Transport and Environment Committee

10.00am, Thursday, 18 May 2023

Bus Partnership Fund - Strategic Business Case

Executive	**Routine**
Wards	**All**
Council Commitments	

1. Recommendations

1.1 It is recommended that Committee note that:

1.1.1 A Strategic Business Case for Bus Priority Measures along eight key corridors between the region and Edinburgh has been concluded. This identified a very strong case for bus priority interventions across all eight corridors with positive Benefit to Cost Ratios;

1.1.2 Transport Scotland are currently reviewing the Strategic Business Case, as part of the gateway process.

1.1.3 A grant award from Transport Scotland provides £1.05m for the next stages of the project;

1.1.4 In order to deliver the next stages in the project, procurement of technical consultancy services is required and that this will be competitively tendered; and

1.1.5 The next stages in the programme include significant public consultation exercises.

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Executive Director of Place

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Report

Bus Partnership Fund - Strategic Business Case

2. Executive Summary

2.1 This report updates Committee on the production of the Strategic Business Case for Bus Priority Improvements on eight key transport corridors and notes that the project is expected to progress to the next stage of the programme immediately after a successful progression from the associated gateway review.

3. Background

3.1 To address the issue of increasing bus journey times and patronage decline, in 2019, the Scottish Government committed to providing a long-term investment totalling over £500m in the form of a Bus Partnership Fund (BPF). The desired outcomes of the BPF include:

3.1.1 Improve bus journey times and provide greater reliability, by prioritising bus over other types of traffic;

3.1.2 Provide high-quality bus services which contribute to four priorities; to reduce inequality, take climate action, help deliver inclusive growth and improve health and well-being;

3.1.3 To reduce congestion, through improved bus services;

3.1.4 To fit with the partnership area's overall strategy for integrated transport, to encourage a modal shift from cars to more sustainable transport and reduce emissions; and

3.1.5 To demonstrate partnership strength and commitment, including through 'match in kind' action and investment to further improve bus services, and working towards a Bus Service Improvement Partnership model.

3.2 The Edinburgh and South East Scotland City Region Deal (ESESCRD) was awarded £3.03m from the Scottish Government BPF in June 2021 for the delivery of the following:

3.2.1 Strategic Business Case (SBC) for Bus Priority Improvements on eight key corridors;

3.2.2 Outline Business Case (subject to satisfactory SBC gateway review); and

3.2.3 Quick Win Bus Priority Measures (making permanent temporary schemes introduced during COVID).

3.3 On 3 November 2022, Committee received a wider update on the above.

3.4 The SBC has been developed through strong regional collaboration and has utilised the existing governance structures of the ESESCRD. The management and coordination of the SBC has been led by the City of Edinburgh Council.

3.5 To support the development and delivery of a UK Treasury Green Book compliant SBC, the Council appointed the multidisciplinary and specialist consultant Jacobs (UK) Ltd.

4. Main report

4.1 The SBC has highlighted limited public transport choices for cross-boundary trips, high amounts of congestion on the strategic road network and local corridors that buses use, which impacts on the attractiveness of public transport and results in a dominance of journeys by car across the region.

4.2 The scale and ambition of the proposals identified could help reduce bus journey times, improve reliability and increase the overall attractiveness the bus network across Edinburgh and South East Scotland. They also have the potential to significantly help towards taking action against climate change and reducing the number of kilometres made by car journeys.

4.3 The robust process to deliver the SBC has included the production of: a Case for Change, Transport Planning Objectives, Preliminary Options Appraisal and Detailed Options Appraisals. The Exec Summary is provided in Appendix 1 (the full report is available on request).

Corridors Assessed During SBC

4.4 The SBC focussed on eight key corridors listed below and as presented in Figure 4.1.

4.4.1 A90 Forth Road Bridge to Edinburgh City Centre;

4.4.2 A8 / A89 Broxburn to Edinburgh City Centre – developed through the West Edinburgh Transport Improvement Programme (WETIP) but captured at a strategic level;

