

A71 Cycle & Active Travel Corridor Feasibility Study



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Executive Summary

E.1 Introduction

West Lothian Council, The City of Edinburgh Council and SEStran commissioned AECOM to assess the feasibility of enhanced active travel opportunities along the A71 corridor between West Calder and Edinburgh.

E.2 Overview

Opportunities for enhanced active travel have been reviewed through a desktop exercise, a series of site visits, consultations, and an option development and appraisal exercise. Appraisal has considered the potential benefits to cyclists and pedestrians, along with consideration of the practical deliverability of each option.

E3. Recommended Options

The following options are recommended to meet the aims of the delivery partners for the A71 corridor study:

Table E.1: Recommended Options

Option No.	Description	Total/50
1b	A71 Shared Use Path	36
1e	Harburn Road to West Calder High School (existing)	36
1f	West Calder High School (existing) to Newpark Roundabout	35
2a	A71 Corridor Cycleway (western section)	40
2c	A71 Corridor Cycleway (eastern section)	43
3b	Calder Junction overbridge	39

The planning and design process for these schemes, particularly within Sections 2 and 3, could potentially be long and complex. Therefore some of the other options (for example surfacing improvements on National Cycle Network route 75) may be worthy of consideration in the shorter term.

Furthermore there are options which do not meet the aspirations of the A71 Corridor Study, and therefore score poorly against the assessment criteria, but nevertheless offer other local transport improvements. These are listed below.

Table E.2: Wider Network Connections

Option No.	Description	Total/50
1d	West Calder Town Centre Improvements	28
2e	B7031 Cycleway Calderwood to Kirknewton	33

E.4 Next Steps

Some elements of the route, such as West Calder to Polbeth (Option 1B), can be progressed in the relatively short term. Meanwhile other sections such as Livingston to Hermiston (Options 2A or 2C) will require significant further study, and a relatively long planning and design period for implementation,

In the short term, there are a number of actions which can be undertaken to further progress opportunities for active and sustainable travel, and these are documented within the report.

1 Introduction

1.1 Overview

West Lothian Council, The City of Edinburgh Council and SEStran commissioned AECOM to assess the feasibility of enhanced active travel opportunities along the A71 corridor between West Calder and Edinburgh.

The aim of the study is to identify opportunities to improve facilities for walking and cycling in local areas along the corridor as well as on a strategic basis to support everyday commuting journeys.

This report provides an assessment of the feasibility of various options and makes recommendations for next steps to be taken by the project partners.

1.2 Study Area

This study focuses on the A71 corridor between West Calder and Edinburgh, bounded to the west by the western extents of West Calder and to the east by Calder Road in west Edinburgh. The study area was considered in three distinct sections, as detailed below:

Table 1.1: Route Sections

Section	Extents	Objectives
1	West Calder to Newpark Roundabout (Livingston)	Walking and cycling improvements.
2	Lizzie Brice's Roundabout (Livingston) to Hermiston	Focus on a cycling corridor.
3	Hermiston to Calder Road	Design options to support a cycling route across Calder Junction.

The study area and route sections are illustrated in Figure 1.1, overleaf.

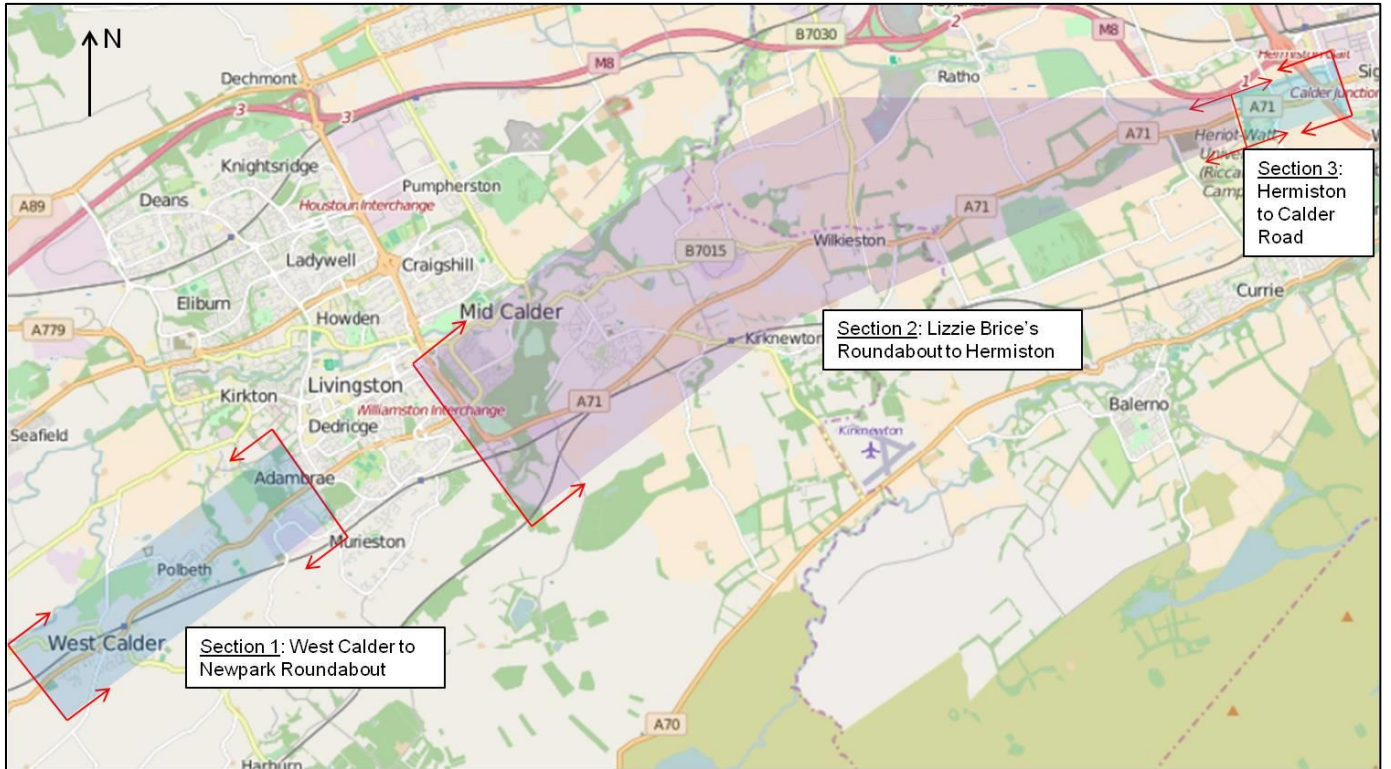


Figure 1.1: Study Area

2 Desktop Study

2.1 Introduction

The purpose of the desktop study was to review and confirm existing and proposed active travel routes, objectives, constraints, opportunities and barriers along the A71 and the surrounding area. The desktop audit was informed by a number of information sources, including:

- Local, regional and national policy documents;
- Environmental information;
- Core Path network plans;
- Local Plans and Local Development Plans;
- Previous reports relating to the study area;
- Census travel to work data; and
- Relevant design standards and guidance.

2.2 Policy Context

The development of walking and cycling infrastructure is strongly supported in local, regional and national transport policy, supporting a range of wider objectives, including health improvement, sustainability and economic development.

The A71 corridor serves local and strategic (everyday commuting) travel and there is evidence of high demand for commuting between West Lothian and Edinburgh; the road corridor and public transport services experience high levels of usage.

Walking and cycling infrastructure enables a **safe, healthy, low cost** way of accessing services including shopping, health services, **education** and **employment opportunities**, which might otherwise be out of reach.

Cycling and walking can form an important part of an **active and healthy** lifestyle, with benefits for individuals and social benefits through reduced demands on health services.

Cycling or walking instead of travelling by car has an **environmental benefit** through **reduced emissions** and resource usage.

High quality infrastructure can also encourage **leisure** cycling for local residents and visitors to the area, thus supporting the **tourism** industry as well as providing **health and quality of life** benefits. Many types of cycling infrastructure also support and enable walking trips and exercise (such as running, jogging, skateboarding and roller-skating) with associated benefits.

The local, regional and national transport policy documents that were reviewed as a component of the desktop study are displayed graphically overleaf in Table 2.1.

Scottish Planning Policy (2014) encourages “travel demands [to be] met first through walking, then cycling, then public transport and finally through use of private cars.”

Table 2.1: Relevant Local, National and Regional Policy Documents

Policy	Local		Regional	National	
Title	West Lothian Active Travel Plan	The City of Edinburgh Council Local Transport Strategy	SEStran Regional Transport Strategy	National Transport Strategy	Cycling Action Plan for Scotland
Date Adopted	Proposed April 2016	January 2014	March 2007	January 2016	June 2013
Cover					
Title	The City of Edinburgh Council Active Travel Action Plan	SESplan Strategic Development Plan 2	National Walking Strategy	Scottish Planning Policy	
Date Adopted	January 2016	Proposed Plan April 2016	June 2013	June 2014	
Cover					

2.3 Background and Environmental Information

A review of the existing environmental conditions and constraints was undertaken as part of the desktop study. This took account of ecological baseline conditions, cultural heritage designations, air quality, flooding, and geology and soils, amongst other aspects.

Extracts from the report that was prepared relating to ecological baseline conditions, and water bodies and flooding are provided in sections 2.3.1 and 2.3.2 respectively. The full Environmental Baseline Information Report can be found in Appendix A. The conservation areas that exist in, or close to, the study area are detailed in section 2.3.3.

2.3.1 Ecological Baseline Conditions

The existing conditions relating to statutory and non-statutory designated sites, ancient woodland, habitats, protected species and invasive species, and water features are discussed in the following sections.

2.3.1.1 Statutory and Non-Statutory Designated sites

There are no Special Areas of Conservation (SAC), Ramsars or Special Protection Areas (SPA) adjacent to or within a 1km boundary of the three study areas. A review of designated sites using the Scottish Natural Heritage (SNH) Sitelink and GIS database tool identified one statutory site within the A71 identified corridor. Calderwood Site of Special Scientific Interest (SSSI)

is identified approximately 0.2km north east of the Livingston-Hermiston corridor. The feature designated for its woodland and wetland value.

2.3.1.2 Ancient Woodland

There are over 6,500 hectares of ancient woodland in West Lothian as a whole which covers approximately 14% of the land cover. Approximately 820 hectares of this ancient woodland falls within the three study areas. There is no legislation that specifically protects ancient woodland (unless it is within a protected site), but Scottish Planning Policy (SPP) identifies it as “*an important and irreplaceable national resource that should be protected and enhanced*”, and it is best practice to avoid impacts on such habitat wherever possible as it is not possible to replace ancient woodland within a human timescale.

The largest areas of ancient woodland are located at Calderwood SSSI and to the south east and west of Dalmahoy Country Club as illustrated on Figure 1 (Sheet 3 of 4), contained in Appendix A.

2.3.1.3 Habitats

No survey work or site visits have been carried out at this stage however from desk based mapping it can be observed that habitats along the A71 corridor generally comprise of a mixture of native and amenity scrub, tall ruderal vegetation, bare ground, and both young and mature broad-leaved trees. On both sides of the A71 corridor there are urban settlements along the route which include residential, industrial and retail development primarily. There are also areas along the route which are neutral grassland and scrub in addition to both arable and pastoral agricultural fields.

2.3.1.4 Protected Species and Invasive Species

There has been no survey work carried out as part of this study. It is recommended that a Phase 1 Habitat Survey is carried out at the design stage to identify any protected species or invasive species.

2.3.1.5 Water Features

Along the proposed route a number of water features have been identified as part of this desk based study. Key water features include the River Almond, West Calder Burn, Harwood Water, Linhouse Water, Murieston Water and Gogar Burn.

2.3.2 Water Bodies and Flood Risk

The principal water bodies and types of watercourse are described below for each of the three study areas. Details for each water body were gained from desktop study.

2.3.2.1 River Almond

The River Almond is 28 miles long and flows approximately 1.5km north of the A71 road network. The River Almond does not cross the A71 identified corridor at any point however should be noted due to its proximity and the status as the area's most prominent river.

SEPA's River Basin Management Plan (RBMP) Interactive map (<http://gis.sepa.org.uk/rbmp/>) identifies the closest section of the River Almond as travelling from Breich Water confluence to Maitland Bridge. The 2008 map identified in an overall status of 'poor' and overall chemical status of 'pass'. The map also identifies the River Almond as having associated protected areas for freshwater fish and an Urban Waste Water Treatment Directive sensitive area.

2.3.2.2 West Calder Burn

The West Calder Burn flows to the north west of West Calder and Polbeth before joining the Harwood Water. The West Calder Burn does not cross the A71 identified corridor at any point however should be noted due to its proximity.

SEPA's River Basin Management Plan (RBMP) identifies the closest section of the West Calder Burn as travelling West Calder Burn through to Harwood Water. The 2008 map identified an overall status of 'poor' and overall chemical status of 'pass'.

2.3.2.3 Harwood Water

The Harwood Water flows from south west to north east and crosses the A71 identified corridor east of Polbeth. The crossing point of the A71 over the Harwood Water is at Limefield Bridge.

SEPA's River Basin Management Plan (RBMP) identifies the closest section of the Harwood Water as travelling from Killandean Burn through Harwood Water. The 2008 map identified an overall status of 'poor' and overall chemical status of 'pass'. The map also identifies the Harwood Water as having associated protected areas for freshwater fish.

2.3.2.4 Linhouse Water

The Linhouse Water sources from the Pentland Hills to the south and flows north and crosses the A71 identified corridor just after Livingston and before Oakbank. The Linhouse Water is culverted under the A71 road network and there is therefore no requirement for a crossing at this location.

SEPA's River Basin Management Plan (RBMP) identifies the closest section of the Linhouse Water as travelling Linhouse Water through Camilty Burn and Green Burn. The 2008 map identified an overall status of 'poor' and overall chemical status of 'pass'. The map also identifies the Linhouse Water as having associated protected areas for freshwater fish.

2.3.2.5 Gogar Burn

The Gogar Burn flows from south west to north east and crosses the A71 identified corridor 5 times to finally merge with the Union Canal. The first crossing is at The Camps and the second crossing is approximately 900metres upstream at an unnamed location. Approximately 2.5km further along the A71 road network is the third crossing at Burnwynd farm and the fourth crossing is approximately 800 metres further at Old Hatton Mains. The fifth and final crossing point is just after the Addiston Farm Road junction near Heriot Watt University.

SEPA's River Basin Management Plan (RBMP) identifies the closest section of the Gogar Burn as travelling from Source to Union Canal. The 2008 map identified an overall status of 'poor' and overall chemical status of 'pass'. The map also identifies the Gogar Burn as having associated protected areas for freshwater fish and an Urban Waste Water Treatment Directive sensitive area (including Brox Burn and Niddry Burn).

2.3.2.6 Groundwater

The underlying geology of the study area comprises of Edinburgh and Livingston bedrock and localised sand and gravel aquifers. Hydrogeology maps (BGS) of the area indicate this bedrock is a moderately productive aquifer which is of regional importance. Research has suggested that Edinburgh and Livingston bedrock aquifer is of limited quantity due to the mining and quarrying of oil-shale. The Scottish Environment Protection Agency (SEPA) has classified it as poor due to the quantity of water available for abstraction.

2.3.3 Conservation Areas

In the City of Edinburgh local authority area, Hermiston is a conservation area. It is located north of the A71 and Riccarton Campus. Whilst not a conservation area, the village centre of West Calder (West Lothian) is an area of built heritage and townscape value, due to the fact that many of the sandstone buildings in the town centre are still standing, as detailed in the West Lothian Local Development Plan.

The locations of Hermiston and West Calder village centre are shown in figures 2.1 and 2.2.



Figure 2.1: Hermiston Conservation Area



Figure 2.2: West Calder Village Centre

2.4 Level 1 Flood Risk Assessment

2.4.1 Background

The study area runs from Edinburgh to West Calder along the A71 as previously described. Several routes have been proposed including options for the cycleway to follow the route of the A71 or to follow its alignments on quieter roads. All route options have been reviewed and any flood risk identified.

This technical note summarises any flood risk within the study area and proposes ways to design the cycleway to eliminate any risk from flooding to ensure a resilient route.

2.4.1.1 Catchments and Rivers

The study area runs from north east to south west and bisects several large catchments. The following watercourses cross the study area:

- Harwood Water feeding in to the Killandean Burn;
- West Calder burn;
- Gogar Burn;
- Murieston Water; and
- Other Minor Tributaries.

All watercourses discharge to the River Almond.

2.4.2 Summary of Flood Risk

2.4.2.1 SEPA Flood Map

The SEPA flood map indicates that the majority of the study area is not at risk from fluvial flooding with the water courses having limited flood extents. Small pockets of pluvial flooding can be seen throughout the study area. However none of these are large in size and the design will be able to minimise the impact of these small areas of flooding.

It should be noted that the SEPA flood maps were produced using high level flood modelling for water courses with a catchment larger than 3km² and is aimed at providing a general indication of flood risk rather than detailed extents.

2.4.2.2 Fluvial

As previously mentioned, several watercourses bisect the study area. None of these watercourses have large flood extents. The A71 crosses these watercourses at points, the main crossing points being over the Harwood Water at Limefield Glen and over the Gogar burn at Burnhouse farm. It should be noted that any newly proposed watercourse crossings will require additional studies to ensure any new structures can pass forwards flood flows without increasing flood risk upstream.

There is likely to be limited risk of fluvial flooding at the site. However any planned crossings should be designed with care and further studies will be required.

2.4.2.3 Pluvial/ Sewer Flooding

The sewers / road drainage in the area will not be designed to accommodate a 1 in 200 year flood, and it is likely that some flooding from the sewer system can be expected during such an event. In this case, flooding of the network would be indistinguishable from general pluvial flooding.

The study area has pockets of pluvial flooding. However pluvial flooding can be planned for and taken account of within the design of the cycleway, design concepts are noted in section 2.4.4. The cycleway should aim to not block natural drainage patterns where possible, where not possible, appropriate drainage should be provided so ponding does not occur.

There is likely to be some risk of pluvial / drainage network flooding at the site. However, it can be managed by appropriate design and landscaping.

2.4.2.4 Coastal/ Tidal Flooding

The study area is not at risk from coastal or tidal flooding due to its inland location and elevation.

2.4.2.5 Ground Water

The site is not highlighted as being at risk of ground water flooding. However groundwater should be a consideration when designing the routes. Appropriate drainage paths should be considered to avoid blocking natural drainage paths.

2.4.3 Potential Areas at Risk

A Level 1 Flood Risk Assessment has been carried out and is provided in Appendix B. Figures 2 and 3 in Appendix B, set out the results of the high level review of the full study area and route options. It highlights:

- Where additional water crossings may be required. If this option was taken forwards further study would be required; and
- Where the cycleway could be at risk from either fluvial or pluvial flooding based on the SEPA flood maps.

2.4.4 Key Design points

Key design points to consider when planning the cycleway are set out below:

- Ensure all watercourse crossings are designed appropriately such that fluvial flooding is not increased upstream;
- Provide appropriate drainage on the cycleway to keep the path clear of surface water ponding during extreme rainfall events. The cycleway should aim to not block natural drainage patterns;
- Ensure appropriate camber is provided; and
- Consult with West Lothian Council and The City of Edinburgh Council Flood Risk Officers for detailed knowledge of specific areas that are prone to flooding.

2.5 Local Plans and Local Development Plans

The Local Plan (LP) and Local Development Plan (LDP) for each local authority region are policy documents that guide developments using policies and proposals. The LP for each area is due to be replaced by an LDP, but these have not yet been adopted. As such, the relevant content from both the LP and LDP have been considered and presented below.

West Lothian Council's LP and LDP are discussed in section 2.5.1, along with a review of the content of the A71 Supplementary Guidance report produced by West Lothian Council. The City of Edinburgh Council's LP and LDP are discussed in section 2.5.2.

