

Contents

Appendix B – Assessment of Options.....	2
Introduction.....	2
Grahams Road – A803 to Retail Park/ George Street Roundabout	4
Graham Road – Retail Park/ George Street Roundabout To Main Street.....	7
Main Street to Carron Road.....	10
Carron Road – Main Street to Lidl	14
Carron Road – Lidl to New Carron Road	17
New Carron Road to Carron Roundabout.....	20
New Carron Road – Carron Roundabout to Bellsdyke Road.....	24
Corporation Street Roundabout to Bellsmeadow Road Roundabout	28
Bellsmeadow Road Roundabout to Callendar Boulevard Roundabout	32
Callendar Boulevard Roundabout to B805 Roundabout	36
B805 Roundabout to Sandy Loan.....	40
Sandy Loan to Westquarter Avenue.....	44
A803 – Westquarter Avenue to Salmon Inn Road.....	48
A803 – Salmon Inn Road to Polmont Park.....	52
Cow Wynd – Conchrane Avenue to Gartcows Road.....	56
Glen Brae – Gartcows Road to Slamannan Road.....	60
Glen Brae to Pedestrian Access to Orkney Place	64
Glen Brae Pedestrian Access to Orkney Place to Falkirk Road Roundabout.....	68
Stirling Road – A9 Roundabout to Camelon Train Station.....	72
Stirling Road – Camelon Train Station to Larbert Bus Depot.....	76
Park from Dorrator Bridge to Carronvale Road	81
Carronvale Road to B905.....	84
B905 – Carronvale Road to Foundry Loan.....	86
Foundry Loan.....	89
Old Bellsdyke Road.....	92
Old Denny Road	94

Appendix B – Assessment of Options

Introduction

This Appendix sets out the findings of the ATS options assessment, including the assessment of alternative options that were considered as part of the assessment. The assessment uses the key to effects set out in **Table B.2** below.

Table B.1 – Legend

Explanation of symbols / letters	Key
Significant positive effects	++
Minor positive effects	+
Minor negative effects	-
Significant negative effects	--
Uncertain effects	?
Mixed positive and negative effects	+/-
Negligible / No effect	0
Direct effect	D
Indirect effect	I
Local	L
Regional	R
National	N
Reversible	R
Irreversible	I
Temporary	T

Explanation of symbols / letters	Key
Permanent	P
Short Term	ST
Medium Term	MT
Long Term	LT
Not Applicable	N/A

Table B.2 – Assessment of Significance

Effect Significance	Key
Potential for significant positive effects	++
Potential for minor positive effects	+
Potential for minor negative effects	-
Potential for significant negative effects	--
Uncertain effects – Uncertain or insufficient information on which to determine the appraisal at this stage	?
Potential for both positive and negative effects	+/-
Negligible / No effect	0
Nature of effect (direct / indirect).	D / I
Spatial Extent (local / regional / national)	L / R / N
Reversibility of effect (reversible / irreversible)	R / I
Permanence (Temporary or Permanent)	T / P
Duration (short / medium / long term).	ST / MT / LT

Grahams Road – A803 to Retail Park/ George Street Roundabout

OPTIONS CONSIDERED	FEASIBILITY	FUNDABILITY	PUBLIC ACCEPTANCE
<input type="checkbox"/> Uni-directional carriageway level cycle lanes on both sides with light segregation	★★★★	★★★★	★★☆☆
<input checked="" type="checkbox"/> Bi-directional carriageway level cycle lanes with hard segregation	★★★★	★★★★	★★☆☆
<input type="checkbox"/> Bi-directional stepped cycle track	★★★☆☆	★★★★	★★☆☆
<input type="checkbox"/> Uni-directional stepped cycle track on both sides	★★★★	★★★★	★★☆☆

PREFERRED OPTION: BI-DIRECTIONAL CARRIAGEWAY LEVEL CYCLE LANES WITH HARD SEGREGATION



Assessment Overview – Preferred Option

Effect	SEA1: Population and Equalities	SEA2: Human Health	SEA3: Transport and Accessibility	SEA4: Community Safety	SEA5: Biodiversity and Natural Capital	SEA6: Landscape and Townscape	SEA7: Cultural Heritage	SEA8: Climate Resilience	SEA9: Greenhouse Gases (GHGs)	SEA10: Air Quality	SEA11: Water Environment	SEA12: Efficient use of Resources	SEA13: Protection of Land
Significance	+/-	++	++	+	0	+/-	+/-	?	+/-	+	?	?	0
Nature of Effect	D	D	D	D	N/A	D/I	D/I	N/A	D	D	N/A	N/A	N/A
Spatial Extent	L	L	L	L	N/A	L	L	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	N/A	I	I	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	N/A	P	P	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	N/A	ST/LT	ST/LT	N/A	ST/LT	LT	N/A	N/A	N/A



Assessment Summary of Preferred Option

The introduction of a new active travel route along Grahams Road will provide opportunities for visitors and residents to part take in physical activity for recreational and commuting purposes. Walking and cycling are important sources of everyday activity and are independently associated with a wide range of health benefits. The hard segregation between the existing road and the proposed route may also encourage those more residents to use the route, to ensure that cycling and walking are the default choices in modes of transport. Significant positive effects have therefore been identified for SEA2 (human health).

Segregation between road users will also help to increase levels of safety and reduce levels of fear and intimidation along the route, however the route does cross a number of junctions as well as Meeks Road roundabout, which will need to be considered as part of design in order to ensure safety to all users. Minor positive effects have therefore been identified for SEA4 (community safety).

Both positive and negative effects have been identified for SEA1 (population and equalities). Greater access to free active travel routes will provide greater accessibility to facilities and services for low income groups and support healthy lifestyles. However, some elements of the route may disproportionately affect some groups. To allow faster cyclists to overtake, and to accommodate disabled cyclists (non-standard bikes), cycle tracks should ideally be 2m wide in each direction, or 3 to 4m for bidirectional tracks though there may have to be exceptions – the cycle track is proposed to be 4m is likely to be sufficient for all users. However, the 4% gradient may present a challenge to disabled users as excessive camber can make it harder to steer.

The proposed route run parallel to Falkirk Grahamston Railway Station and there are a number of bus stops located along Grahams Road. This could provide opportunities for integration of transport modes, allowing visitors and residents to travel further, more sustainably. This will also help those lower income groups access cheaper forms of transport. The potential modal shift offered by the scheme has resulted in significant positive effects for SEA3 (transport and accessibility). Potential reductions in use of motorised vehicles will also help to reduce levels of transport related emissions, which is pertinent given that the part of the route is located within Falkirk Town Centre AQMA. Minor positive effects have also been identified for SEA10 (air quality).

Although the route does support a modal shift, which will significantly help to reduce levels of greenhouse gas (GHGs) emissions from the transport network, due to the infrastructure required, there are likely to be high levels of embodied carbon associated with construction. Both positive and negative effects have therefore been identified for SEA9 (GHGs). Uncertain effects have been identified for SEA8 (climate resilience) SEA11 (water environment) and SEA12 (sustainable resources) as these measures will be determined by design.

Both positive and negative effects have been identified for SEA6 (landscape and townscape) and SEA7 (cultural heritage). The southern end of the route is located within the Falkirk Town Centre Conservation Area and there a number of listed buildings. The route has potential to negatively affect the setting of these heritage asset, particularly if these are insensitively designed and contain a large number of additional components such as signage and lighting. Conversely, air pollution is often associated with the degradation of heritage assets, therefore reductions in air pollution could benefit the historic environment. If well designed, the introduction of a new active travel route may also present positive placemaking opportunities, improving the local townscape.

Mitigation and Enhancement Measures

- **SEA1:** The route should take into account the measures set out in the Transport Scotland Cycling by Design document [online] Available at: [Cycling By Design](#), to ensure that the route is accessible to all users.
- **SEA3:** The route could identify opportunities to link with Falkirk Grahamston Railway Station, to form an interchange hub, to encourage seamless integration of transport modes. This could also include electric bike hire.
- **SEA4:** The safety of the route users will need to be considered at Meeks Road Roundabout and where the route crosses existing junctions. The route should make allowances for safe crossing such as toucan crossings. The design of existing bus stops will also need to be considered to ensure that all users can access the bus stop and no users are put at risk.
- **SEA7:** The route will need to be carefully designed in order to ensure that they don't detract from the unique setting of the conservation areas and the listed buildings contained within it.



Assessment of Alternative Options

Uni-Directional Carriageway Level Cycle Lanes On Both Sides With Light Segregation

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+/-	++	++	+	0	+/-	+/-	?	+/-	+	?	?	0
Nature of Effect	D	D	D	D	N/A	D/I	D/I	N/A	D	D	N/A	N/A	N/A
Spatial Extent	L	L	L	L	N/A	L	L	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	N/A	I	I	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	N/A	P	P	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	N/A	ST/LT	ST/LT	N/A	ST/LT	LT	N/A	N/A	N/A

Bi-directional Stepped Cycle Track

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+/-	++	++	+	0	+/-	+/-	?	+/-	+	?	?	0
Nature of Effect	D	D	D	D	N/A	D/I	D/I	N/A	D	D	N/A	N/A	N/A
Spatial Extent	L	L	L	L	N/A	L	L	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	N/A	I	I	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	N/A	P	P	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	N/A	ST/LT	ST/LT	N/A	ST/LT	LT	N/A	N/A	N/A

Uni-directional Stepped Cycle Track on Both Sides

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+/-	++	++	+	0	+/-	+/-	?	+/-	+	?	?	0
Nature of Effect	D	D	D	D	N/A	D/I	D/I	N/A	D	D	N/A	N/A	N/A
Spatial Extent	L	L	L	L	N/A	L	L	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	N/A	I	I	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	N/A	P	P	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	N/A	ST/LT	ST/LT	N/A	ST/LT	LT	N/A	N/A	N/A

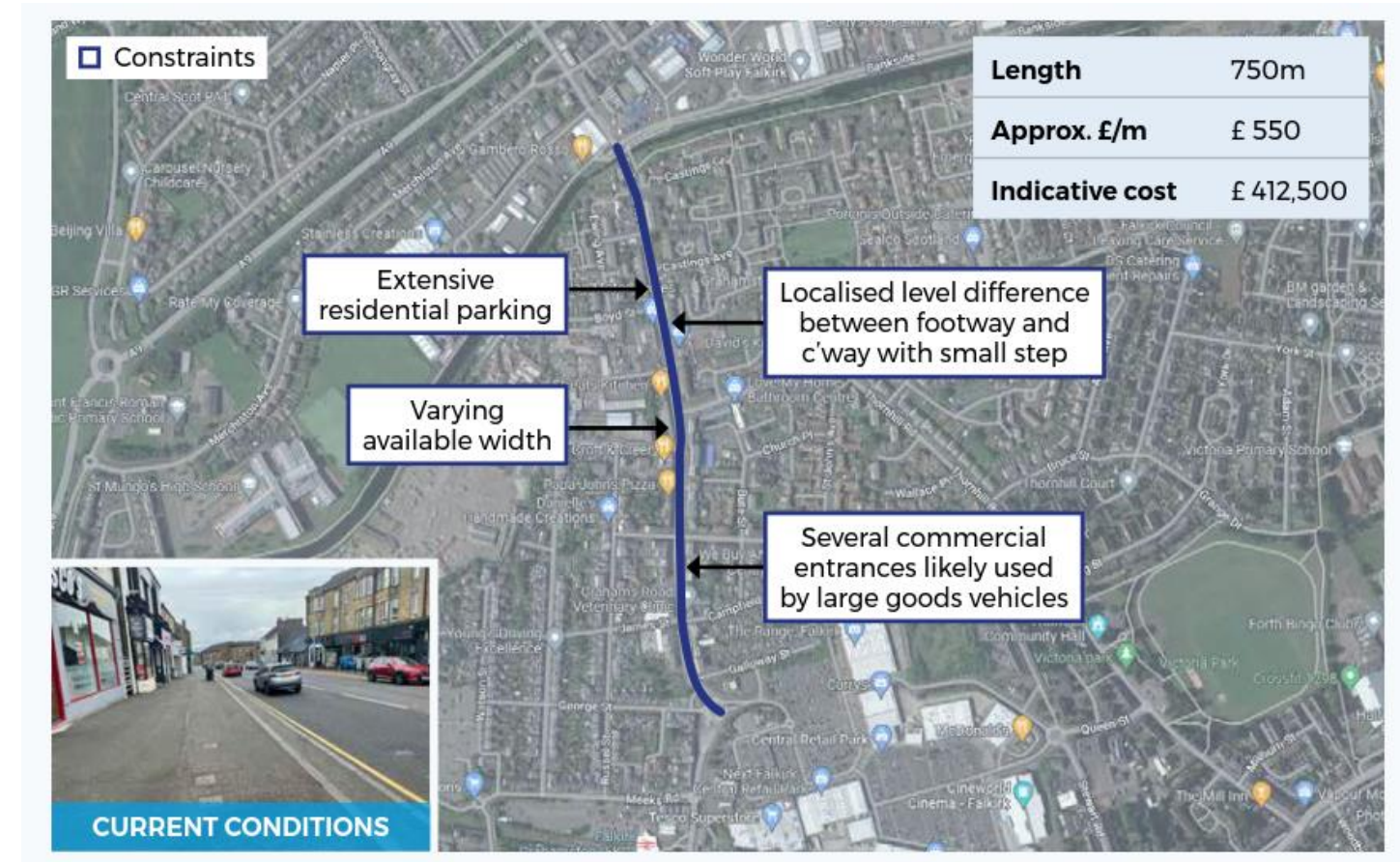
Summary of Alternative Options

The alternatives have performed broadly similar to the Preferred Option. All options have performed the same as the Preferred Option. However, the uni-directional carriageway level cycle lanes on both sides with light segregation option may require more road space and infrastructure to support development on either side of the road.

Graham Road – Retail Park/ George Street Roundabout To Main Street

OPTIONS CONSIDERED	FEASIBILITY	FUNDABILITY	PUBLIC ACCEPTANCE
<input type="checkbox"/> Uni-directional carriageway level cycle lanes on both sides with light segregation	★★★★	★★★★	★★☆☆
<input type="checkbox"/> Uni-directional carriageway level cycle lanes on both sides with hard segregation	★★★★	★★★★	★★☆☆
<input type="checkbox"/> Uni-directional stepped cycle track on both sides	★★★☆☆	★★★★	★★☆☆
<input checked="" type="checkbox"/> Bi-directional carriageway level cycle lanes with hard segregation	★★★★	★★★★	★★☆☆

PREFERRED OPTION: BI-DIRECTIONAL CARRIAGEWAY LEVEL CYCLE LANES WITH HARD SEGREGATION



Assessment Overview – Preferred Option

Effect	SEA1: Population and Equalities	SEA2: Human Health	SEA3: Transport and Accessibility	SEA4: Community Safety	SEA5: Biodiversity and Natural Capital	SEA6: Landscape and Townscape	SEA7: Cultural Heritage	SEA8: Climate Resilience	SEA9: Greenhouse Gases (GHGs)	SEA10: Air Quality	SEA11: Water Environment	SEA12: Efficient Use of Resources	SEA13: Protection of Land
Significance	+/-	++	++	+	0	+/-	+/-	?	+/-	+	?	?	0
Nature of Effect	D	D	D	D	N/A	D/I	D/I	N/A	D	D	N/A	N/A	N/A
Spatial Extent	L	L	L	L	N/A	L	L	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	N/A	I	I	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	N/A	P	P	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	N/A	ST/LT	ST/LT	N/A	ST/LT	LT	N/A	N/A	N/A



Assessment Summary of Preferred Option

Both positive and negative effects have been identified for SEA1 (population and equalities). Greater access to free active travel routes will provide greater accessibility to facilities and services for low-income groups and support healthy lifestyles. However, some elements of the route, such as the small step between the footway and carriageway, may disproportionately affect access to some groups. The proposed route exhibits varying available width to the proposed cycle lanes. To allow faster cyclists to overtake, and to accommodate disabled cyclists (non-standard bikes), cycle tracks should ideally be 2m wide in each direction, or 3 to 4m for bidirectional tracks though there may have to be exceptions— the cycle track is proposed to be 4m is likely to be sufficient for all users.

Segregation between road users, as proposed within this option, will also help to increase levels of safety and reduce levels of fear and intimidation along the route. However, the route does cross a number of commercial entrances and junctions, including those utilised by heavy goods vehicles (HGVs) as well as George Street roundabout, which will need to be considered as part of design in order to ensure safety to all users. Minor positive effects have therefore been identified for SEA4 (community safety).

The introduction of a new active travel route along Grahams Road will provide opportunities for visitors and residents to part take in physical activity for recreational and commuting purposes. Walking and cycling are important sources of everyday activity and are independently associated with a wide range of health benefits. The hard segregation between the existing road and the proposed route may also encourage those more residents to use the route, to ensure that cycling and walking are the default choices in modes of transport. Significant positive effects have therefore been identified for SEA2 (human health).

