with GRIP process and taking into consideration further work in the context of cross boundary impacts, the inter-relationship between the phased delivery of transport capacity interventions (service and infrastructure) and the ability to accommodate additional phased, with the need to also consider the proportions developer contribution requirements and the delivery mechanism for those interventions growth. Fundamentally, the strategic context for this work and outputs from the STAG will be required to secure support for strategic transport interventions needed to mitigate growth and move to a sustainable transport future.

To further explain, the STAG process broadly comprises four parts, with a gateway and progression model such that Stage 2 can only be approved by Transport Scotland after Stage 1 is approved, and so on. Part 4 Monitoring and evaluation are out with the scope of this appraisal but will be necessary subject to the option(s) being progressed. Below is a summary of the 3 stages in the process the Council has reached so far:

By 2020, following review by Transport Scotland. Reveals a need for further strategic transport interventions to accommodate the cumulative impact of additional growth assets and ambitions in this area with a long list of interventions identified and considered by Transport Scotland; submitted to Transport Scotland for review in November 2021, commensurate with relevant national and regional plan reporting stages (with on-going engagement on these as the STAG was developed). The draft was developed during the Covid_19 pandemic, and stakeholder engagement was a particular challenge, in particular with the rail industry and on emerging plans to enhance East Coast Main Line infrastructure and services and timetable review. The draft Preliminary Appraisal was commented on by Transport Scotland end of September 2022 (before revised draft NPF4 and STPR2 were published in November and December). A short note of the interventions short list and Transport Scotland's comments are set out in the section below. Transport Scotland's comments have been considered by our consultant, and a package of essential (and optional) work to address them (subject to TS confirmation of this) identified to complete this part of STAG, with associated budget implications. The cost of this additional consultancy work to address TS point.

It refines the Preliminary Appraisal's short list of interventions to find preferred options for delivery, with concept designs as relevant. This output will be key for development, master planning and

project planning and appraisal purposes. The Detailed Appraisal was progressed in the 11 months ELC waited for Transport Scotland's comments on the draft Preliminary Appraisal as the Case for Change was accepted, there was confidence in the draft Preliminary Appraisal work and short list, the Detailed Appraisal stage needed to be progressed so Transport Scotland grant monies could be utilised on time (a date that has since been altered, now to 31st March 2023, and may be extended again), and as it was needed to meet final reporting timescales of national and regional plans. However, Transport Scotland's comments on the Preliminary Appraisal may impact work carried out to date on the Detailed Appraisal. A note of emerging preferred interventions, not yet seen by Transport Scotland, is also below.

In the context of STAG, the work will form the strategic business case, presented to government to move the proposals to pipeline development. The process is laid out below in Diagram 9. In the development of the appraisal process, clear rail options have emerged from the transport appraisal, consequently there will be aspects of work undertaken as part of the transport appraisal, which contribute to elements of the early stages of the GRIP process, particularly GRIP stages 1 and 2.