4.4.3 A71 Livingston to Edinburgh City Centre;

4.4.4 A70 Balerno to Edinburgh City Centre;

4.4.5 A701 Straiton to Newington;

4.4.6 A7 Sheriffhall to Edinburgh City Centre;

4.4.7 A1 and A199 Tranent Junction to Edinburgh City Centre; and

4.4.8 Orbital north and south corridor within Edinburgh.

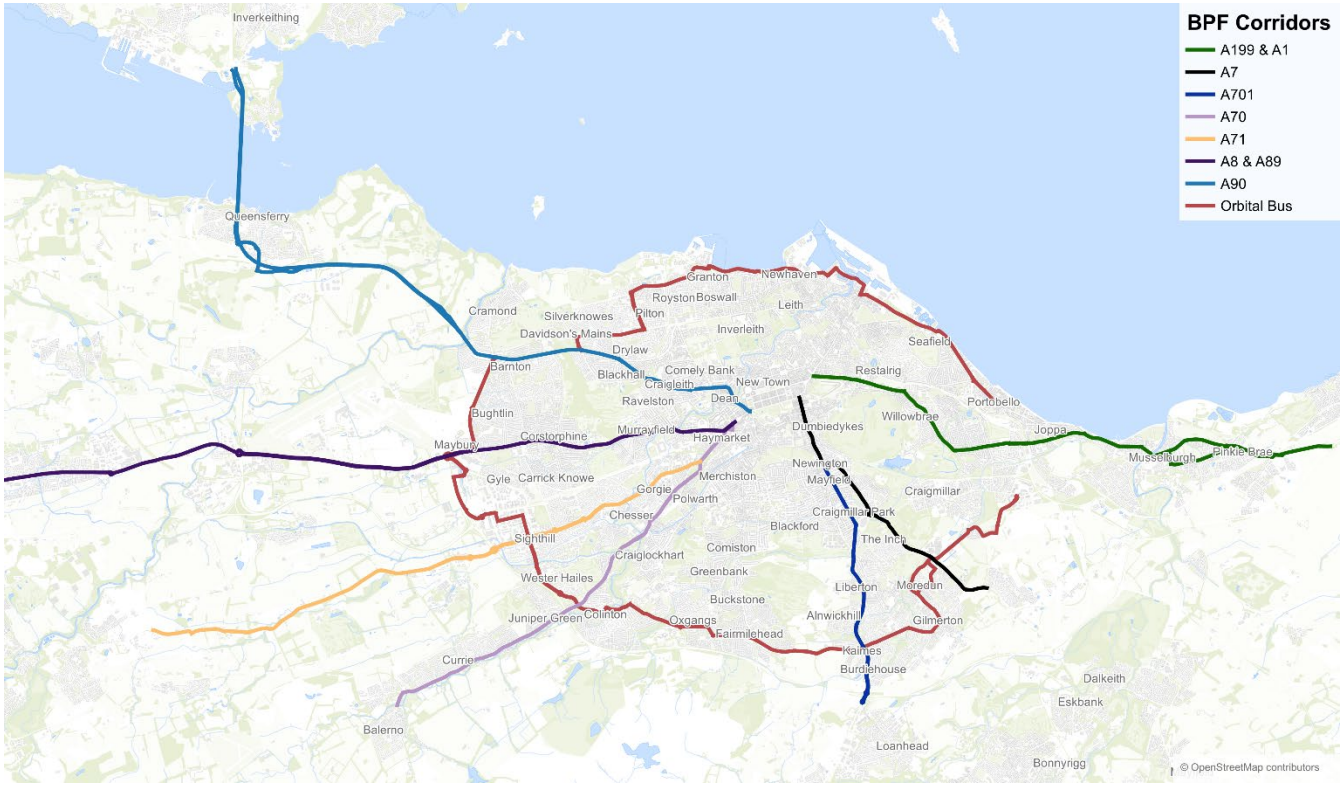

Figure 4.1 SBC Corridors Examined

4.5 Figure 4.2 below provides an indication of the types of intervention options that could potentially be delivered along each corridor.

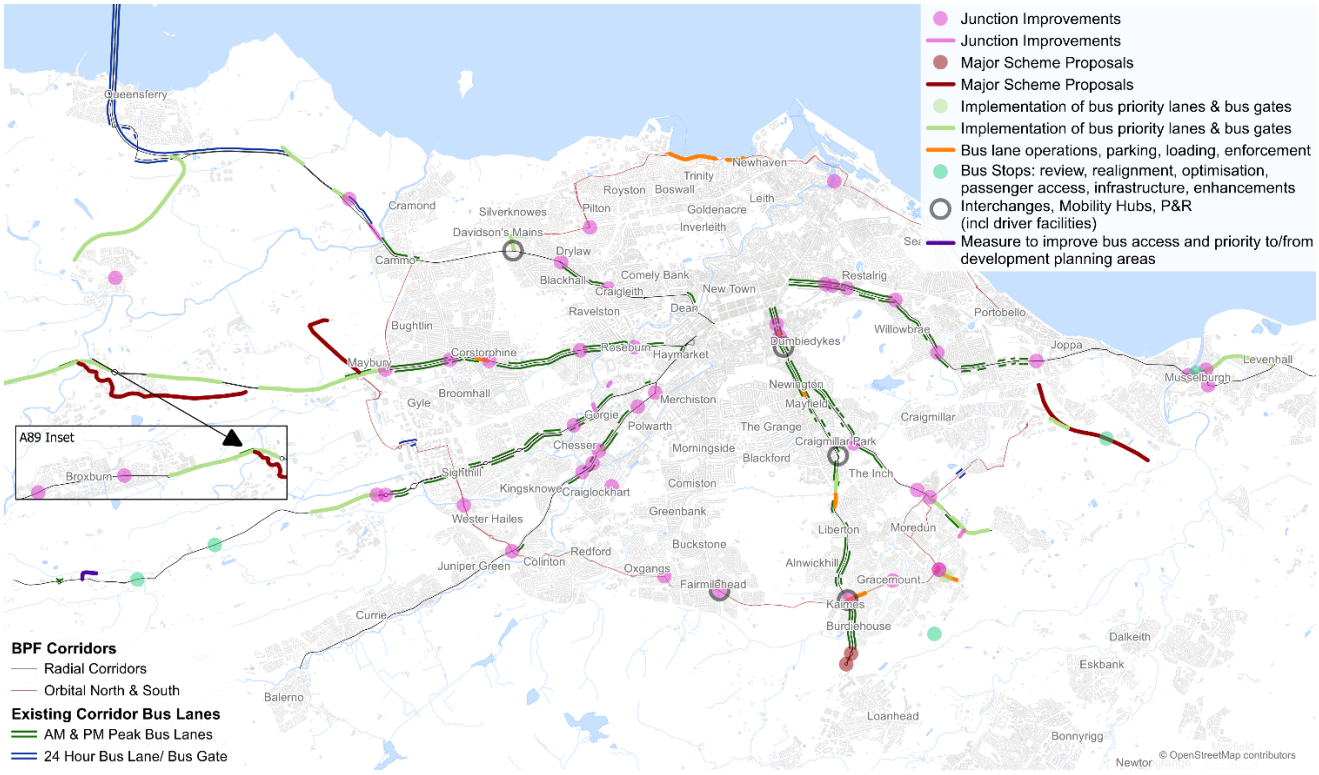

Figure 4.2 Intervention Options by Corridor

Problems, Opportunities and Constraints

4.6 Problems, opportunities and constraints have been identified through extensive engagement with local authorities, bus operators, bus user groups and community councils.

4.7 Over the last decade, bus patronage across Scotland has been declining, in part caused by longer bus journey times and increasing journey time unreliability. Within Edinburgh the reduction in passengers was less marked, but nevertheless patronage had plateaued.

4.8 Furthermore, COVID-19 had an immediate negative impact on the demand for bus travel. In response, Transport Scotland's Bus Priority Rapid Deployment Fund (BPRDF) delivered a package of quick-win interventions designed to improve bus priority at key hot-spot locations across the region. Passenger growth is now recovering, and initial data analysis shows the success of new priority measures in supporting passenger growth. Priority measures on the A1 corridor have been particularly successful with passenger volumes now 100% exceeding pre-COVID-19 levels.