The proposed route is located 200m north of Falkirk Grahamston Railway Station and there are a number of bus stops located along Grahams Road. This could provide opportunities for integration of transport modes, allowing visitors and residents to travel further, more sustainably. This will also help those lower income groups access cheaper forms of transport. The potential modal shift offered by the scheme has resulted in significant positive effects for SEA3 (transport and accessibility). Potential reductions in use of private vehicles will also help to reduce levels of transport related emissions. Minor positive effects have also been identified for SEA10 (air quality). Although the route does support a modal shift, which will significantly help to reduce levels of greenhouse gas (GHGs) emissions from the transport network, due to the infrastructure required, there are likely to be high levels of embodied carbon associated with construction. Both positive and negative effects have therefore been identified for SEA9 (GHGs)..

Both positive and negative effects have been identified for SEA6 (townscape and landscape) and SEA7 (cultural heritage). There are four listed buildings located along the route, and the north of the route intersects with the Scheduled Monument of Forth and Clyde Canal: Castlecary - M9 Motorway. The route has potential to negatively affect the setting of these heritage assets, particularly if these are insensitively designed and contain a large number of additional components such as signage and lighting. Conversely, air pollution is often associated with the degradation of heritage assets, therefore reductions in air pollution could benefit the historic environment. If well designed, the introduction of a new active travel route may also present positive placemaking opportunities, improving the local townscape.

Uncertain effects have been identified for SEA8 (climate resilience), SEA11 (water environment) and SEA12 (sustainable resources) as these measures will be determined by the scheme design.

Mitigation and Enhancement Measures

- **SEA1:** The route should take into account the measures set out in the Transport Scotland Cycling by Design document [online] Available at: [Cycling By Design](#), to ensure that the route is accessible to all users.
- **SEA3:** The route could identify opportunities to link with Falkirk Grahamston Railway Station, to form an interchange hub, to encourage seamless integration of transport modes. This could also include electric bike hire.
- **SEA4:** The safety of the route users will need to be considered at George Street Roundabout and where the route crosses existing junctions, with particular attention paid to those junctions used by HGVs. The route should make allowances for safe crossing such as toucan crossings. The design of existing bus stops will also need to be considered to ensure that all users can access the bus stop and no users are put at risk.



- **SEA7:** The route will need to be carefully designed in order to ensure that they don't detract from the unique setting of the scheduled monument and listed buildings along the route.

Assessment of Alternative Options

Uni-Directional Carriageway Level Cycle Lanes on Both Sides with Light Segregation

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+/-	++	++	+	0	+/-	+/-	?	+/-	+	?	?	0
Nature of Effect	D	D	D	D	N/A	D/I	D/I	N/A	D	D	N/A	N/A	N/A
Spatial Extent	L	L	L	L	N/A	L	L	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	N/A	I	I	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	N/A	P	P	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	N/A	ST/LT	ST/LT	N/A	ST/LT	LT	N/A	N/A	N/A

Bi-directional Stepped Cycle Track

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+/-	++	++	+	0	+/-	+/-	?	+/-	+	?	?	0
Nature of Effect	D	D	D	D	N/A	D/I	D/I	N/A	D	D	N/A	N/A	N/A
Spatial Extent	L	L	L	L	N/A	L	L	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	N/A	I	I	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	N/A	P	P	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	N/A	ST/LT	ST/LT	N/A	ST/LT	LT	N/A	N/A	N/A

Uni-directional Stepped Cycle Track on Both Sides

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+/-	++	++	+	0	+/-	+/-	?	+/-	+	?	?	0
Nature of Effect	D	D	D	D	N/A	D/I	D/I	N/A	D	D	N/A	N/A	N/A
Spatial Extent	L	L	L	L	N/A	L	L	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	N/A	I	I	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	N/A	P	P	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	N/A	ST/LT	ST/LT	N/A	ST/LT	LT	N/A	N/A	N/A

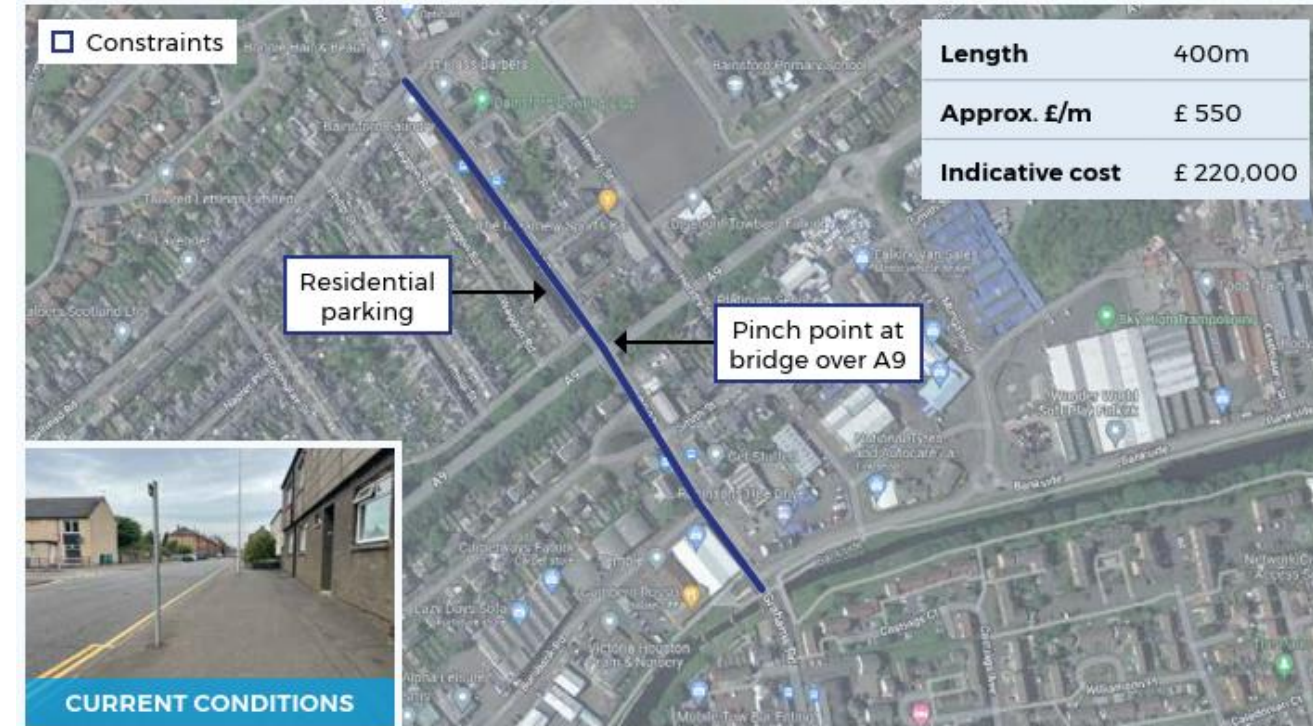
Summary of Alternative Options

The alternatives have performed broadly similar to the Preferred Option. The uni-directional carriageway level cycle lanes on both sides with light segregation option has performed the same as the Preferred Option, however, more road space and infrastructure may be required to support development on either side of the road. The stepped cycle solution for the other two options has also resulted in minor positive effects on safety as it also offers increased segregation from the carriageway, resulted in increased safety for users.

Main Street to Carron Road

OPTIONS CONSIDERED	FEASIBILITY	FUNDABILITY	PUBLIC ACCEPTANCE
<input type="checkbox"/> Remote from carriageway shared use path	★★★★	★★★☆☆	★★☆☆*
<input type="checkbox"/> Uni-directional carriageway level cycle lanes on both sides with light segregation	★★★★	★★★★	★★☆☆*
<input checked="" type="checkbox"/> Uni-directional carriageway level cycle lanes on both sides with hard segregation	★★★★	★★★★	★★☆☆*
<input type="checkbox"/> Uni-directional stepped cycle track on both sides	★★★☆☆	★★★★	★★☆☆*
<input checked="" type="checkbox"/> Bi-directional carriageway level cycle lanes with hard segregation	★★★★	★★★★	★★☆☆*

PREFERRED OPTION: UNI-DIRECTIONAL CARRIAGEWAY LEVEL CYCLE LANES ON BOTH SIDES WITH HARD SEGREGATION



Assessment Overview – Preferred Option

Effect	SEA1: Population and Equalities	SEA2: Human Health	SEA3: Transport and Accessibility	SEA4: Community Safety	SEA5: Biodiversity and Natural Capital	SEA6: Landscape and Townscape	SEA7: Cultural Heritage	SEA8: Climate Resilience	SEA9: Greenhouse Gases (GHGs)	SEA10: Air Quality	SEA11: Water Environment	SEA12: Efficient use of Resources	SEA13: Protection of Land
Significance	+/-	++	++	+	0	+/-	+/-	?	+/-	+	?	?	0
Nature of Effect	D	D	D	D	N/A	D/I	D/I	N/A	D	D	N/A	N/A	N/A
Spatial Extent	L	L	L	L	N/A	L	L	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	N/A	I	I	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	N/A	P	P	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	N/A	ST/LT	ST/LT	N/A	ST/LT	LT	N/A	N/A	N/A

Assessment Summary of Preferred Option

The proposed route has a number of bus stops located along it, which could provide opportunities for integration of transport modes, allowing visitors and residents to travel further, more sustainably, as well as improving access to Falkirk town centre. This will also help those lower income groups access cheaper forms of transport. The potential modal shift offered by the scheme has resulted in significant positive effects for SEA3 (transport and accessibility). Potential reductions in use of private vehicles will also help to reduce levels of transport related emissions, resulting in minor positive effects identified for SEA10 (air quality).



Although the route does support a modal shift, which will significantly help to reduce levels of greenhouse gas (GHGs) emissions from the transport network, due to the infrastructure required, there are likely to be high levels of embodied carbon associated with construction. Both positive and negative effects have therefore been identified for SEA9 (GHGs).

Both positive and negative effects have been identified for SEA1 (population and equalities). Greater access to free active travel routes will provide greater accessibility to facilities and services for low-income groups and support healthy lifestyles. However, some elements of the route, may disproportionately affect access to some groups. To allow faster cyclists to overtake, and to accommodate disabled cyclists (non-standard bikes), cycle tracks should ideally be 2m wide in each direction. It is proposed that this route is 2.5m in length, however, 1.5m is also stated as a minimum width, which would be unsuitable for some users.

The pinch point of the route at the bridge over the A9 may result in narrower cycle tracks. Segregation between road users, as proposed within this option, will also help to increase levels of safety and reduce levels of fear and intimidation along the route. However, the route does cross a number of junctions, which will need to be considered as part of design in order to ensure safety to all users. Minor positive effects have therefore been identified for SEA4 (community safety).

The introduction of a new active travel route along Main Street to Carron Road will provide opportunities for visitors and residents to part take in physical activity for recreational and commuting purposes. Walking and cycling are important sources of everyday activity and are independently associated with a wide range of health benefits. The hard segregation between the existing road and the proposed route may also encourage those more residents to use the route, to ensure that cycling and walking are the default choices in modes of transport. Significant positive effects have therefore been identified for SEA2 (human health).

Both positive and negative effects have been identified for SEA6 (landscape and townscape) and SEA7 (cultural heritage) as the south of the route intersects with the Scheduled Monument of Forth and Clyde Canal: Castlecary - M9 Motorway. The route has potential to negatively affect the setting of this heritage asset, particularly if these are insensitively designed and contain a large number of additional components such as signage and lighting. Conversely, air pollution is often associated with the degradation of heritage assets, therefore reductions in air pollution could benefit the historic environment. If well designed, the introduction of a new active travel route may also present positive placemaking opportunities, improving the local townscape.

Uncertain effects have been identified for SEA8 (climate resilience), SEA11 (water environment) and SEA12 (sustainable resources) as these measures will be determined by the scheme design.

Mitigation and Enhancement Measures

- **SEA1:** The route should take into account the measures set out in the Transport Scotland Cycling by Design document [online] Available at: [Cycling By Design](#), to ensure that the route is accessible to all users.
- **SEA3:** The route could identify opportunities to link with bus services and Falkirk Grahamston Railway Station, to form an interchange hub, to encourage seamless integration of transport modes. This could also include electric bike hire.
- **SEA4:** The safety of the route users will need to be considered where the route crosses existing junctions, with particular attention paid to those junctions used by HGVs. The route should make allowances for safe crossing such as toucan crossings. The design of existing bus stops will also need to be considered to ensure that all users can access the bus stop and no users are put at risk.
- **SEA7:** The route will need to be carefully designed in order to ensure that they don't detract from the unique setting of the scheduled monument and listed buildings along the route.

Assessment of Alternative Options

Remote from carriageway shared use path

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+/-	++	++	?	?	?	?	?	+/-	+	?	?	0
Nature of Effect	D	D	D	N/A	N/A	N/A	N/A	N/A	D	D	N/A	N/A	N/A
Spatial Extent	L	L	L	N/A	N/A	N/A	N/A	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	N/A	N/A	N/A	N/A	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	N/A	N/A	N/A	N/A	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	N/A	N/A	N/A	N/A	N/A	ST/LT	LT	N/A	N/A	N/A

Uni-directional carriageway level cycle lanes on both sides with light segregation

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+/-	++	++	+	0	+/-	+/-	?	+/-	+	?	?	0
Nature of Effect	D	D	D	D	N/A	D/I	D/I	N/A	D	D	N/A	N/A	N/A
Spatial Extent	L	L	L	L	N/A	L	L	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	N/A	I	I	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	N/A	P	P	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	N/A	ST/LT	ST/LT	N/A	ST/LT	LT	N/A	N/A	N/A

Uni-directional Stepped Cycle Track on Both Sides

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+/-	++	++	+	0	+/-	+/-	?	+/-	+	?	?	0
Nature of Effect	D	D	D	D	N/A	D/I	D/I	N/A	D	D	N/A	N/A	N/A
Spatial Extent	L	L	L	L	N/A	L	L	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	N/A	I	I	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	N/A	P	P	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	N/A	ST/LT	ST/LT	N/A	ST/LT	LT	N/A	N/A	N/A



Bi-directional carriageway level cycle lanes with hard segregation

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+/-	++	++	+	0	+/-	+/-	?	+/-	+	?	?	0
Nature of Effect	D	D	D	D	N/A	D/I	D/I	N/A	D	D	N/A	N/A	N/A
Spatial Extent	L	L	L	L	N/A	L	L	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	N/A	I	I	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	N/A	P	P	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	N/A	ST/LT	ST/LT	N/A	ST/LT	LT	N/A	N/A	N/A

Summary of Alternative Options

The alternatives have performed broadly similar to the Preferred Option. The bi-directional carriageway level cycle lanes with hard segregation option has performed the same as the Preferred Option, however, less road space and infrastructure may be required to support development on one side of the road, as is required with bi-directional cycle lanes. Both the stepped cycle solution and the uni-directional carriageway with light segregation have resulted in minor positive effects on safety. These options provide increased subjective safety from the carriageway, however, these do not offer the same level of subjective safety as a cycleway with hard segregation between it and the carriageway.

The remote from carriageway option has resulted in the greatest level of uncertainty as it is not clear how far from the carriageway the cycle way would be located, in addition to any design principles implemented. Shared use paths can often cause conflict between users and may lead to some users feeling unsafe or intimidated to use the path.

Carron Road – Main Street to Lidl

OPTIONS CONSIDERED	FEASIBILITY	FUNDABILITY	PUBLIC ACCEPTANCE
<input checked="" type="checkbox"/> Uni-directional carriageway level cycle lanes on both sides with hard segregation	★★★★	★★★★	★★★★
<input checked="" type="checkbox"/> Bi-directional carriageway level cycle lanes with hard segregation	★★★★	★★★★	★★★★
<input type="checkbox"/> Uni-directional stepped cycle track on both sides	★★★☆☆	★★★★	★★★★

PREFERRED OPTION: UNI-DIRECTIONAL CARRIAGEWAY LEVEL CYCLE LANES ON BOTH SIDES WITH HARD SEGREGATION



Assessment Overview – Preferred Option

Effect	SEA1: Population and Equalities	SEA2: Human Health	SEA3: Transport and Accessibility	SEA4: Community Safety	SEA5: Biodiversity and Natural Capital	SEA6: Landscape and Townscape	SEA7: Cultural Heritage	SEA8: Climate Resilience	SEA9: Greenhouse Gases (GHGs)	SEA10: Air Quality	SEA11: Water Environment	SEA12: Efficient use of Resources	SEA13: Protection of Land
Significance	+/-	++	++	+	0	+	0	?	+/-	+	?	?	0
Nature of Effect	D	D	D	D	N/A	D	N/A	N/A	D	D	N/A	N/A	N/A
Spatial Extent	L	L	L	L	N/A	L	N/A	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	N/A	I	N/A	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	N/A	P	N/A	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	N/A	LT	N/A	N/A	ST/LT	LT	N/A	N/A	N/A



Assessment Summary of Preferred Option

The development of the scheme provides potential for a modal shift away from private transportation. In addition, the scheme is likely to improve access to local facilities, including medical, retail, and Falkirk town centre. This has resulted in significant positive effects for SEA3 (transport and accessibility). Potential reductions in use of private vehicles will also help to reduce levels of transport related emissions, resulting in minor positive effects identified for SEA10 (air quality). Although the route does support a modal shift, which will significantly help to reduce levels of greenhouse gas (GHGs) emissions from the transport network, due to the infrastructure required, there are likely to be high levels of embodied carbon associated with construction. Both positive and negative effects have therefore been identified for SEA9 (GHGs).