2.5.1 West Lothian Council

2.5.1.1 Local Plan

The West Lothian Local Plan was adopted in January 2009. The document contains information on infrastructure that was deemed to be required in the region. Livingston and the Almond Valley is a Core Development Area (CDA), one of three in West Lothian. The sites within the CDA identified for development are Calderwood, located to the east of East Calder, Gavieside Farm, located to the west of Livingston, and Mossend and Cleugh Brae, located to the north of West Calder. A minimum of 3000 houses were stated as being required in this area, with land being identified for up to 5000 houses.¹ As well as housing, a number of other developments are required within the CDA. These are discussed further in the following section (2.5.1.2).

Policy TRAN 21 in the West Lothian Local Plan relates directly to sustainable travel along the A71 corridor:

"The council will bring forward initiatives to enhance sustainable transport options for travelling between Livingston and Edinburgh along the A71 corridor...Land will be safeguarded adjacent to the route for these initiatives once the requirements are identified. Contributions to the costs of initiatives arising from the study will be required from developers seeking planning permission within the Livingston and Almond Valley CDA".¹

2.5.1.2 Local Development Plan

The 'West Lothian Local Development Plan – Proposed Plan' (West Lothian Local Development Plan) is a document that was published by West Lothian Council in October 2015. The West Lothian Local Development Plan is due to be adopted towards the end of 2016, or early 2017, at which point it will replace the West Lothian Local Plan.

The document contains West Lothian Council's 'Vision Statement'. It mentions the following about active travel:

¹ West Lothian Council. *West Lothian Local Plan*. [online] Available at: [http://www.westlothian.gov.uk/media/2328/West-Lothian-Local-Plan/pdf/West Lothian Local PLantext.pdf](http://www.westlothian.gov.uk/media/2328/West-Lothian-Local-Plan/pdf/West%20Lothian%20Local%20Plan%20text.pdf) [Accessed 2 Feb. 2016].

“...The area will enjoy better transport connectivity with more options for sustainable travel choices and more active travel routes”.²

The creation of a new cycle and walking route along the A71 from West Calder to Edinburgh will clearly support West Lothian Council in achieving this vision.

The ‘Spatial Strategy’ section of the document lists the “Key infrastructure requirements in relation to movements that go along or impact on the A71 corridor”.² These are as follows:

- West Calder Station Park & Ride;
- Gavieside Link Road and Almond Bridge to Toll Roundabout, Livingston;
- Charlesfield Road improvements and link to the A71 at Polbeth
- East Calder - Distributor Link and improvements;
- Kirknewton Station Park & Ride;
- Wilkieston Northern Bypass; and
- Linhouse distributor road.

Several of the infrastructure requirements listed above may impact upon the routes considered in this study, both in terms of constraints and opportunities. Some of the infrastructure may affect the availability of land and may further constrain space, whilst others, such as the park and ride sites, could act as destinations along the route, serving to increase cycling in the area as well as use of any new or improved cycling infrastructure. As such, the infrastructure measures listed above have been noted and will be considered in this report, and should continue to be considered if the project is taken forward to the design stage.

The document explicitly states West Lothian Council’s position on contributions towards active travel projects:

*“Developers will be required to provide or contribute towards, the provision of travel improvements including traffic and environmental management measures, measures to promote trips by sustainable modes including walking, cycling, public transport, car sharing, and road improvements where these would be justified as a result of new development or redevelopment”.*²

The West Lothian Local Development Plan lists proposed development sites in West Lothian.

2.5.1.3 A71 Supplementary Planning Guidance

The ‘A71 Corridor Study Developer Contributions – Supplementary Planning Guidance’ (A71 SPG) was published by West Lothian Council in September 2014. The document references a previous report, ‘A71 Corridor Study’ (WSP, 2005), which investigated sustainable proposals to accommodate the future travel demand that was anticipated between West Calder and Hermiston. This corresponds to sections 1 and 2 studied in this report. The preferred option that was identified included the following measures, as listed in the A71 SPG:³

- Bus lane and bus priority at the A71/Kirknewton/East Calder junction;
- Eastbound bus lane from above to the junction of the A71 with the B7031;
- New traffic signals layout with bus priority at the A71/B7031 junction;
- Eastbound bus lane on the A71 between the B7031 and the B7015;
- New roundabout at the junction of the A71/B7015;
- Wilkieston north west bypass to B7030;
- Eastbound bus lane between the entrance to the Dalmahoy Hotel and Addiston Mains. (Proposed widening on the north side);
- Widen the A71 between west of Curriehill Road and Heriot-Watt north gate on the south side to create third lane (eastbound bus lane);
- Junction improvements at Curriehill Road/A71 junction including splitter islands new kerbing, resurfacing, signage etc;
- Various road improvements between Wilkieston and Curriehill Road/ including resurfacing kerbing drainage, footways markings and signage.

² West Lothian Council, (2015). *West Lothian Local Development Plan – Proposed Plan*. [online] Available at: <http://www.westlothian.gov.uk/media/9837/Proposed-Plan/pdf/CONSOLIDATED-ProposedPlan-FINAL.pdf> [Accessed 20 Jan. 2016].

³ West Lothian Council, (2014). *A71 Corridor Study Developer Contributions – Supplementary Planning Guidance*. [online] Available at: http://www.westlothian.gov.uk/media/5044/A71-Corridor-Study/pdf/SPG_A71_September_2014.pdf [Accessed 2 Feb. 2016].

One further bus priority measure is identified in the report: “*Eastbound bus lane on the A71 between the B7015 and the B7030*”.⁴ Many of these schemes will require measures such as road widening, carriageway, kerb and footway re-alignment, and land take. These schemes must thus be considered in the identification of alignment for the cycle route investigated in this document. The document does state that the identified measures “... will be pedestrian and cycle friendly and are to be fully integrated with existing on-road and off-road routes along the corridor.”⁴

The A71 SPG “*specifically targets developer contributions to deliver and to mitigate the impacts on the A71 in West Lothian*”.⁴ Several large developments are proposed in West Lothian, as detailed in the previous sections, and it thus anticipated that the demand for travel along the A71 corridor will increase, due to the increased number of houses and employment sites, and therefore an increased number of commuters.

2.5.2 The City of Edinburgh Council

The LP and LDP produced by The City of Edinburgh Council are discussed in sections 2.5.2.1 and 2.5.2.2.

2.5.2.1 Local Plan

The ‘Edinburgh City Local Plan’ (ECLP), published by The City of Edinburgh Council, was adopted in January 2010, and was intended to cover the period until 2015. The document sets out policies and design principles for developments with The City of Edinburgh Council region.

The objectives listed in the ECLP relating to transport that are pertinent to this study are listed below:

- “To maximise the accessibility of communities to jobs and essential services”;
- “To minimise the detrimental effects of traffic and parking on communities and the environment”;
- “To support the provision of necessary network infrastructure”.⁵

2.5.2.2 Local Development Plan

‘Edinburgh Local Development Plan – Second Proposed Plan’ (ELDP), published in June 2014, is the second proposed plan for the Edinburgh LDP, due to be adopted in 2016.

The western extents of Section 3 of the proposed route (Hermiston to West Edinburgh) are highlighted in the ‘Spatial Strategy Summary Map’.⁶ The Edinburgh Park area is included in the “*Major new development in strategic development area*” in West Edinburgh, which extends northwards from Edinburgh Park, and then westwards along the A8 towards Newbridge.⁶ This development is listed as including “*business investment, public transport, and housing*”, while south of Calder Road is highlighted as an “*Employment Centre*”.⁶

Two of the five aims listed in the ELDP are pertinent to this study:

3. *Help ensure that the citizens of Edinburgh can get around easily by sustainable transport modes to access jobs and services;*
4. *Look after and improve our environment for future generations in a changing climate*.⁶

The construction of a new active travel route along the A71, between West Calder/ Livingston and west Edinburgh would support the two aims listed above.

Seven “*special economic areas*” were identified in the ELDP.⁶ One of these is located in the study area – Riccarton University Campus and Business Park. This is located to the south of the A71, and to the west of Edinburgh. The site has an area of 153 hectares, and is to be the location for the National Performance Centre for Sport (‘Oriam’).

⁴ West Lothian Council, (2015). *West Lothian Local Development Plan – Proposed Plan*. [online] Available at: <http://www.westlothian.gov.uk/media/9837/Proposed-Plan/pdf/CONSOLIDATED-ProposedPlan-FINAL.pdf> [Accessed 20 Jan. 2016].

⁵ The City of Edinburgh Council. *Edinburgh City Local Plan*. [online] Available at: http://www.edinburgh.gov.uk/info/20069/local_plans_and_guidelines/64/local_plans [Accessed 2 Feb. 2016].

⁶ The City of Edinburgh Council, (2014). *Edinburgh Local Development Plan – Second Proposed Plan*. [online] Available at: http://www.edinburgh.gov.uk/info/20164/local_development_plan/1050/second_proposed_local_development_plan [Accessed 20 Jan. 2016].

The City of Edinburgh Council's 'Second Proposed Action Programme', which accompanied the publication of the 'Second Proposed Edinburgh Local Development Plan', acts as a "*delivery mechanism*" for the ELDP.⁷ Three developments listed in the document are located in the vicinity of the study area. These are as follows:

- Edinburgh Park – Gogarburn pedestrian link;
- Extension to Hermiston Park & Ride; and
- Riccarton University Campus and Business Park.

2.6 West Calder and Harburn Design Study

In 2013, West Calder and Harburn Community Development Trust commissioned Collective Architecture to undertake a wide ranging study centred on the settlements of West Calder and Harburn, titled 'West Calder and Harburn Design Study'. The study, published in 2014, involved investigating possible improvements in the settlements, as well as looking at possible routes to promote walking for leisure and recreation. 10 projects were identified and put forward, including looking at aspects such as parking, urban realm and streetscape and heritage, as well as potential routes.

The proposals that are most relevant to this study are listed below:⁸

- "Project 1 – Strategic Connections / West Calder Loops";
- "Project 2 – Routes Through Town"; and
- "Project 4– Improving Main Street".

These three projects are discussed further in the following three sections.

2.6.1 Project 1 – Strategic Connections / West Calder Loops

The first project investigated improvements to strategic connections between West Calder and Livingston, the Pentland Hills, Harburn and Cobbinshaw. The routes proposed all utilised existing paths, rather than requiring the construction of new infrastructure.

Five aims were identified related to strategic connections. The most relevant aim to this study is to improve "pedestrian and cycle routes between West Calder and Livingston".⁸ Another aim that should be considered is to improve "off road pedestrian and cycle routes between West Calder and Harburn"; it is known there is demand for such a link, which was one of the drivers behind the design study that was commissioned by the local community council.⁸

Four routes were put forward in these proposals:⁸

- Route 1 – "The Ancients' Way"
Loop connecting West Calder, Harburn, Castle Greg, Hermand Birchwood SSI.
- Route 2 – "Limefield Falls"
Loop connecting West Calder, Polbeth and Hermand Birchwood.
- Route 3 – "We Strive and We Rise"
Route between West Calder and Five Sisters, looping around Five Sisters and back into West Calder.
- Route 4 – "Birchwood Walk"
Loop starting and ending in West Calder, including Addiewell Bing.

The most relevant route to this study is Route 2. This runs from the centre of West Calder (Main Street) to Harburn Road, via Kirkgate, Learmonth Crescent, Grant Street and the B7008. At the eastern extents of the town, the route runs along Core Path 16 (see section 2.7.3.1) past Parkhead Primary School, before turning northeastwards towards the railway line. Passing under the railway line, the route then skirts along the eastern side of the playing fields in Polbeth. The route accesses Calder Road in Polbeth via quiet roads and traffic-free paths. The route then turn southwards on Newpark Road, before looping back around to West Calder, however this is outwith the study area of this report.

⁷ The City of Edinburgh Council, (2015). *Edinburgh Local Development Plan – Second Proposed Action Plan*. [online] Available at: http://www.edinburgh.gov.uk/info/20164/local_development_plan/1050/second_proposed_local_development_plan [Accessed 2 Feb. 2016].

⁸ Collective Architecture, (2014). *West Calder & Harburn Design Study*.

In general, improved signage, material and finishing improvements, wayfinding markers and other interventions were considered to be required, and were included in the proposals. A consultation exercise was undertaken with members of the public, in which they were asked to give the 5 projects that they thought were most important, listed in order of importance. Project 1 scored relatively highly in this exercise, coming 4th out of the 10 projects.

2.6.2 Project 2 – Routes Through Town

The second project looked into improving routes through West Calder, providing better links through the town, and alternatives to Main Street. Two routes were proposed for connecting Dickson Street with Kirkgate/Hartwood Road. These are shown in Figure 2.3, below.

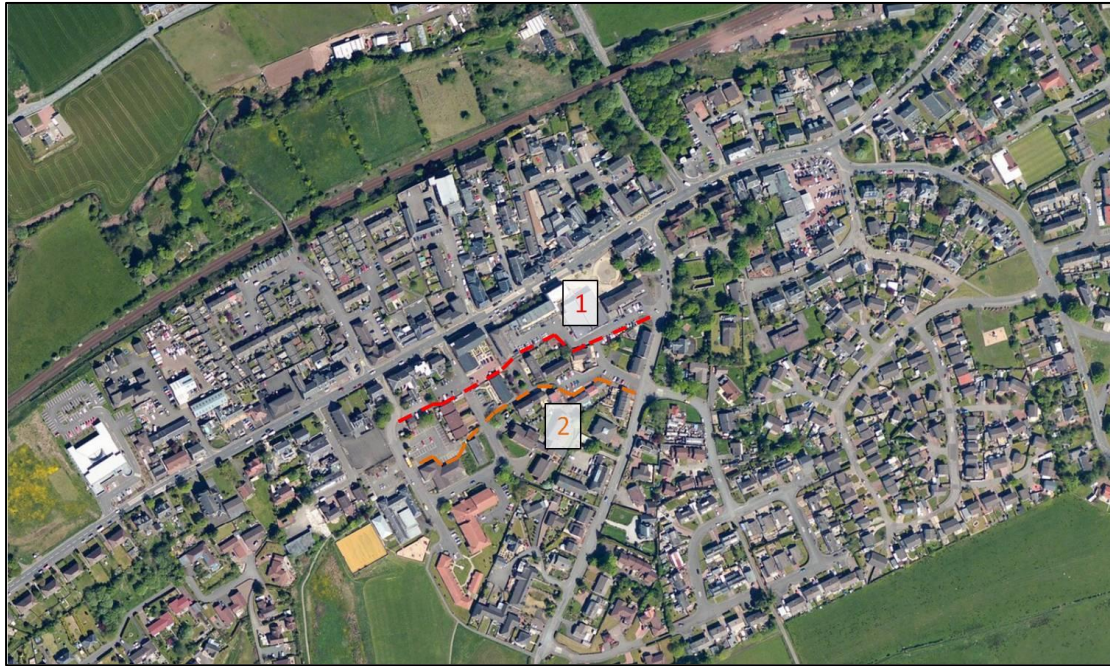


Figure 2.3: Routes through West Calder

Project 2 scored poorly in the consultation questionnaire coming in 8th position out of the 10 projects.

2.6.3 Project 4 – Improving Main Street

Project 4 considered improvements to Main Street in West Calder. The measures proposed included streetscape improvements, roads engineering and small scale interventions, albeit at a very high level. The area considered was on the A71 Main Street between the junctions with Northfield Court and Station Road. The aspirations and goals of the project were “narrowing road surfaces, giving more space to pedestrians, encouraging a greater area and range of planting, ...and rebalancing the priority of the street in favour of pedestrians”.⁹

Project 4 was the highest scoring of the three projects that are relevant to this study, coming in equal second position in the questionnaire.

2.7 Baseline Transport Networks

The existing transport network in the study area is discussed in the following three sections.

2.7.1 Road

The main road corridors connecting West Lothian with Edinburgh are the A71, the M8 and the A89. Of these three corridors, the A71 is the sole corridor in the area considered in this study. The M8 and A89 both are located north of the study area.

⁹ Collective Architecture, (2014). *West Calder & Harburn Design Study*.

A review of the traffic counts along the A71 was undertaken as part of the desktop study. This was undertaken using Annual Average Daily Flow (AADF), i.e. the number of vehicles on an average day, with data taken from the Department for Transport's website. The count point IDs that were used are listed below, with their locations shown in Figure 2.4.

- 80148 – In West Calder on the A71;
- 30830 – In southwest Livingston on the A71;
- 51001 – Southeast of Livingston on the A71;
- 74393 – In Wilkieston on the A71;
- 80320 – West of Hermiston on the A71; and
- 78570 – East of Calder Junction on the A71 Calder Road.

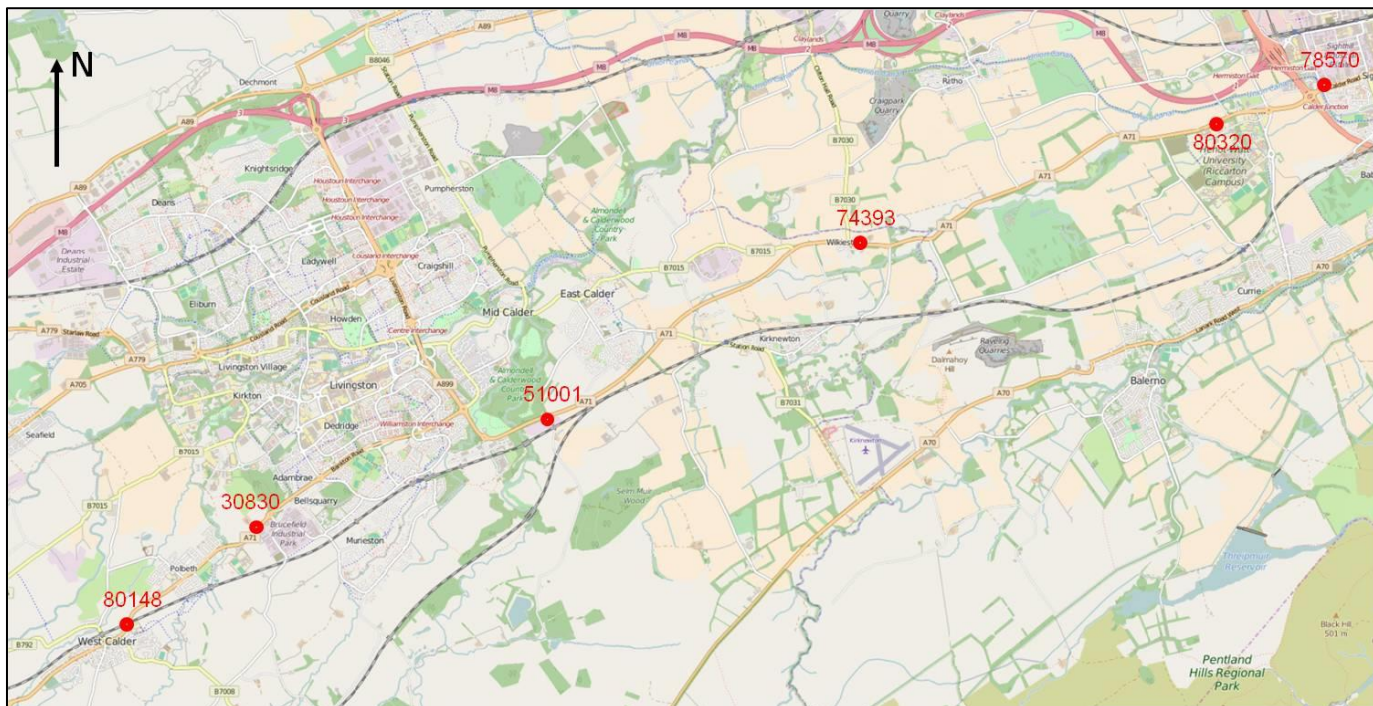


Figure 2.4: AADF Count Point Locations

A summary of the 2014 AADF data is shown in table 2.2

Table 2.2: Annual Average Daily Traffic Flows on A71

Count Point ID	All Motor Vehicles	% Cars	% HGVs	% Other	Pedal Cycles	% Change All Vehicles 2005-2014
80148	10,937	78.8%	4.3%	17.0%	17	-4%
30830	13,630	83.9%	3.4%	12.8%	35	+4%
51001	16,712	83.7%	2.5%	13.8%	6	-2%
74393	16,245	81.6%	4.1%	14.3%	34	+1%
80320	16,245	81.6%	4.1%	14.3%	34	+1%
78570	31,245	79.9%	2.4%	17.7%	164	-12%

The data shown in Table 2.2 shows that through West Calder, the A71 is heavily trafficked, with around 4% of vehicles being HGVs. The traffic flows on the A71 increase east of Livingston, and increase significantly east of Calder Junction. The number of cyclists on the A71 was found to increase on the east side of the A720 Edinburgh City Bypass. (The counts are identical at two adjacent sites due to the DfT count methodology employed).