4.9 The example above helps illustrate how investment in bus priority is a key action that can help encourage bus use. An additional package of ambitious bus priority improvements (delivered through the BPF) would provide an opportunity to further improve bus journey times and reliability, especially in comparison to car travel.

4.10 Generally, bus journey times in Edinburgh continue to increase as a result of congestion – by nearly 20% in the last 10 years on certain corridors. In the morning peak, major delays are typically at the first major upstream junction on the approach to the city (Barnton, Newbridge, Sheriffhall, The Jewel), evening peak delays tend to be closer to the city centre including Jock's Lodge, Morningside and Blackhall.

4.11 On-street parking and loading reduce effectiveness of bus priority. Roadworks also impact reliability and network resilience.

4.12 Limited city centre capacity has been identified as a constraint on future growth of bus services, with congestion on Queensferry Street and access to the bus station identified as key problems.

4.13 Decentralisation of key trip attractors, within and around Edinburgh, make it more challenging for attractors locations to be served by public transport. Investment in orbital services and associated infrastructure to reduce journey times for orbital movements is required to improve connectivity, support new development, and increase non-car mode shares for movements outside the city centre.

4.14 Opportunities include a growing city and region resulting in increased potential demand and heightened environmental awareness, encouraging a shift to sustainable modes.

4.15 A regional transport working group was established during the pandemic, and this successfully fostered excellent collaborative working between authorities, Transport Scotland and the bus operators. This partnership working continues in various forms and existing structures (in particular the Edinburgh Bus Alliance) provide

frequent opportunities to engage with bus operators to collaboratively develop the next stages of the project.

4.16 There is also opportunity to potentially expand Park and Ride and deliver new mobility hubs, where improved interchange between bus, tram, rail and active travel could also deliver passenger growth. There is also the potential to build upon other existing bus priority measures; including the new infrastructure installed during the pandemic.

4.17 Technology is a further key opportunity in terms of passenger information, flexible ticketing and bus priority through urban traffic control.

4.18 Constraints include historic street widths, which limit the opportunity for further bus lanes within Edinburgh.

4.19 There is strong competition for street space, with plans to further improve active travel provision as well as to deliver improved priority for buses and cater appropriately for other modes. City centre capacity is particularly challenging with a limited number of streets available for public transport, many bus stops at capacity and limited terminating capacity, particularly around the West End.

Transport Planning Objectives

4.20 Following consideration of the range of problems, opportunities and constraints, two Transport Planning Objectives (TPOs) have been identified to inform the preliminary and detailed appraisals (a necessary requirement of the business case process). These TPOs were developed collaboratively with bus operators and are as follows:

- To reduce peak hour bus journey times on each corridor, as measured by bus companies' tracking data, by an average of 25% by 2029 compared to the baseline; and
- To reduce peak hour bus journey time variability on each corridor, as measured by bus companies' tracking data, by an average of 50% by 2029 compared to the baseline.

4.21 Analysis to date suggests that a 10% reduction in journey time and a 25% reduction in journey time variability is possible based on identified BPF interventions. Non-infrastructure measures will also need to be delivered through match-in-kind initiatives (e.g. limited stop services, timetabling, smart ticketing) to help speed up services.

4.22 For the purposes of the strategic appraisal, interventions have been packaged into two categories (Package A and Package A+) and evaluated by corridor.

4.23 Package A are route corridor treatments comprising of a series of measures. The different types of interventions include:

- Junction Improvements;
- Bus Priority Lanes and Bus Gates;
- Bus Lane operations, parking, loading and enforcement;
- Bus Stop Enhancements;

- Interchanges, Mobility Hubs and Park and Ride; and
- Improve bus access and priority to/ from development planning areas.

4.24 Package A+ includes potential measures presented above in Package A with additional specific Major Scheme Proposals by corridor, which include:

- A1 – Hard Shoulder Running;
- A199 – Musselburgh Gyratory;
- A701 – Public Transport and Active Travel only route: Linked to the A701 Relief Road;
- A8/A89 – Harvest Road bus bypass of Newbridge Roundabout; and
- Orbital – Public Transport and Active Travel only link over the Fife Railway Line to connect Craigs Road and the Proposed Gogar Access Road.

4.25 The capital costs of potential infrastructure improvements have been calculated based on low and high estimates reflecting uncertainty (at SBC stage). Values have been estimated based on benchmarked costs for each of the option types, on a corridor basis (as presented in Figure 4.2), and by incorporating the assumptions set out in The Cost to Government section of the full SBC report; based on recent experience of the project team on the outturn costs of similar projects.

4.26 Table 4.1 below details the median estimates for the capital cost of the interventions. Note, as appropriate at this stage in the project, an optimism bias of 44% has been applied to the figures below.

	Package A	Package A+
	Median	Median
A90	£25.25m	£25.25m
A8 & A89	£57.05m	£118.6m
A71	£7.35m	£7.35m
A70	£16.95m	£16.95m
A701	£16m	£29.75m
A7	£10.8m	£10.8m
A1 & A199	£9.45m	£31.25m
Orbital	£6.7m	£6.7m
All Corridors	£149.55m	£246.65m

Table 4.1 – BPF Corridor Option Median Cost Estimates (2022 Prices)

4.27 Table 4.2 below summarises the overall Benefit Cost Ratio (BCR) for all corridors by Package. A breakdown of the estimated BCR for each individual corridor is provided in the Appendix 1.

	Package A		Package A+	
	Low Cost	High Cost	Low Cost	High Cost
Average for All Corridors	4.3	3.0	2.7	1.8

Table 4.2 – Overall Benefit to Cost Ratio (BCR) for all Corridors by Package

4.28 The economic appraisal of bus priority measures suggests that both packages demonstrate a strong case in terms of value for money and are anticipated to result in significant economic benefits for bus users across all eight corridors.

Further Appraisal and Outline Business Case

4.29 At this SBC stage, a comprehensive assessment of all monetised costs and benefits is not required but will follow during the next stages in the project. However, analysis to date provides the confidence that the scheme benefits are expected to be greater than costs, and hence the project can be justified on value for money grounds.

4.30 Transport Scotland are currently reviewing the SBC and have already provided £1.05m towards the next stages in the project (as part of the original grant award).