Both positive and negative effects have been identified for SEA1 (population and equalities). The proposed route has three existing bus stops located along it, which could provide opportunities for integration of transport modes, allowing visitors and residents to travel further, more sustainably, as well as improving access to Falkirk town centre. This will also help those lower income groups access cheaper forms of transport. Greater access to free active travel routes will also provide greater accessibility to facilities and services for low-income groups and support healthy lifestyles.

However, some elements of the route may disproportionately affect some groups. To allow faster cyclists to overtake, and to accommodate disabled cyclists (non-standard bikes), cycle tracks should ideally be 2m wide in each direction, or 3 to 4m for bidirectional tracks though there may have to be exceptions. On the west side of the road and proposed route, there is potential limitation on land use due to private ownership. It is therefore possible that the cycle track on the west of the road may not fulfil these width requirements for all users.

The introduction of a new active travel route along Carron Road will provide opportunities for visitors and residents to part take in physical activity for recreational and commuting purposes, accessing the retail and healthcare services to the west of Carron Road. Walking and cycling are important sources of everyday activity and are independently associated with a wide range of health benefits. The hard segregation between the existing road and the proposed route may also encourage those more residents to use the route, to ensure that cycling and walking are the default choices in modes of transport. Significant positive effects have therefore been identified for SEA2 (human health).

Hard segregation between road users, will also help to increase levels of safety and reduce levels of fear and intimidation along the route. However, the route does cross a number of junctions and the Carron Road roundabout, which will need to be considered as part of design in order to ensure safety to all users. Minor positive effects have therefore been identified for SEA4 (community safety).

Uncertain effects have been identified for SEA8 (climate resilience) SEA11 (water environment) and SEA12 (sustainable resources) as these measures will be determined by the scheme design. It is likely that the scheme will utilise the existing road space alongside Carron Road, however the land limitations to the west of the route have resulted in uncertain effects. It is also currently uncertain if sustainable materials will be utilised and measures of minimising waste.

This section of Carron Road currently has relatively low landscape and townscape value. The incorporation of a new active travel route could, therefore, provide an opportunity to improve placemaking if designed appropriately. The reductions in traffic may also help to increase levels of tranquillity along Carron Road, further improving the townscape setting. Minor positive effects have therefore been identified for SEA6 (landscape and townscape).

Mitigation and Enhancement Measures

- **SEA1:** The route should take into account the measures set out in the Transport Scotland Cycling by Design document [online] Available at: [Cycling By Design](#), to ensure that the route is accessible to all users.
- **SEA3:** The route could identify opportunities to link with bus services to encourage seamless integration of transport modes.
- **SEA4:** The safety of the route users will need to be considered where the route crosses existing junctions, with particular attention paid to those junctions used by HGVs. The route should make allowances for safe crossing such as toucan crossings. The design of existing bus stops will also need to be considered to ensure that all users can access the bus stop and no users are put at risk.



- **SEA6:** There are opportunities for high quality design to contribute to positive placemaking along the active travel route.

Assessment of Alternative Options

Bi-directional carriageway level cycle lanes with hard segregation

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+/-	++	++	+	0	+	0	?	+/-	+	?	?	0
Nature of Effect	D	D	D	D	N/A	D	N/A	N/A	D	D	N/A	N/A	N/A
Spatial Extent	L	L	L	L	N/A	L	N/A	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	N/A	I	N/A	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	N/A	P	N/A	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	N/A	LT	N/A	N/A	ST/LT	LT	N/A	N/A	N/A

Uni-directional Stepped Cycle Track on Both Sides

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+/-	++	++	+	0	+	0	?	+/-	+	?	?	0
Nature of Effect	D	D	D	D	N/A	D	N/A	N/A	D	D	N/A	N/A	N/A
Spatial Extent	L	L	L	L	N/A	L	N/A	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	N/A	I	N/A	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	N/A	P	N/A	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	N/A	LT	N/A	N/A	ST/LT	LT	N/A	N/A	N/A

Summary of Alternative Options

The alternatives have performed broadly similar to the Preferred Option. The bi-directional carriageway level cycle lanes with hard segregation option has performed the same as the Preferred Option, however, less road space and infrastructure may be required to support development on one side of the road. This is particularly notable given the potential restrictions on the western boundary of the route. The stepped cycle solution has resulted in minor positive effects on safety as this option does not offer the same level of subjective safety as a cycleway with hard segregation between it and the carriageway. However, the option does provide segregation from the carriageway and increases user safety.

Carron Road – Lidl to New Carron Road

OPTIONS CONSIDERED	FEASIBILITY	FUNDABILITY	PUBLIC ACCEPTANCE
<input checked="" type="checkbox"/> Uni-directional carriageway level cycle lanes on both sides with hard segregation	★★★★	★★★★	★★☆☆
<input checked="" type="checkbox"/> Bi-directional carriageway level cycle lanes with hard segregation	★★★★	★★★★	★★☆☆
<input type="checkbox"/> Uni-directional stepped cycle track on both sides	★★★☆☆	★★★★	★★☆☆
<input type="checkbox"/> Bi-directional stepped cycle track	★★★★	★★★★	★★☆☆

PREFERRED OPTION: UNI-DIRECTIONAL CARRIAGEWAY LEVEL CYCLE LANES ON BOTH SIDES WITH HARD SEGREGATION



Assessment Overview – Preferred Option

Effect	SEA1: Population and Equalities	SEA2: Human Health	SEA3: Transport and Accessibility	SEA4: Community Safety	SEA5: Biodiversity and Natural Capital	SEA6: Landscape and Townscape	SEA7: Cultural Heritage	SEA8: Climate Resilience	SEA9: Greenhouse Gases (GHGs)	SEA10: Air Quality	SEA11: Water Environment	SEA12: Efficient use of Resources	SEA13: Protection of Land
Significance	+	++	++	+/-	0	+	0	?	+/-	+	?	?	0
Nature of Effect	D	D	D	D	N/A	D	N/A	N/A	D	D	N/A	N/A	N/A
Spatial Extent	L	L	L	L	N/A	L	N/A	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	N/A	I	N/A	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	N/A	P	N/A	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	N/A	LT	N/A	N/A	ST/LT	LT	N/A	N/A	N/A



Assessment Summary of Preferred Option

Minor positive effects have been identified for SEA1 (population and equalities). Greater access to free active travel routes will also provide greater accessibility to facilities and services for low-income groups and support healthy lifestyles. The proposed route also has two bus stops located along it, which could provide opportunities for integration of transport modes, allowing visitors and residents to travel further, more sustainably, as well as improving access to Falkirk town centre. This will also help those lower income groups access cheaper forms of transport.

Walking and cycling are important sources of everyday activity and are independently associated with a wide range of health benefits. The hard segregation between the existing road and the proposed route may also encourage more residents to use the route, to ensure that cycling and walking are the default choices in modes of transport, further supporting healthy placemaking. Significant positive effects have therefore been identified for SEA2 (human health).

The hard segregation will also help to increase levels of safety and reduce levels of fear and intimidation along the route. However, the route does cross a number of junctions and the Esso petrol station on the west of the route, which will need to be considered as part of design in order to ensure safety to all users. Due to the high volume of traffic at the petrol station entrance and exit, this contributes to potential negative effects. Mixed positive and negative effects have therefore been identified for SEA4 (community safety).

The development of the scheme provides potential for a modal shift away from private transportation, as well as improving access to the local area, and wider Falkirk area. This has resulted in significant positive effects for SEA3 (transport and accessibility). Potential reductions in use of private vehicles will also help to reduce levels of transport related emissions, resulting in minor positive effects identified for SEA10 (air quality). Although the route does support a modal shift, which will significantly help to reduce levels of greenhouse gas (GHGs) emissions from the transport network, due to the infrastructure required, there are likely to be high levels of embodied carbon associated with construction. Both positive and negative effects have therefore been identified for SEA9 (GHGs).

This section of Carron Road currently has relatively low landscape and townscape value. The incorporation of a new active travel route could, therefore, provide an opportunity to improve placemaking if designed appropriately. The reductions in traffic may also help to increase levels of tranquillity along Carron Road, further improving the townscape setting. Minor positive effects have therefore been identified for SEA6 (landscape and townscape).

Uncertain effects have been identified for SEA8 (climate resilience), SEA11 (water environment) and SEA12 (sustainable resources) as these measures will be determined by the scheme design. It is likely that the scheme will utilise brownfield land alongside Carron Road, however it is currently uncertain if sustainable materials will be utilised and measures of minimising waste.

Mitigation and Enhancement Measures

- **SEA1:** The route should take into account the measures set out in the Transport Scotland Cycling by Design document [online] Available at: [Cycling By Design](#), to ensure that the route is accessible to all users.
- **SEA3:** The route could identify opportunities to link with bus services and Falkirk Grahamston Railway Station, to form an interchange hub, to encourage seamless integration of transport modes. This could also include electric bike hire.
- **SEA4:** The safety of the route users will need to consider where the route crosses existing junctions with particular attention paid to the entrance and exit of the Esso petrol station. The route should make allowances for safe crossing such as toucan crossings. The design of existing bus stops will also need to be considered to ensure that all users can access the bus stop and no users are put at risk.
- **SEA6:** There are opportunities for high quality design to contribute to positive placemaking along the active travel route.

Assessment of Alternative Options

Bi-directional carriageway level cycle lanes with hard segregation

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+	++	++	?	0	+	0	?	+/-	+	?	?	0
Nature of Effect	D	D	D	N/A	N/A	D	N/A	N/A	D	D	N/A	N/A	N/A
Spatial Extent	L	L	L	N/A	N/A	L	N/A	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	N/A	N/A	I	N/A	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	N/A	N/A	P	N/A	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	N/A	N/A	LT	N/A	N/A	ST/LT	LT	N/A	N/A	N/A

Uni-directional Stepped Cycle Track on Both Sides

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+/-	++	++	+	0	+	0	?	+/-	+	?	?	0
Nature of Effect	D	D	D	D	N/A	D	N/A	N/A	D	D	N/A	N/A	N/A
Spatial Extent	L	L	L	L	N/A	L	N/A	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	N/A	I	N/A	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	N/A	P	N/A	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	N/A	LT	N/A	N/A	ST/LT	LT	N/A	N/A	N/A

Bi-directional stepped cycle track

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+	++	++	+	0	+	0	?	+/-	+	?	?	0
Nature of Effect	D	D	D	D	N/A	D	N/A	N/A	D	D	N/A	N/A	N/A
Spatial Extent	L	L	L	L	N/A	L	N/A	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	N/A	I	N/A	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	N/A	P	N/A	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	N/A	LT	N/A	N/A	ST/LT	LT	N/A	N/A	N/A

Summary of Alternative Options

The bi-directional carriageway level cycle lanes with hard segregation option has performed broadly the same as the Preferred Option. Less road space and infrastructure may be required to support development on one side of the road. This has resulted in uncertain effects for SEA4 (community safety) for this option, as there is potential that the bi-directional carriageway may mitigate against traffic from the petrol station due to the location on one side of the road. It is however unclear which side of the road the cycle lane may be located on.

New Carron Road to Carron Roundabout

OPTIONS CONSIDERED	FEASIBILITY	FUNDABILITY	PUBLIC ACCEPTANCE
<input checked="" type="checkbox"/> Shared use path next to carriageway	★★★★	★★☆☆	★★★★
<input type="checkbox"/> Bi-directional cycle track at footway level	★★★★	★★★☆☆	★★★★
<input checked="" type="checkbox"/> Uni-directional carriageway level cycle lanes on both sides with hard segregation	★★★★	★★★★	★★★★
<input type="checkbox"/> Uni-directional stepped cycle track on both sides	★★★★	★★★★	★★★★
<input type="checkbox"/> Bi-directional stepped cycle track	★★★★	★★★★	★★★★

PREFERRED OPTION: UNI-DIRECTIONAL CARRIAGEWAY LEVEL CYCLE LANES ON BOTH SIDES WITH HARD SEGREGATION



Assessment Overview – Preferred Option

Effect	SEA1: Population and Equalities	SEA2: Human Health	SEA3: Transport and Accessibility	SEA4: Community Safety	SEA5: Biodiversity and Natural Capital	SEA6: Landscape and Townscape	SEA7: Cultural Heritage	SEA8: Climate Resilience	SEA9: Greenhouse Gases (GHGs)	SEA10: Air Quality	SEA11: Water Environment	SEA12: Efficient use of Resources	SEA13: Protection of Land
Significance	+/-	++	++	+	+/-	+/-	0	?	+/-	+	-	?	0
Nature of Effect	D	D	D	D	D	D	N/A	N/A	D	D	I	N/A	N/A
Spatial Extent	L	L	L	L	L	L	N/A	N/A	L	L	L	N/A	N/A
Reversibility	I	I	I	I	I	I	N/A	N/A	I	I	R	N/A	N/A
Permanence	P	P	P	P	P	P	N/A	N/A	P	P	T	N/A	N/A
Duration	LT	LT	LT	LT	LT	LT	N/A	N/A	ST/LT	LT	ST	N/A	N/A

Assessment Summary of Preferred Option

Both positive and negative effects have been identified for SEA1 (population and equalities). Greater access to free active travel routes will provide greater accessibility to facilities and services for low-income groups and support healthy lifestyles. However, some elements of the route, may disproportionately affect access to some groups. To allow faster cyclists to overtake, and to accommodate disabled cyclists (non-standard bikes), cycle tracks should ideally be 2m wide in each direction. The route is proposed to be 2.5m which will be suitable for all users, however, it does state a minimum of 1.5m, which would not be appropriate for all users. The pinch point of the route at the bridge over the River Carron may also result in narrower cycle tracks.

Hard segregation between road users, as proposed within this option, will also help to increase levels of safety and reduce levels of fear and intimidation along the route. However, the route does intersect with Carron Roundabout as well as joining junctions. These will need to be considered as part of design in order to ensure safety to all users. Minor positive effects have therefore been identified for SEA4 (community safety).

Walking and cycling are important sources of everyday activity and are independently associated with a wide range of health benefits. The hard segregation between the existing road and the proposed route may also encourage more residents to use the route, to ensure that cycling and walking are the default choices in modes of transport. Significant positive effects have therefore been identified for SEA2 (human health).

Encouraging walking and cycling through this scheme provides potential for a modal shift away from private transportation, as well as improving access. This has resulted in significant positive effects for SEA3 (transport and accessibility). Potential reductions in use of private vehicles will also help to reduce levels of transport related emissions, resulting in minor positive effects identified for SEA10 (air quality). Although the route does support a modal shift, which will significantly help to reduce levels of greenhouse gas (GHGs) emissions from the transport network, due to the infrastructure required, there are likely to be high levels of embodied carbon associated with construction. Both positive and negative effects have therefore been identified for SEA9 (GHGs).

Uncertain effects have been identified for SEA8 (climate resilience) and SEA12 (sustainable resources) as these measures will be determined by the scheme design. It is likely that the scheme will utilise brownfield land alongside Carron Road, however it is currently uncertain if sustainable materials will be utilised and measures of minimising waste. There is potential during construction for the River Carron to be polluted by construction materials and dust. For this reason, minor negative effects have been identified for SEA11 (water environment).

Both positive and negative effects have been identified for biodiversity and natural capital (SEA5) landscape and townscape (SEA6). The route currently benefits from large green verges which can provide small scale habitats for wildflowers, pollinating insects, reptiles, amphibians and small mammals and can also provide essential green corridors for which these species disperse. It is not currently clear on whether all or some of these verges will be lost for development. In addition, part of the route benefits from views across the River Carron and parkland which provides a high quality urban landscapes with added amenity value. Design will need to be sensitive to these environments, to protect both existing habitats and landscapes. Positive effects may be sought from sensitive design, incorporation of green infrastructure and increases in tranquillity from reduce traffic.

Mitigation and Enhancement Measures

- **SEA1:** The route should take into account the measures set out in the Transport Scotland Cycling by Design document [online] Available at: [Cycling By Design](#), to ensure that the route is accessible to all users.
- **SEA3:** The route could identify opportunities to link with bus services to encourage seamless integration of transport modes.
- **SEA4:** The safety of the route users will need to be considered where the route crosses existing junctions, with particular attention paid to those junctions used by HGVs. The route should make allowances for safe crossing such as toucan crossings. The design of existing bus stops will also need to be considered to ensure that all users can access the bus stop and no users are put at risk.
- **SEA5:** The route should avoid removing any habitats associated with green verges and should consider incorporating small scale green infrastructure.
- **SEA6:** Infrastructure should be sensitively designed to avoid any adverse effects on the surrounding landscape and townscape. View across the bridge over the river Carron should be protected and enhanced.
- **SEA7:** The route will need to be carefully designed in order to ensure that they don't detract from the unique setting of the scheduled monument and listed buildings along the route.
- **SEA11:** A construction environmental management plan (CEMP) should be used to minimise pollution and any adverse effects on the River Carron.