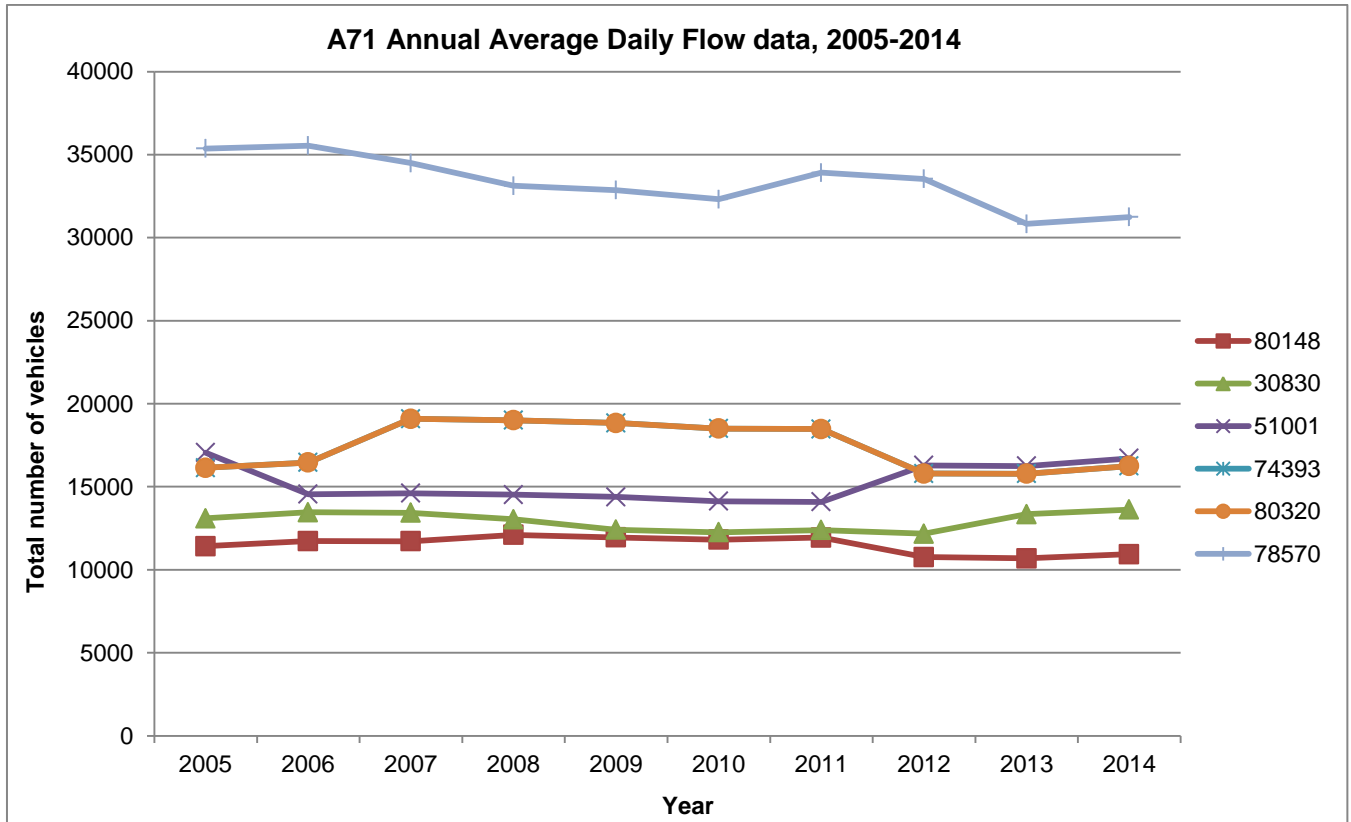


Figure 2.5: AADF Counts by Year

Figure 2.5 shows the total number of motor vehicles (all types) for the past ten years at the six traffic count locations on the A71. The overall changes in motor vehicle numbers between 2005 and 2014 are generally modest, with the exception of count site 78570 on the A71 Calder Road, close to the Edinburgh Bypass, which recorded a 12% decrease in all vehicles in 2014 compared to the 2005 numbers.

In general, road traffic declined throughout the UK from in line with the recession around 2008, and has generally been increasing again more recently.

This data above was obtained from the Department for Transport online database of traffic count sites; there are some limitations to this data (counts are not undertaken every year, assumptions and growth factors are applied).

2.7.2 Public Transport

For local trips in West Lothian, and trips between Edinburgh and West Lothian, the public transport modes available are rail and bus. Bus journeys can be undertaken from origin to destination, or, for commuters between West Lothian and Edinburgh, a bus park and ride facility currently exists at Hermiston. These modes are discussed further in the following sections.

2.7.2.1 Bus (service details correct at time of writing)

West Calder and Polbeth are served by services running to and from Livingston, including the 36, 71, 77, 800 and 801. No service runs from West Calder or Polbeth to Edinburgh, meaning that travellers have to change bus in Livingston.

A number of buses travel on the A71 on the section between Edinburgh and West Lothian, including the 27, 28, 40, 109, X5, X27, X28 and X40. The X40 is the only bus that travels directly along the A71 between Edinburgh and Livingston; the other services come off the A71 to access Kirknewton, East Calder or Mid Calder.

2.7.2.2 Rail

The train stations that exist in the study area are West Calder and Kirknewton.

Trains between West Calder and Edinburgh run twice hourly during the day, while services between Kirknewton and Edinburgh are less frequent, running around once per hour.

The Edinburgh – Shotts – Glasgow train line is due to be electrified by 2019, between the rail junctions of Midcalder and Holytown.¹⁰ Electrification will create the opportunity for increased frequency of services. West Calder station lies on this section of track, while Kirknewton lies just to the east of Midcalder junction.

There are also other train stations close to the study area at Livingston South, Livingston North, Uphall, Curriehill, Edinburgh Park and Wester Hailes.

2.7.2.3 Park & Ride

Only one Park & Ride site currently exists in the study area, located at Hermiston. This site currently has capacity for around 400 vehicles, and is well served for connections into Edinburgh. There are proposals for Park & Ride sites at West Calder and Kirknewton, as well as an extension to the site at Hermiston. These proposals are discussed further in section 2.5.

2.7.3 Walking and Cycling

The core paths, walking facilities and cycle routes located in West Lothian and Edinburgh are discussed in sections 2.7.3.1, 2.7.3.2 and 2.7.3.3 respectively.

2.7.3.1 Core Paths

Core paths are routes that members of the public can use to travel between destinations, local places of interest, local amenities and facilities, and recreational areas. Core paths can be cycle paths or footpaths, public rights of way, or other forms of path that are used by members of the public.

The existing designated core paths in West Lothian and Edinburgh are discussed in the following paragraphs.

West Lothian Council

There is an extensive network of core paths in West Lothian, primarily located in the centre and north of the region. West Lothian Council's 'Draft Core Paths Plan' (DCPP) defines the core paths in West Lothian and illustrates West Lothian Council's vision for its core path network for 2030.

The DCPP defines two types of path: 'core' paths and 'other' paths. These 'other paths' are defined by West Lothian Council, as "a mixture of asserted and vindicated rights of way, established and signposted paths, some rural roadside pavements and some quiet roads".¹¹ Several core paths and other paths have been identified in West Lothian that could be utilised as part of this study. These are principally the West Calder to Polbeth core path (reference label 16), and the A71 to B7008, via Hermand Farm, 'other path' in West Calder.

The City of Edinburgh Council

The core paths in Edinburgh are defined in The City of Edinburgh Council's 'Edinburgh Core Paths Plan', published in 2008. The core paths located within the City of Edinburgh boundary that are relevant to this study are shown in Table 2.3,

Table 2.3: Edinburgh Core Paths¹²

Core Path Reference Label	Route	Length
15	Union Canal Towpath and Union Canal (Lin's Mill Aqueduct to Lochrin Basin)	19km
17	Riccarton (Water of Leith to Union Canal at Hermiston Bridge)	5.5km

¹⁰ Transport.gov.scot. (n.d.). *Electrification Programme*. [online] Available at: <http://www.transport.gov.scot/project/electrification-programme> [Accessed 22 Mar. 2016].

¹¹ West Lothian Council. *Draft Core Paths Plan*. [online] Available at: <http://www.westlothian.gov.uk/corepathsplan> [Accessed 20 Jan. 2016].

¹² The City of Edinburgh Council, (2008). *Edinburgh Core Paths Plan*. [online] Available at: http://www.edinburgh.gov.uk/downloads/file/63/edinburgh_s_core_path_plan [Accessed 1 Feb. 2016].

2.7.3.2 Walking Facilities

In addition to the Core Paths described in the previous section, there are a number of other walking facilities in the study area. Footways exist in the settlements in the study area, and those that are close together are linked by footways and other paths, such as West Calder and Polbeth. Along the A71 between Lizzie Brice's Roundabout, Livingston, and the A71/B7015 junction, the route does not have a footway. This means that walkers would have to travel via Mid Calder and East Calder. A footway is provided alongside the A71 from the A71/B7015 junction to Calder Road in Edinburgh, although this varies in width.

There are a number of other walking routes in the study area, including in Almondell and Calderwood Country Park and along the River Almond and Linhouse Water.

2.7.3.3 Cycle Routes

The existing cycle routes in West Lothian and Edinburgh are described in the following paragraphs. A variety of sources were used to identify routes including Sustrans, Open Cycle Map and the Spokes West Lothian and Livingston Cycle Maps. Routes have been grouped by location for clarity.

West Calder and Polbeth

Only a handful of formal paths exist in the West Calder / Polbeth area. These include Core Path 16 (detailed in section 2.7.3.1) and the local route between the current site of West Calder High School and Calder Road (Polbeth). There are, however, a number of quiet roads that are suitable for cycling on in both settlements.

Livingston

Livingston is particularly well served by local cycle routes, with an extensive network of paths existing in the town. The majority of the cycle routes in the town are off-carriageway. Additionally, NCN75 runs through Livingston, linking onwards towards Bathgate to the west and Kirknewton to the southeast.

Mid Calder and East Calder

Very few cycle routes exist in Mid Calder and East Calder. NCN75 does run through the Calderwood development site, located just east of the current boundary of East Calder.

Kirknewton

NCN75 runs through the centre of Kirknewton, with cycle lanes provided southeast of the level crossing, through the built up area on Station Road.

A71 Corridor

On the A71 Corridor, east of the Calders, there are no cycle routes or infrastructure until the Heriot-Watt University Riccarton Campus, Hermiston and NCN754 along the Union Canal Towpath

Riccarton, Hermiston and West Edinburgh

On Gogar Station Road and from the Calder Road/ Gogar Station Road/ Riccarton Mains Road roundabout to Calder Junction there are shared-use paths. There are also a number of cycle routes within the Heriot-Watt University Riccarton Campus, including a link onto the A71 Calder Road.

NCN754 runs along the Union Canal towpath, described in further detail below, which can be accessed via Hermiston House Road and Gogar Station Road, as well as via Cultins Road on the eastern side of The City of Edinburgh Bypass.

Outside of the study area, there are cycle routes from Edinburgh Park (along Bankhead Drive) and on Wester Hailes Drive.

National Cycle Network

NCN75 runs between Leith and Argyll, with some of the Water of Leith and Balerno to Bathgate sections being located in the study area. From Edinburgh it runs along the Water of Leith to Balerno, before running along quieter roads to Kirknewton. After running through Kirknewton, the route crosses the A71 and runs westwards towards East Calder, before turning northwards up towards the B7015. NCN75 then runs for a short distance eastwards along the B7015, before turning northwards up towards the River Almond.

NCN754 runs between Clydebank and Edinburgh, and connects into the NCN75 in Edinburgh. The section located that is located close to the study area runs along the Union Canal towpath, between Calder Road and Hermiston House Road. From Calder Road the road continues eastwards into Edinburgh, while east of Hermiston House Road the route continues westwards onto Ratho and Broxburn.

NCN75 and NCN754 are shown in Figure 2.6. The sections shown in red are those that are closest to the study area, and which could potentially be utilised in a proposed route.



Figure 2.6: National Cycle Network Routes in the Study Area

2.8 Existing Demand

Census data has been examined to identify existing travel-to-work patterns between West Lothian and Edinburgh; this data has previously been reviewed by SEStran to identify strategic cycling corridors. Mode share data for travel to school has also been reviewed.

2.8.1 Census Travel-to-work Data

Data from the 2011 Census illustrates the typical commuting patterns including origins, destinations and mode choice. The numbers of commuters in Edinburgh and West Lothian are shown in Table 2.4.

Table 2.4: Commuting in Edinburgh and West Lothian

Local Authority	Movement	Number of Commuters
City of Edinburgh	Internal	165,533
	To West Lothian	5,497
	Total	237,839
West Lothian Council	Internal	42,156
	To Edinburgh	18,877
	Total	86,884

The headline points are listed below. The values shown in brackets are the number of commuters undertaking the movement under consideration.

- Most commuters to Edinburgh from West Lothian come from the Mid Calder and Kirknewton intermediate zone (1283), while the intermediate zone in Edinburgh that has the highest commuting total from West Lothian is South Gyle (3025);
- Most people commuting from Edinburgh to West Lothian travel from the Dalmeny, Kirkliston and Newbridge intermediate zone (262). The intermediate zone in West Lothian that sees most commuters from Edinburgh is Bellsquarry, Adambrae and Kirkton (1140);
- West Calder and Polbeth is one of the intermediate zones in West Lothian that has the highest number of commuters to other parts of West Lothian (1441 – 10th highest out of the 37 intermediate zones). Bellsquarry, Adambrae and Kirkton is the intermediate zone in West Lothian that sees the highest number of arrivals from other parts of West Lothian (6510). The number of commuters travelling from West Calder and Polbeth to Bellsquarry, Adambrae and Kirkton was 281 – the most popular commuter destination from West Calder.

The three headline points listed above highlight the demand for infrastructure along the study area. This includes functional trips in Section 1 (between West Calder and Livingston), where there is demand for people commuting between West Calder/ Polbeth and Livingston, as well as demand from commuters between Edinburgh and West Lothian (sections 2 and 3).

The SEStran document 'Strategic Cross Boundary Cycle Development', published in 2015, contains travel to work data for the City of Edinburgh and West Lothian, relating to cycling. The relevant data is presented in Table 2.5, below:

Table 2.5: Census Travel to Work Data – Cycling¹³

Source: SEStran, (2015). *Strategic Cross Boundary Cycle Development*

Local Authority	Internal	% Cycling Mode Share – Internal	% Cycling Mode Share Cross – Boundary
City of Edinburgh	9,282	6%	0.8%
West Lothian	470	1%	0.4%

The numbers of commuters cycling from West Lothian to Edinburgh and from Edinburgh to West Lothian are also stated. These values are 103 (West Lothian to Edinburgh) and 31 (Edinburgh to West Lothian) respectively. The West Lothian to Edinburgh cross-boundary cycling commuter flow is the fifth highest in the SEStran area.

2.8.2 Hands Up Scotland Survey Results

The 'Hands Up' survey is a survey that is carried out annually by Sustrans, in participation with Scottish local authorities and funded by Transport Scotland. The survey collects data and responses on how pupils travel to school. The most recent survey data was published in May 2015, and relates to the survey carried out in 2014.

There were 22,788 respondents to the survey in West Lothian, while in Edinburgh there were 31,638 respondents.

The full breakdown of results for West Lothian and Edinburgh are presented in Table 2.6, overleaf. The percentage difference presented in the table corresponds to the 2008 or 2013 results being subtracted from 2014 results. The values have then been colour coded, with green indicating an improvement and red a decline. Positive percentage differences for walking, cycling, travelling by scooter/ skateboard and park and striding represent an improvement, while negative percentage differences represent an improvement for driving/ being driven, and travelling by bus or taxi. The 'other' data has not been colour coded.

Table 2.6: Travel Models by Local Authority – All School Types¹⁴

Local Authority Area	Year	Walk	Cycle	Scooter / Skate	Park & Stride	Driven	Bus	Taxi	Other
The City of	2014	49.6%	4.7%	5.4%	7.8%	19.0%	11.4%	0.8%	1.2%

¹³ SEStran, (2015). *Strategic Cross Boundary Cycle Development*. [online] Available at: http://www.sestran.gov.uk/uploads/10.1.1_Strategic_Cross_Boundary_Cycle_Development.pdf [Accessed 20 Jan. 2016].

¹⁴ Sustrans, (2015). *Travel to School in Scotland – Hands Up Scotland Survey: Results for 2014*. [online] Available at: http://www.sustrans.org.uk/sites/default/files/images/files/scotland/Hands%20Up%20Scotland%20Survey/Hands%20Up%20Scotland%202014_National%20Results%20Summary%20EMBARGOED%20UNTIL%202029.05.15.pdf [Accessed 20 Jan. 2016].

Edinburgh Council	%Difference to 2013	-4.4%	-0.3%	-0.6%	+2.0%	+0.9%	+1.4%	+0.2%	+0.6%
	%Difference to 2008	-1.9%	+1.4%	+3.8%	+2.3%	-2.2%	-4.3%	+0.2%	+0.6%
West Lothian Council	2014	46.4%	3.7%	3.0%	7.2%	21.0%	17.0%	1.8%	0.1%
	%Difference to 2013	-0.6%	+0.6%	+0.2%	-0.6%	+0.3%	-0.3%	N/A (<5 pupils)	N/A (<5 pupils)
	%Difference to 2008	-2.8%	+0.7%	+2.0%	-1.2%	+1.9%	-0.9%	+0.6%	-0.1%

In Edinburgh, the data trend for walking suggests a decrease in the number of pupils walking to school since 2010, when the percentage split reached a high of 58.1%. Cycling and travelling by scooter/ skateboard has generally increased since 2008, before falling slightly in 2014 with respect to 2013.

In West Lothian, the data trends indicate that travelling by scooter or skateboard has generally increased since 2008, while cycling has risen since 2013 after a fall for three consecutive years from 2011 onwards. Walking had a high percentage share of 52.8% in 2009, but since then the percentage share has been below the value when the study was first undertaken (2008). The number of students driving or being driven has generally increased since 2008, while numbers parking and striding have generally fallen.

The overall averages modal share for active travel modes across Scotland are shown in Table 2.7, below:

Table 2.7: Active Travel Average Modal Share

Mode	Percentage
Walking	44.2%
Cycling	3.4%
Scooting / Skateboarding	2.8%

2.9 Summary

The information sources that have been reviewed reveal that there is currently demand for infrastructure in the study area and this is anticipated to rise in the future due to developments taking place in the region. The implementation of any new or improved infrastructure is strongly backed by local, regional and national policy.

The existing demand, and current and future developments, present opportunities in the study area, both through facilitating active travel as well as the opportunity to obtain developer contributions towards infrastructure improvements. Whilst there are a number of aspects that would have to be considered at the design stage, should the project be taken forward, nothing has been identified in the desktop study that affects the feasibility of the route.