4.31 In order to complete the next steps in the project, further appraisal work (which includes; Outline Business Cases, technical assessments and design development work) will be followed by a public consultation exercise.

4.32 A key area for consultation will focus on the corridor options. Public consultees will be provided a summary of the multi-criteria analysis and views will be sought prior to selection of a preferred corridor intervention. A Communications, Engagement and Public Consultation strategy will deliver a three-month public consultation.

4.33 Taking account of the time the consultation will take to prepare, conduct and analyse, it is anticipated that the work to complete the next stages in appraisal/ OBC will take approximately 15-months.

A Ninth Corridor

4.34 During the development of the SBC, discussions with stakeholders and bus operators (along with the evidence collected) highlighted the potential for bus priority interventions on the Morningside (A702) corridor. As part of the SBC gateway review with Transport Scotland, a request was made to add the A702 corridor to the scope of the OBC (forming a total of nine corridors to be assessed in the OBC). This request was approved, and therefore, the OBC will now examine nine corridors.

Park and Ride

4.35 Park and Ride is recognised within STPR2 as an interchange measure that can strongly support policy targets (such as the national aim to reduce car kilometres by 20%. Note: Edinburgh targets 30% reduction in car kilometres). Discussions with stakeholders and bus operators during the development of the SBC highlighted the importance of Park and Ride. As it currently stands, a significant enhancement of the South East Scotland's Park and Ride offer would not be funded as part of the scope of the BPF. However, the Council is seeking clarity from Transport Scotland on Park and Ride enhancement funding opportunities, and if these are being progressed through the STPR2 Delivery Plan or other routes.

Quick Wins

4.36 Separate to development of the OBC, the upgrade and enhancement of the A90 Queue Management System and installation of a bus lane enforcement camera on the A70 are being proposed as Financial Year 2023/2024 Quick Wins.

5. Next Steps

5.1 Noting that the SBC has identified a very strong case for bus priority interventions, it will be presented to the ESESCRD Joint Committee on the 2 June 2023, recommending that works on the next stage of project commence at the earliest opportunity (i.e. following the successful progression of the gateway review).

5.2 As specialist consultancy support is required to undertake and complete the OBC, the intention is to procure the required consultancy support via a mini-competition on Lot 2 of the Scotland Excel Engineering and Technical Consultancy framework. To mitigate the procurement of consultancy support elongating the overall Programme, preparatory procurement activities have already commenced.

5.3 Subject to 5.2, appointment of the preferred consultant and initiating the inception of the OBC and the next stage will commence in due course. As an early deliverable, the consultant will be required to produce a Project Delivery Plan which will include a Communications, Consultation and Engagement Strategy.

5.4 Strong regional collaboration and the existing governance structures in place (ESESCRD and EBA) performed well to successfully deliver the SBC therefore, the Council, along with Regional Partners and bus operators, will continue to utilise these structures to develop and deliver the next stages of the project.

5.5 Committee will be kept updated on project progress in due course.

6. Financial impact

6.1 The cost to deliver the next stage of the BPF is funded through a Transport Scotland grant award. Current funding allocations are detailed below:

- £1.05m to deliver the OBC; and
- £88,000 to cover Project Management costs.

7. Stakeholder/Community Impact

7.1 The input of stakeholders (including local residents, key stakeholder groups, businesses, interest groups, people with protected characteristics and the general public) will be critical in delivering the Bus Priority proposals.

7.2 Communications are already being delivered via the Council's website and social media and will be maintained during the next stage of project.

7.3 Furthermore, an extensive and detailed public consultation is a requirement of the OBC process.

7.4 The public consultation will be publicised on the Council's Consultation Hub to garner detailed feedback on the scheme.

7.5 An Integrated Impact Assessment (IIA) is being developed as part of the SBC process and will be maintained throughout the design process.

7.6 In preparing the OBC, the specialist consultants commissioned will undertake an Economic appraisal of the project; in line with UK Treasury Green Book guidelines. The outcomes of this work will be published as part of the full OBC and will confirm: the Cost-Benefit Analysis, the benefit to the economy, plus other economic and non-economic considerations (including; local job creation, sustainability, increased property values, any increased visitor spend, health, public safety and the urban environment).

8. Background reading/external references

8.1 City Mobility Plan

8.2 City Plan

8.3 Public Transport Action Plan

9. Appendices

9.1 Strategic Business Case – Executive Summary (the full SBC is available on request).

Jacobs

Edinburgh and South East Scotland Corridors
Bus Partnership Fund

Strategic Business Case
Executive Summary

Edinburgh and South East Scotland City Region Deal

15 February 2023

Edinburgh and South East Scotland Corridors Bus Partnership Fund Strategic Business Case Executive Summary

Client name:	Edinburgh and South East Scotland City Region Deal		
Project name:	Edinburgh and South East Scotland Corridors Bus Partnership Fund		
Client reference:	CEC	**Project no:**	BESP0023
Revision no:	1	**Project manager:**	Grant Davidson
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Executive Summary

The Strategic Business Case has identified a very strong case for bus priority interventions across all eight corridors (in scope of the study) to improve bus journey times and reliability across the Edinburgh and South East Scotland City Region. These, in conjunction with wider policy and match-in-kind proposals, have the potential to significantly improve the attractiveness and efficiency of the bus network, helping meet national, regional and local climate change and car kilometre reduction targets.

Scottish Government Bus Partnership Fund

In its 2019 Programme for Government, the Scottish Government committed to providing a long-term investment of over £500m in the form of a Bus Partnership Fund (BPF)[1]. To address the issue of increasing congestion and patronage decline, the BPF aims to deliver targeted bus priority measures on local and trunk roads. This formed part of Scotland's response to the climate emergency. The desired outcomes of the BPF are:

- To improve bus journey times and provide greater reliability, by prioritising bus over other types of traffic.
- To provide high-quality bus services which contribute to the four priorities of the NTS2 vision – to reduce inequality, take climate action, help deliver inclusive growth and improve health and well-being.
- To reduce congestion, through improved bus services.
- To fit with the partnership area's overall strategy for integrated transport, to encourage a modal shift from cars to more sustainable transport and reduce emissions.
- To demonstrate partnership strength and commitment, including through 'match in kind' action and investment to further improve bus services, and working towards a Bus Service Improvement Partnership model.
- For the lead local authority and its partners to deliver the proposed developments effectively, with local political buy-in.