Assessment of Alternative Options

Shared use path next to carriageway

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+/-	++	++	-	+/-	+/-	0	?	+/-	+	?	?	0
Nature of Effect	D	D	D	D	D	D	N/A	N/A	D	D	N/A	N/A	N/A
Spatial Extent	L	L	L	L	L	L	N/A	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	I	I	N/A	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	P	P	N/A	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	LT	LT	N/A	N/A	ST/LT	LT	N/A	N/A	N/A

Bi-directional cycle track at footway level

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+/-	++	++	+/-	+/-	+/-	0	?	+/-	+	?	?	0
Nature of Effect	D	D	D	D	D	D	N/A	N/A	D	D	N/A	N/A	N/A
Spatial Extent	L	L	L	L	L	L	N/A	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	I	I	N/A	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	P	P	N/A	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	LT	LT	N/A	N/A	ST/LT	LT	N/A	N/A	N/A

Uni-directional stepped cycle track on both sides

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+/-	++	++	+	+/-	+/-	0	?	+/-	+	?	?	0
Nature of Effect	D	D	D	D	D	D	N/A	N/A	D	D	N/A	N/A	N/A
Spatial Extent	L	L	L	L	L	L	N/A	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	I	I	N/A	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	P	P	N/A	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	LT	LT	N/A	N/A	ST/LT	LT	N/A	N/A	N/A

Bi-directional stepped cycle track

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+/-	++	++	+	+/-	+/-	0	?	+/-	+	?	?	0
Nature of Effect	D	D	D	D	D	D	N/A	N/A	D	D	N/A	N/A	N/A
Spatial Extent	L	L	L	L	L	L	N/A	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	I	I	N/A	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	P	P	N/A	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	LT	LT	N/A	N/A	ST/LT	LT	N/A	N/A	N/A

Summary of Alternative Options

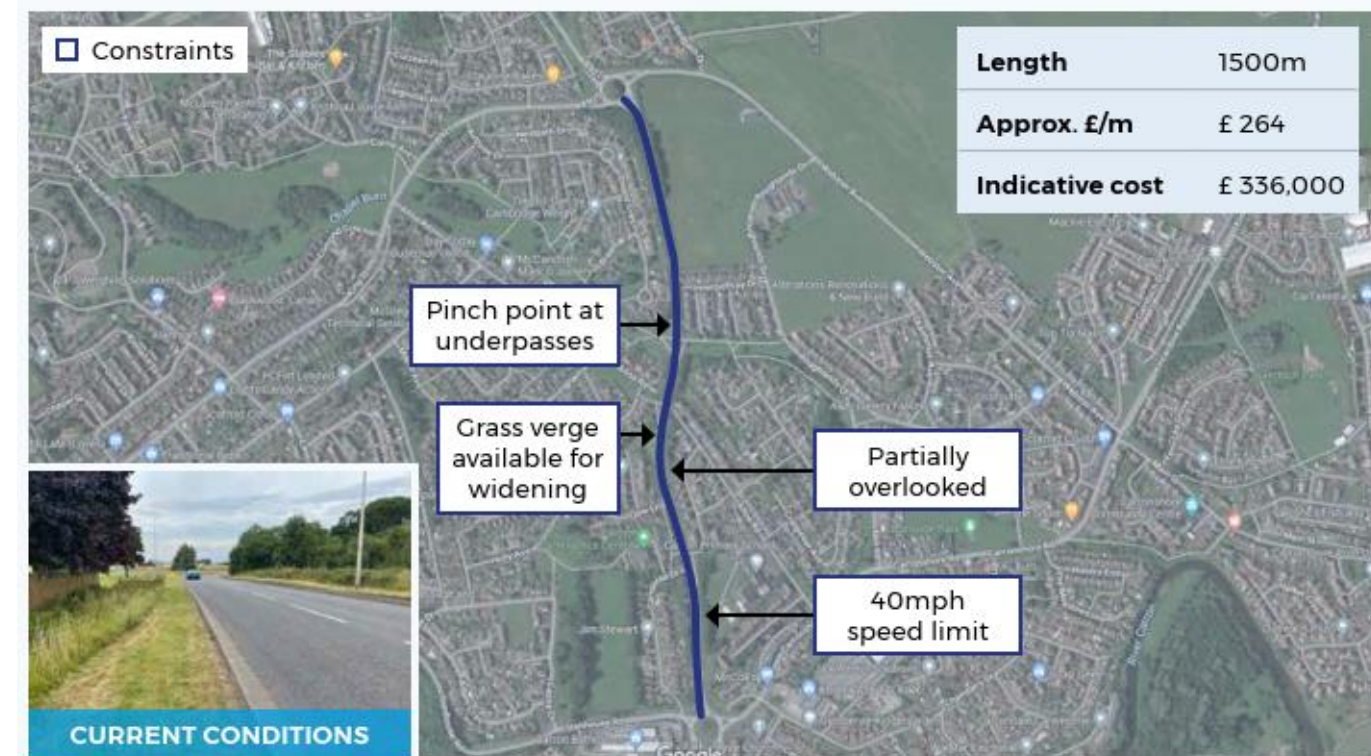
All alternative options have performed broadly similarly to the Preferred Option. However, SEA4 (community safety) has performed differently for all alternatives. The Bi-Directional cycle lane at footway level option has resulted in mixed positive and negative effects on SEA4. A bi-directional cycle lane requires less road space and infrastructure to support development on one side of the road. The cycle way at footway level may result in negative effects upon community safety as there may be increased interactions between cyclists and pedestrians due to a lack of barrier.

The shared use path also results in minor negative effects upon SEA4 (community safety) due to the potential for conflicts between cyclists and pedestrians. Despite low levels of pedestrian-cyclist collisions on shared paths, as detailed in the Department for Transport's Cycle Infrastructure Design Local Transport Note 1/20 [online] Available at: [Cycle Infrastructure Design Local Transport Note](#), users travelling at different speeds, such as cyclists and pedestrians, present opportunities for increased collisions. In addition to this, the pinch point on the route over the River Carron may narrow the cycleway and increase the likelihood for collisions, reducing user safety.

New Carron Road – Carron Roundabout to Bellsdyke Road

OPTIONS CONSIDERED	FEASIBILITY	FUNDABILITY	PUBLIC ACCEPTANCE
<input checked="" type="checkbox"/> Shared use path next to carriageway	★ ★ ★ ☆	★ ★ ★ ★	★ ★ ★ ★
<input type="checkbox"/> Bi-directional cycle track at footway level	★ ★ ★ ★	★ ★ ★ ☆	★ ★ ★ ★
<input type="checkbox"/> Uni-directional carriageway level cycle lanes on both sides with hard segregation	★ ★ ★ ☆	★ ★ ★ ★	★ ★ ★ ★
<input type="checkbox"/> Uni-directional stepped cycle track on both sides	★ ★ ★ ☆	★ ★ ★ ★	★ ★ ★ ★
<input type="checkbox"/> Bi-directional stepped cycle track	★ ★ ★ ☆	★ ★ ★ ★	★ ★ ★ ★

PREFERRED OPTION: SHARED USE PATH NEXT TO CARRIAGEWAY



Assessment Overview – Preferred Option

Effect	SEA1: Population and Equalities	SEA2: Human Health	SEA3: Transport and Accessibility	SEA4: Community Safety	SEA5: Biodiversity and Natural Capital	SEA6: Landscape and Townscape	SEA7: Cultural Heritage	SEA8: Climate Resilience	SEA9: Greenhouse Gases (GHGs)	SEA10: Air Quality	SEA11: Water Environment	SEA12: Efficient use of Resources	SEA13: Protection of Land
Significance	?	++	++	+/-	+/-	+/-	0	?	+/-	+	?	?	0
Nature of Effect	N/A	D	D	D	D	D	N/A	N/A	D	D	N/A	N/A	N/A
Spatial Extent	N/A	L	L	L	L	L	N/A	N/A	L	L	N/A	N/A	N/A
Reversibility	N/A	I	I	I	I	I	N/A	N/A	I	I	N/A	N/A	N/A
Permanence	N/A	P	P	P	P	P	N/A	N/A	P	P	N/A	N/A	N/A
Duration	N/A	LT	LT	LT	LT	LT	N/A	N/A	ST/LT	LT	N/A	N/A	N/A

Assessment Summary of Preferred Option

The development of the active travel scheme encourages walking and cycling and provides potential for a modal shift away from private transportation, as well as improving access to both the local area and wider area through the scheme and multiple bus stops on the route. This has resulted in significant positive effects for SEA3 (transport and accessibility). Walking and cycling are important sources of everyday activity and are independently associated with a wide range of health benefits. The remote from carriageway path may also encourage more residents to use the route, to ensure that cycling and walking are the default choices in modes of transport. Significant positive effects have therefore been identified for SEA2 (human health).



It is recommended that the minimum widths of shared use routes carrying up to 300 pedestrians per hour should be at least 3m. The proposed path width is 4m, however, a minimum width of 2.5m is stated, which may not be wide enough to support all types of bikes, wheelchairs and trikes. The pinch point of the route at the underpass may also result in narrower cycle tracks. Effects on equality will be better determined at scheme level. Uncertain effects have therefore been identified for SEA1 (population and equalities).

Potential reductions in use of private vehicles will also help to reduce levels of transport related emissions, resulting in minor positive effects identified for SEA10 (air quality). Although the route does support a modal shift, which will significantly help to reduce levels of greenhouse gas (GHGs) emissions from the transport network, due to the infrastructure required, there are likely to be high levels of embodied carbon associated with construction. Both positive and negative effects have therefore been identified for SEA9 (GHGs).

Remote cycleways from the carriageway may also help to increase levels of safety and reduce levels of fear and intimidation along the route. However, there are also potential negative effects upon SEA4 (community safety) due to potential conflicts between cyclists and pedestrians. Despite low levels of pedestrian-cyclist collisions on shared paths, as detailed in the Department for Transport's Cycle Infrastructure Design Local Transport Note 1/20 [online] Available at: [Cycle Infrastructure Design Local Transport Note](#), users travelling at different speeds, such as cyclists and pedestrians, present opportunities for increased collisions as well as fear and intimidation. The pinch point at the underpasses on the route may narrow the path and increase the likelihood for collisions, reducing user safety. In addition to this, the route does intersect with multiple junctions. The route also doesn't benefit from any sort of segregation from the main road. These will need to be considered as part of design in order to ensure safety to all users. Mixed positive and negative effects have therefore been identified for SEA4 (community safety).

Uncertain effects have been identified for SEA8 (climate resilience), SEA11 (water environment) and SEA12 (sustainable resources) as these measures will be determined by the scheme design. It is likely that the scheme will utilise brownfield land alongside Carron Road, however it is currently uncertain if sustainable materials will be utilised and measures of minimising waste.

Both positive and negative effects have been identified for biodiversity and natural capital (SEA5) landscape and townscape (SEA6). The northern part of the route currently benefits from large green verges which can provide small scale habitats for wildflowers, pollinating insects, reptiles, amphibians and small mammals and can also provide essential green corridors for which these species disperse. Green verges can also make contributions to the landscape and townscape setting, particularly in predominantly urban environments. It is not currently clear on whether all or some of these verges will be lost for development. Design will need to be sensitive to these environments, to protect both existing habitats and landscapes. Positive effects may be sought from sensitive design, incorporation of green infrastructure and increases in tranquillity from reduce traffic. There may also be potential for positive placemaking.

Mitigation and Enhancement Measures

- **SEA1:** The route should take into account the measures set out in the Transport Scotland Cycling by Design document [online] Available at: [Cycling By Design](#), to ensure that the route is accessible to all users.
- **SEA4:** The safety of the route users will need to be considered where the route crosses existing junctions, with particular attention paid to those junctions used by HGVs. The route should make allowances for safe crossing such as toucan crossings. The design of existing bus stops will also need to be considered to ensure that all users can access the bus stop and no users are put at risk. Clear signage, use of tactile paving and segregation should be considered to reduce conflicts between users. Use of rumble strips and speedbumps may also help to reduce speeds of cyclists, making the route safer for all users.
- **SEA5:** Where possible, the route should minimise biodiversity loss and disturbance. If loss cannot be minimised, biodiversity net gain should be included within the design.

Assessment of Alternative Options

Bi-directional cycle track at footway level

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+/-	++	++	+/-	-	0	0	?	+/-	+	?	?	0
Nature of Effect	D	D	D	D	D	N/A	N/A		D	D	N/A	N/A	N/A
Spatial Extent	L	L	L	L	L	N/A	N/A		L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	I	N/A	N/A		I	I	N/A	N/A	N/A
Permanence	P	P	P	P	P	N/A	N/A		P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	LT	N/A	N/A		ST/LT	LT	N/A	N/A	N/A

Uni-directional carriageway level cycle lanes on both sides with hard segregation

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+/-	++	++	+/-	-	0	0	?	+/-	+	?	?	0
Nature of Effect	D	D	D	D	D	N/A	N/A		D	D	N/A	N/A	N/A
Spatial Extent	L	L	L	L	L	N/A	N/A		L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	I	N/A	N/A		I	I	N/A	N/A	N/A
Permanence	P	P	P	P	P	N/A	N/A		P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	LT	N/A	N/A		ST/LT	LT	N/A	N/A	N/A

Uni-directional stepped cycle track on both sides

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+/-	++	++	+	-	0	0	?	+/-	+	?	?	0
Nature of Effect	D	D	D	D	D	N/A	N/A	N/A	D	D	N/A	N/A	N/A
Spatial Extent	L	L	L	L	L	N/A	N/A	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	I	N/A	N/A	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	P	N/A	N/A	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	LT	N/A	N/A	N/A	ST/LT	LT	N/A	N/A	N/A

Bi-directional stepped cycle track

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+/-	++	++	+	-	0	0	?	+/-	+	?	?	0
Nature of Effect	D	D	D	D	D	N/A	N/A	N/A	D	D	N/A	N/A	N/A
Spatial Extent	L	L	L	L	L	N/A	N/A	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	I	N/A	N/A	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	P	N/A	N/A	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	LT	N/A	N/A	N/A	ST/LT	LT	N/A	N/A	N/A

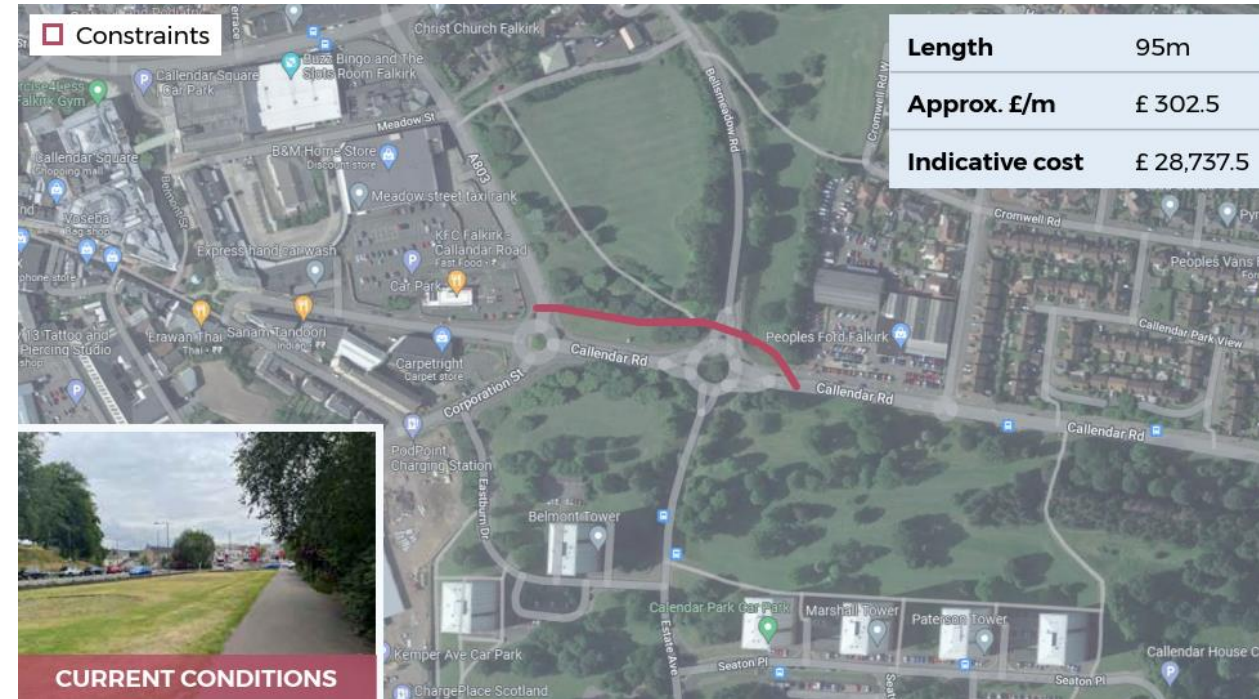
Summary of Alternative Options

All alternative options have performed broadly similarly to the Preferred Option. However, SEA4 (community safety) has performed differently for all alternatives. The bi-directional cycle lane at footway level option has resulted in mixed positive and negative effects on SEA4. A bi-directional cycle lane requires less road space and infrastructure to support development on one side of the road, therefore minimising the negative impacts from the pinch point on the route. The cycle way at footway level may result in negative effects upon community safety as there may be increased interactions between cyclists and pedestrians due to a lack of barrier. However, the footway level cycle track is likely to increase safety from road traffic. Similarly, mixed positive and negative effects have been identified for the uni-directional cycle track with hard segregation. Hard segregation increases the safety of cycle track users from road traffic. However, the pinch point may reduce user safety in this area due to a narrowing of the cycle track.