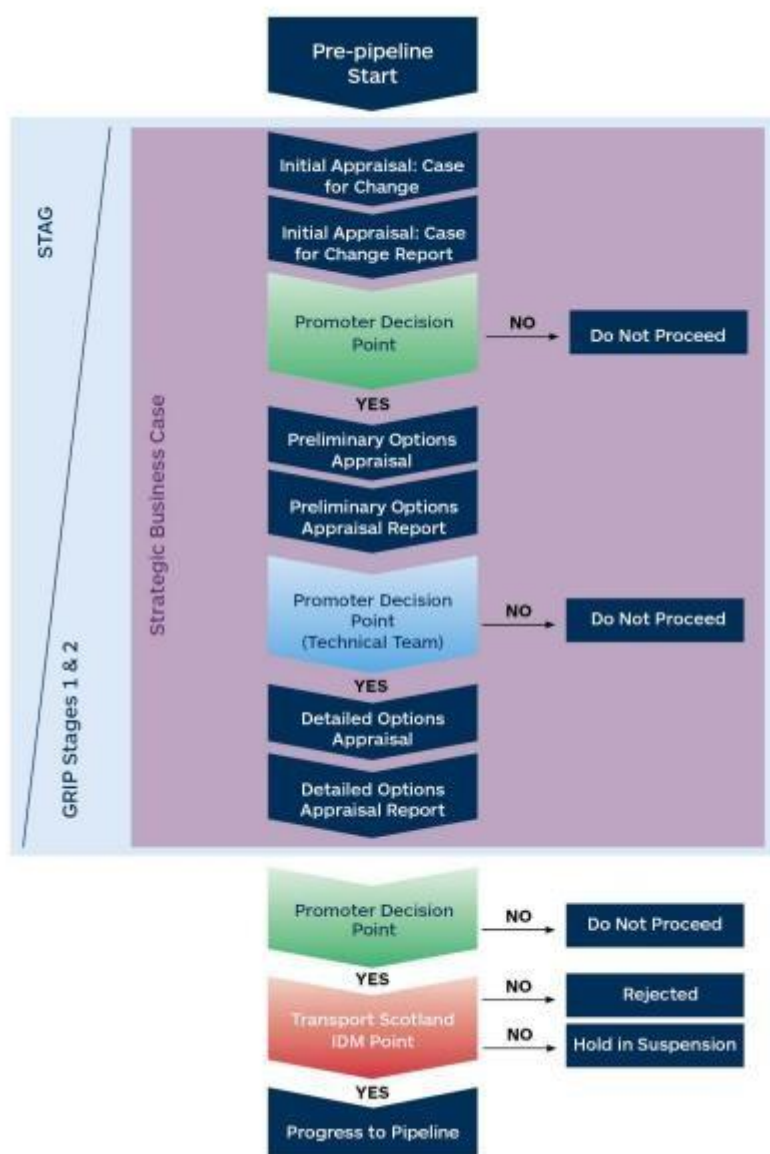


Diagram 9 – STAG Process – Rail Enhancement and Capital investment Strategy

Next steps will require the preparation of an outline business case (OBC) for Transport Scotland's consideration. Subject to satisfactory approvals a final business case (FBC) will follow, again subject to rigorous scrutiny below construction phases.

The Rail enhancement and capital investment route to delivery is challenged but the East Coast constraints are well understood with the Growing Lothian and Borders (GLAB) OBC in development. This work stream looks to enhance capacity and resilience to the Scottish Borders, Currie feeder station improvements to Millerhill and Portobello junction and clearance of the Edinburgh south suburban line. Clearly enhancements at Portobello are welcomed but further capacity is needed to accommodate the low distance high speed market, freight and local services. The requirement for further Rail enhancements is heightened by the fact the rail corridor sits in a unique set of circumstance with significant city deal and Levelling up growth projects identified both in the National Planning context, and UK levelling up portfolio immediately adjacent to the line. By proximal 4 track as a business case including Blindwells would cover 75% of East Lothian population within 20minutes cycle distance from a station.

Moving forward, the identification of, and key agency alignment on and support for a comprehensive transport solution, with a specific strategic approach will be necessary to lock in these growth assets. Programmes and projects now needs to be agreed outwith national planning processes, and conclusion of our STAG with Transport Scotland will be instrumental to this.

A clear and complete SBC will be expected to:

- make a robust case for change;
- demonstrate how the emerging scheme/project optimises value for money in terms of economic, social and environmental benefits;
- inform the decision on whether the emerging transport option should proceed to development and;
- incorporate the Initial Appraisal: Case for Change Report; Preliminary Options Appraisal Report; and Detailed Options Appraisal Report.

East Lothian Infrastructure Enhancement Options - East Lothian STAG Assessment Part 1

The first STAG assessment models a total of 19,000 new houses to be constructed in East Lothian over the next 10 to 15 years, including a new town at Blindwells which would have up to 12,000 houses and a population of 22,000 when complete. There is an ambition to provide a better combination of public and active transport provision to previous new town planning in the 1960s which was predominantly car led. The former Cockenzie Power Station site is being developed as a significant employment opportunity, receiving over £10m to remediate the site, which is expected to provide employment between 1,500- 3,000 people. There is also the food and drink innovation park under development at the Queen Margaret University, Musselburgh.

Transport modelling undertaken anticipates that such considerable uplift in travel demand will overwhelm the three main eastern routes into Edinburgh, (the A1, A199 and the A720 Bypass), on which demand already exceeds capacity during peak hours. In accordance with the Scottish Transport Appraisal Guide (STAG), an assessment is progressing to identify a wide multimodal array

of potential enhancements that could be put in place and sifting of the options to determine which of these would be the most optimal in meeting the increased demand. Additional buses on their own would not be sufficient without significant enhancement in the road network to avoid them being caught up in congestion, therefore a Strategic Business case is being promoted by Edinburgh and South East Scotland City Region Deal on the strategic arterial corridors to reduce journey times, remove congestion hot-spots through the introduction of bus prioritisation schemes, however, the case is yet to be made therefore ELC access strategy STAG appraisal will consider enhancements to the light and heavy rail networks.