The Edinburgh and South East Scotland City Region Deal (ESESCRD) was awarded £3.03m from the Scottish Government BPF in June 2021 for the delivery of the following:

- Strategic Business Case (SBC) for Bus Priority Improvements on key corridors;
- Outline Business Case (subject to satisfactory SBC gateway review); and
- Quick Win Bus Priority Measures (making permanent, temporary schemes introduced during COVID).

Strategic Business Case Corridors

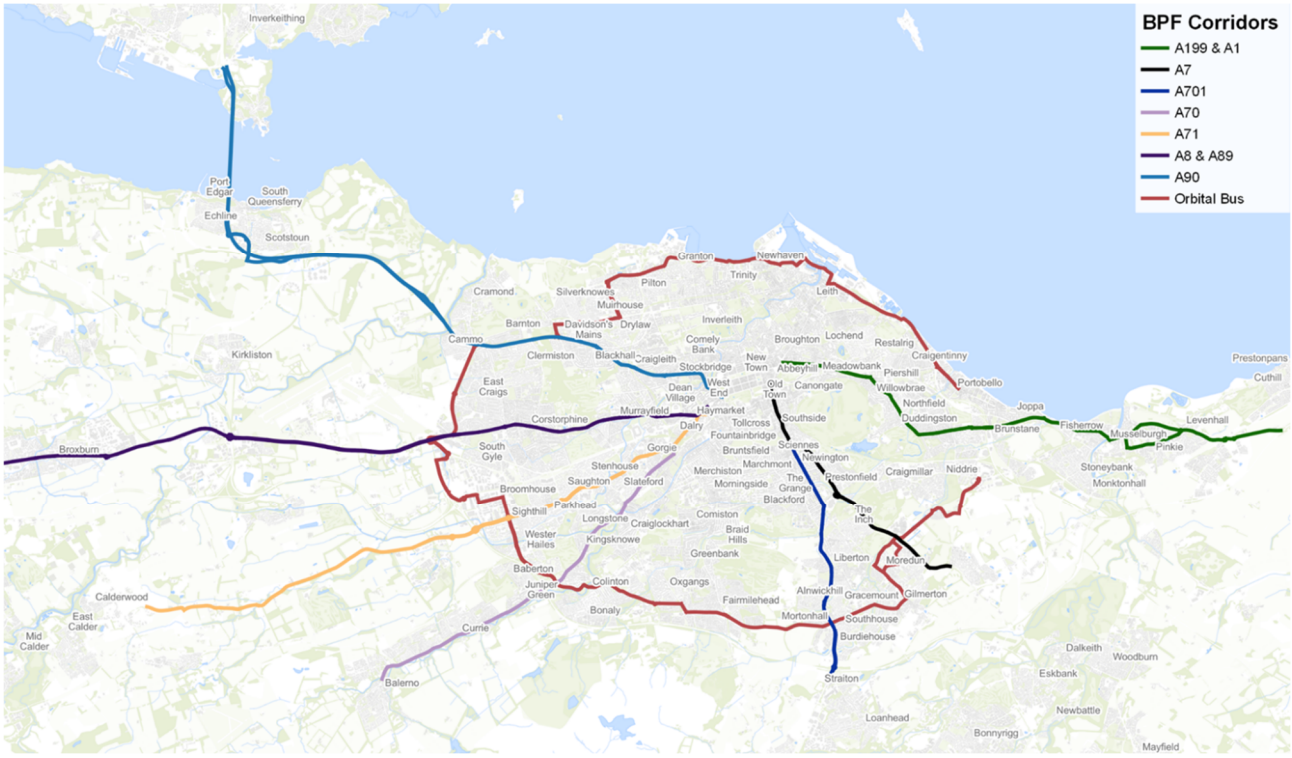
Jacobs (UK) Ltd has been appointed by the City of Edinburgh Council, on behalf of the ESESCRD and the Edinburgh Bus Alliance, to develop a Strategic Business Case (SBC) for bus priority on key corridors to, from and within Edinburgh. Subject to a satisfactory gateway review this would be a prelude to undertaking an Outline Business Case (OBC) for the agreed corridors.

The corridors in scope of the SBC are illustrated in the Figure 1 below. The extents of each corridor are:

- A90 Forth Road Bridge to Edinburgh City Centre
- A8 / A89 Broxburn to Edinburgh City Centre – developed through the West Edinburgh Transport Improvement Programme (WETIP) but captured at a strategic level
- A71 Livingston to Edinburgh City Centre
- A70 Balerno to Edinburgh City Centre
- A701 Straiton to Newington
- A7 Sheriffhall to Edinburgh City Centre
- A1 & A199 Tranent Junction to Edinburgh City Centre
- Orbital north and south corridors within Edinburgh