Corporation Street Roundabout to Bellsmeadow Road Roundabout

OPTIONS CONSIDERED	FEASIBILITY	FUNDABILITY	PUBLIC ACCEPTANCE
<input checked="" type="checkbox"/> Remote from carriageway shared use path	★★★★☆	★★★★★	★★★★★
<input checked="" type="checkbox"/> Uni-directional carriageway level cycle lanes on both sides with hard segregation	★★★★★	★★★★★	★★★★☆
<input type="checkbox"/> Bi-directional carriageway level cycle lanes with hard segregation	★★★★★	★★★★★	★★★☆☆
<input type="checkbox"/> Uni-directional stepped cycle track on both sides	★★★★★	★★★★★	★★★☆☆
<input type="checkbox"/> Bi-directional stepped cycle track	★★★★★	★★★★★	★★★☆☆

PREFERRED OPTION: REMOTE FROM CARRIAGEWAY SHARED USE PATH



Assessment Overview – Preferred Option

Effect	SEA1: Population and Equalities	SEA2: Human Health	SEA3: Transport and Accessibility	SEA4: Community Safety	SEA5: Biodiversity and Natural Capital	SEA6: Landscape and Townscape	SEA7: Cultural Heritage	SEA8: Climate Resilience	SEA9: Greenhouse Gases (GHGs)	SEA10: Air Quality	SEA11: Water Environment	SEA12: Efficient use of Resources	SEA13: Protection of Land
Significance	?	++	++	+	-	0	+/-	?	+/-	+	?	?	0
Nature of Effect	N/A	D	D	D	D	N/A	D/I	N/A	D	D	N/A	N/A	N/A
Spatial Extent	N/A	L	L	L	L	N/A	L	N/A	L	L	N/A	N/A	N/A
Reversibility	N/A	I	I	I	I	N/A	I	N/A	I	I	N/A	N/A	N/A
Permanence	N/A	P	P	P	P	N/A	P	N/A	P	P	N/A	N/A	N/A
Duration	N/A	LT	LT	LT	LT	N/A	ST/LT	N/A	ST/LT	LT	N/A	N/A	N/A

Assessment Summary of Preferred Option

The development of this scheme encourages walking and cycling and provides potential for a modal shift away from private transportation, as well as improving access to Falkirk town centre. This has resulted in significant positive effects for SEA3 (transport and accessibility). Minor positive effects have been identified for SEA10 (air quality). Potential reductions in use of private vehicles will also help to reduce levels of transport related emissions. The western end of the route is also located within the Falkirk Town Centre AQMA, therefore encouraging active travel in this area will contribute to reducing congestion and emissions within the AQMA.



Although the route does support a modal shift, which will significantly help to reduce levels of greenhouse gas (GHGs) emissions from the transport network, due to the infrastructure required, there are likely to be high levels of embodied carbon associated with construction. Both positive and negative effects have therefore been identified for SEA9 (GHGs).

Uncertain effects have been identified for SEA1 (population and equalities). It is recommended that the minimum widths of shared use routes carrying up to 300 pedestrians per hour should be at least 3m. The proposed path width is 4m, however, a minimum width of 2.5m is stated, which may not be wide enough to support all types of bikes, wheelchairs and trikes. Effects on equality will be better determined at scheme level design.. Walking and cycling are important sources of everyday activity and are independently associated with a wide range of health benefits. The remote from carriageway path may also encourage more residents to use the route, to ensure that cycling and walking are the default choices in modes of transport. Significant positive effects have therefore been identified for SEA2 (human health).

Creating a remote cycleway away from the carriageway will help to increase levels of safety and reduce levels of fear and intimidation particularly given that roundabouts pose a significant safety risk to cyclists. . However, there are also potential negative effects upon SEA4 (community safety) due to the shared use between cyclists and pedestrians and the potential conflicts between users. Despite low levels of pedestrian-cyclist collisions on shared paths, as detailed in the Department for Transport's Cycle Infrastructure Design Local Transport Note 1/20 [online] Available at: [Cycle Infrastructure Design Local Transport Note](#), users travelling at different speeds, such as cyclists and pedestrians, present opportunities for increased collisions.

Both positive and negative effects have been identified for SEA7 (cultural heritage). The route runs parallel to the boundary of the Antonine Wall world heritage site, and 100m north of the Antonine Wall scheduled monument. The route has potential to negatively affect the setting of these heritage assets, particularly if these are insensitively designed and contain a large number of additional components such as signage and lighting. Conversely, air pollution is often associated with the degradation of heritage assets, therefore reductions in air pollution could benefit the historic environment.

Minor negative effects have also been identified for SEA5 (biodiversity and natural capital) as the scheme involves the development of the shared use path remote from the carriageway. The route runs parallel to an area of national forest inventory, meaning that any expansion of the existing path may result in a loss of trees. Additionally, the existing area of green space next to the existing path may be removed as a result of the new shared use path. Despite being of limited agricultural value, this grass verge provides biodiversity and natural capital value to the local area therefore the removal of this verge for the path is likely to reduce local biodiversity.

Uncertain effects have been identified for SEA8 (climate resilience), SEA11 (water environment) and SEA12 (sustainable resources) as these measures will largely be determined by the scheme design.

Mitigation and Enhancement Measures

- **SEA1:** The route should take into account the measures set out in the Transport Scotland Cycling by Design document [online] Available at: [Cycling By Design](#), to ensure that the route is accessible to all users. The path width should be considered to be at least 3m in width rather than 2.5m.
- **SEA4:** Clear signage, use of tactile paving and segregation should be considered to reduce conflicts between users. Use of rumble strips and speedbumps may also help to reduce speeds of cyclists, making the route safer for all users.
- **SEA5:** The route should minimise additional land take from the existing path where possible and consider sensitive design for the surrounding biodiversity, minimising biodiversity loss and disturbance. If loss cannot be minimised, biodiversity net gain should be included within the design.
- **SEA7:** The route will need to be carefully designed in order to ensure that they don't detract from the unique setting of the scheduled monument and world heritage site along the route.



Assessment of Alternative Options

Uni-directional carriageway level cycle lanes on both sides with hard segregation

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+	++	++	+/-	-	0	+/-	?	+/-	+	?	?	0
Nature of Effect	D	D	D	D	D	N/A	D/I	N/A	D	D	N/A	N/A	N/A
Spatial Extent	L	L	L	L	L	N/A	L	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	I	N/A	I	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	P	N/A	P	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	LT	N/A	ST/LT	N/A	ST/LT	LT	N/A	N/A	N/A

Bi-directional carriageway level cycle lanes with hard segregation

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+	++	++	+/-	?	0	+/-	?	+/-	+	?	?	0
Nature of Effect	D	D	D	D	N/A	N/A	D/I	N/A	D	D	N/A	N/A	N/A
Spatial Extent	L	L	L	L	N/A	N/A	L	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	N/A	N/A	I	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	N/A	N/A	P	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	N/A	N/A	ST/LT	N/A	ST/LT	LT	N/A	N/A	N/A

Uni-directional stepped cycle track on both sides

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+	++	++	+	-	0	+/-	?	+/-	+	?	?	0
Nature of Effect	D	D	D	D	D	N/A	D/I	N/A	D	D	N/A	N/A	N/A
Spatial Extent	L	L	L	L	L	N/A	L	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	I	N/A	I	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	P	N/A	P	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	LT	N/A	ST/LT	N/A	ST/LT	LT	N/A	N/A	N/A



Bi-directional stepped cycle track

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+	++	++	+	?	0	+/-	?	+/-	+	?	?	0
Nature of Effect	D	D	D	D	N/A	N/A	D/I	N/A	D	D	N/A	N/A	N/A
Spatial Extent	L	L	L	L	N/A	N/A	L	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	N/A	N/A	I	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	N/A	N/A	P	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	N/A	N/A	ST/LT	N/A	ST/LT	LT	N/A	N/A	N/A

Summary of Alternative Options

All alternative options have performed broadly similarly to the Preferred Option. Uncertain effects have also been identified for SEA5 (biodiversity and natural capital) for both bi-directional alternatives. Uncertain effects have been identified as these solutions require less land take due to their location on one side of the carriageway. It is currently uncertain which side of the carriageway this option would be located on, therefore any effects upon the national forest inventory land to the south is currently unknown.

Bellsmeadow Road Roundabout to Callendar Boulevard Roundabout

OPTIONS CONSIDERED	FEASIBILITY	FUNDABILITY	PUBLIC ACCEPTANCE
<input type="checkbox"/> Bi-directional stepped cycle track	★★★★	★★★★	★★☆☆
<input type="checkbox"/> Uni-directional stepped cycle track on both sides	★★★★	★★★★	★★☆☆
<input checked="" type="checkbox"/> Bi-directional carriageway level cycle lanes with hard segregation	★★★★	★★★★	★★★★
<input checked="" type="checkbox"/> Uni-directional carriageway level cycle lanes on both sides with hard segregation	★★★★	★★★★	★★★★
<input type="checkbox"/> Shared use path next to carriageway	★★★★	★★★★	★★☆☆

PREFERRED OPTION: UNI-DIRECTIONAL CARRIAGEWAY LEVEL CYCLE LANES ON BOTH SIDES WITH HARD SEGREGATION



Assessment Overview – Preferred Option

Effect	SEA1: Population and Equalities	SEA2: Human Health	SEA3: Transport and Accessibility	SEA4: Community Safety	SEA5: Biodiversity and Natural Capital	SEA6: Landscape and Townscape	SEA7: Cultural Heritage	SEA8: Climate Resilience	SEA9: Greenhouse Gases (GHGs)	SEA10: Air Quality	SEA11: Water Environment	SEA12: Efficient use of Resources	SEA13: Protection of Land
Significance	+	++	++	+	-	0	+/-	?	+/-	+	?	?	0
Nature of Effect	D	D	D	D	D	N/A	D/I	N/A	D	D	N/A	N/A	N/A
Spatial Extent	L	L	L	L	L	N/A	L	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	I	N/A	I	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	P	N/A	P	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	LT	N/A	ST/LT	N/A	ST/LT	LT	N/A	N/A	N/A



Assessment Summary of Preferred Option

The development of the active travel scheme encourages walking and cycling and provides potential for a modal shift away from private transportation, as well as improving access to Falkirk town centre and Graeme High School. This has resulted in significant positive effects for SEA3 (transport and accessibility). Potential reductions in use of private vehicles will also help to reduce levels of transport related emissions with minor positive effects identified for SEA10 (air quality). Although the route does support a modal shift, which will significantly help to reduce levels of greenhouse gas (GHGs) emissions from the transport network, due to the infrastructure required, there are likely to be high levels of embodied carbon associated with construction. Both positive and negative effects have therefore been identified for SEA9 (GHGs).

Minor negative effects have been identified for SEA5 (biodiversity and natural capital) as the scheme runs parallel to an area of national forest inventory, meaning that any expansion of the existing path may result in a loss of trees or disturbance to habitats and species.

Minor positive effects have therefore been identified for SEA1 (population and equalities). Greater access to free active travel routes will provide greater accessibility to facilities and services for low-income groups and support healthy lifestyles. Walking and cycling are important sources of everyday activity and are independently associated with a wide range of health benefits. The hard segregation and route of the path towards the school may also encourage more residents to use the route, to ensure that cycling and walking are the default choices in modes of transport. This is particularly pertinent given its proximity to Graeme High School, as it could provide safe and healthy routes for pupils. Significant positive effects have therefore been identified for SEA2 (human health).

Segregation between road users, as proposed within this option, will also help to increase levels of safety and reduce levels of fear and intimidation along the route. However, the route does cross both junctions and roundabouts, which will need to be considered as part of design in order to ensure safety to all users. Minor positive effects have therefore been identified for SEA4 (community safety).

Both positive and negative effects have been identified for SEA7 (cultural heritage). The route runs parallel to the boundaries of the Antonine Wall World Heritage Site and Scheduled Monument and, Callendar Park. The route has potential to negatively affect the setting of these heritage assets, particularly if these are insensitively designed and contain a large number of additional components such as signage and lighting. Conversely, air pollution is often associated with the degradation of heritage assets, therefore reductions in air pollution could benefit the historic environment.

Uncertain effects have been identified for SEA8 (climate resilience), SEA11 (water environment) and SEA12 (sustainable resources) as these measures will largely be determined by the scheme design.

Mitigation and Enhancement Measures

- **SEA1:** The route should take into account the measures set out in the Transport Scotland Cycling by Design document [online] Available at: [Cycling By Design](#), to ensure that the route is accessible to all users.
- **SEA3:** The route could identify opportunities to link with bus services and Falkirk Grahamston Railway Station, to form an interchange hub, to encourage seamless integration of transport modes. This could also include electric bike hire.
- **SEA4:** The safety of the route users will need to be considered where the route crosses existing junctions. The route should make allowances for safe crossing such as toucan crossings. The design of existing bus stops will also need to be considered to ensure that all users can access the bus stop and no users are put at risk.
- **SEA5:** The route should minimise additional land take from the existing path where possible and consider sensitive design for the surrounding biodiversity, minimising biodiversity loss and disturbance. If loss cannot be minimised, biodiversity net gain should be included within the design.
- **SEA7:** The route will need to be carefully designed in order to ensure that they don't detract from the unique setting of the Scheduled Monument and World Heritage site along the route.

Assessment of Alternative Options

Bi-directional stepped cycle track

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+	++	++	+	?	0	+/-	?	+/-	+	?	?	0
Nature of Effect	D	D	D	D	N/A	N/A	D/I	N/A	D	D	N/A	N/A	N/A
Spatial Extent	L	L	L	L	N/A	N/A	L	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	N/A	N/A	I	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	N/A	N/A	P	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	N/A	N/A	ST/LT	N/A	ST/LT	LT	N/A	N/A	N/A

Uni-directional stepped cycle track on both sides

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+	++	++	+	-	0	+/-	?	+/-	+	?	?	0
Nature of Effect	D	D	D	D	D	N/A	D/I	N/A	D	D	N/A	N/A	N/A
Spatial Extent	L	L	L	L	L	N/A	L	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	I	N/A	I	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	P	N/A	P	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	LT	N/A	ST/LT	N/A	ST/LT	LT	N/A	N/A	N/A

Bi-directional carriageway level cycle lanes with hard segregation

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+	++	++	+	?	0	+/-	?	+/-	+	?	?	0
Nature of Effect	D	D	D	D	N/A	N/A	D/I	N/A	D	D	N/A	N/A	N/A
Spatial Extent	L	L	L	L	N/A	N/A	L	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	N/A	N/A	I	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	N/A	N/A	P	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	N/A	N/A	ST/LT	N/A	ST/LT	LT	N/A	N/A	N/A



Shared use path next to carriageway

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+	++	++	+/-	?	0	+/-	?	+/-	+	?	?	0
Nature of Effect	D	D	D	D	N/A	N/A	D/I	N/A	D	D	N/A	N/A	N/A
Spatial Extent	L	L	L	L	N/A	N/A	L	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	N/A	N/A	I	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	N/A	N/A	P	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	N/A	N/A	ST/LT	N/A	ST/LT	LT	N/A	N/A	N/A

Summary of Alternative Options

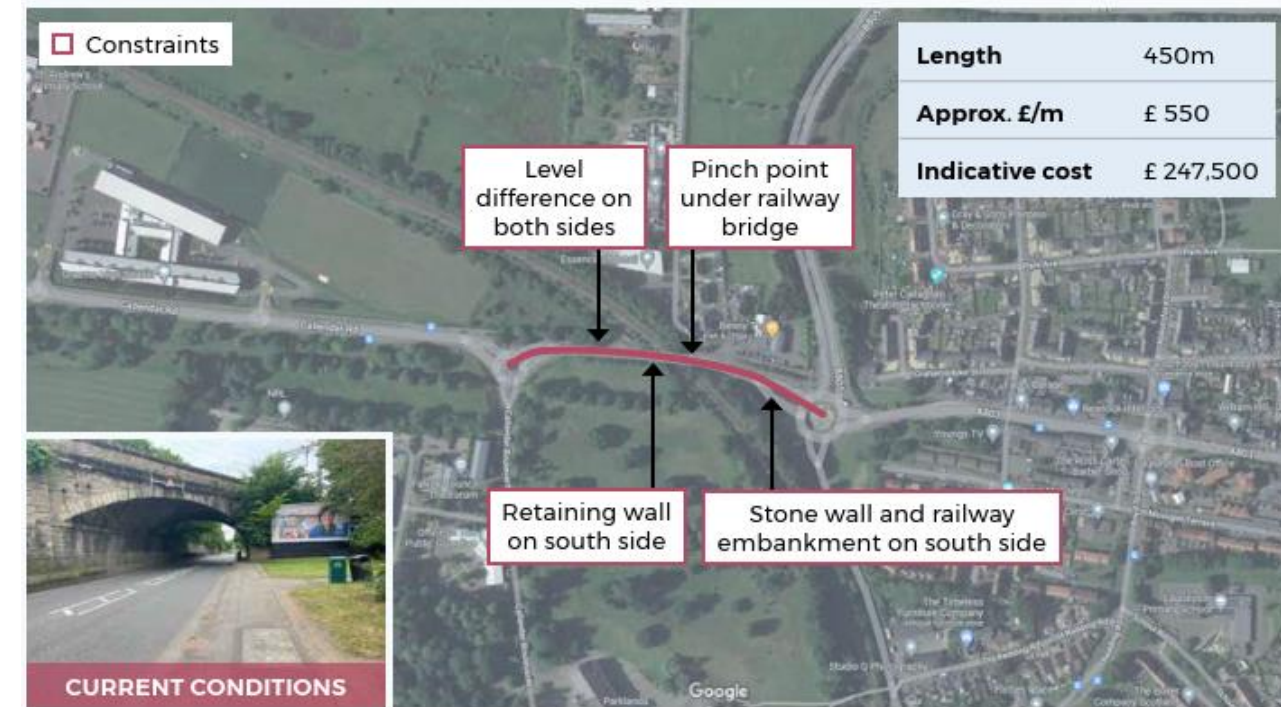
All other alternative options have performed broadly similarly to the Preferred Option. However, SEA4 (community safety) has performed differently for the shared use path next to carriageway option where mixed positive and negative effects have been identified for SEA4. Shared use paths next to carriageways increase levels of safety and reduce levels of fear and intimidation along the route. However, there are also potential negative effects upon SEA4 (community safety) due to potential conflicts between cyclists and pedestrians. Despite low levels of pedestrian-cyclist collisions on shared paths, as detailed in the Department for Transport’s Cycle Infrastructure Design Local Transport Note 1/20 [online] Available at: [Cycle Infrastructure Design Local Transport Note](#), users travelling at different speeds present opportunities for increased collisions.