Whatever mode is enhanced, the cost is likely to exceed £1 billion. For example grade separation of the Sheriffhall roundabout on the A720 alone could cost upwards of £430 million as would an upgrade of the A1/A720 junction, which would also require a new bridge over the River Esk. Widening the A1 (T) and/or the A720 would add several hundred million to the cost. The construction of an inward bound bus lane between Newcraighall and Oldcraighall is costed at £60m. A series of strategic park and rides will require to be positioned orbiting the City of Edinburgh to intercept traffic as the cities policy looks to reduce vehicle km by 30% by 2030. Consequently, East Lothian Council's road network and parking provision would also need to be enhanced to meet the additional demand.

Alternatively; a significant enhancement in the Public Transport Network could meet this increased demand in line with the Scottish Government's Target of reducing car use by 20%. For example, extension of the Edinburgh Tram into East Lothian or increase the capacity of the East Coast Main Line (ECML) to accommodate additional and more frequent station stops. The following Heavy Rail options were considered and sifted out in Part 1 of the STAG Assessment:

Option	Rail & New Mode	Status after Case for Change
4.	Relocate Longniddry station to the west end of Longniddry	Sifted Out
6.	Relocate Longniddry station to the west end of Longniddry and relocate Prestonpans station to the south east corner of Prestonpans	Sifted Out
7.	A new station midway between Prestonpans and Longniddry	Sifted Out
8.	A new station at the eastern end of the Blindwells site closest to Longniddry	Sifted Out
10.	Two new stations at Blindwells: one at the east (closest to Longniddry) and another at the west (closest to Prestonpans).	Sifted Out
11.	Provide a new branch line and station at the former Cockenzie Power Station site	Sifted Out
12.	Provide a new branchline and station at the former Cockenzie Power Station site and close existing Prestonpans station	Sifted Out
13.	Rebuild the former branch line to Aberlady / Gullane and provide a new station to serve Blindwells	Sifted Out

East Lothian STAG Assessment Part 2

Part 2 of the East Lothian STAG Assessment is now underway and is putting significant effort into identifying potential enhancements that could be made to public transport connectivity in line with Scottish Government Policy of reducing car usage by 20% within the next 10 to 15 years. The following Heavy Rail options were retained in Part 1 of the STAG Assessment are now being considered further in Part 2:

Option	Rail & New Mode	Status after Case for Change
1.	Extend North Berwick services to 8 cars.	Retained
2.	Half hourly frequency on North Berwick services.	Retained
3.	Retain and upgrade existing stations at Longniddry and Prestonpans.	Retained
5.	Relocate Prestonpans station to the south east corner of Prestonpans.	Retained
9.	A new station at the western end of the Blindwells site closest to Prestonpans.	Retained
14a.	Rebuild the former heavy rail branch line to Haddington and provide new stations at Blindwells and Haddington. One train per hour to each of North Berwick, Haddington and Dunbar.	Retained
14b.	Rebuild the former heavy rail branch line to Haddington and provide new stations at Blindwells and Haddington. Two trains per hour to North Berwick and Haddington and 1 train per hour to Dunbar.	Retained
14c.	Rebuild the former Haddington branch as a Light Rail shuttle service.	Retained
15a.	Build a new heavy rail line through the edge of the Blindwells site and on to Haddington with new stations at Blindwells and Haddington. This new line could also be the first phase of a new High Speed Rail line between Edinburgh and Newcastle.	Retained
15b.	Build a new light rail line through the edge of the Blindwells site and on to Haddington with stations in each location.	Retained

Option 14 of the STAG assessment considers a future use for the disused branch line between Longniddry and Haddington, which is currently a cycle path, either as a reopening of the former heavy rail branch line or as a new light rail shuttle service. The disused railway solum, which is illustrated by the dotted black line in Figure 1, is intact between Longniddry and the A1, which would be challenging to cross. The extent of the branch line within Haddington, including the former station site, has been largely lost to development. If developed, the branch line would therefore

likely terminate at a station, illustrated by the green circle in Figure 1, to the north of the A1 adjacent to the A1/B6471 (Oaktree) Junction approximately 3 km west of the town centre.