3 Site Conditions

3.1 Introduction

A number of site visits were undertaken throughout the study area during the early stages of the project.

The purpose of the site visits was to familiarise the project team with the study area, as well as to assess possible routes, constraints, opportunities and key features, such as crossing points, identified within the study area.

Site visits were undertaken primarily in January and February 2016. As well as observing the site and noting features of interests, photos and videos were taken to form a record of conditions.

Within this section existing designated cycling/walking facilities are highlighted however it should also be noted that under the Land Reform (Scotland) Act 2003, any remote paths can be used by pedestrians, cyclists and other non-motorised users.

3.2 Opportunities

3.2.1 Section 1 (West Calder – Bellsquarry) Opportunities

West Calder

Within West Calder there is an extensive network of pedestrian routes, as is common for a town of this size. There are some good pedestrian connections to the Main Street and examples of filtered permeability such as the road closure at Dickson Street (where pedestrians have more direct access than vehicles). Outside the shops at Main Street there is a relatively wide pedestrian area with a public square at the eastern end.

There are several signal controlled pedestrian crossings, including at junctions, and also a number of uncontrolled crossings.

There is a 20mph zone close to Parkhead Primary School.

A footpath extends both west and east from West Calder along the north side of the A71.

There is a shared use path for cycling and walking, extending to the east of the town from Harburn Road towards Polbeth. This is generally wide with a sealed surface and includes some new streetlighting.

In the town centre there are some cycle parking stands close to the shops on Main Street.

New West Calder High School will create opportunities to build in active travel provision and encourage sustainable and active travel behaviour.

Redevelopment of West Calder railway station and accesses will also create new active travel opportunities.

Core Development Area (Mossend and Cleugh Brae) as detailed in West Lothian Council Local Development Plan.

Polbeth

Polbeth also benefits from extensive pedestrian routes, including several paths through green spaces which provide direct and attractive connections; these could be further improved. There are footways on both sides of the A71 from the western end of Polbeth and extending east to Bellsquarry.

Most of these paths are not signed for shared use by cyclists and pedestrians, the exception being the link to West Calder.

The A71 in the centre of Polbeth has a central hatched area and some verges; the road could be reconfigured to provide wider paths and shorter crossings for pedestrians (and potentially for shared use).

Quieter access roads running parallel to the A71 offer opportunities to serve local cycle journeys, notably Calderburn Road.

There are no other prominent features such as canal paths or disused rail lines which could serve as active travel routes.

Bellsquarry

East of the Wilderness Roundabout, there are no paths alongside the A71.

There is a continuous pedestrian route to the south of the A71, following traffic free paths and footpaths alongside Calder Road (a relatively quiet street which serves Bellsquarry Primary School).

Directional signs indicate that some paths are for cyclist use as well as pedestrians. A network of paths extending in various directions is signed from Calder Road close to Bellsquarry Primary School. This includes underpasses of the A71 and Alderstone Road, linking into the wider Livingston traffic free path network (the extensive Livingston off road path network is entirely designated for shared use by cyclists and pedestrians).

There are no other prominent features such as canal paths or disused rail lines which could serve as active travel routes.

3.2.2 Section 2 (Livingston – Hermiston) Opportunities

A71 Corridor

The A71 is currently used on a regular basis by some cycle commuters (however, it is important to note conditions are not conducive to attracting increased cycle use). Parts of the A71 benefit from a wide nearside hard strip which some cyclists choose to ride within. These are shown in red in Figure 3.1, below:



Figure 3.1: Wide Nearside Hardstrip Locations

Improved facilities would provide a high standard, important strategic connection between West Lothian and Edinburgh.

There are extensive lengths of the A71 where cycling infrastructure could be provided on one or both sides of the road. There is an existing footpath on the north side of the A71, in parts of this section.

Development area at Calderwood, and associated infrastructure proposals, create opportunities for increased active and sustainable travel including links to the A71 Corridor.

Expansion of facilities at Kirknewton Station, as detailed in the West Lothian Local Development Plan, can support sustainable and multi-modal journeys.

3.2.3 Section 3 (Hermiston – West Edinburgh)

A71

There is a continuous footway on the north side of the A71, with the section west of Gogar Station Road wide and designated for shared use. The footway links to bus stops but has constrained width in places.

There is a toucan crossing of the A71 linking Hermiston to Heriot Watt University.

On the west of the A720 City Bypass there are connections to canal paths and towards other parts of the Edinburgh traffic-free path network.

Hermiston

An existing cycling and walking route is signposted through Hermiston. There is no through traffic in the main part of the village.

Union Canal

The canal provides an existing and attractive route for pedestrians and cyclists and a traffic free route which also crosses the A720 City Bypass fully segregated from traffic.

3.3 Constraints & Challenges

3.3.1 Section 1 (West Calder – Livingston)

West Calder

Within West Calder, there is a significant amount of through traffic on the A71, including HGVs, which detracts from the attractiveness of walking and cycling. The speed limit is 30mph.

The physical environment is constrained, with limited space for dedicated cycling and pedestrian facilities alongside existing street uses.

There is some evidence of illegal pavement parking along the Main Street, which is an impediment to pedestrian movement.

On the path east from Harburn Road there was significant evidence of flooding during the site visit and the path was impassable for some users. Towards Polbeth the path is very close to a stream, with water flowing over and under the path, and there may be a risk of path erosion.

There are no other prominent features such as canal paths or disused rail lines which could serve as active travel routes.



Figure 3.2: Flooding on Path from Harburn Road

Polbeth

There is significant traffic along the A71 including HGVs.

The A71 is constrained at Limefield Bridge, although it is understood that West Lothian Council may own land on either side of the bridge.

Although there are some green spaces and existing paths, there are no other prominent features such as canal paths or disused rail lines which could serve as active travel routes.

Bellsquarry

Existing pedestrian/cycle routes are mainly located away from the A71.

There are no other prominent features such as canal paths or disused rail lines which could serve as active travel routes.

Brucefield Road is used by commercial traffic including HGVs; the existing underpass is below desirable standards.

3.3.2 Section 2 (Livingston – Hermiston)**Section 2**

The existing on carriageway conditions are not attractive to new cyclists (traffic volume and speed) and there are no pedestrian facilities along much of the route.

In places there are physical constraints on the road corridor including properties, boundary walls and bridges over features such as rivers. New cycle route construction is likely to require private land acquisition.

There are a number of junctions serving high volume traffic movements, which cyclists or pedestrians must be safely accommodated through.

There are minimal other prominent features such as canal paths or disused rail lines which could serve as active travel routes, though the Union Canal runs parallel towards the eastern end.

The existing National Cycle Route via Kirknewton and Long Dalmahoy Road has some sections of poor surfacing, poor visibility, and may be unattractive to new cyclists. There are not continuous footpaths for pedestrians.

3.3.3 Section 3 (Hermiston – West Edinburgh)**A71**

Traffic levels are higher further east along the A71 corridor towards Edinburgh. The road is wide and partly laid out as a dual carriageway.

A partial road bypass is proposed around the west side of Wilkieston; this could form a constraint if no active travel infrastructure is built in.

There is a large roundabout at Hermiston Park and Ride with minimal provision for cyclists and pedestrians. There is also a large and busy roundabout at Calder Junction (A71/A720) with no provision for cyclists and limited provision for pedestrians.

Hermiston

There is a high level of on-street parking (many properties do not have driveways) and there are vehicle movements associated with a business on Calder Road (commercial vehicle dealership).

The existing path linking to the A71 toucan crossing shares an access with a private driveway, and includes non-standard access controls.

The crossing of Gogar Station Road is somewhat incoherent and may introduce some pedestrian/ cycle conflict around the existing bus stops.

Union Canal

While the canal is an attractive route, there are limited opportunities for improving the path to accommodate increased numbers of users. In particular there are construction challenges associated with widening the canal towpath.

The path alongside the canal aqueduct over the A720 City Bypass is narrow with no practical potential for widening.

Where historic overbridges cross the canal, the headroom and path width are very limited with no practical potential for improvement.

The strategic aspiration for a “cycle superhighway” route along the A71 corridor (as described in SEStran reporting) may not be compatible with the other uses of the canal towpath.



Figure 3.3: Constrained Section along Union Canal

4 Consultation Summary

4.1 Introduction

Consultation is a key component in the development of any study. It allows stakeholders, both internal and external, to engage with the study team, to highlight issues that matter most to them and alternative ideas that may not have been considered and can improve decision making and accountability.

Furthermore, the people who know the study area best are those who live, work or travel through the area every day. These users are aware of the problems that exist in the study area and will often have their own thoughts and ideas on the appropriate solution. Involving stakeholders early in the project cycle is crucial to ensure that their opinions and concerns can be considered in the design and will also lead to shared ownership of the solutions.

During the development of this feasibility study two workshops were held with stakeholders. One was held with officers at West Lothian Council, with the other being with interested members of the public who work or live in West Lothian. An option review session was also held with representatives from The City of Edinburgh Council and SEStran. The outcomes of these workshops and discussion sessions are provided in the following sections.

During the project, regular communication took place between AECOM and the client group, as well as further meetings.

4.2 West Lothian Council Officer Workshop

An internal council officer workshop was held with West Lothian Council at West Lothian Civic Centre, Livingston, on the 12th of February 2016. An additional session was held with Jim Stewart, Team Leader for Transport Development Management and Transport Policy, prior to the main workshop session. The full list of invitees is provided in Table 4.1, below.

Table 4.1: West Lothian Council Officer Workshop

Name	Title
Laura Wilson	Community Regeneration Officer
Chris Alcorn	Principal Planner & Acting Access Officer
Chris Nicol	Transport Development Management
Deborah Paton	Transport Policy Officer
Andy Cotton	Economic Development Officer
David Brewster	Environmental Health Officer (AQ) & Cycle Commuter
Adam Beattie	Senior Engineer Road Safety & Traffic Management
George Smith	Housing Liaison Officer & Cyclist
Stephen Syme	Engineer (Projects)
Keith Doyle	Engineer (Bridges)
Graeme Noble	Engineer Road Safety

AECOM presented the initial plans that had been produced for the routes. The session produced a number of additional aspects to be investigated, as well as potential route alignments.

4.3 The City Of Edinburgh Council/ SEStran Option Review

An option review session was held with representatives from The City of Edinburgh Council and SEStran on the 25th of February 2016 at Waverley Court, Edinburgh. The main outcomes of the meeting are listed below:

- Alternative accesses to Heriot Watt University should be investigated, including possible links from Hermiston House Road;
- The City of Edinburgh Council do not have any firm plans to introduce cycling infrastructure continuing eastwards on Calder Road. Calder Road is included as a potential route in the Council's 2016 Active Travel Action Plan Refresh, however this has not been subject to any detailed assessment or planning. Should a route along Calder Road be developed in future, it would enhance the benefits of the overall A71 corridor.
- West of Hermiston, the Union Canal towpath surface is due to be upgraded by Scottish Canals, providing a better standard sealed surface for shared use.

The lack of planned cycleway infrastructure on Calder Road east of Calder Junction is a key fact which should be taken in to account when considering further development of the A71 Corridor from West Lothian to Edinburgh.

4.4 External Workshop

On the 18th of February 2016, an external workshop was held with invited parties living or working in/ around the study area. The workshop was held at the Howden Park Centre in Livingston, and was attended by 18 individuals in total. Several organisations were represented, as shown in Table 4.2, as were a number of local residents and people who currently walk or cycle in the study area.

Table 4.2: Organisations Represented at External Workshop Attendance List

Organisation
West Calder & Harburn Community Development Trust
Sustrans and Spokes
Central Scotland Green Network Trust
Spokes Lothian
West Lothian Clarion Cycling Club
Murieston Environmental Group
First
Stirling Developments
West Lothian Youth Action Project
Scottish Natural Heritage
West Lothian Sustrans Group
Spokes (the Lothian Cycle Campaign).

As an initial prompt for discussion, attendees were asked to sum up existing walking/ cycling conditions on the A71, and what they would like to see in the future. The results are shown below (larger text size indicates a word or phrase was used more often).



Figure 4.1: “How would you describe the A71 for walking or cycling?”



Figure 4.2: “What should it be like to walk or cycle on the A71?”

This simple exercise confirms that the existing A71 Corridor is not considered attractive even by those who use it on a regular basis and is therefore highly unlikely to attract significant numbers of new cyclists in support of national and local aspirations.

During the workshop, the attendees were given the opportunity to discuss each of the three route sections with a member of the project team. This exercise yielded a number of useful points, contacts and further possible options. A summary of the key points from the External Workshop is provided in section 4.4.1.

4.4.1 Key Discussion Points

In the following sections the key discussion points from the External Workshop that was held on the 18th of February are provided. These have been grouped into the following categories:

- Key destinations;
- Existing conditions and routes;
- Existing barriers to walking and cycling; and
- Desired improvements.

The key discussion points relating to each of these categories are discussed in sections 4.4.1.1 to 4.4.1.4.

4.4.1.1 Key Destinations

The primary destinations in Section 1 were highlighted as being the industrial estates in Livingston (e.g. Brucefield), West Calder train station, and the Pedal Power Bike Shop in West Calder. West Calder Medical Centre was also highlighted as a local destination, and the future developments sites at Cleugh Brae, Mossend and Gavieside Farm were also discussed.

In Section 2, connections to East Calder and to Kirknewton (including train station) were highlighted at the workshop.

The Heriot Watt University Riccarton campus is the key destinations in Section 3. The National Performance Centre for Sport ("Oriam") will also be located at Riccarton, which will likely increase the number of visitors to the area.

4.4.1.2 Existing Conditions and Routes

Overall, the existing conditions were described a number of times as being dangerous. Other aspects that were mentioned were that conditions depend on the time of the day and that some users had some personal security concerns on quieter routes. Some of the more experienced and confident cyclists were relatively happy to cycle on the road (including the A71 and other roads) in current conditions, but raised concerns about maintenance and the quality of the road surface. It was generally agreed that the existing roads, particularly the A71 in Section 2, are unlikely to be attractive to new cyclists.

4.4.1.3 Existing Barriers to Walking and Cycling

Between West Calder and Livingston, the number of vehicles, and particularly the number of HGVs, was mentioned as a factor that may put people off cycling in this area. (This is evidenced by the data contained in Table 2.2 (section 2.7.1)). Drainage and maintenance of existing routes were also mentioned as issues, with potholes and debris located at the side of the road said to cause problems to cyclists.

In Section 2, traffic volumes and speeds were mentioned as concerns on the A71, along with personal safety and security. Again, the volume of traffic on this section can be seen in the traffic count data that can be found in Table 2.2 (section 2.7.1). The A71 has a 50 mph speed limit for much of Section 2, which could discourage all but the most experienced cyclists. Finally, much of the A71 does not have street lighting, which was mentioned at the workshop as a cause of concern in terms of safety and security – particularly during the winter. Similarly, other routes including on-road sections of National Cycle Network route 75 do not have lighting.

In addition to the aforementioned traffic volumes and speeds the main barrier in Section 3 is the difficulty of navigating the Calder Road/ Gogar Station Road/ Riccarton Mains Road roundabout (immediately west of Calder junction).

4.4.1.4 Desired Improvements

The main improvements that were mentioned during the session are listed below:

- Improved infrastructure on route, including signage, lighting and surfacing;
- Wider network connectivity, including links to schools, education facilities, and other public transport modes;
- A direct and convenient route (particularly relating to sections 2 and 3);
- Improved maintenance, both in terms of fixing potholes, and ensuring that roads and cycling infrastructure are usable in the winter;
- For the crossing of the A720 City of Edinburgh Bypass, the option of an overbridge was very popular, and
- For sections 2 and 3 – a cycle route with priority over side roads.

4.5 West Lothian Council's Online Consultation Tool

West Lothian Council have developed an online engagement tool using Smarter Choices Smarter Places funding. The tool allows communities and individuals to give feedback to the council, which in turn can feed into emerging settlement Plans. The tool is GIS-based, with registered users able to add their comments onto a base map at the location to which their comment relates. The engagement tool has only come into operation recently, having gone live in March 2016. Despite this, many comments have already been added to areas across West Lothian.

Comments uploaded to the tool were studied as a component of the consultation exercise that was undertaken. The comments that are relevant to this study are provided in Appendix C, along with further information about the online tool. The comments range from surfacing improvements to areas where junction layout and sightlines lead to conflicts between cyclists and motor vehicles.

4.6 Further Consultation

Over the course of the project, a number of comments have been collated from members of the public. The content of this feedback has been provided in Appendix C.

At the time of the issue of the draft report (14/03/2016), the Transition group at Heriot Watt University were compiling feedback from students and staff; any responses received will be included in the final report.

4.7 Land Ownership and Consultation

Through the constraints appraisal, a number of areas have been identified where third party land may be required for cycleway construction.

At the time of the issue of the draft report (14/03/2016), the results of land owner searches are still pending.

4.8 Summary

The consultation exercise confirmed a number of the ideas which motivated this study to be undertaken, namely the demand for everyday cycling between West Lothian and Edinburgh (as well as to local destinations) and the unattractive existing conditions for existing cyclists and particularly for attracting new users.

5 Option Appraisal

5.1 Introduction

This Chapter describes the options which have been considered to deliver the West Lothian Council, City of Edinburgh Council and SEStran's requirements for each of the three route sections. This chapter presents the outcomes of the option assessment process.

5.2 Definitions

In general the following definitions are used within this section, adapted from Cycling by Design (Transport Scotland design guidance):

- (Segregated) cycleway – a route for cyclists physically separated from the carriageway and from the pedestrian footway
- Shared use path – a route for use by pedestrians and cyclists.

5.3 Option Identification

Options have been identified based on the desktop review, site visits and consultation process. These options aspire to address the objectives for each of the three route sections, namely:

Table 5.1: Route Sections

Section	Extents	Objectives from Study Brief
1	West Calder to Newpark Roundabout (Livingston).	Walking and cycling improvements
2	Lizzie Brice's Roundabout (Livingston) to Hermiston	Focus on a cycling corridor
3	Hermiston to Calder Road	Design options to support a cycling route across Calder Junction

In sections 1 and 3, a high importance is placed on delivering improved conditions for both cycling and walking. While section 2 will still aim to provide for pedestrians, the focus is more strongly on cycle facilities over this longer section.

5.4 Deliverability

At the feasibility stage, some options may be identified as having potential to meet walking and cycling objectives, but might be ruled out on the grounds of deliverability, including the likely costs, technical challenges and practical issues such as land ownership, which relate to each section.

Deliverability has been scored out of 10, and has been used as a form of screening.

Table 5.2: Deliverability Scoring

Score	Description
10/10	No challenges to delivery, all required information and agreements in hand.
7/10	Some challenges to delivery, with potential for mitigation. May also include absence of some required information
4/10	Serious challenges to implementation, risk of failure to delivery
1/10	No prospect of delivery

Where deliverability is scored 4/10 or lower, it is not considered appropriate to give further detailed consideration to the relevant option.

5.5 Appraisal Criteria

The route options have been considered against the following core criteria (these are included in 'Cycling by Design', widely used in the appraisal of cycle routes and are also applicable to improving conditions for pedestrians):

- Attractiveness;
- Coherence;
- Comfort;
- Directness; and
- Safety.

Each of these criteria has been scored out of 10.

The "Hierarchy of Measures" in Cycling by Design has also be considered, within which measures should be considered in the following order:

1. Traffic volume control;
2. Traffic speed control;
3. Junction and crossing treatment;
4. Carriageway space re-allocation; and
5. Off-carriageway facilities.

Since the publication of Cycling by Design in 2011 there has been a notable shift in the approach to cycle route design in Scotland, with a much greater emphasis on segregated cycle routes as a means to encourage a step change in cycling levels. This has also led to less reliance on painted cycle lanes by Scottish Local Authorities, and closer attention to only using shared use paths where strictly appropriate.