Uncertain effects have also been identified for SEA5 (biodiversity and natural capital) for both bi-directional alternatives and the shared use path. This has been identified as these solutions require less land take due to their location on one side of the carriageway. It is currently uncertain which side of the carriageway this option would be located on, therefore any effects upon the national forest inventory land to the south is currently unknown.

Callendar Boulevard Roundabout to B805 Roundabout

OPTIONS CONSIDERED	FEASIBILITY	FUNDABILITY	PUBLIC ACCEPTANCE
<input type="checkbox"/> Bi-directional stepped cycle track	★★★★	★★★★	★★☆☆
<input type="checkbox"/> Uni-directional stepped cycle track on both sides	★★★★	★★★★	★★☆☆
<input checked="" type="checkbox"/> Bi-directional carriageway level cycle lanes with hard segregation	★★★★	★★★★	★★☆☆
<input checked="" type="checkbox"/> Uni-directional carriageway level cycle lanes on both sides with hard segregation	★★★★	★★★★	★★☆☆
<input type="checkbox"/> Shared use path next to carriageway	★★★★	★★★★	★★☆☆

PREFERRED OPTION: UNI-DIRECTIONAL CARRIAGEWAY LEVEL CYCLE LANES ON BOTH SIDES WITH HARD SEGREGATION



Assessment Overview – Preferred Option

Effect	SEA1: Population and Equalities	SEA2: Human Health	SEA3: Transport and Accessibility	SEA4: Community Safety	SEA5: Biodiversity and Natural Capital	SEA6: Landscape and Townscape	SEA7: Cultural Heritage	SEA8: Climate Resilience	SEA9: Greenhouse Gases (GHGs)	SEA10: Air Quality	SEA11: Water Environment	SEA12: Efficient use of Resources	SEA13: Protection of Land
Significance	+/-	++	++	+	0	0	+/-	?	+/-	+	?	?	0
Nature of Effect	D	D	D	D	N/A	N/A	D/I	N/A	D	D	N/A	N/A	N/A
Spatial Extent	L	L	L	L	N/A	N/A	L	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	N/A	N/A	I	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	N/A	N/A	P	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	N/A	N/A	ST/LT	N/A	ST/LT	LT	N/A	N/A	N/A

Assessment Summary of Preferred Option

Both positive and negative effects have been identified for SEA1 (population and equalities). Greater access to free active travel routes will provide greater accessibility to facilities and services for low-income groups and support healthy lifestyles. However, some elements of the route may disproportionately affect some groups. To allow faster cyclists to overtake, and to accommodate disabled cyclists (non-standard bikes), cycle tracks should ideally be 2m wide in each direction, or 3 to 4m for bidirectional tracks though there may have to be exceptions. The level difference on the northern side of the route may also present a challenge to disabled users. In addition, the pinch point under the railway bridge may reduce cycle land width and disproportionately affect disabled users.



The introduction of a new active travel route will provide opportunities for visitors and residents to part take in physical activity for recreational and commuting purposes. Walking and cycling are important sources of everyday activity and are independently associated with a wide range of health benefits. The hard segregation between the existing road and the proposed route may also encourage those more residents to use the route, to ensure that cycling and walking are the default choices in modes of transport. Significant positive effects have therefore been identified for SEA2 (human health). Segregation between road users will also help to increase levels of safety and reduce levels of fear and intimidation along the route. Minor positive effects have therefore been identified for SEA4 (community safety). However, any narrowing of the cycle lane at the pinch point may result in increased interactions between pedestrians and cyclists, this should therefore be considered within the design.

The proposed route encourages a potential modal shift away from private car transportation and improves access to both Falkirk town centre and the Laurieston area of Falkirk. The modal shift offered by the scheme has resulted in significant positive effects for SEA3 (transport and accessibility). Potential reductions in use of motorised vehicles will also help to reduce levels of transport related emissions, resulting in minor positive effects being identified for SEA10 (air quality).

Although the route does support a modal shift, which will significantly help to reduce levels of greenhouse gas (GHGs) emissions from the transport network, due to the infrastructure required, there are likely to be high levels of embodied carbon associated with construction. Both positive and negative effects have therefore been identified for SEA9 (GHGs). Uncertain effects have been identified for SEA8 (climate resilience), SEA11 (water environment) and SEA12 (sustainable resources) as these measures will be determined by design.

Both positive and negative effects have been identified for SEA7 (cultural heritage). The route intersects with the Antonine Wall World Heritage Site and scheduled monument; therefore, this has potential to negatively affect the setting of this heritage asset, particularly if these are insensitively designed and contain a large number of additional components such as signage and lighting. Additionally, construction vibrations may cause localised damage to the asset. Conversely, air pollution is often associated with the degradation of heritage assets, therefore reductions in air pollution could benefit the historic environment.

Mitigation and Enhancement Measures

- **SEA1:** The route should take into account the measures set out in the Transport Scotland Cycling by Design document [online] Available at: [Cycling By Design](#), to ensure that the route is accessible to all users.
- **SEA4:** The safety of the route users will need to consider where the route crosses existing junctions. The route should make allowances for safe crossing such as toucan crossings. The design of existing bus stops will also need to be considered to ensure that all users can access the bus stop and no users are put at risk.
- **SEA5:** The route should identify opportunities to contribute to the Central Scotland Green Network (CSGN) and contribute to biodiversity net gain.
- **SEA7:** The route will need to be carefully designed in order to ensure that they don't detract from the unique setting of the World Heritage Site along the route.

Assessment of Alternative Options

Bi-directional stepped cycle track

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+/-	++	++	+	0	0	+/-	?	+/-	+	?	?	0
Nature of Effect	D	D	D	D	N/A	N/A	D/I	N/A	D	D	N/A	N/A	N/A
Spatial Extent	L	L	L	L	N/A	N/A	L	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	N/A	N/A	I	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	N/A	N/A	P	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	N/A	N/A	ST/LT	N/A	ST/LT	LT	N/A	N/A	N/A

Uni-directional stepped cycle track on both sides

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+/-	++	++	+	0	0	+/-	?	+/-	+	?	?	0
Nature of Effect	D	D	D	D	N/A	N/A	D/I	N/A	D	D	N/A	N/A	N/A
Spatial Extent	L	L	L	L	N/A	N/A	L	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	N/A	N/A	I	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	N/A	N/A	P	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	N/A	N/A	ST/LT	N/A	ST/LT	LT	N/A	N/A	N/A

Bi-directional carriageway level cycle lanes with hard segregation

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+/-	++	++	+	0	0	+/-	?	+/-	+	?	?	0
Nature of Effect	D	D	D	D	N/A	N/A	D/I	N/A	D	D	N/A	N/A	N/A
Spatial Extent	L	L	L	L	N/A	N/A	L	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	N/A	N/A	I	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	N/A	N/A	P	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	N/A	N/A	ST/LT	N/A	ST/LT	LT	N/A	N/A	N/A

Shared use path next to carriageway

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+/-	++	++	+/-	0	0	+/-	?	+/-	+	?	?	0
Nature of Effect	D	D	D	D	N/A	N/A	D/I	N/A	D	D	N/A	N/A	N/A



Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Spatial Extent	L	L	L	L	N/A	N/A	L	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	N/A	N/A	I	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	N/A	N/A	P	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	N/A	N/A	ST/LT	N/A	ST/LT	LT	N/A	N/A	N/A

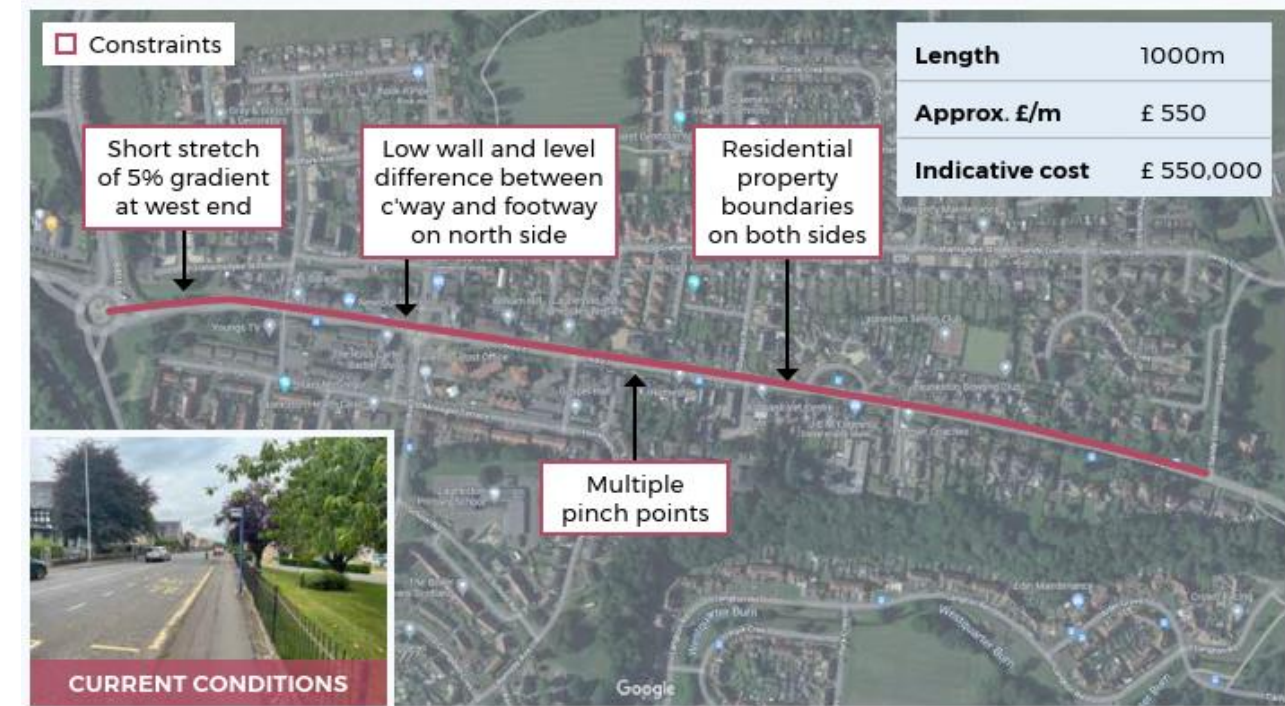
Summary of Alternative Options

The bi-directional carriageway with hard segregation alternative option has performed the same as the Preferred Option across all SEA objectives. All other alternative options have performed broadly similarly to the Preferred Option. However, SEA4 (community safety) has performed differently for the shared use path next to carriageway option where mixed positive and negative effects have been identified for SEA4. Shared use paths next to carriageways increase levels of safety from carriageway traffic. However, there are also potential negative effects upon SEA4 (community safety) due to the potential conflicts between cyclists and pedestrians. Despite low levels of pedestrian-cyclist collisions on shared paths, as detailed in the Department for Transport's Cycle Infrastructure Design Local Transport Note 1/20 [online] Available at: [Cycle Infrastructure Design Local Transport Note](#), users travelling at different speeds present opportunities for increased collisions.

B805 Roundabout to Sandy Loan

OPTIONS CONSIDERED	FEASIBILITY	FUNDABILITY	PUBLIC ACCEPTANCE
<input checked="" type="checkbox"/> Uni-directional carriageway level cycle lanes on one side with hard segregation	★ ★ ☆	★ ★ ☆	★ ☆ ☆
<input checked="" type="checkbox"/> Uni-directional carriageway level cycle lanes on both sides with hard segregation	★ ★ ☆	★ ★ ★	★ ☆ ☆
<input type="checkbox"/> Upgrade footways only to 1.5m on both sides	★ ★ ☆	★ ☆ ☆	★ ★ ★
<input type="checkbox"/> Uni-directional stepped cycle track on one side	★ ★ ☆	★ ★ ☆	★ ☆ ☆
<input type="checkbox"/> Uni-directional stepped cycle track on both sides	★ ★ ☆	★ ★ ★	★ ☆ ☆

PREFERRED OPTION: UNI-DIRECTIONAL CARRIAGEWAY LEVEL CYCLE LANES ON BOTH SIDES WITH HARD SEGREGATION



Assessment Overview – Preferred Option

Effect	SEA1: Population and Equalities	SEA2: Human Health	SEA3: Transport and Accessibility	SEA4: Community Safety	SEA5: Biodiversity and Natural Capital	SEA6: Landscape and Townscape	SEA7: Cultural Heritage	SEA8: Climate Resilience	SEA9: Greenhouse Gases (GHGs)	SEA10: Air Quality	SEA11: Water Environment	SEA12: Efficient use of Resources	SEA13: Protection of Land
Significance	+/-	++	++	+	0	0	+/-	?	+/-	+	?	?	0
Nature of Effect	D	D	D	D	N/A	N/A	D/I	N/A	D	D	N/A	N/A	N/A
Spatial Extent	L	L	L	L	N/A	N/A	L	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	N/A	N/A	I	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	N/A	N/A	P	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	N/A	N/A	ST/LT	N/A	ST/LT	LT	N/A	N/A	N/A



Assessment Summary of Preferred Option

Both positive and negative effects have been identified for SEA1 (population and equalities). Greater access to free active travel routes will provide greater accessibility to facilities and services for low-income groups and support healthy lifestyles. However, some elements of the route may disproportionately affect some groups. To allow faster cyclists to overtake, and to accommodate disabled cyclists (non-standard bikes), cycle tracks should ideally be 2m wide in each direction, or 3 to 4m for bidirectional tracks though there may have to be exceptions. Due to the multiple pinch points along the route, it is unlikely that the 2 metre width requirement will be met along the whole route. The 5% gradient may also present a challenge to disabled users as excessive camber can make it harder to steer. Additionally, the level difference on the northern side of the route may also present a challenge to disabled users.

The introduction of a new active travel route along the B805 will provide opportunities for residents to part take in physical activity for recreational and commuting purposes. Walking and cycling are important sources of everyday activity and are independently associated with a wide range of health benefits. The hard segregation between the existing road and the proposed route may also encourage those more residents to use the route, to ensure that cycling and walking are the default choices in modes of transport. Significant positive effects have therefore been identified for SEA2 (human health). Segregation between road users will also help to increase levels of safety and reduce levels of fear and intimidation along the route. Minor positive effects have therefore been identified for SEA4 (community safety). However, any narrowing of the cycle lane at the pinch point may result in increased interactions between pedestrians and cyclists, this should therefore be considered within the design.

The proposed route encourages a potential modal shift away from private car transportation and improves access to both Falkirk town centre and the Laurieston area of Falkirk. The modal shift offered by the scheme has resulted in significant positive effects for SEA3 (transport and accessibility). Potential reductions in use of motorised vehicles will also help to reduce levels of transport related emissions, resulting in minor positive effects being identified for SEA10 (air quality).

Both positive and negative effects have been identified for SEA7 (cultural heritage). The route intersects with the Antonine Wall World Heritage Site and scheduled monument, located to the north of the route; therefore, this has potential to negatively affect the setting of this heritage asset, particularly if these are insensitively designed and contain a large number of additional components such as signage and lighting. Additionally, construction vibrations may cause localised damage to the asset. Conversely, air pollution is often associated with the degradation of heritage assets, therefore reductions in air pollution could benefit the historic environment.

Although the route does support a modal shift, which will significantly help to reduce levels of greenhouse gas (GHGs) emissions from the transport network, due to the infrastructure required, there are likely to be high levels of embodied carbon associated with construction. Both positive and negative effects have therefore been identified for SEA9 (GHGs).

Uncertain effects have been identified for SEA8 (climate resilience), SEA11 (water environment) and SEA12 (sustainable resources) as these measures will be determined by design.