[1] https://www.transport.gov.scot/public-transport/buses/bus-partnership-fund/

Figure 1: Corridors within SBC scope

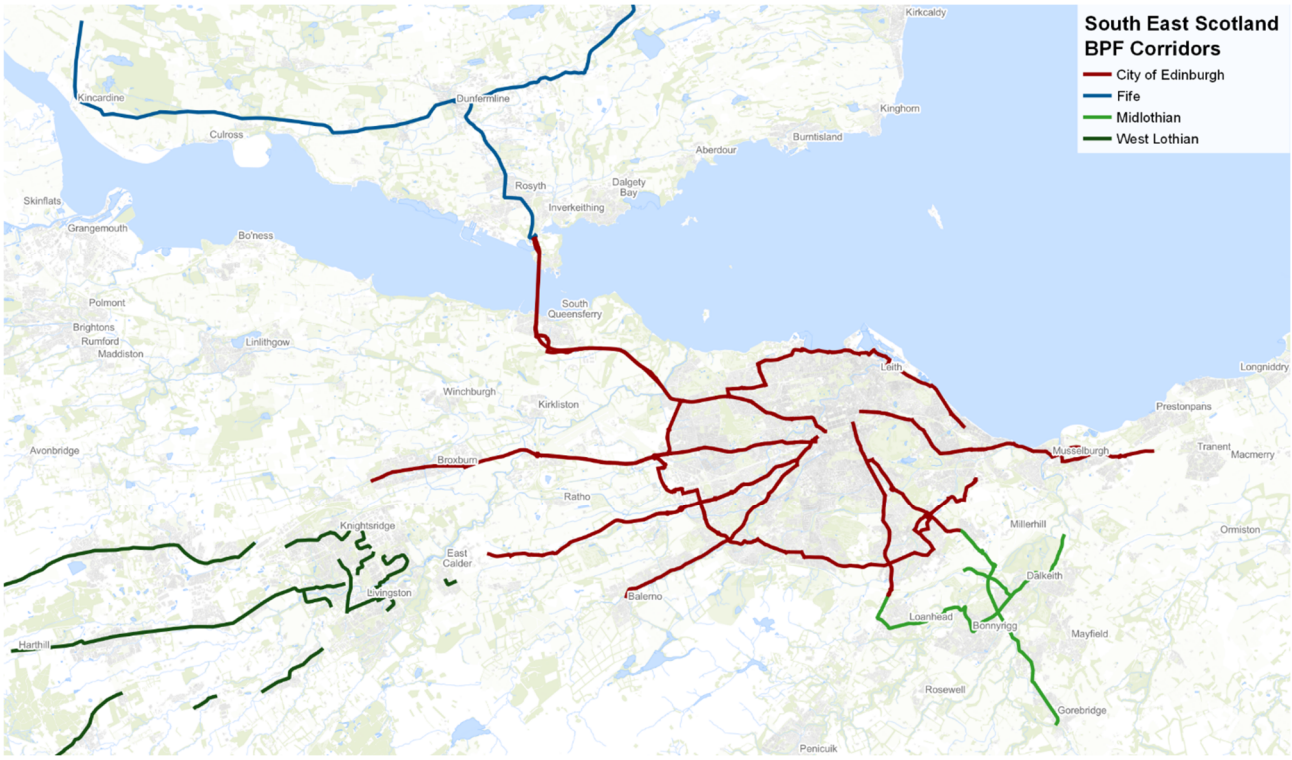


Regional Coordination

The ESESCRD BPF Programme initiated the Edinburgh Bus Alliance (EBA) which is attended by all six Local Authorities (in the City Region Deal), Bus Operators, Bus Users Scotland and SEStran. The EBA and the ESESCRD Transport Appraisal Board (TAB) have been used as the key governance forums to oversee the completion of the SBC.

Close coordination has been maintained with West Lothian, Midlothian and Fife who are also delivering local BPF proposals (illustrated in Figure 2 below) through the EBA, TAB and BPF Project Managers forum chaired by SEStran.

Figure 2: ESESCRD BPF Corridors and Local BPF Corridors



Bus Priority

Enabling improved bus priority is one of the actions that can help encourage bus use. The ESESCRD BPF package could deliver this outcome through improving bus reliability and journey times, especially in relation to car. Consequently, bus operators may benefit from a virtuous circle of increasing passenger revenue and a relative reduction in operating costs. This will improve network viability and, as a result:

- deliver a more sustainable, inclusive transport system, meeting local aspirations as well as local, regional and national policies; and
- reduce resulting air pollution and carbon emissions, by encouraging modal shift from the private car to the bus.

Improving bus reliability and journey times is a key objective of the EBA. The creation of this alliance will support the development of strong joint working arrangements between authorities and bus operators and, in due course, the effective creation of a Bus Service Improvement Partnership (BSIP) or a similar governance model.

Strategic Business Case

The SBC demonstrates the Case for Change; why the investment is needed. It reviews potential options and provides sufficient confidence to decision-makers and stakeholders that the scheme(s) is(are) likely to be affordable and deliverable and can progress to the OBC stage.

Strategic Dimension

The Case for Change and Preliminary Appraisal forms the key element of the Strategic Dimension of the SBC and is intended to demonstrate why the investment is required.

Problems and opportunities have been identified for each of the BPF corridors with the aim to understand why change is needed, where change is required and what changes will make a difference.

The Case for Change evidences the need for change through an extensive review of the policy context, relevant datasets (including bus operator data, and outputs from stakeholder engagement).

Bus journey time analysis has been undertaken on datasets that have been collected and provided to Jacobs by Lothian Buses. The baseline dataset adopted, covers a seven-day period in November 2019 with analysis completed on weekday data only (Monday 11th to Friday 15th November). More limited data from other operators has also been made available to validate the core analysis.

These datasets have all been used to assemble evidence of problems, opportunities and constraints that are relevant to each of the BPF corridors.

Problems, Opportunities and Constraints

Problems, opportunities and constraints have been identified through extensive engagement with local authorities, bus operators, bus user groups and community councils.

Prior to the COVID-19 pandemic, across Scotland, bus patronage has been declining in recent years, in part caused by longer bus journey times and increasing journey time unreliability. Across the Edinburgh city region, the reduction in passengers was less marked, with growth on some corridors, particularly from Fife. Nevertheless, within Edinburgh, patronage had plateaued, partly as a result of increasing journey times and changing travel patterns.

COVID-19 had an immediate negative impact on the demand for bus travel. In response Transport Scotland's Bus Priority Rapid Deployment Fund (BPRDF) delivered a package of quick-win interventions designed to improve bus priority at key hot-spot locations across the region. Passenger growth is now recovering and initial data analysis shows the success of new priority measures in supporting passenger growth. Priority measures on the A1 corridor have been particularly successful with passenger volumes now exceeding 100% of pre-COVID-19 levels.

The example above helps illustrate how investment in bus priority is a key action that can help encourage bus use. An additional package of ambitious bus priority improvements (delivered through the BPF) would provide an opportunity to further improve bus journey times and reliability, especially in relation to car.

Generally, bus journey times continue to increase as a result of congestion – by nearly 20% in the last 10 years on certain corridors. In the morning peak, major delays are typically at the first major upstream junction on the approach to the city (Barnton, Newbridge, Sheriffhall, The Jewel), evening peak delays tend to be closer to the city centre including Jock's Lodge, Morningside and Blackhall.