In order to facilitate an easy comparison of the route options, a radar diagram has been provided for each of the routes, with the routes being assigned a score out of 10 against the five core criteria listed above. 10 is the best score that can be awarded, with 1 being the worst. More than one option has been proposed for each route section. An overall radar diagram has been provided for each section, displaying the scores against each of the criteria for each option proposed.

Table 5.3: Appraisal Scoring

Score	Description
10/10	Excellent positive impact
8/10	Strong positive impact
6/10	Positive impact
5/10	Moderate impact

4/10	Moderate to poor impact
1/10	Poor level of impact

The brief for the A71 Study sets aspirations beyond the standards specified in Cycling by Design, seeking a “high quality active travel and/ or cycle corridor... defined by a wide range of precedents in the UK and Europe”, and with reference to “segregation from vehicles”. Further detail on the option scoring assessment is contained within Appendix D.

5.6 Option Plans

At the option identification stage several options were identified for each section of the proposed routes. These options are listed in Table 5.4 and are shown graphically in figures 5.1 to 5.3. Technical drawings for each of the options are provided in Appendix E.

Table 5.4: Identified Options

Section	Option	Route
1	1a	A71 Segregated Cycleways (Western Section)
	1b	A71 Shared Use Path
	1c	West Calder Southern Path
	1d	West Calder Town Centre Improvements
	1e	Harburn Road to West Calder High School (Existing)
	1f	West Calder High School (Existing) to Newpark Roundabout
2	2a	A71 Corridor Cycleway (Western Section)
	2b	B7015 Corridor Cycleway with On-road Sections
	2c	A71 Corridor Cycleway (Eastern Section)
	2d	National Cycle Network Route 75
	2e	B7031 Cycleway Calderwood to Kirknewton
3	3a	Calder Junction At-grade Cycleway
	3b	Calder Junction Overbridge
	3c	Off-road and Quiet Road Alignment along Hermiston House Road and Canal
	3d	Union Canal via Gogar Station Road

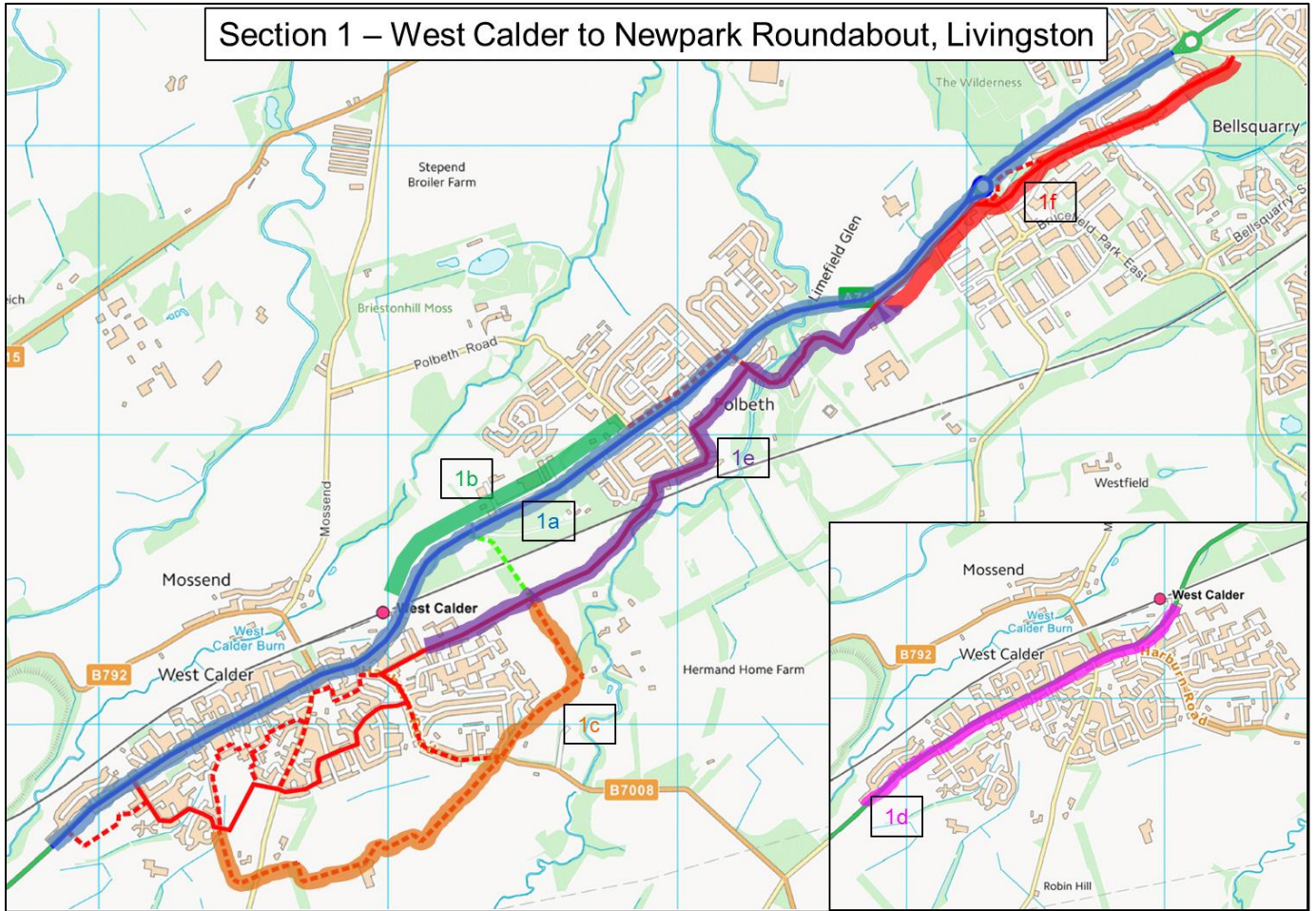


Figure 5.1: Option Plan – Section 1

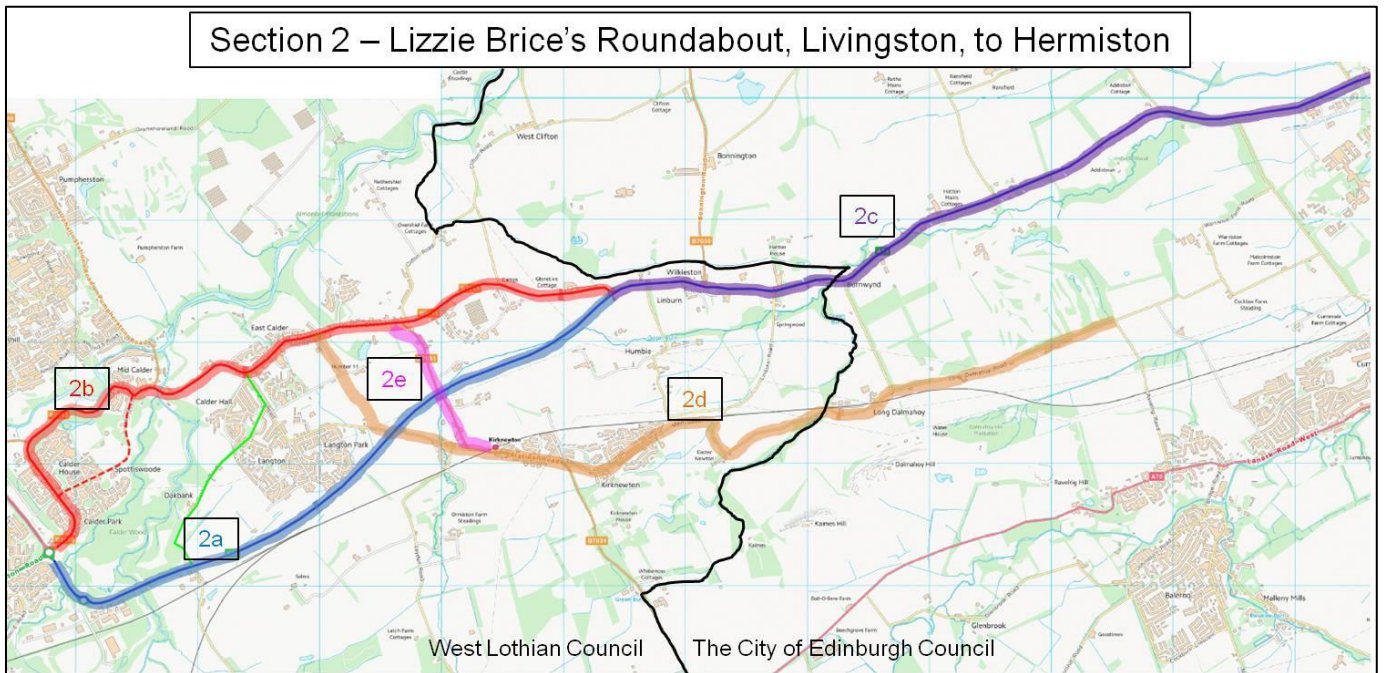


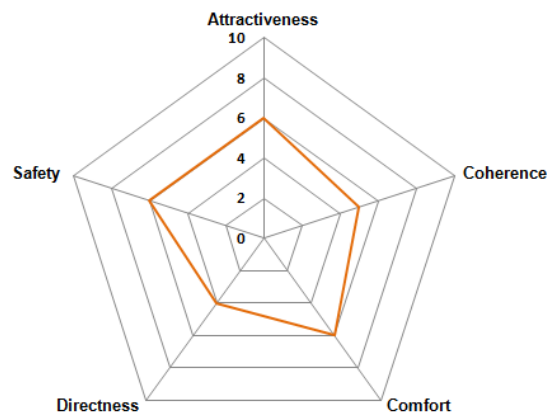
Figure 5.2: Option Plan – Section 2

5.7 Section 1 Assessment (West Calder – Bellsquarry)

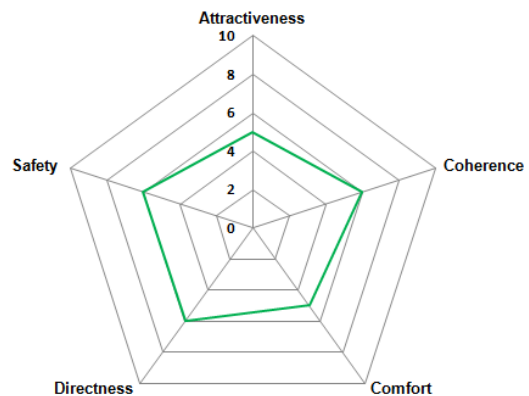
1a - A71 segregated cycleways (West Calder to Bellsquarry)	
Description	Cycle lanes in each direction along the A71; these should be segregated from the carriageway (by kerbs or other physical features) to maximise cyclist amenity. Adjacent pedestrian facilities would also be provided.
Assessment	This would provide an excellent facility however it is unlikely that this is feasible for delivery due to the space required and the physical environment.
Deliverability	3 It is unlikely that continuous segregated cycleways can be provided due to physical constraints. An absolute minimum width of 5.5m would be required to accommodate 2.5m two-way cycleway, 2.0m footway, and segregation between modes. (And desirable widths would be higher than this).
Attractiveness	8
Coherence	7
Comfort	7
Directness	8
Safety	8

1b – A71 Shared Use Path	
Description	Shared use path on the north side of the A71, from West Calder to Bellsquarry. Widening existing paths to provide a shared use facility on the north side of the A71 (at least 3.0m in width and set back 0.5m from the carriageway, increasing to 1.5m set back in a 40mph or higher speed limit).
Assessment	May be deliverable along much of the route, but would be to the detriment of pedestrian amenity particularly in West Calder town centre. An improved path between West Calder and Polbeth would be more beneficial and would connect with new developments. This could be a starting point for a wider future path network.
Deliverability	7 Achievable and beneficial along the West Calder to Polbeth section.
Attractiveness	7
Coherence	7
Comfort	6
Directness	9
Safety	7

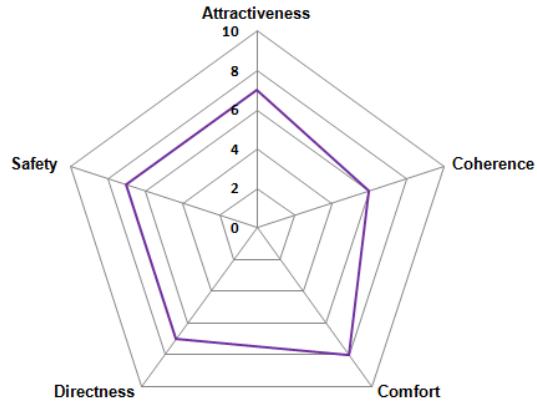
1c - West Calder Southern Path	
Description	<ul style="list-style-type: none"> - Using quiet roads through Burngrange Park for a distance of around 400m - New path construction for around 1.0km, through green space on the southern edge of West Calder, - Upgrade to existing Hermand path, intersecting Core Path 16 east of the new school site, distance around 600m.
Assessment	The western part of this route would lack directness and is unlikely to be attractive to large numbers of new users. The remainder of the route could be attractive but does not serve key destinations and would likely require extensive third party land purchase.
Deliverability	<p>5</p> <p>This option would impact on private land south of West Calder; while the ownership is not currently known, this create more challenges to delivery than developing land within the Council's control.</p>
Attractiveness	6
Coherence	5
Comfort	6
Directness	4
Safety	6



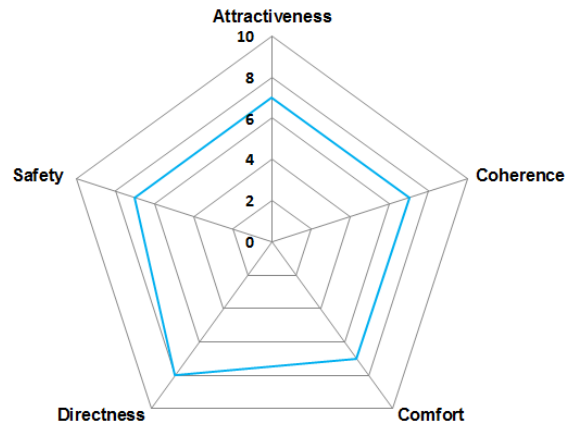
1d - West Calder Town Centre Improvements	
Description	<ul style="list-style-type: none"> - Reduce speed limit to 20mph - Reduce carriageway width where possible to increase pedestrian space - Introduce additional pedestrian crossing facilities, and introduce additional cycle parking
Assessment	The proposed measures would reduce traffic speeds, improving conditions for cyclists and pedestrians, and would create other benefits for pedestrians in particular. Traffic volumes would remain high including heavy goods vehicles, and it is unlikely that a substantial increase in cycling would result. There would be benefits of this option; however those benefits are not directly aligned with the objectives of the A71 study.
Deliverability	<p>6</p> <p>Limited physical constraints affecting this option, however town centre design requires consultation and other regulatory processes which can be time consuming.</p>
Attractiveness	5
Coherence	6
Comfort	5
Directness	6
Safety	6



1e – Harburn Road to West Calder High School (existing)	
Description	<ul style="list-style-type: none"> - Widen existing path east from Harburn Road, path will be included in the new High School development - Existing path to Chapelton Drive, then on road along Chapelton Drive to playing fields - Upgrade existing path at playing fields, upgrade existing paths to (current) West Calder High School site
Assessment	Would improve conditions and could be more strongly promoted as a route for both cyclists and pedestrians.
Deliverability	<div style="border: 2px solid green; padding: 5px; display: inline-block;">7</div> <p>This route is largely based on improvements to existing infrastructure; physical constraints are minimal and there are opportunities to tie in with new development on the West Calder High School site.</p>
Attractiveness	7
Coherence	6
Comfort	8
Directness	6
Safety	6

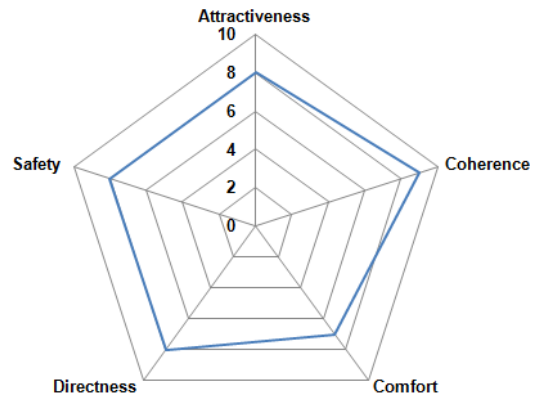


1f – West Calder High School (Existing) to Newpark Roundabout	
Description	<ul style="list-style-type: none"> - Upgrade existing traffic free paths east of the existing West Calder High School site, aiming for 3.0m width - Crossing under Brucefield Rd using existing subway (an alternative would be an at-grade toucan crossing) - Upgrade to existing traffic free paths west of Brucefield Road aiming for 3.0m width as standard. - Calder Road in existing form to Birchwood Gardens - Access improvements to path linking to Newpark Roundabout
Assessment	This route builds on existing infrastructure to provide improved facilities for pedestrians and cyclists, connecting destinations and linking into the wider path network.
Deliverability	<div style="border: 2px solid green; padding: 5px; display: inline-block;">8</div> <p>This route is currently considered to be deliverable. Opportunity safeguarded in redevelopment via Local Plan of planning brief or planning application condition for 3.0m segregated cycleway along north boundary tying into existing route through Limefield House grounds.</p>
Attractiveness	7
Coherence	7
Comfort	7
Directness	7
Safety	7

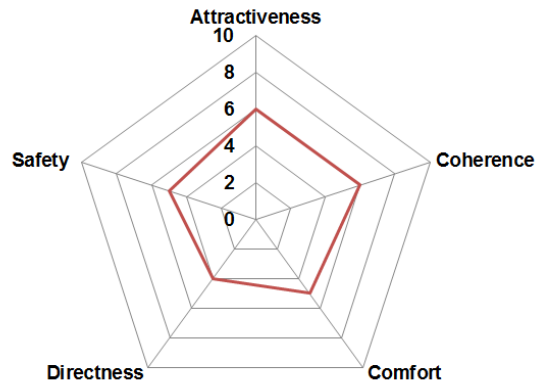


5.8 Section 2 (Livingston to Hermiston)

2a – A71 Corridor Segregated Cycleway (western section)	
Description	Two way cycleway, segregated from the carriageway, on the north side of the A71, from Lizzie Brice’s Roundabout to Wilkieston.
Assessment	This would provide a step change in cycling provision; however the benefits are subject to suitable connections including to the east and west.
Deliverability	7 There are a number of design challenges to overcome at the detailed design stage; however there are potential solutions to mitigate these challenges. The land ownership of various sections is being investigated. Implementation costs would be high.
Attractiveness	8
Coherence	9
Comfort	7
Directness	8
Safety	8



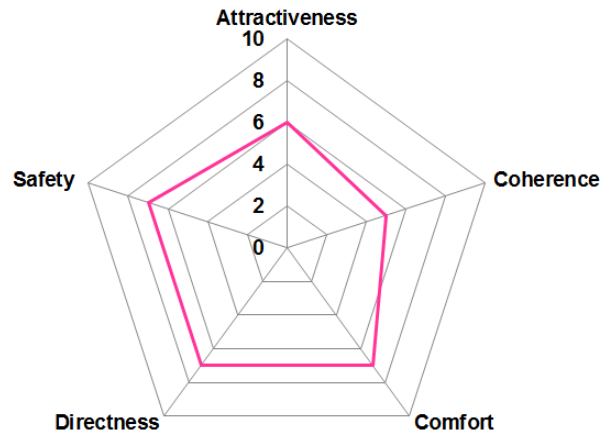
2b – B7015 Corridor Segregated Cycleway	
Description	A segregated cycleway on one or both sides of the B8046/B7015 extending towards Wilkieston.
Assessment	This route would be challenging to deliver and would not deliver the requirements of the delivery partners, there is insufficient space for a segregated facility, and there are frequent side roads and accesses which would detract from the high standard of route aspired to.
Deliverability	2 This route is unlikely to be deliverable to a desirable standard due to the physical constraints (lack of space adjacent to the road corridor).
Attractiveness	6
Coherence	6
Comfort	5
Directness	2
Safety	4