Mitigation and Enhancement Measures

- **SEA1:** The route should take into account the measures set out in the Transport Scotland Cycling by Design document [online] Available at: [Cycling By Design](#), to ensure that the route is accessible to all users.
- **SEA4:** The safety of the route users will need to be considered where the route crosses existing junctions. The route should make allowances for safe crossing such as toucan crossings. The design of existing bus stops will also need to be considered to ensure that all users can access the bus stop and no users are put at risk.
- **SEA5:** The route should identify opportunities to contribute to the Central Scotland Green Network (CSGN) and contribute to biodiversity net gain.
- **SEA7:** The route will need to be carefully designed in order to ensure that they don't detract from the unique setting of the World Heritage Site along the route.

Assessment of Alternative Options

Uni-directional carriageway level cycle lanes on one side with hard segregation

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	-	+/-	+/-	+/-	0	0	+/-	?	+/-	+	?	?	0
Nature of Effect	D	D	D	D	N/A	N/A	D/I	N/A	D	D	N/A	N/A	N/A
Spatial Extent	L	L	L	L	N/A	N/A	L	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	N/A	N/A	I	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	N/A	N/A	P	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	N/A	N/A	ST/LT	N/A	ST/LT	LT	N/A	N/A	N/A

Upgrade footways to only 1.5m on both sides

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+/-	++	++	-	0	0	+/-	?	+/-	+	?	?	0
Nature of Effect	D	D	D	D	N/A	N/A	D/I	N/A	D	D	N/A	N/A	N/A
Spatial Extent	L	L	L	L	N/A	N/A	L	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	N/A	N/A	I	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	N/A	N/A	P	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	N/A	N/A	ST/LT	N/A	ST/LT	LT	N/A	N/A	N/A

Uni-directional stepped cycle track on one side

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+/-	++	++	+	0	0	+/-	?	+/-	+	?	?	0
Nature of Effect	D	D	D	D	N/A	N/A	D/I	N/A	D	D	N/A	N/A	N/A
Spatial Extent	L	L	L	L	N/A	N/A	L	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	N/A	N/A	I	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	N/A	N/A	P	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	N/A	N/A	ST/LT	N/A	ST/LT	LT	N/A	N/A	N/A

Uni-directional stepped cycle track on both sides

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+/-	++	++	+	0	0	+/-	?	+/-	+	?	?	0
Nature of Effect	D	D	D	D	N/A	N/A	D/I	N/A	D	D	N/A	N/A	N/A



Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Spatial Extent	L	L	L	L	N/A	N/A	L	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	N/A	N/A	I	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	N/A	N/A	P	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	N/A	N/A	ST/LT	N/A	ST/LT	LT	N/A	N/A	N/A

Summary of Alternative Options

All alternative options have performed broadly similarly to the Preferred Option. However, SEA4 (community safety) has performed differently for both the upgrade footways to only 1.5m on both sides and uni-directional carriageway level cycle lanes on one side with hard segregation options. Minor negative effects have also been identified for the upgrade footways to only 1.5m on both sides option with relation to SEA4 (community safety). Upgrading the existing paths to 1.5m does not meet the 2m wide in each direction advisory width for cycle ways. A smaller cycle way such as this will not only present limitations for disabled users (as identified with the preferred option), but also increase the likelihood of collisions on the path between cyclists and pedestrian users, reducing safety on the route.

The uni-directional carriageway level cycle lanes on one side with hard segregation has performed the same as the Preferred Option. However, this option is likely to result in additional negative effects upon SEA1 (populations and equalities) as the route will only provide access in one direction. This may reduce access to other areas and discourage users from utilising the route fully. Mixed positive and negative effects upon SEA2 (human health) and SEA3 (transport and accessibility) have also been attributed due to this lack of accessibility and reduction in route utilisation.

Sandy Loan to Westquarter Avenue

OPTIONS CONSIDERED	FEASIBILITY	FUNDABILITY	PUBLIC ACCEPTANCE
<input checked="" type="checkbox"/> Remote from carriageway shared use path	★ ★ ★	★ ★ ★ ★	★ ★ ★ ☆
<input checked="" type="checkbox"/> Bi-directional carriageway level cycle lanes with hard segregation	★ ★ ★ ☆	★ ★ ★ ★	★ ★ ★ ☆
<input checked="" type="checkbox"/> Bi-directional stepped cycle track	★ ★ ★ ☆	★ ★ ★ ★	★ ☆ ☆ ☆
<input type="checkbox"/> Uni-directional carriageway level cycle lanes on one side with hard segregation	★ ★ ★ ☆	★ ★ ★ ☆	★ ★ ★ ☆
<input type="checkbox"/> Uni-directional stepped cycle track on one side	★ ★ ★ ☆	★ ★ ★ ☆	★ ☆ ☆ ☆

PREFERRED OPTION: REMOTE FROM CARRIAGEWAY SHARED USE PATH



Assessment Overview – Preferred Option

Effect	SEA1: Population and Equalities	SEA2: Human Health	SEA3: Transport and Accessibility	SEA4: Community Safety	SEA5: Biodiversity and Natural Capital	SEA6: Landscape and Townscape	SEA7: Cultural Heritage	SEA8: Climate Resilience	SEA9: Greenhouse Gases (GHGs)	SEA10: Air Quality	SEA11: Water Environment	SEA12: Efficient use of Resources	SEA13: Protection of Land
Significance	+	++	++	+/-	-	+/-	+/-	-	+/-	+	-	?	0
Nature of Effect	D	D	D	D	D	D	D/I	I	D	D	I	N/A	N/A
Spatial Extent	L	L	L	L	L	L	L	L	L	L	L	N/A	N/A
Reversibility	I	I	I	I	I	I	I	I	I	I	I	N/A	N/A
Permanence	P	P	P	P	P	P	P	P	P	P	T	N/A	N/A
Duration	LT	LT	LT	LT	LT	LT	ST/LT	LT	ST/LT	LT	ST	N/A	N/A

Assessment Summary of Preferred Option

Minor positive effects have been identified for SEA1 (population and equalities). Greater access to free active travel routes will provide greater accessibility to facilities and services for low-income groups and support healthy lifestyles. There is also one bus stop on the route that may provide wider connectivity. The level difference on the northern side of the route may present a challenge to disabled users, therefore this should be considered within the scheme design.

The introduction of a new active travel route will provide opportunities for residents and visitors to part take in physical activity for recreational and commuting purposes, as well as visiting the world heritage site. Walking and cycling are important sources of everyday activity and are independently associated with a wide range of health benefits. The remote from carriageway path may encourage those more residents to use the route due to protection from the carriageway, ensuring that cycling and walking are the default choices in modes of transport. Significant positive effects have therefore been identified for SEA2 (human health). However, locating this route off the carriageway could reduce levels of surveillance and even increase levels of fears of intimidation particularly after dark. Implementing designing out crime principles such as lighting may minimise this. Mixed positive and negative effects have therefore been identified for SEA4 (community safety) as the inclusion of these measures are largely determined at the design stage. Additionally, the shared nature of the path may result in increased conflicts between pedestrians and cyclists, this should therefore be considered within the design.

The proposed route encourages a potential modal shift away from private car transportation and improves access to the Laurieston area of Falkirk. The modal shift offered by the scheme has resulted in significant positive effects for SEA3 (transport and accessibility). Potential reductions in use of motorised vehicles will also help to reduce levels of transport related emissions, resulting in minor positive effects also being identified for SEA10 (air quality).

Minor negative effects have been identified for SEA5 (biodiversity and natural capital) as the scheme is bounded by multiple areas of national forest inventory, meaning that any development away from the existing carriageway may result in a loss of trees or disturbance to the biodiversity in the area during construction. There is also likely to be negative effects upon SEA5 as a result of likely land take from land to the west of the A803 for the proposed route. Mixed positive and negative effects have also been identified for SEA6 (landscape and townscape). The proposed scheme is located next to open space on both the north and south of the route, bounded by stone walls. The remote from carriageway path may involve land take of the existing open space, resulting in negative effects on landscape. However, high quality design may contribute to improving the public realm and accessibility to this area of open space. Both positive and negative effects have been identified for SEA7 (cultural heritage). The route is bounded by the Antonine Wall World Heritage Site and scheduled monument, located to the north of the route; therefore, this has potential to negatively affect the setting of this heritage asset, particularly if these are insensitively designed and contain a large number of additional components such as signage and lighting. The route is also approximately 20m south of the Antonine Wall Scheduled Monument. Therefore, construction vibrations may cause localised damage to the asset. Conversely, air pollution is often associated with the degradation of heritage assets, therefore reductions in air pollution could benefit the historic environment.

Although the route does support a modal shift, which will significantly help to reduce levels of greenhouse gas (GHGs) emissions from the transport network, due to the infrastructure required, there are likely to be high levels of embodied carbon associated with construction. Both positive and negative effects have therefore been identified for SEA9 (GHGs). It is notable that the route intersects with an areas of high likelihood of river flooding (10% chance of flooding per year). Any increase in hard standing is therefore likely to increase flooding likelihood in this area. Minor negative effects have therefore been identified for SEA8 (climate resilience). Additionally, minor negative effects have been identified for SEA11 (water environment) as there is potential for construction to reduce water quality through pollution.

Uncertain effects have been identified for SEA12 (sustainable resources) as these measures will be determined by design.

Mitigation and Enhancement Measures

- **SEA1:** The route should take into account the measures set out in the Transport Scotland Cycling by Design document [online] Available at: [Cycling By Design](#), to ensure that the route is accessible to all users.
- **SEA3:** The route could identify opportunities to link with bus services to encourage seamless integration of transport modes.
- **SEA4:** The safety of the route users will need to consider where the route joins the existing carriageway. The design should also ensure appropriate lighting and designing out crime principles are included to minimise crime and fear of crime along the route.

- **SEA5:** The route should minimise additional land take where possible and consider sensitive design for the surrounding biodiversity, minimising biodiversity loss and disturbance. If loss cannot be minimised, biodiversity net gain should be included within the design.
- **SEA6:** The route should be designed sensitively to consider the local open space, including high quality, sensitive design.
- **SEA7:** The route will need to be carefully designed in order to ensure that they don't detract from the unique setting of the Scheduled Monument and World Heritage Site along the route.
- **SEA8:** The route should consider flood risk within design and include suitable drainage measures to minimise flood risk in the area.

Assessment of Alternative Options

Bi-directional carriageway level cycle lanes with hard segregation

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+	++	++	++	?	?	+/-	-	+/-	+	-	?	0
Nature of Effect	D	D	D	D	N/A	N/A	D/I	I	D	D	I	N/A	N/A
Spatial Extent	L	L	L	L	N/A	N/A	L	L	L	L	L	N/A	N/A
Reversibility	I	I	I	I	N/A	N/A	I	I	I	I	I	N/A	N/A
Permanence	P	P	P	P	N/A	N/A	P	P	P	P	T	N/A	N/A
Duration	LT	LT	LT	LT	N/A	N/A	ST/LT	LT	ST/LT	LT	ST	N/A	N/A

Bi-directional stepped cycle track

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+	++	++	+	?	?	+/-	-	+/-	+	-	?	0
Nature of Effect	D	D	D	D	N/A	N/A	D/I	I	D	D	I	N/A	N/A
Spatial Extent	L	L	L	L	N/A	N/A	L	L	L	L	L	N/A	N/A
Reversibility	I	I	I	I	N/A	N/A	I	I	I	I	I	N/A	N/A
Permanence	P	P	P	P	N/A	N/A	P	P	P	P	T	N/A	N/A
Duration	LT	LT	LT	LT	N/A	N/A	ST/LT	LT	ST/LT	LT	ST	N/A	N/A

Uni-directional carriageway level cycle lanes on one side with hard segregation

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+/-	+	+/-	++	?	?	+/-	-	+/-	+	-	?	0
Nature of Effect	D	D	D	D	N/A	N/A	D/I	I	D	D	I	N/A	N/A
Spatial Extent	L	L	L	L	N/A	N/A	L	L	L	L	L	N/A	N/A
Reversibility	I	I	I	I	N/A	N/A	I	I	I	I	I	N/A	N/A
Permanence	P	P	P	P	N/A	N/A	P	P	P	P	T	N/A	N/A



Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Duration	LT	LT	LT	LT	N/A	N/A	ST/LT	LT	ST/LT	LT	ST	N/A	N/A

Uni-directional stepped cycle track on one side

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+/-	+	+/-	+	?	?	+/-	-	+/-	+	-	?	0
Nature of Effect	D	D	D	D	N/A	N/A	D/I	I	D	D	I	N/A	N/A
Spatial Extent	L	L	L	L	N/A	N/A	L	L	L	L	L	N/A	N/A
Reversibility	I	I	I	I	N/A	N/A	I	I	I	I	I	N/A	N/A
Permanence	P	P	P	P	N/A	N/A	P	P	P	P	T	N/A	N/A
Duration	LT	LT	LT	LT	N/A	N/A	ST/LT	LT	ST/LT	LT	ST	N/A	N/A

Summary of Alternative Options

All alternative options have performed broadly similarly to the Preferred Option. However, SEA4 (community safety) has performed differently for both the uni-directional stepped cycle track on one side and the uni-directional stepped cycle track on both sides. Both alternatives have resulted in minor positive effects on safety as this option does not offer the same level of subjective safety as a cycleway with hard segregation between it and the carriageway.

Both the uni-directional carriageway level cycle lanes on one side options have performed worse than the Preferred Option across SEA1 to SEA4. Due to the nature of these options with uni-directional access on one side, the route will only provide access in one direction. This may reduce access to other areas and discourage users from utilising the route fully. This is likely to result in mixed positive and negative effects upon SEA1 (population and equalities) and SEA3 (transport and accessibility) as whilst there is likely increased accessibility and usability of the route, this will be limited to one direction. Minor positive effects have been identified for SEA2 (human health) as the route will still likely encourage physical activity rates, but to a lesser extent than if the route were to give access in both directions.

Both alternative options with hard segregation have resulted in significant positive effects on SEA4 (community safety). The introduction of these routes is likely to reduce fear and intimidation along the route. In addition, the development of hard segregation will contribute to protecting users from the existing carriageway traffic.

All alternative options have resulted in uncertain effects upon SEA5 (biodiversity and natural capital) and SEA6 (landscape and townscape). Effects upon these objectives will be determined by the level of land take required for the proposed routes, or the removal of the existing stone walls. This is unlikely to be determined before the design phase.

A803 – Westquarter Avenue to Salmon Inn Road

OPTIONS CONSIDERED	FEASIBILITY	FUNDABILITY	PUBLIC ACCEPTANCE
<input checked="" type="checkbox"/> Bi-directional carriageway level cycle lanes with hard segregation	★★★★	★★★★	★★★☆☆
<input checked="" type="checkbox"/> Bi-directional stepped cycle track	★★★★	★★★★	★★☆☆*
<input type="checkbox"/> Uni-directional carriageway level cycle lanes on one side with hard segregation	★★★★	★★★☆☆	★★☆☆*
<input type="checkbox"/> Uni-directional stepped cycle track on one side	★★★★	★★★☆☆	★★☆☆*

PREFERRED OPTION: BI-DIRECTIONAL CARRIAGEWAY LEVEL CYCLE LANES WITH HARD SEGREGATION



Assessment Overview – Preferred Option

Effect	SEA1: Population and Equalities	SEA2: Human Health	SEA3: Transport and Accessibility	SEA4: Community Safety	SEA5: Biodiversity and Natural Capital	SEA6: Landscape and Townscape	SEA7: Cultural Heritage	SEA8: Climate Resilience	SEA9: Greenhouse Gases (GHGs)	SEA10: Air Quality	SEA11: Water Environment	SEA12: Efficient use of Resources	SEA13: Protection of Land
Significance	+	++	++	+	+/-	?	+/-	?	+/-	+	?	?	0
Nature of Effect	D	D	D	D	D	N/A	D/I	N/A	D	D	N/A	N/A	N/A
Spatial Extent	L	L	L	L	L	N/A	L	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	I	N/A	I	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	P	N/A	P	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	LT	N/A	ST/LT	N/A	ST/LT	LT	N/A	N/A	N/A

Assessment Summary of Preferred Option

The development of the route is likely to result in significant positive effects upon SEA3 (transport and accessibility) as the route contributes to improving connectivity across Falkirk, and access to the Laurieston and Polmont areas of Falkirk. The development of the routes also contributes to encouraging a modal shift away from private vehicle use and towards sustainable transport modes.

Additionally, there are three bus stops located along the route, providing wider connectivity into Falkirk town centre and Polmont village centre. A reduction in private vehicle use and increased uptake of active travel also contributes to minor positive effects identified for SEA10 (air quality) due to reduction of vehicular emissions in the area.

The introduction of a new active travel route will provide opportunities for residents and visitors to part take in physical activity for recreational and commuting purposes, as well as visiting the world heritage site. Encouraging a modal shift away from private car use also contributes to improving physical activity rates amongst residents, through an increase in journeys made by walking or cycling. A reduction in local emissions will also contribute to indirectly improving physical health in local residents, particularly those suffering with health conditions, such as asthma, that are exacerbated by poor air quality. Additionally, the location of the route provides access to open space, promoting mental wellbeing. Significant positive effects have therefore been identified for SEA2 (human health).

Minor positive effects have been identified for SEA1 (population and equalities). The proposed route provides greater access to free active travel, providing greater accessibility to facilities and services for low-income groups and support healthy lifestyles. To allow faster cyclists to overtake, and to accommodate disabled cyclists (non-standard bikes), cycle tracks should ideally be 2m wide in each direction, or 3 to 4m for bi-directional tracks though there may have to be exceptions. The narrowest point of this route is likely to be 2m wide, this may reduce accessibility for disabled users.