On-street parking and loading reduce effectiveness of bus priority, roadworks also impact reliability and network resilience.

Limited city centre capacity has been identified as a constraint on future growth of bus services with congestion on Queensferry Street and access to the bus station identified as key problems.

Decentralisation of key trip attractors within and around Edinburgh makes these locations less accessible by public transport. Investment in orbital services and associated infrastructure to reduce journey times for these movements is required to improve connectivity, support new development, and increase non-car mode shares for movements outside the city centre

Other problems identified included increasing costs; non-core routes are becoming increasingly unsustainable - resulting in inequality of access and social exclusion. A key challenge is the need to invest in networks and vehicles while operating profitably with minimum subsidy.

Opportunities include a growing city and region and increased environmental awareness, encouraging a shift to sustainable modes. There is the potential to build upon some good existing bus priority, including new infrastructure delivered as part of the BPRDF, and the excellent collaborative working between authorities, Transport Scotland and the bus operators that helped deliver this. There is the potential to expand Park & Ride and deliver new mobility hubs where improved interchange between bus and active travel could also deliver passenger growth.

Technology is also a key opportunity, in terms of passenger information, flexible ticketing and bus priority through urban traffic control.

Constraints include historic street widths which limit the opportunity for further bus lanes within Edinburgh. There is strong competition for street space with plans to further improve active travel provision as well as deliver improved priority for buses and cater appropriately for other modes. City centre capacity is particularly

challenging with a limited number of streets available for public transport, many bus stops at capacity and limited terminating capacity, particularly around the West End.

Transport Planning Objectives (TPOs)

Following consideration of the range of problems, opportunities and constraints that affect transport across all corridors, relevant local, regional and national policy, and the aspirations of stakeholders, two TPOs have been identified to inform the preliminary and detailed appraisals:

1. To reduce peak hour[2] bus journey times on each corridor, as measured by bus companies' tracking data, by an average of 25% by 2029 compared to the baseline[3].

2. To reduce peak hour[2] bus journey time variability on each corridor, as measured by bus companies' tracking data, by an average of 50% by 2029 compared to the baseline[3].

Analysis to date suggests that a 10% reduction in journey time and a 25% reduction in journey time variability is possible based on identified BPF interventions. Non-infrastructure measures will also need to be delivered through match-in-kind initiatives – e.g. limited stop services, timetabling, smart ticketing - to help speed up services.

Economic Dimension

The purpose of the Economic Dimension is to undertake sufficient analysis and demonstrate that there is a realistic prospect of the scheme representing 'value for money' (VfM), and that further development of the scheme to OBC is justified.

The Economic Dimension summarises the option development process set out in the Case for Change, considering an initial long list of options, which have been assessed in the preliminary appraisal. The resulting short list of options has been packaged before detailed appraisal has been undertaken against the package of interventions for each corridor.

Option Refinement and Packaging

Option generation and sifting has been informed by an engagement process with key stakeholders, including operators, user groups and local and regional authorities. Options have been combined into groupings defined by the type of intervention; ten groupings were developed to be assessed through the Preliminary Appraisal.

The Option Groupings that were considered in the Preliminary Options Appraisal were built up from individual options that had been generated for each of the corridors, plus the networkwide options. Options taken forward for further consideration have been grouped into three packages as shown in Figure 3.

[2] Monday to Friday AM 08:00-09:00, PM 17:00-18:00

[3] Based on 2019 Bus Operator Data using 2022 Bus Operator Data as a sense check

Figure 3: Option Packages

Package A: Targeted corridor interventions

- Junction Improvements
- Bus Priority Lanes & Bus Gates
- Bus Lane operations, parking, loading and enforcement
- Bus Stop Enhancements
- Interchanges, Mobility Hubs and Park&Ride
- Improve bus access and priority to/ from development planning areas