2c - A71 Corridor Segregated Cycleway (eastern section)		
Description	Segregated two-way cycleway on the north side of the A71, from Wilkieston to Hermiston.	
Assessment	There would be a significant design exercise required to progress this to delivery, but this option would provide an exceptional strategic cycling link; subject to east and west connections at each end.	
Deliverability	6	Physical constraints will provide challenges, as shown in Appendix E. The route would require to divert away from the A71 in some locations and new bridges will be required. The land ownership of various sections is being investigated. Implementation costs would be high.
Attractiveness	9	<p>A radar chart with five axes: Attractiveness (top), Coherence (right), Comfort (bottom-right), Directness (bottom-left), and Safety (left). The chart has concentric rings from 0 to 10. A green line connects the data points: Attractiveness (9), Coherence (9), Comfort (8), Directness (9), and Safety (8).</p>
Coherence	9	
Comfort	8	
Directness	9	
Safety	8	

2d – National Cycle Network route 75		
Description	Improvements to the on road cycle network via the B7015, including resurfacing and improvements to visibility for all users.	
Assessment	This would improve conditions for existing cyclists (in the relative short term) but is unlikely to deliver a step change in cycling and does not meet the strategic aim of linking to Calder junction.	
Deliverability	9	The proposals are relatively minor and should have limited challenges to deliverability. Implementation costs would be relatively low.
Attractiveness	4	<p>A radar chart with five axes: Attractiveness (top), Coherence (right), Comfort (bottom-right), Directness (bottom-left), and Safety (left). The chart has concentric rings from 0 to 10. An orange line connects the data points: Attractiveness (4), Coherence (5), Comfort (4), Directness (5), and Safety (5).</p>
Coherence	5	
Comfort	4	
Directness	5	
Safety	5	

2e – B7031 Segregated Cycleway Calderwood to Kirknewton	
Description	Cycleway alongside the B7031, crossing over the A71 and linking to the new development at Calderwood with Kirknewton Train Station.
Assessment	The proposed route would provide a valuable link between the new development at Calderwood and Kirknewton Train Station. The route would not meet the overall aims of the A71 Corridor but would strongly serve other local journeys and meet other local objectives.
Deliverability	<div style="border: 2px solid orange; padding: 5px; display: inline-block; text-align: center; width: 100px; height: 100px; vertical-align: middle;">6</div> <p>Some improvements to transport infrastructure are already to be made as part of the Calderwood development. Delivery of a cycleway alongside the B7031 would depend on the availability of land and the outcome of negotiations. Design of a safe and convenient crossing of the A71 will be somewhat challenging.</p>
Attractiveness	6
Coherence	5
Comfort	7
Directness	7
Safety	7



5.9 Section 3 (Calder Junction)

3a – Calder Junction at-grade cycleway		
Description	- From Hermiston House Road, improve existing shared use path on north side of A71. At the A71/A720 roundabout, signalised toucan crossings would be provided across A720 slip roads for pedestrians and cyclists. To provide adequate shared use paths around the edge of the roundabout, a traffic lane would be removed on the roundabout - Improved shared use path connecting to Cultins Road.	
Assessment	Excellent traffic free route but unlikely to be deliverable. There is very limited space on the roundabout, and a high volume of traffic movements. To provide a safe and attractive cycling and walking route would require removal of a traffic lane which is likely to have severe traffic impacts.	
Deliverability	2	The traffic impacts on the Calder Junction road layout make this option unlikely to be deliverable; there is not practical mitigation for these impacts.
Attractiveness	5	<p>A radar chart with five axes: Attractiveness (top), Safety (left), Directness (bottom-left), Comfort (bottom-right), and Coherence (right). The chart has concentric lines from 0 to 10. A red line connects the data points: Attractiveness (5), Safety (7), Directness (9), Comfort (7), and Coherence (8).</p>
Coherence	8	
Comfort	7	
Directness	9	
Safety	7	

3b – Calder Junction overbridge		
Description	- From Hermiston House Road, improve existing shared use path on north side of A71. - North of the A71/A720 roundabout, an overbridge would be constructed for cyclist and pedestrian use. - Improved shared use path connecting to Cultins Road.	
Assessment	This would provide an excellent traffic free route across the A720 City Bypass and could serve as an important and iconic element of the A71 Corridor. There will be some delivery challenges and the benefits may be reduced in the absence of firmly committed cycle routes along Calder Road further into Edinburgh.	
Deliverability	6	Deliverable though it would incur large capital cost and require a lengthy planning and design process with the involvement of a number of stakeholders. Implementation costs would be high, currently estimated at more than £4million.
Attractiveness	8	<p>A radar chart with five axes: Attractiveness (top), Safety (left), Directness (bottom-left), Comfort (bottom-right), and Coherence (right). The chart has concentric lines from 0 to 10. A blue line connects the data points: Attractiveness (8), Safety (7), Directness (8), Comfort (7), and Coherence (7).</p>
Coherence	7	
Comfort	7	
Directness	8	
Safety	9	

3c – Union Canal via Hermiston House Road		
Description	<ul style="list-style-type: none"> - on road at Hermiston House Road - new toucan link to Heriot Watt across A71 - existing Canal towpath with localised improvements where feasible 	
Assessment	Provides an incomplete route for pedestrians, but with existing alternatives in place. Canal provides a good link bypassing Calder Junction but may not accommodate large increase in user numbers.	
Deliverability	6	There are physical constraints affecting the proposed new crossing into the Heriot Watt Campus. It would be challenging to provide a continuous pedestrian route via Hermiston House Road, though a parallel route is available.
Attractiveness	6	<p>A radar chart with five axes: Attractiveness (top), Safety (left), Directness (bottom-left), Comfort (bottom-right), and Coherence (right). The chart has concentric lines at intervals of 2, from 0 to 10. An orange line connects the data points: Attractiveness (6), Safety (6), Directness (7), Comfort (6), and Coherence (6).</p>
Coherence	6	
Comfort	6	
Directness	7	
Safety	6	

3d – Union Canal via Gogar Station Road		
Description	<ul style="list-style-type: none"> - From Hermiston House Road, upgrade existing paths as far as Heriot Watt toucan crossing - Follow existing route through Hermiston on paths and quiet roads. - existing shared use paths on Gogar Station Road - Canal towpath with localised improvements where feasible. 	
Assessment	Route would not match the standard of a dedicated cycleway to the west. Canal provides a good link bypassing Calder Junction but may not accommodate large increase in user numbers.	
Deliverability	8	This option proposed minor changes to connect with an extended A71 cycleway to the west, and primarily makes use of existing infrastructure.
Attractiveness	8	<p>A radar chart with five axes: Attractiveness (top), Safety (left), Directness (bottom-left), Comfort (bottom-right), and Coherence (right). The chart has concentric lines at intervals of 2, from 0 to 10. A green line connects the data points: Attractiveness (8), Safety (6), Directness (7), Comfort (6), and Coherence (6).</p>
Coherence	6	
Comfort	6	
Directness	7	
Safety	6	

5.10 Deliverability Summary

Table 5.5 below shows a summary of the deliverability scoring.

Table 5.5: Deliverability Summary

Option No.	Description	Total/10
1a	A71 segregated cycleways	3
1b	A71 shared use path	7
1c	West Calder Southern Path	5
1d	West Calder Town Centre Improvements	6
1e	Harburn Road to West Calder High School (existing)	7
1f	West Calder High School (existing) to Newpark Roundabout	8
2a	A71 Corridor Cycleway (western section)	7
2b	B7015 Corridor Cycleway with On-road Sections	2
2c	A71 Corridor Cycleway (eastern section)	6
2d	National Cycle Network route 75	9
2e	B7031 Cycleway Calderwood to Kirknewton	6
3a	Calder Junction at-grade cycleway	2
3b	Calder Junction overbridge	6
3c	Union Canal via Hermiston House Road	6
3d	Union Canal via Gogar Station Road	8

Options 1a, 2b and 3a are not considered deliverable:

- Option 1a: provision of segregated cycleways is not feasible due to physical constraints on the available width for construction. Where a segregated route could be provided over a shorter section, it would come to an abrupt end and require crossing the A71 to or from the cycleway.
- Option 2b: there is insufficient physical space for provision of cycling infrastructure along this section, and the constraints are not practical to be overcome. The high frequency of side roads and accesses would make it impractical to provide a high quality cycling facility.
- Option 3a: would have a substantial impact on road traffic including impacting on the A720 City Bypass and the impacts cannot be mitigated within the scheme design.

While the remaining options are considered deliverable, some of these would incur very high implementation costs (running to millions of pounds), and it is likely that external funding sources would need to be secured in order to progress these larger and more complex schemes.

5.11 Assessment Summary

The diagrams below show a summary of the assessment scoring against key criteria for each of the route options in Sections 1, 2 and 3.

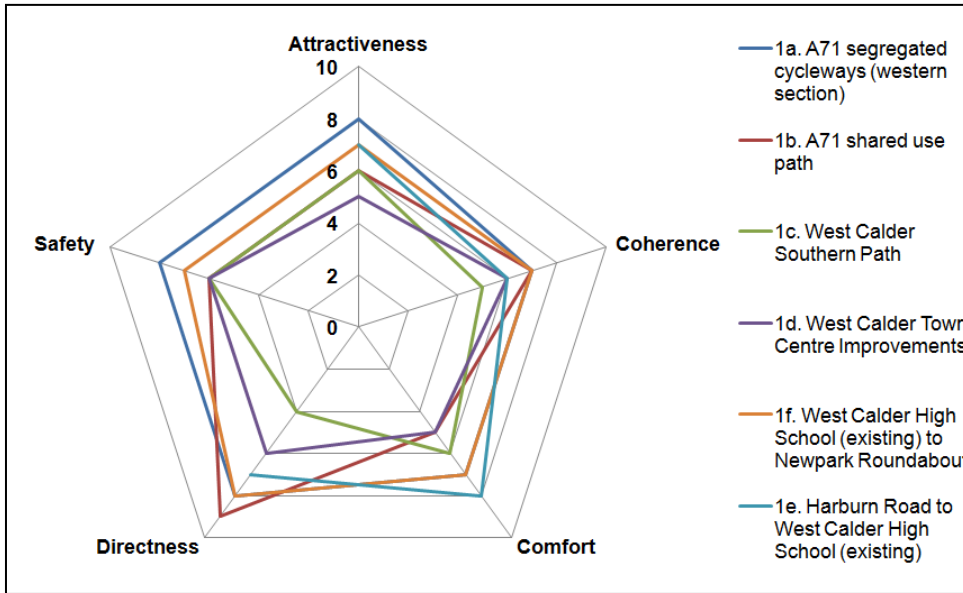


Figure 5.4: Assessment Summary - Section 1

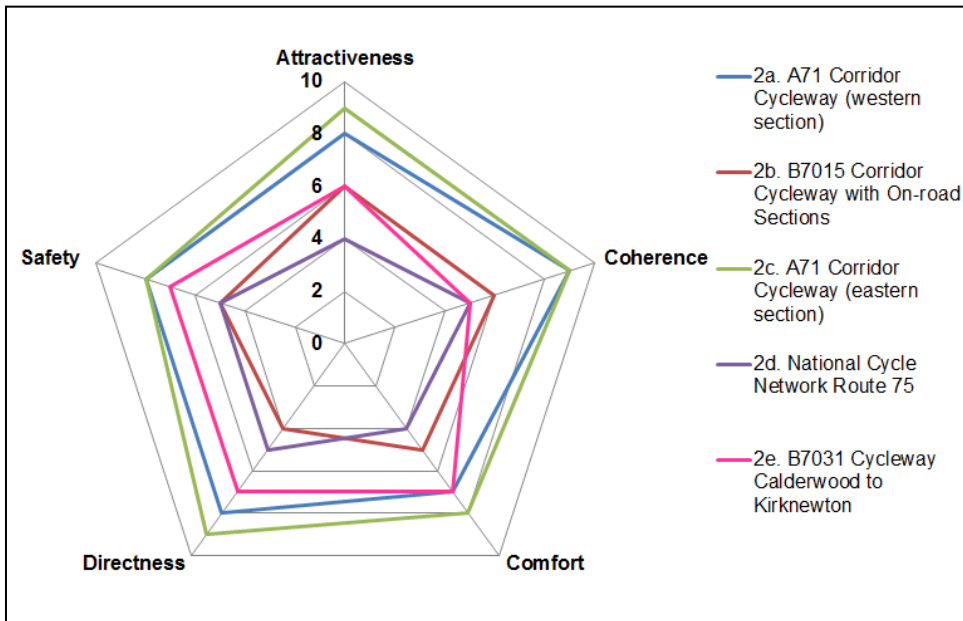


Figure 5.5: Assessment Summary - Section 2

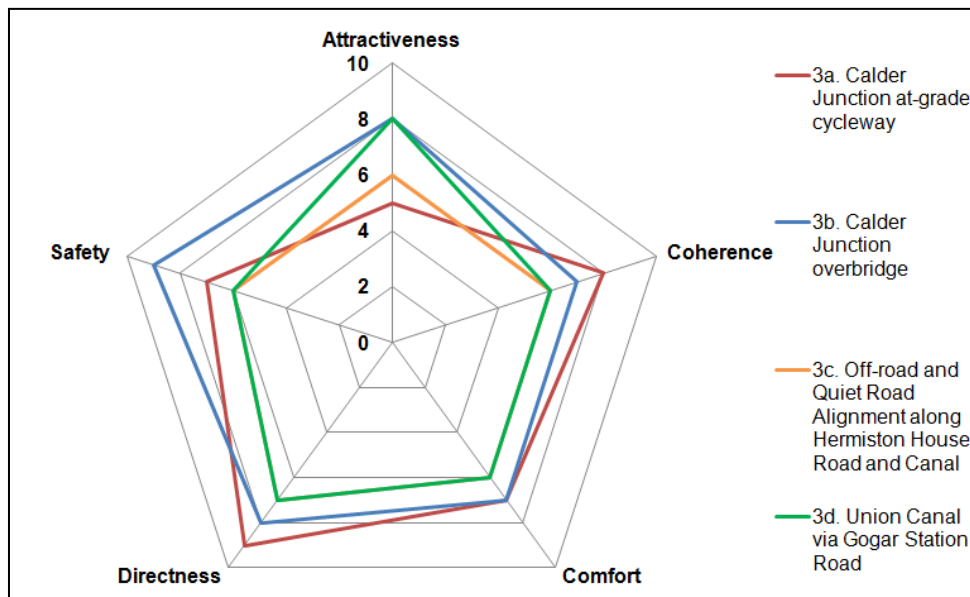


Figure 5.6: Assessment Summary - Section 3

Table 5.6 below summarises the assessment of options; the options which are not considered to be deliverable are highlighted as such

Table 5.6: Assessment Summary

Option No.	Description	Total/50	Deliverable
1a	A71 segregated cycleways	38	NO
1b	A71 shared use path	36	YES
1c	West Calder Southern Path	27	YES
1d	West Calder Town Centre Improvements	28	YES
1e	Harburn Road to West Calder High School (existing)	33	YES
1f	West Calder High School (existing) to Newpark Roundabout	35	YES
2a	A71 Corridor Cycleway (western section)	40	YES
2b	B7015 Corridor Cycleway with On-road Sections	26	NO
2c	A71 Corridor Cycleway (eastern section)	43	YES
2d	National Cycle Network route 75	23	YES
2e	B7031 Cycleway Calderwood to Kirknewton	32	YES
3a	Calder Junction at-grade cycleway	36	NO
3b	Calder Junction overbridge	39	YES
3c	Union Canal via Hermiston House Road	31	YES
3d	Union Canal via Gogar Station Road	33	YES

5.12 Conclusions

Segregated cycleways provide the greatest level of benefit and would offer a step change in provision for cyclists while protecting and potentially enhancing pedestrian amenity. However it should be noted that these are expensive to implement, in particular where there are physical constraints to overcome (for example where bridges are required).

For local journeys between West Calder and Bellsquarry (section 1), there is an existing path alignment running parallel and remote from the A71 which can be improved to provide enhanced connections for cyclists and pedestrians.

A shared use path can also be provided on the north side of the A71 between West Calder and Polbeth and would improve sustainable travel options. This would also create a basis for an expanding network in future, including links with new developments.

Improvements in West Calder Centre do not score highly overall due to the constraints on accommodating cyclists; nevertheless these improvements could significantly enhance the pedestrian experience and should be considered further.

Considering the A71 as a strategic corridor connecting West Lothian and Edinburgh, a segregated cycleway from Livingston to Hermiston (section 2), connecting with an overbridge at Calder junction (section 3), would deliver the highest standard for a strategic route.

Within section 2, a route crossing the A71 between Calderwood and Kirknewton would not meet the A71 study objectives, but would provide an excellent local connection meeting other objectives of West Lothian Council and partners.

Therefore the following options are recommended to meet the aims of the delivery partners for the A71 corridor study:

Table 5.7: Recommended Options

Option No.	Description	Total/50
1b	A71 Shared Use Path	36
1e	Harburn Road to West Calder High School (existing)	36
1f	West Calder High School (existing) to Newpark Roundabout	35
2a	A71 Corridor Cycleway (western section)	40
2c	A71 Corridor Cycleway (eastern section)	43
3b	Calder Junction overbridge	39

The planning and design process for these schemes, particularly within Sections 2 and 3, could potentially be long and complex. Therefore some of the other options (for example surfacing improvements on National Cycle Network route 75) may be worthy of consideration in the shorter term.

Furthermore there are options which do not meet the aspirations of the A71 Corridor Study, and therefore score poorly against the assessment criteria, but nevertheless offer other local transport improvements. These are listed in Table 5.8 below, and described further in Chapter 7.

Table 5.8: Wider Network Connections

Option No.	Description	Total/50
1d	West Calder Town Centre Improvements	28
2e	B7031 Cycleway Calderwood to Kirknewton	33

The following chapter described the recommended specification for the recommended options shown in Table 5.7, as well as the options for phased implementation.

6 Route Specification and Phased Implementation

6.1 Introduction

Based on the Option Assessment described in Chapter 5, the following sections have been recommended for further consideration.

1d	West Calder Town Centre Improvements
1e	Harburn Road to West Calder High School (existing)
1f	West Calder High School (existing) to Newpark Roundabout
2a	A71 Corridor Cycleway (western section)
2c	A71 Corridor Cycleway (eastern section)
3b	Calder Junction overbridge

6.2 Technical Standards

The feasibility study has been carried out with due reference to design standards and guidance, including:

- Cycling by Design (Transport Scotland, 2011);
- Handbook for Cycle-friendly Design (Sustrans, 2014); and
- Design Manual for Roads and Bridges (DMRB).

The core design principles are to provide safe, direct, coherent, attractive and comfortable infrastructure for cycling. Reductions in traffic speeds and volumes should always be considered.

Walking should have the highest priority in the transport hierarchy, and active travel improvements should enable and support walking wherever possible. Cycling infrastructure should never be at the detriment of pedestrian amenity.

Cycleways should be at least 2.0m wide and ideally 3.0m wide, and should be set back from the carriageway by 1.5m where the speed limit is 40mph or higher. Shared use paths should be at least 3.m wide.

For everyday usage cycleways should have bound surfacing in bitmac or similar material.

6.3 Section 1

6.3.1 1b A71 shared use path (West Calder to Polbeth)

A shared use path should be provided on the north side of the A71 between West Calder and Polbeth. This should be at least 3.0m in width, with a separation strip between the path and the carriageway. This will require the existing path to be widened; much of the land to the north is within West Lothian Council's control.

The most constrained point along this section is at the entrance into Polbeth at Polbeth Road, where a 3.0m path may not be achievable.