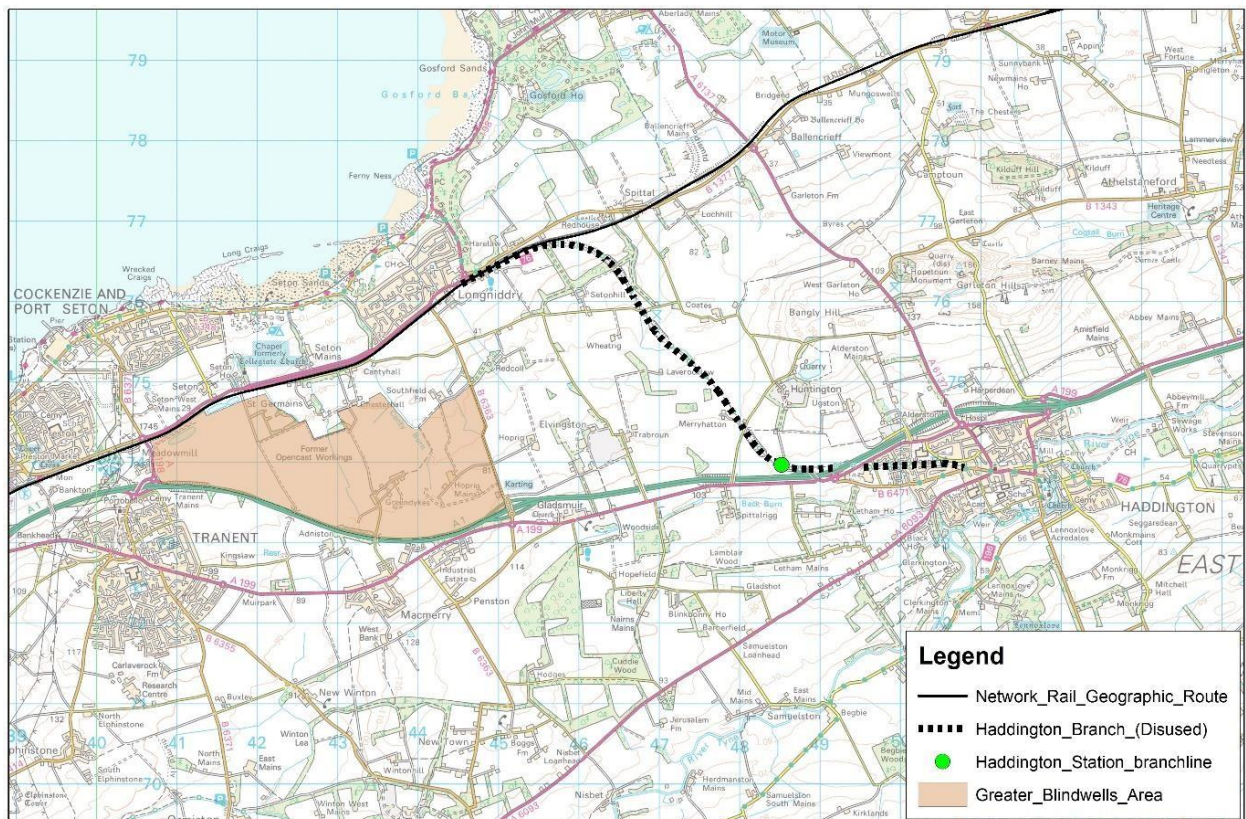


Figure 14 - Blindwells Development Site and Disused Haddington Branchline

An additional branch line connecting to the East Coast Main Line (ECML) would require an additional train service, which would add to the congestion of the line and duplicate the service already provided by existing trains between Edinburgh and Longniddry.

A population of 22,000 makes a very strong business case for a new station at Blindwells. House building is already underway so there would be benefit from early provision of a developer funded station at Blindwells to be put in place before residents develop car based travel patterns.

The ECML is already at capacity and it is unlikely that a new station at Blindwells could be operated without impacting on existing services, such as skip-stopping patterns, slowing down cross-border services in order to reduce speed differentials with stopping trains or a further reduction in crossborder train paths. Whilst this could facilitate an early opening of a new station at Blindwells, it is unlikely to be sustainable in the medium to long term in the face of increased demand for additional freight and passenger services.

Option 15a heavy rail line through the edge of the Blindwells site and on to Haddington with new stations at Blindwells and Haddington. This new line could also be the first phase of a new High Speed Rail line between Edinburgh and Newcastle as a 3rd or 4th track to the ECML in the medium to long term as a means of increasing capacity to meet forecast uplift in demand is considered in more detail under High Speed rail.