Package A+: Package A plus major new bus priority infrastructure

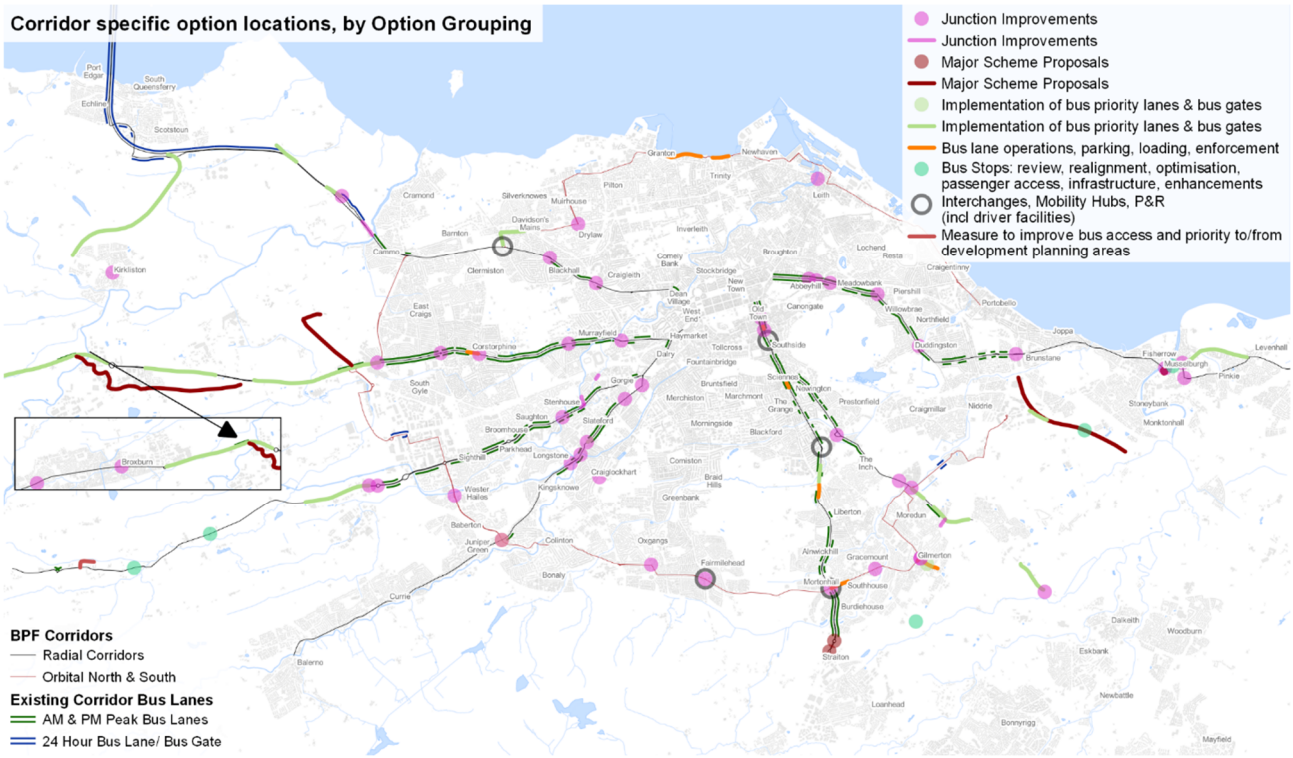
- Major Scheme Proposals

Package B: Package A+ with match-in-kind interventions and supporting policy options

- Improve policy, communication and resourcing of bus services across the region
- Improvements to bus timetables, frequency, routing and service quality
- Provision of opportunity charging/ refuelling technology on bus routes, to help facilitate decarbonisation of bus services

Options with specific locations on each of the BPF corridors have been mapped by option grouping as illustrated in Figure 4.

Figure 4: Corridor specific option locations, by Option Grouping



Approach to Appraisal

At this SBC stage, a comprehensive assessment of all monetised costs and benefits is not required but will follow at the OBC stage. However, analysis to date provides the confidence that the scheme benefits are expected to be greater than costs, and hence the project can be justified on VfM grounds and further work to develop the proposal is warranted. We have set out a proportionate method for the assessment of the likely impacts from the proposed bus priority measures on each of the eight BPF corridors considered.

The average journey time savings calculated for the morning and evening peak have been used to undertake a proportionate appraisal of the bus priority measures proposed at this stage. The journey time data provided by Lothian Buses has been utilised where possible to calculate levels of journey time savings

along with evidence-based assumptions for some options. Journey time savings associated with the largely non-infrastructure, policy-type interventions in Package B have not been quantified.

Cost to Government

The capital costs of infrastructure improvements have been calculated based on low and high estimates, reflecting uncertainty. Values have been estimated based on benchmarked costs for each of the option types, on a corridor basis, and by incorporating the assumptions set out in The Cost to Government section of the report, based on recent experience of the team on the outturn costs of similar projects:

This has derived the cost estimates for each corridor excluding optimism bias. An optimism bias value of 44% has been applied to these costs with resulting cost estimates shown in Table 1.

Table 1: BPF Corridor Option Cost Estimates (2022 Prices)

Corridor	Excluding Optimism Bias				Including Optimism Bias			
	Package A		Package A+		Package A		Package A+	
	Low	High	Low	High	Low	High	Low	High
A90	£11.8m	£23.3m	£11.8m	£23.3m	£17.0m	£33.5m	£17.0m	£33.5m
A8 & A89	£38.2m	£41.1m	£67.7m	£97.0m	£55.0m	£59.1m	£97.5m	£139.7m
A71	£4.4m	£5.8m	£4.4m	£5.8m	£6.3m	£8.4m	£6.3m	£8.4m
A70	£9.3m	£14.3m	£9.3m	£14.3m	£13.3m	£20.6m	£13.3m	£20.6m
A701	£8.8m	£13.4m	£16.9m	£24.4m	£12.6m	£19.4m	£24.4m	£35.1m
A7	£5.7m	£9.3m	£5.7m	£9.3m	£8.2m	£13.4m	£8.2m	£13.4m
A1 & A199	£5.1m	£8.1m	£19.2m	£24.3m	£7.3m	£11.6m	£27.6m	£34.9m
Orbital	£3.4m	£5.9m	£3.4m	£5.9m	£4.9m	£8.5m	£4.9m	£8.5m
All Corridors	**£86.7m**	**£121.2m**	**£138.4m**	**£204.3m**	**£124.6m**	**£174.5m**	**£199.2m**	**£294.1m**

Value for Money

The economic appraisal of bus priority measures suggests that each of the packages are anticipated to result in significant economic benefits for bus users. At this stage of business case development packages predominantly provide a VfM category in the 'High' or above category for Package A. Higher cost major scheme proposals as part of Package A+ result in a lower VfM category for applicable corridors.

Benefit to cost ratios for each corridor and package assessed are given in Table 2 below.

Table 2: Benefit to Cost Ratio (BCR) for Corridors and Infrastructure Packages

Corridor	Package A (BCR)		Package A+ (BCR)	
	Low Cost	High Cost	Low Cost	High Cost
A90	3.4	1.7		
A8 & A89	2.2	2.0	1.2	0.9
A71	5.6	4.2		
A70	3.3	2.1		
A701	4.5	2.9	2.3	1.6
A7	7.7	4.7		
A1 & A199	12.8	8.0	3.5	2.8
Orbital	13.1	7.5		
All Corridors	**4.3**	**3.0**	**2.7**	**1.8**

Summary

The interventions identified in the SBC are aligned with the BPF Grant Criteria, National policy (NTS2, STPR2, Climate Plan, NFP4), Regional policy (SEStran Regional Transport Strategy and CRD Regional Prosperity Framework) and local policy such as Edinburgh's City Mobility Plan (CMP) and Public Transport

Action Plan (PTAP). They consider integration with active travel and are aligned with the Circulation Plan and associated Streetspace Allocation Framework and the recently published Active Travel Action Plan (ATAP). Interventions are also consistent with neighbouring local authority BPF proposals, transport plans and wider policies.

The SBC appraisal indicates there would be significant economic benefits for bus users on all eight corridors if the proposed bus priority interventions were implemented. Each of the corridors assessed has a strong case in terms of value for money, including the corridors in the South and East (A1/A199, A7 & A701). Based on this, it is proposed that a single OBC is delivered during the next stage assessing all eight corridors as one holistic project. This enables an integrated approach for transport modelling (e.g., where orbital interfaces with arterial corridors), reporting and project management requirements.