The detailed design will be required to be integrated with proposals for changes to the road network north of West Calder Station, and at the new West Calder High School.

The design should aspire to give priority to cyclists and pedestrians over the side road at Limefield Road.

6.3.2 1e Harburn Road to West Calder High School (existing)

Typically shared use paths in this type of setting should be at least 3.0m in width and constructed with a sealed (bitmac or similar) surface. Adjacent to Harburn Road a more comprehensive design solution is required, where the existing path runs directly past the front doors of residential properties. The Transport Assessment for the new West Calder High School site indicates that the existing paths should be redetermined however for the reasons above it is recommended that the paths are widened.

The route specification would be as follows:

- 6.0m wide path from Harburn Road past Harburn Drive properties;
- Path will be accommodated through new West Calder High School site;
- Retain existing path to Chapelton Drive, improving drainage along the path;
- Improve access points at Chapelton Drive (including at playing fields);
- Use existing roads and paths Stable Lane;
- Resurface existing path past West Calder High School to provide at least 3.0m; and
- Shared use and directional signing throughout.

6.3.3 1f West Calder High School (existing) to Newpark Roundabout

- Upgrade (widening to 3.0m) of the footpath on the south of the A71, for shared use by cyclists and pedestrians (this will require removal of some trees); from West Calder High School to Calder Road at Bellsquarry;
- Use of existing road and paths on Calder Road for cyclists and pedestrians respectively; and
- Upgrade path access at eastern end of Calder Road.

6.4 Section 2

Segregated cycleways can take various different forms, including:

- One way on each side of the road, cycle only;
- Two way on one side of the road, cycle only; and
- Shared use with pedestrians.

In built up areas, shared use with pedestrians is not desirable where cyclist and/ or pedestrian numbers are expected to be high (in line with the guidance in Cycling by Design). Along much of Section 2, it is anticipated that pedestrian usage will be low (with the exception of built up areas such as Wilkieston).

Cycleways on Section 2 of the A71 would be shared use, but minimal pedestrian use would be expected. This approach has been used in similar settings such as the A77 Cycle Route in East Renfrewshire/ East Ayrshire.

A two way cycle route on the north side of the road is considered to be the best balance of deliverability and convenience for users.

The detailed design exercise should identify the most feasible option for accommodating the cycleway with minimal land take adjacent to the road corridor.

6.4.1 2a A71 Corridor Cycleway (western section)

A 3.0m cycleway should be provided, set back 1.5m from the carriageway edge. Where the available width is constrained, as close to 3.0m as possible should be provided and any reduction should be over as short a distance as possible. The cycleway will be located on the north side of the A71, and may require land take in order to deliver a technically compliant route which is attractive for use.

The cycleway should have priority over side roads and accesses wherever practical and signal controlled crossings (toucan crossings) should be considered for safety and convenience.

A suitable design solution will be required at the Langton Road/A71/Station Road staggered junction.

The route construction is likely to impact on streetlighting provision.

The built up area of Wilkieston presents a design challenge. The proposed partial road bypass of the village may create opportunities for the cycleway.

6.4.2 2c A71 Corridor Cycleway (eastern section)

The design approach will be common between Sections 2a and 2c. Where there are existing footpaths within section 2c these should be retained wherever possible.

The cycleway should extend to Hermiston to connect with the proposals for Section 3.

6.5 Section 3

6.5.1 3b Calder Junction overbridge

- Two way cycleway on the north side of the A71, connecting with the existing shared use path west of Calder junction;
- Design to ensure pedestrian amenity is preserved, with sufficient path width for shared use (more than 3.0m if possible) and alternative pedestrian routes retained via the Union Canal;
- An overbridge of the A720 City Bypass for cyclist and pedestrian use (see preliminary layout on drawing 60483516-DRG-CV-100, in Appendix E); and
- Improved shared use path connection to Cultins Road.

6.6 Phased Implementation

1d	West Calder Town Centre Improvements This section can be developed independently of any others.
1e	Harburn Road to West Calder High School (existing) This section should be co-ordinated with 1f and with the development of the new West Calder High School site.
1f	West Calder High School (existing) to Newpark Roundabout This section should be co-ordinated with 1e, and with the re development of the existing West Calder High School site.
2a	A71 Corridor Cycleway (western section) The value of this section will be substantially enhanced by the development of section 2c, and detailed design should only be progressed when it is clear that both 2a and 2c are likely to go ahead.
2c	A71 Corridor Cycleway (eastern section) The value of this section will be substantially enhanced by the development of section 2a, and detailed design should only be progressed when it is clear that both 2a and 2c are likely to go ahead.
3b	Calder Junction overbridge The benefits of the overbridge would be substantially enhanced by the development of sections 2a and 2c.

6.7 Summary

The sections listed above would meet the requirements of the delivery partners West Lothian Council, City of Edinburgh Council and SEStran, and would deliver a step change in active travel for local and strategic walking/cycling journeys in the study area.

7 Wider Network Connectivity

7.1 Introduction

Above and beyond the core route identified in Chapter 6, a number of connections to other routes or destinations would significantly enhance active travel networks in West Lothian and Edinburgh.

7.2 Wider Network Connections

Key destinations are listed below, including proposals for spurs to be developed as part of the A71 Corridor being progressed.

7.2.1 Section 1

- West Calder Town Centre;
- West Calder routes proposed in “West Calder and Harburn Design Study”;
- New West Calder High School;
- Gavieside development;
- Cleuch Brae developments;
- Extensive Livingston traffic-free path network; and
- Livingston South station (route spur).

1d West Calder Town Centre Improvements

One of the options assessed in Chapter 5 was to improve conditions in West Calder Town Centre. A similar proposal has previously been raised in the “West Calder and Harburn Design Study”, and would include:

- Speed limit reduction to 20mph through West Calder Main Street;
- Carriageway narrowing to provide wider pedestrian footways;
- Landscaping features to discourage pavement parking;
- Adding to existing cycle parking to provide covered storage; and
- Pedestrian wayfinding signage.

This scored poorly against the specific objectives of the A71 Corridor Study, but would have a number of wider positive impacts, for pedestrians as well as for cyclists. This should be pursued further as a benefit to active and sustainable travel options within the study area.

The proposal is well aligned with transport and placemaking policies.

7.2.2 Section 2

- Calderwood Masterplan area
- Mid Calder
- East Calder (route spur)
- Wilkieston
- Kirknewton
- Kirknewton Station (including proposed expansion)

2e B7031 Cycleway Calderwood to Kirknewton

In Chapter 5 the Option Appraisal established that a cycle route link between Kirknewton and new developments at Calderwood would not strongly support the specific objectives of the A71 Corridor Study.

However this link would provide a strong local connection and build the active and sustainable travel network for the wider area. This is particularly important in the context of ongoing new developments, which will themselves bring some transport infrastructure improvements as well as increasing the demand for travel in the immediate area. The Calderwood development in particular is a major change to the local area and improvements of this alignment crossing the A71 could offer substantial active travel potential, including connecting to Kirknewton Station.

The key element of improving this connection will be to provide a safe and comfortable crossing of the A71 for cyclists and pedestrians, with minimal delay or inconvenience to journeys. It may be possible to integrate a crossing solution with the development of active travel facilities along the A71 along an east-west route.

7.2.3 Section3

- Heriot Watt Riccarton Campus;
- National Performance Centre for Sport;
- Hermiston village;
- Union Canal;
- Gogar Station Road, connecting to A8 at Gogarburn; and
- Wider Edinburgh walking and cycling network.

7.3 Summary

Any opportunities to link these destination into the A71 should be taken where they arise, either as part of the main route development or separately.

8 Indicative Costs

8.1 Indicative Costs

Costs have been estimated on a preliminary basis to inform further development of the route proposals. These costs are based on unit rates and broadly estimated quantities and are subject to Optimism Bias of 44% as recommended in Scottish Transport Appraisal Guidance.

A further breakdown of the cost estimates is provided within Appendix F to the report.

Table 8.1: Indicative Costs

Section	Description	Cost Estimate
1b	A71 Shared Use Path	£310,000
1e	Harburn Road to West Calder High School (existing)	£220,000
1f	West Calder High School (existing) to Newpark Roundabout	£170,000
2a	A71 Corridor Cycleway (western section)	£2.1m
2c	A71 Corridor Cycleway (eastern section)	£2.7m
3b	Calder Junction overbridge	£4.7m

9 Recommendations

9.1 Recommendations

As described in this report, a number of route options justify further investigation and progress towards implementation.

Some elements of the route, such as West Calder to Polbeth, can be progressed in the relatively short term. Meanwhile other sections such as Livingston to Hermiston will require significant further study, and a relatively long planning and design period for implementation,

In the short term, the following actions will help to progress the various options towards implementation, and are commended to West Lothian, Edinburgh and SEStran:

- Pursue funding for further route planning and implementation, including through Council budgets, SEStran funding, Community Links funding, Community Links Plus, and other sources as available;
- Progress the most deliverable sections to Preliminary Design level and engage in consultation with relevant stakeholders; with a view to progressing Detailed Design and implementation.
- Traffic surveys: accurate traffic surveys to complement the existing DfT database, including counts of existing pedestrian and cycle usage. This will help to confirm the requirements for pedestrian, cycle and vehicle provision, and will provide the basis for before-and-after analysis of scheme implementation. Count data will also prove valuable for any business case development in order to secure funding;
- In selected locations, topographical surveys will be required to allow accurate 3D design of cycleway infrastructure and associated works;
- A level of cyclist demand is anticipated for the Livingston to West Calder route section, but there is a lack of strong evidence which will be required to justify a large funding allocation. The delivery partners should consider a market research exercise aiming to establish the potential user levels of the route; this exercise should target the wider population of the surrounding area, including workplaces and attractors (such as the Heriot Watt University campus) and should not be focused on engagement with existing cyclists; and
- To complement the market research exercise above, West Lothian and partners could explore existing usage of similar routes elsewhere in Scotland; a potential example is the A77 cycle route from East Ayrshire towards East Renfrewshire Glasgow.

Appendix A

Appendix A – Environmental Baseline Information Report

Appendix B

Appendix B – Level 1 Flood Risk Assessment

Appendix C

Appendix C – Feedback and Comments

C.1 Online Consultation

A number of comments have been extracted from West Lothian Council's online tool for gathering public information regarding the A71 and surrounding routes.

Comments can be classified under 11 categories, or can be categorised as 'Other' if they relate to a different issue. This allows users to filter the comments based on the category that they are interested in. The 11 categories are as follows:

- "I'd like to cycle here";
- Cycle lanes;
- Cycle parking;
- "I'd like to walk here";
- Path Surfacing;
- Crossing;
- Junction;
- Indirect Routes;
- Personal Safety;
- Lighting; and
- "Places I go regularly".

The comments relevant to this study are located at West Calder, around Lizzie Brice's roundabout, in Mid Calder, in East Calder and on NCN75 adjacent to East Calder.

Comments have been listed below, being grouped by the settlement that they are located closest to.

West Calder

A71 West Calder to Brieche

"There is a footpath that could be easier be upgraded to a share footpath/cycle path. There are a lot of cyclists use this route including myself, and a very dangerous junction and a cyclists death a year ago, surely this could be evidence enough to upgrade the path already there. This could be extended to the C road to Addiewell Station and beyond.

Livingston

Livingston Road:

Cycle – A71 to A89 Connection

"Thinking about the potential A71 active travel corridor to Edinburgh a direct link could be created to join the A81 corridor to the A89 corridor. I don't know of one through Livingston which is direct as it weaves in and out of housing estates. A link could be made along the A899 but it would need to be a segregated cycleway for people to feel safe using it."

Response – "I like this idea. There's a lot of room alongside the A899 but I wonder how we'd cross the slip road at the junctions? I wouldn't want to detour to do this as that would defeat the purpose of a direct, segregated link. Perhaps one for further study at a later stage of the A71 project?"

Path South of Bankton Park West:Indirect Routes – Steps in the way

“This could link in with the active travel corridor but there is a set of steps here which lead up to the A71. If a ramp or cycle path was installed here it could allow access along this path to the A71 cycle corridor.”

Mid Calder**Main Street/ B8046 Junction:**Personal Safety – Unsafe Crossing

“The speed and volume of traffic at the crossing does not feel safe even with the use of the lollypop person. We elect to cross further from this junction where we feel it is safer.”

Main Street:Other – Visibility on Traffic Calming

“The traffic island furniture blocks visibility of oncoming traffic at this area of traffic calming.”

Footway Surfacing – Raised Manhole Cover

“There is an exposed corner of a manhole cover on the approach to the T junction from Main Street to Bank Street. That is sure to burst a tyre at some point of take someone off their bike.”

East Calder**B7015 Main Street:**Personal Safety – Safe Cycling Route East to Mid Calder

“There is no safe road route from Main St East Calder to Mid-Calder to join the Livingston Cycle path network. Route 75 via the country park is inconvenient for commuting to Livingston and beyond and it includes steep gradients and steps.”

Cycle Lanes – Road and Pavement Parking

“Road side parking and pavement parking is an issue to cycling safely through East Calder.”

Main Street/ Langton Road Junction:Junction – Driving on Pavement

“Very often I see multiple cars drive up on the pavement at the crossing on this junction so as not to have to wait on traffic turning right into Langton Road, once one car does this the rest follow.”

B7015/ B7031 Junction:Junction – Near Death Experiences at Junction

“The junction angle on this road leads drivers turning left to travel west into East Calder on the B7015 from the A71 look east, don't stop and fail to see cyclists that are right in front of them at this junction. I see regular crashes at this junction. AM and PM.”

NCN Route 75:Footway Surfacing – Route 75 Farm Lane / Path

“Route 75 goes from Langton Road via a farm lane that is unsurfaced and in places very rough. The track could do with improving especially as it now gives access from the top of E Calder to the new housing estate adjoining the country park.”

C.2 Email Correspondence

The following comments have also been received by West Lothian/Edinburgh Councils by email:

“Please can you advise any plans for address the following issues on these routes below.

a. A71 east bound from city boundary to sight hill, (further west on this route West Lothian Council are looking at coasting to widen the A71 to put in a bus cycle lane recognising that the route needs some attention to increase the safety here).

There is a lot of sitting traffic on this east route in the morning in Edinburgh approaching the Hermiston park and ride cyclist are in a dilemma on whether to travel right or left of the traffic, we get abuse from car drivers for travelling the right, and we get abuse from larger lorries and busses for travelling the right. The country wide campaign to have cyclist not travel left of these large vehicles has left car drivers thinking we are weaving traffic just to annoy them.

With this now long running sitting traffic in this area can I suggest some warning cyclist signage, to help remind drivers that the road is for multiple use. The council should also look at speed on these approaches to the city given their 20MPH campaign, this being a 50 maybe needs to come to 40 to facilitate the 20 further into town.

The condition of this road is still horrific within the boundary on this approach to Edinburgh with many exposed drains and potholes that flood and so are unseen making them even more dangerous.

There is no provision from EC for cycle lanes on this route for a safer commute.

b. A8 Cycle route :-Parked cars on the dual use cycle path, not sure it's a triple use path for parking on too. Bus stops hampering the Dual use purpose. The poor path surface between the petrol station and Newbridge. The surrounding routes that provide access to and from the A8 Cycle path

The lights that cover the entrance to RBS entrance, In the evening these should have a change to the sequence as cycles are meant to wait on the continuing A8 traffic to stop before crossing on the side road when there is an available filter lane. Very few items of traffic turn in here in PM, and so cyclists are to stop on two occasions when only one would be required. I struggle to recall one item of traffic turning left in the evening rush.”

“My main interest would be in the improvement of the existing national cycle route 75 from Kirknewton through Balerno.

The existing route exits the village to the east along a roughly laid acceleration curve for motorists.

It then turns into a rural lane along to Haggs Bridge. This bridge over the railway line has heavy lorries from the nearby Kaimes quarry trundling over throughout the day. Which results in potholes that could swallow a small horse. The road surface is really challenging on a hard bike at this point.

It then carries on along the Long Dalmahoy Road, which normally has a good collection of potholes. It's an unlit rural lane used as a rat run by drivers avoiding the A71 or A70. When the potholes fill with water they are invisible to cyclists using standard lighting, off road lights are required. Yet this is supposed to be a route promoted for leisure and commuter use.

I have never taken my kids along it on a bike. As it happens their high school is near the top of Ravelrig Road, about six miles from Kirknewton.

That's one of the reasons I feel the situation needs improving, possibly with a route usable by pedestrians as well through the back of the quarry.

I grew up on a different part of the planet, but at an age younger than my kids now, I used to commute that distance daily by bike on a main road. The traffic may have been a bit less aggressive, but the road was a straight dual carriageway with long sight lines and was safer than the 75 described.

I once tried the A71. Only once. Reverted to the 75, coming off through Herriot Watt and through the Riccarton roundabout onto the canal. Later on I switched to the Lang Whang (A70) as a more straightforward route to access from my home. Though vehicles often go too fast on the section approaching Balerno, I tend to feel the sight lines are better and I could keep out of harm's way.

So, unless there's scope to build a new, protected route from Kirknewton to Hermiston Gait, dramatically improving the existing routes might be a better option.

Not saying I'll guarantee to let my kids commute to Balerno on their bikes, but given the usual timescale for these projects, that may well not be a problem.”

“I guess I am interested in hearing your plans for improvement to cycle routes as I do drive the A71 each day and see the very poor condition of the road for the dedicated cyclists commuting daily. I use my road bike for recreational use only but also have found route 75 east bound from Kirknewton unsuitable for this type of bike, better suited to my mountain bike.

I live on Station Road in Kirknewton and do see large groups of road bikes passing my house at weekends heading west but never returning. My guess is that they do a circular route involving the A70?

As for walking along the A71 I could find no need or pleasure! I regularly walk from Kirknewton to East Calder then join the Union canal tow path to Ratho, with my dogs. This could be extended to Cramond on a long summer day.”

Appendix D

Appendix D – Option Assessment Details

Section 1

	Route: 1a. A71 segregated cycleways (western section)
Description	<ul style="list-style-type: none"> - On road cycle lanes in each direction along the A71; these should be segregated from the carriageway (by kerbs or other physical features) where possible. - Should be complemented by reduced speed limits.
Assessment	<p>There are a number of challenges associated with delivering on road cycle lanes. There is limited space available for the construction of segregated facilities (where the speed limit is 40mph the cycle lanes should be segregated and set back 1.5m from the carriageway. On road (painted) require less space but offer substantially less benefits, and would not meet the aspirations of the A71 corridor.</p>
Attractiveness	<p>This route would be significantly more attractive for cyclists.</p> <p>Score: 8</p>
Coherence	<p>Segregated cycleways would provide a strong coherent route subject to suitable treatment of junctions. There would be no improvement for pedestrians and a moderate risk of increased severance.</p> <p>Score: 7</p>
Comfort	<p>The route would offer a high level of comfort for cyclists though no improvement for pedestrians.</p> <p>Score: 7</p>
Deliverability	<p>The built environment is challenging and there are competing demands on space in West Calder town centre including for pedestrians, cyclists, buses, loading/servicing, car parking and through traffic. Delivering a high standard cycle facility, particularly without detracting from the pedestrian environment, is likely to be very challenging.</p> <p>Score: 3</p>
Directness	<p>The route would be very direct.</p> <p>Score: 8</p>
Safety	<p>Conflicts between cyclists and vehicles would be reduced, though not removed. Careful design of junctions and crossings would be required. Some conflict between cyclists and pedestrians may be reduced.</p> <p>Score: 8</p>

	Route: 1b. A71 shared use path
Description	- Widening existing paths to provide a shared use facility on the north side of the A71 (at least 3.0m in width and set back 0.5m from the carriageway, increasing to 1.5m set back in a 40mph or higher speed limit).
Assessment	Shared use paths would not be appropriate within West Calder town centre due to a high concentration of pedestrian activity. Outwith the town centre there are limitations on the available space to provide a path of a suitable standard.
Attractiveness	Shared use paths could attract new cyclist and pedestrian use, particularly for access to the new school site. Some existing cyclists may find a shared use path unattractive and may prefer to use the A71 road.
	Score: 7
Coherence	The route would provide a good level of coherence.
	Score: 7
Comfort	The route would be comfortable with wide and well surfaced paths; junctions and crossings may be challenging. Pedestrian comfort may be compromised.
	Score: 6
Deliverability	Achievable along much of the route, with some compromise required on path width.
	Score: 7
Directness	The route would be very direct and aligns with a road and path corridor which users are already familiar with.
	Score: 9
Safety	This option would reduce conflict but would require appropriate treatment of junctions and crossings. Increased pedestrian/cycle conflict.
	Score: 7

	Route: 1c. West Calder Southern Path
Description	The total length of the route is around 3 km. - Using quiet roads through Burngrange Park for a distance of around 400m - New path construction for around 1.0km, through green space on the southern edge of West Calder, - Upgrade to existing Hermand path, intersecting Core Path 16 east of the new school site, distance around 600m.
Assessment	The western part of this route would lack directness and is unlikely to be attractive to large numbers of new users. The remainder of the route could be attractive but does not serve key destinations and would require extensive third party land purchase.
Attractiveness	This option could be considered attractive due to its location away from the main road corridor, however it does not link well to destinations for everyday journeys.
	Score: 6
Coherence	Lacks coherence due to mixed route type, indirect routing and poor links to destinations.
	Score: 5
Comfort	The route would be relatively comfortable with a high standard of surfacing, however on road sections and road crossings would introduce discomfort.
	Score: 6
Deliverability	This option would involve negotiations regarding private land which would challenge the delivery timescales.
	Score: 5
Directness	The route is somewhat indirect when compared with other options and does not link well to destinations.
	Score: 4
Safety	The route offers an alternative to using the A71 however a number of conflict points remain and so the improvements delivered are moderate.
	Score: 6

Route: 1d. West Calder Town Centre Improvements	
Description	<ul style="list-style-type: none"> - Reduce speed limit to 20mph - Reduce carriageway width where possible to increase pedestrian space - Introduce additional pedestrian crossing facilities - Introduce additional cycle parking
Assessment	The proposed measures would reduce traffic speeds, improving conditions for cyclists and pedestrians, and would create other benefits for pedestrians in particular. Traffic volumes would remain high including heavy goods vehicles, and it is unlikely that a substantial increase in cycling would result.
Attractiveness	Increased attractiveness for pedestrians, limited improvements for cyclists
	Score: 5
Coherence	A more coherent place for pedestrians, but not coherent as a linear route, in particular for cyclists
	Score: 6
Comfort	Some improvement for pedestrians
	Score: 5
Deliverability	Limited physical constraints though speed limit changes and town centre design requires consultation and other processes which can be time consuming
	Score: 6
Directness	Direct for pedestrians moving between local destinations
	Score: 6
Safety	Safety improvements would result but these would be less significant than for the provision of segregated cycleways
	Score: 6

Route: 1e. Harburn Road to West Calder High School (existing)	
Description	<ul style="list-style-type: none"> - Widen existing core path 16 from Harburn Road to West Calder High School - Path will be included in the new High School development - Existing path to Chapelton Drive, then on road along Chapelton Drive to playing fields - Upgrade existing path through playing fields - Upgrade existing path network to (current) West Calder High School site
Assessment	This would improve current conditions and could be more strongly promoted as a route for cyclists and pedestrians.
Attractiveness	Shared use paths could attract new cyclist and pedestrian use, particularly for access to the new school site. Some existing cyclists may find a shared use path unattractive and may prefer to use the A71 road.
	Score: 7
Coherence	The route would provide a good level of coherence, though it would change between shared use paths and on road sections.
	Score: 6
Comfort	The route would be comfortable, with widening of existing paths to accommodate shared use.
	Score: 8
Deliverability	This route is based largely on existing infrastructure.
	Score: 7
Directness	The route would be direct
	Score: 6
Safety	This option is mainly traffic free, with on road sections using quiet streets away from the main A71. The remoteness of some sections may cause some personal security concerns.
	Score: 6

	Route: 1f. West Calder High School (existing) to Newpark Roundabout
Description	<ul style="list-style-type: none"> - Upgrade to existing traffic free paths east of the existing West Calder High School site, aiming for 3.0m width - Crossing under Brucefield Road using the existing subway (noting an alternative would be an at-grade toucan crossing) - Upgrade to existing traffic free paths west of Brucefield Road aiming for 3.0m width as standard. - Calder Road in existing form to Birchwood Gardens - Access improvements to path linking to Newpark Roundabout
Assessment	This route builds on existing infrastructure to provide improved facilities for pedestrians and cyclists, connecting destinations and linking into the wider path network.
Attractiveness	<p>The route would be attractive for many users and could attract new cycling and walking journeys. The on road sections may deter some new cyclists, though traffic levels are likely to be low.</p> <p>Score: 7</p>
Coherence	<p>While the route changes between different types of provision for cyclists in particular, it provides a reasonably coherent linear route.</p> <p>Score: 7</p>
Comfort	<p>The route would be comfortable for users and conditions would be improved by the proposed measures. The subway at Brucefield Road may introduce an element of discomfort.</p> <p>Score: 7</p>
Deliverability	<p>This route is currently considered to be deliverable. A risk to delivery is new development on the existing West Calder High site however this development may also create opportunities.</p> <p>Score: 8</p>
Directness	<p>Overall this provides a direct route</p> <p>Score: 7</p>
Safety	<p>This option would provide a safe route however less so than a fully traffic free facility.</p> <p>Score: 7</p>

Section 2

Option	2a	Route: 2a. A71 Corridor Cycleway (western section)
Description	<p>The route runs from Lizzie Brice's Roundabout to the junction of the A71 and the B7015. The route would take the form of a cycleway, located on the north side of the A71. The route should be 3.0m wide to accommodate two way cycling on one side of the road; it is likely that the north side of the road will be most suitable.</p> <p>The total length of the route is around 5.6 km.</p>	
	<p>This could provide a step change in provision for cycling, subject to adjacent connections. This would be a major project required detailed consultation, planning and design.</p>	
Attractiveness	<p>This would be an attractive route for cyclists and would make a substantial improvement compared to existing conditions.</p>	
	<p>Score: 8</p>	
Coherence	<p>A coherent route with minimal crossings or accesses; junctions would require appropriate treatment.</p>	
	<p>Score: 9</p>	
Comfort	<p>The provision of a buffer strip/grass verge would provide segregation between the cycleway and the carriageway, and the route is generally flat.</p>	
	<p>Score: 7</p>	
Deliverability	<p>Some constrained sections do exist along the route, but it can be considered to be feasible and deliverable. Construction of the cycleway may require widening, significant earthworks, land take, and/or road re-alignment. Consideration would also have to be given to potential public transport improvements on the A71, and how these would impact the space available.</p>	
	<p>Score: 7</p>	
Directness	<p>Very direct, as the route follows the line of the road. Suitable links into East Calder and other destinations would be required.</p>	
	<p>Score: 8</p>	
Safety	<p>A significant improvement in safety through reduced conflict between cyclists and vehicles.</p>	
	<p>Score: 8</p>	

Option	2b	Route: 2b. B7015 Corridor Cycleway with On-road Sections
Description	<p>Again, considering the route from west to east, the route runs from Lizzie Brice's Roundabout to the junction of the A71 and the B7015 alongside the B8046 and the B7015. The route would take the form of a cycleway, with on-road sections where there is insufficient space for segregated facilities.</p> <p>Construction of the cycleway may require widening, significant earthworks, land take, and/or road re-alignment. Consideration would also have to be given as to planned public transport improvements on the A71 at its junction with the B7015.</p> <p>The total length of the route is around 6.5 km.</p>	
	Assessment	This route is unlikely to be deliverable to a desirable standard due to the physical constraints.
Attractiveness	The route could be attractive but the frequency of side road crossings would be detrimental.	
	Score:	6
Coherence	This would be a somewhat coherent route option.	
	Score:	6
Comfort	Route comfort would be reduced by the frequency of side road crossings and the likely compromise required on cycleway width.	
	Score:	5
Deliverability	The physical constraints make it unlikely that a route of appropriate standard can be provided.	
	Score:	2
Directness	This would be less direct than the A71 direct option, and fails to meet the strategic objectives of the delivery partners	
	Score:	4
Safety	A cycleway could improve safety for cyclists but the frequency of side road crossings means there would still be regular cyclist/vehicle conflict points.	
	Score:	5

Option	2c	Route: 2c. A71 Corridor Cycleway (eastern section)
Description	Considering the route from west to east, the route runs from the junction of the A71 and the B7015 to Hermiston, alongside the A71. The route would take the form of a cycleway, with on-road sections where there is insufficient space for segregated facilities.	
	The total length of the route is around 6.7 km.	
Assessment	This would be a major project delivering a step change in cycling provision along this corridor; there are deliverability challenges however the benefits would be significant.	
Attractiveness	The route would be very attractive, passing through villages such as Burnwynd and Wilkieston, as well as countryside and rural landscapes.	
	Score: 9	
Coherence	A coherent route standard would be provided.	
	Score: 9	
Comfort	The provision of a buffer strip/grass verge would provide segregation between the cycleway and the carriageway, and the route is generally flat.	
	Score: 8	
Deliverability	Physical constraints will prove challenging	
	Score: 6	
Directness	The route is very direct, and serves a strategic alignment between key West Lothian destinations and Hermiston/Edinburgh	
	Score: 9	
Safety	Significant safety improvement	
	Score: 8	

Option	2d	Route: 2d. National Cycle Network Route 75
Description		<p>Considering the route from west to east, the route runs from the junction of NCN75 with the B7015 to the junction of Long Delahey Road and Ravelrig Road. The route is part of the National Cycle Network, continuing northwards on to Bathgate, and eastwards on to Balerno. The route suffers from poor surfacing, and in many places is not lit. Additionally, much of the route is very narrow, with the national speed limit applying in some areas.</p> <p>This option is considered to be a short-term solution, with Option 2c being a longer term option. It is known that the route is currently used by commuters, although complaints have been aired about the quality of surface and the lack of maintenance. Re-surfacing and general improvements could make the route more usable for commuters and more confident cyclists. The total length of the route from the B7015 to the Long Dalmahoy Road / Ravelrig Road junction is 7.7 km.</p>
Assessment		This would improve conditions for existing cyclists, and should be considered for this reason, however it is unlikely to meet the overall objectives of the project and should not be considered an overall solution.
Attractiveness		<p>The route is attractive to some users at present, as an alternative to the A71, but even with improvements is unlikely to attract significantly higher numbers of cyclists.</p> <p>Score: 4</p>
Coherence		<p>The route would be of a consistent form but would not be coherent with the high standard of cycling provision which the delivery partners aspire to.</p> <p>Score: 5</p>
Comfort		<p>While the route is generally located on quiet roads, there are some areas where traffic can travel at high speeds.</p> <p>Score: 4</p>
Deliverability		<p>Re-surfacing and other improvements such as streetlighting are deliverable (but would have limited impacts).</p> <p>Score: 9</p>
Directness		<p>The route does not provide a direct link between southeast Livingston and west Edinburgh. From the B7015 to the junction of Long Dalmahoy Road and Ravelrig Road is a distance of 7.7km. To provide a link to NCN75 along the A71, and a link onwards to Edinburgh would require around another 7km of cycle route.</p> <p>Score: 5</p>
Safety		<p>Most of the route is on-road, meaning that conflicts exist between vehicles and cyclists. Much of the route runs along narrow roads and tracks off the main road, which are not lit. Users may feel uncomfortable during periods of darkness, and may have personal security concerns.</p> <p>Score: 5</p>

Option	2e	Route: 2e. B7031 Cycleway Calderwood to Kirknewton
Description		Considering the route from north to south, the route connects the southern end of the Calderwood development with Kirknewton Train Station. The junction of the B7015 and the B7031 is to be converted to a roundabout as part of the Calderwood development, with upgrades on the B7031 to the A71 also proposed. The route would run from this point to the A71, running alongside the B7031. At the junction of the A71 and B7031, a crossing facility would have to be provided. After the crossing, the route would continue alongside the B7031 to the junction with Station Road. The route would then turn southeastwards towards Kirknewton Station along Station Road, with this section being on-road.
Assessment		The proposed route would provide a valuable link between the new development at Calderwood and Kirknewton Train Station. The route would not meet the overall aims of the project, however, and thus should not be considered as an overall solution.
Attractiveness		The route would be an attractive link to Kirknewton Train Station, primarily for residents of the new Calderwood development. The route may also be more attractive to those travelling to the station from Mid Calder and Livingston, compared to the existing NCN75 link. Score: 6
Coherence		This section of route would likely be relatively coherent when considered in isolation, however it would not link to Section 3 of the route and thus cannot be considered coherent. Score: 5
Comfort		A cycleway would segregate cyclists from motorised vehicles, reducing the likelihood of conflicts. Demand is expected to rise on the B7031 and A71 as a result of the development at Calderwood. Gradients on the route are shallow, although there is a section with some tight bends some of the A71 Score: 7
Deliverability		Improvements to the A71 are to be made as part of the Calderwood development. Delivery of a cycleway alongside the B7031 would depend on the availability of land and the outcome of negotiations. Score: 6
Directness		The route would be very direct between the B7031 / B7015 junction and Kirknewton Station, but would not meet the aims of the study for the provision of a route between Lizzie Brice's Roundabout and Hermiston. Score: 7
Safety		Provision of a cycleway would provide a significant safety improvement on the current conditions. Score: 7

Section 3

Option	3a	Route: 3a. Calder Junction at-grade cycleway
Description		<p>- From Hermiston House Road, improve existing shared use path on north side of A71. At the A71/A720 roundabout, signalised toucan crossings would be provided across the A720 slip roads for pedestrians and cyclists.</p> <p>- Improved shared use path connecting to Cultins Road</p> <p>To provide adequate shared use paths around the edge of the roundabout, a traffic lane would be removed.</p>
Assessment		This would provide a direct and convenient facility but is likely to be ruled out on grounds of deliverability
Attractiveness		<p>Attractiveness would be improved for cyclists and pedestrians however these improvements would be moderate.</p> <p>Score: 5</p>
Coherence		<p>The route provides a coherent facility using shared use paths throughout. There will be an element of delay for pedestrians and cyclists waiting for green signals.</p> <p>Score: 8</p>
Comfort		<p>The surface of the route would be of a good standard, consistent with that which is provided along the rest of the route. The proximity to busy roads at the grade-separated junction may be intimidating or uncomfortable for some users. Pedestrians may suffer reduced amenity from increased cyclist flows.</p> <p>Score: 7</p>
Deliverability		<p>The proposal would have a significant impact on the traffic operation of the A71/A720 roundabout. This would result from changes to the signal timings (which would require to allow green time for cyclists and pedestrians crossing), as well as removal of a traffic lane on the roundabout. It is unlikely the proposal would lead to a modal shift sufficient to justify this change to the road layout.</p> <p>Score: 2</p>
Directness		<p>The route follows a direct east-west route with no deviation from the desire line along the A71 corridor.</p> <p>Score: 9</p>
Safety		<p>The route would represent an improvement on the existing infrastructure, including for existing pedestrian users. The potential for conflict between cyclists, pedestrians and vehicles would be reduced by signalling the crossings.</p> <p>Score: 7</p>

Option	3b	Route: 3b. Calder Junction overbridge
Description		<ul style="list-style-type: none"> - From Hermiston House Road, improve existing shared use path on north side of A71. - North of the A71/A720 roundabout, an overbridge would be constructed for cyclist and pedestrian use. - Improved shared use path connecting to Cultins Road
Assessment		This would provide an excellent traffic free route across the A720 City Bypass and could serve as an important and iconic element of the A71 Corridor. There will be some delivery challenges, and the benefits may be reduced by the absence of cycleways continuing along Calder Road further into Edinburgh.
Attractiveness		An overbridge would provide a route away from the busy road junction at the A71/A720 roundabout and would be attractive to pedestrians and to cyclists.
		Score: 8
Coherence		This would provide a coherent connection particularly from the west side of the city bypass, with consistent use of shared use paths.
		Score: 7
Comfort		The route would be comfortable and would be specified with a smooth, sealed surface. The ramps onto the overbridge may detract from user comfort.
		Score: 7
Deliverability		The proposal is deliverable though it would incur a large capital cost and would require a relatively long planning and design process with the involvement of a number of stakeholders.
		Score: 6
Directness		The route follows a direct east-west route and minimises deviation from the desire line along the A71 corridor. The ramps on approaches to the bridge will create localised indirectness.
		Score: 8
Safety		The route would remove conflict between vehicles and non-motorised users at the grade-separated junction.
		Score: 9

Option	3c. Off-road and Quiet Road Alignment along Hermiston House Road and Canal
Description	<ul style="list-style-type: none"> - on road at Hermiston House Road - new toucan link to Heriot Watt across A71 - existing Canal towpath with localised improvements where feasible
Assessment	The on-road section detracts from the benefits of this route option. It may be possible to consider this as a route primarily for cyclists while maintaining alternative traffic free routes for pedestrians.
Attractiveness	<p>This route may be attractive to many users as it minimises interaction with traffic and provides a traffic-free section along the canal. Hermiston House Road requires shared use with vehicle traffic and will be less attractive to both pedestrians and cyclists. This is a key point for providing a link to Heriot Watt.</p> <p>Score: 6</p>
Coherence	<p>The route would be coherent but the on-road section will detract from this.</p> <p>Score: 6</p>
Comfort	<p>Some improvements to comfort for users but the on-road section will detract from this.</p> <p>Score: 6</p>
Deliverability	<p>Deliverability is high as most of the infrastructure is already in place; the toucan crossing of the A71 would require further development and potentially third party land.</p> <p>Score: 6</p>
Directness	<p>This is less direct than the alternatives but not by an excessive amount.</p> <p>Score: 7</p>
Safety	<p>This is considered to be the least safe option, given that there are some sections that are very constrained, as well as the proximity of the route to the body of water. Hermiston House Road is constrained and with little lighting, which may put non-motorised users at risks.</p> <p>Score: 6</p>

Option	3d	Route: 3d. Union Canal via Gogar Station Road
Description		<ul style="list-style-type: none"> - From Hermiston House Road, upgrade existing paths as far as Heriot Watt toucan crossing - Follow existing route through Hermiston on paths and quiet roads. - Existing shared use paths on Gogar Station Road - Canal towpath with localised improvements where feasible.
Assessment		This option proposed minor changes to connect with an extended A71 cycleway to the west, and primarily makes use of existing infrastructure.
Attractiveness		<p>This route may be attractive to many users as it minimises interaction with traffic and provides a traffic-free section along the canal. Increased usage may lead to reduced attractiveness for pedestrians and for cyclists.</p> <p>Score: 8</p>
Coherence		<p>The route uses some shared use paths and some quiet roads. The transitions between these sections can reduce coherence, particularly through Hermiston. The route would not be coherent with adjacent sections to the west.</p> <p>Score: 6</p>
Comfort		<p>There are some constrained spaces along the Union Canal path, a well known and used route by pedestrians and other users. User comfort may be reduced by increased levels of usage.</p> <p>Score: 6</p>
Deliverability		<p>The route is largely in place already and could be improved by relatively minor changes. More substantial changes to provide additional width would be very challenging to deliver.</p> <p>Score: 8</p>
Directness		<p>The route is slightly less direct than the options proposed alongside the A71, however the additional distance is only around 100m.</p> <p>Score: 7</p>
Safety		<p>Conflict between cyclists/pedestrians and vehicles is low but can still occur, particularly at Hermiston.</p> <p>Score: 6</p>

Appendix E

Appendix E – Option Drawings

Appendix F

Appendix F – Cost Estimates