Segregation between road users, as proposed with the hard segregation, will also help to increase levels of safety and reduce levels of fear and intimidation along the route. However, the route intersects with junctions at both the western end of the scheme at Westquarter Avenue and the eastern end of the scheme at Salmon Inn Road. This will need to be considered as part of design in order to ensure safety to all users. Minor positive effects have therefore been identified for SEA4 (community safety).

The scheme is bordered by an area of national forest inventory, located on the western end of the scheme. The construction of the route may therefore increase disturbance in this area as a result of construction vibration and increased dust. Additionally, sensitive design should be implemented to ensure no land take or removal of trees is required. It is however, assumed that, once operational, the route will reduce traffic along the A803, reducing habitat disturbance in this area. Mixed positive and negative effects have therefore been identified for SEA5 (biodiversity and natural capital).

Both positive and negative effects have been identified for SEA7 (cultural heritage). The route is bounded by the Antonine Wall World Heritage Site and scheduled monument, located to the north of the route; therefore, this has potential to negatively affect the setting of this heritage asset, particularly if these are insensitively designed. Additionally, construction related vibrations may damage the asset. This is particularly notable as the wall in this area is buried, therefore any digging may damage this asset. Conversely, air pollution is often associated with the degradation of heritage assets, therefore reductions in air pollution could benefit the historic environment.

Although the route supports a modal shift, which will significantly help to reduce levels of GHGs from the transport network, due to the infrastructure required, there are likely to be high levels of embodied carbon associated with construction. Both positive and negative effects have therefore been identified for SEA9 (GHGs), with contributing positive effects identified for SEA8 (climate resilience) due to the supporting of modal shift and reducing transport emissions.)

Uncertain effects have been identified for SEA8 (climate resilience), SEA11 (water environment) and SEA12 (sustainable resources) as these measures will be determined by design.

Mitigation and Enhancement Measures

- **SEA1:** The route should take into account the measures set out in the Transport Scotland Cycling by Design document [online] Available at: [Cycling By Design](#), to ensure that the route is accessible to all users.
- **SEA3:** The route could identify opportunities to link with bus services to encourage seamless integration of transport modes.
- **SEA4:** The design of existing bus stops will also need to be considered to ensure that all users can access the bus stop and no users are put at risk. The design should also ensure appropriate lighting and designing out crime principles are included to minimise crime and fear of crime along the route.
- **SEA5:** The route should minimise additional land take where possible and consider sensitive design for the surrounding biodiversity, minimising biodiversity loss and disturbance. If loss cannot be minimised, biodiversity net gain should be included within the design.

- **SEA6:** The route should be designed sensitively to consider the local open space, including high quality, sensitive design.
- **SEA7:** The route will need to be carefully designed in order to ensure that they don't detract from the unique setting or damage the world heritage site along the route.

Assessment of Alternative Options

Bi-directional stepped cycle track

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+	++	++	+	+/-	?	+/-	?	+/-	+	?	?	0
Nature of Effect	D	D	D	D	D	N/A	D/I	N/A	D	D	N/A	N/A	N/A
Spatial Extent	L	L	L	L	L	N/A	L	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	I	N/A	I	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	P	N/A	P	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	LT	N/A	ST/LT	N/A	ST/LT	LT	N/A	N/A	N/A

Uni-directional carriageway level cycle lanes on one side with hard segregation

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+/-	+	+/-	++	+/-	?	+/-	?	+/-	+	?	?	0
Nature of Effect	D	D	D	D	D	N/A	D/I	N/A	D	D	N/A	N/A	N/A
Spatial Extent	L	L	L	L	L	N/A	L	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	I	N/A	I	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	P	N/A	P	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	LT	N/A	ST/LT	N/A	ST/LT	LT	N/A	N/A	N/A

Uni-directional stepped cycle track on one side

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+/-	+	+/-	+	+/-	?	+/-	?	+/-	+	?	?	0
Nature of Effect	D	D	D	D	D	N/A	D/I	N/A	D	D	N/A	N/A	N/A
Spatial Extent	L	L	L	L	L	N/A	L	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	I	N/A	I	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	P	N/A	P	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	LT	N/A	ST/LT	N/A	ST/LT	LT	N/A	N/A	N/A



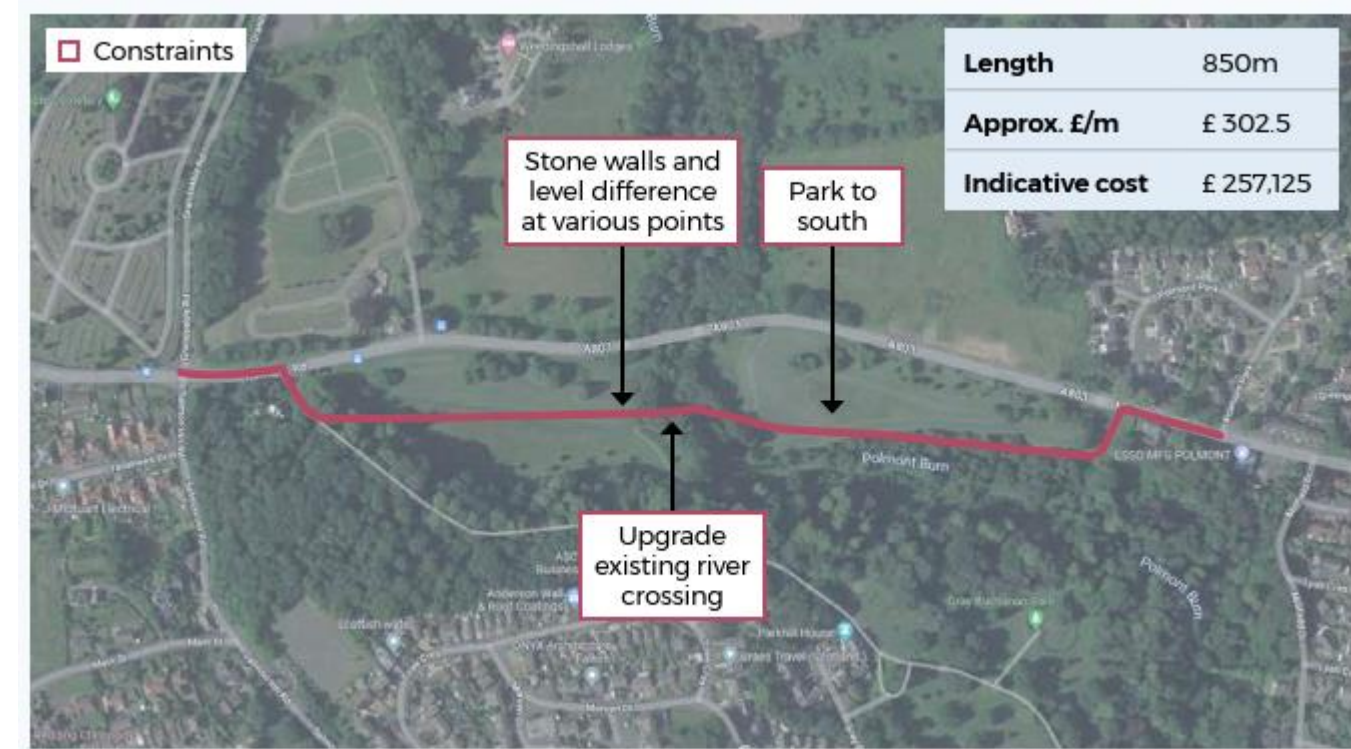
Summary of Alternative Options

Both the uni-directional carriageway level cycle lanes on one side options have performed worse than the Preferred Option across SEA1, SEA2, SEA3 and SEA4. Due to the nature of these options with uni-directional access on one side, the route will only provide access in one direction. This may reduce access to the wider region and discourage users from utilising the route fully. This is likely to result in mixed positive and negative effects upon SEA1 (population and equalities) and SEA3 (transport and accessibility). Minor positive effects have been identified for SEA2 (human health) as the route will still likely encourage physical activity rates, but to a lesser extent than if the route were to give access in both directions.

A803 – Salmon Inn Road to Polmont Park

OPTIONS CONSIDERED	FEASIBILITY	FUNDABILITY	PUBLIC ACCEPTANCE
<input checked="" type="checkbox"/> Remote from carriageway shared use path	★★★★	★★★★	★★★☆☆
<input checked="" type="checkbox"/> Bi-directional carriageway level cycle lanes with hard segregation	★★★☆☆	★★★★	★★★☆☆
<input type="checkbox"/> Bi-directional stepped cycle track	★★★☆☆	★★★★	★★☆☆☆
<input type="checkbox"/> Uni-directional carriageway level cycle lanes on one side with hard segregation	★★★☆☆	★★★☆☆	★★☆☆☆
<input type="checkbox"/> Uni-directional stepped cycle track on one side	★★★☆☆	★★★☆☆	★★☆☆☆

PREFERRED OPTION: REMOTE FROM CARRIAGEWAY SHARED USE PATH



Assessment Overview – Preferred Option

Effect	SEA1: Population and Equalities	SEA2: Human Health	SEA3: Transport and Accessibility	SEA4: Community Safety	SEA5: Biodiversity and Natural Capital	SEA6: Landscape and Townscape	SEA7: Cultural Heritage	SEA8: Climate Resilience	SEA9: Greenhouse Gases (GHGs)	SEA10: Air Quality	SEA11: Water Environment	SEA12: Efficient use of Resources	SEA13: Protection of Land
Significance	?	++	+/-	+/-	-	+/-	+/-	-	+	+	-	?	-
Nature of Effect	N/A	D	D	D	D	D	D/I	I	D/I	D	D/I	N/A	D
Spatial Extent	N/A	L	L	L	L	L	L	L	L	L	L	N/A	L
Reversibility	N/A	I	I	I	I	I	I	I	I	I	I	N/A	I
Permanence	N/A	P	P	P	P	P	P	P	P	P	T	N/A	P
Duration	N/A	LT	LT	LT	ST/LT	ST/LT	ST/LT	LT	LT	LT	ST	N/A	LT

Assessment Summary of Preferred Option

This Preferred Option would benefit SEA2 (human health), and SEA3 (transport and accessibility) as the route will encourage residents to connect with the outdoors and offer space for cycling and walking, which would improve the health and wellbeing of locals. There are also opportunities for the route to integrate well with the existing travel network, due to the bus stops at both ends of the route. However, it would mean that there would be no through road at this park and road users would need to find another route to get to the other side.

Mixed positive and negative effects are identified for SEA6 (landscape and townscape), with minor negative effects for SEA5 (biodiversity and natural capital) This option may negatively affect the ancient woodland area, may cause complications during construction and may lead to damage to the ancient woodland. As there will be more pedestrian access to this area, littering may be an issue and this will affect the environment. Noise during construction may also disrupt habitats and species within the surrounding area.

However, this route means it is easier to access Antonine Wall World Heritage Site and will make residents appreciate the nature that is in this area. Additionally, there is likely to be land take in this area within Gray Buchanan Park, resulting in loss of biodiversity and natural capital. The route currently benefits from large green verges which can provide small scale habitats for wildflowers, pollinating insects, reptiles, amphibians and small mammals and can also provide essential green corridors for which these species disperse. Green verges can also make contributions to the landscape and townscape setting, particularly in predominantly urban environments. It is not currently clear on whether all or some of these verges will be lost for development. Design will need to be sensitive to these environments, to protect both existing habitats and landscapes. Positive effects may be sought from sensitive design, incorporation of green infrastructure and increases in tranquillity from reduce traffic. There may also be potential for positive placemaking.

The western and eastern ends of the route intersect with the World Heritage Site of the Antonine Wall. The introduction of a new active travel route will provide opportunities for residents and visitors to part take in physical activity for recreational and commuting purposes, as well as visiting the world heritage site. However, the development of the route and construction related vibration may negatively impact the setting of site during the construction period. Mixed positive and negative effects are therefore attributed to SEA7 (cultural heritage).

Mixed positive and negative effects have been identified for SEA4 (community safety) as a remote cycleway away from the carriageway will help to increase levels of safety and reduce levels of fear and intimidation along the route. However, there are also potential negative effects upon SEA4 (community safety) due to potential conflicts between cyclists and pedestrians. Despite low levels of pedestrian-cyclist collisions on shared paths, as detailed in the Department for Transport's Cycle Infrastructure Design Local Transport Note 1/20 [online] Available at: [Cycle Infrastructure Design Local Transport Note](#), users travelling at different speeds, such as cyclists and pedestrians, present opportunities for increased collisions as well as fear and intimidation. In addition to this, the route joins with multiple junctions at both the northern and southern ends of the alignment. Additionally, locating this route off the carriageway could reduce levels of surveillance and even increase levels of fears of intimidation particularly after dark. Implementing designing out crime principles such as lighting may minimise this.

The development of the route is likely to encourage a modal shift away from private vehicles, therefore reducing transport related emissions in the area, contributing to minor positive effects on SEA10 (air quality).

Minor negative effects have been identified for SEA13 (protection of land) as the route travels through Gray Buchanan Park. The location of the route is not part of the existing road network and is therefore likely to result in loss of parkland in the area. Minor negative effects have also been identified for SEA11 (water environment). The route intersects with Polmont Burn and is therefore requires upgrades to the river crossing to accommodate the new route. Construction work on the crossing and surrounding area has the potential to increase contamination in the watercourse. Additionally, small areas of the scheme are located within an area of high likelihood of river flooding (each year this area has a 10% chance of flooding). Minor negative effects have therefore been identified for SEA8 (climate resilience). Therefore, drainage should be considered to minimise flood risk where possible.

Uncertain effects have been identified for SEA12 (efficient use of resources), as these measures will largely be determined by the scheme design. It is also currently uncertain if sustainable materials will be utilised and measures of minimising waste.

It is recommended that the minimum widths of shared use routes carrying up to 300 pedestrians per hour should be at least 3m. The proposed path width is 4m, however, a minimum width of 2.5m is stated, which may not be wide enough to support all types of bikes, wheelchairs and trikes. The pinch point of the route at the underpass may also result in narrower cycle tracks. Effects on SEA1 (population and equality) will be better determined at scheme level design.

Mitigation and Enhancement Measures

- **SEA4:** As this route goes through a park, it might be worth installing brighter lights so pedestrians can feel safer in this area.

- **SEA5:** Construction management plan would be beneficial as this could limit negative effects on the Ancient woodland.
- **SEA6:** Will need to make residents aware that this route would no longer allow access for cars and offer alternative, quick routes for people to follow.
- **SEA7:** Construction management plan would be beneficial as this could limit negative effects on the world heritage site, Antonine Wall.
- **SEA11:** Design should consider incorporating drainage measures, specifically SuDS, to minimise flood risk along the route.

Assessment of Alternative Options

Bi-directional carriageway level cycle lanes with hard segregation

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+	++	+	++	-	+/-	+/-	-	+	+	-	?	-
Nature of Effect	D/I	D	D	D	D	D	D/I	I	D/I	D	D/I	N/A	D
Spatial Extent	L	L	L	L	L	L	L	L	L	L	L	N/A	L
Reversibility	I	I	I	I	I	I	I	I	I	I	I	N/A	I
Permanence	P	P	P	P	P	P	P	P	P	P	T	N/A	P
Duration	LT	LT	LT	LT	ST/LT	ST/LT	ST/LT	LT	LT	LT	ST	N/A	LT

Bi-directional stepped cycle track

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+	++	+	+	-	+/-	+/-	-	+	+	-	?	-
Nature of Effect	D/I	D	D	D	D	D	D/I	I	D/I	D	D/I	N/A	D
Spatial Extent	L	L	L	L	L	L	L	L	L	L	L	N/A	L
Reversibility	I	I	I	I	I	I	I	I	I	I	I	N/A	I
Permanence	P	P	P	P	P	P	P	P	P	P	T	N/A	P
Duration	LT	LT	LT	LT	ST/LT	ST/LT	ST/LT	LT	LT	LT	ST	N/A	LT

Uni-directional carriageway level cycle lanes on one side with hard segregation

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+	++	+	++	-	+/-	+/-	-	+	+	-	?	-
Nature of Effect	D/I	D	D	D	D	D	D/I	I	D/I	D	D/I	N/A	D
Spatial Extent	L	L	L	L	L	L	L	L	L	L	L	N/A	L
Reversibility	I	I	I	I	I	I	I	I	I	I	I	N/A	I
Permanence	P	P	P	P	P	P	P	P	P	P	T	N/A	P
Duration	LT	LT	LT	LT	ST/LT	ST/LT	ST/LT	LT	LT	LT	ST	N/A	LT



Uni-directional stepped cycle track on one side

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+	++	+	+	-	+/-	+/-	-	+	+	-	?	-
Nature of effect	D/I	D	D	D	D	D	D/I	I	D/I	D	D/I	N/A	D
Spatial Extent	L	L	L	L	L	L	L	L	L	L	L	N/A	L
Reversibility	I	I	I	I	I	I	I	I	I	I	I	N/A	I
Permanence	P	P	P	P	P	P	P	P	P	P	T	N/A	P
Duration	LT	LT	LT	LT	ST/LT	ST/LT	ST/LT	LT	LT	LT	ST	N/A	LT

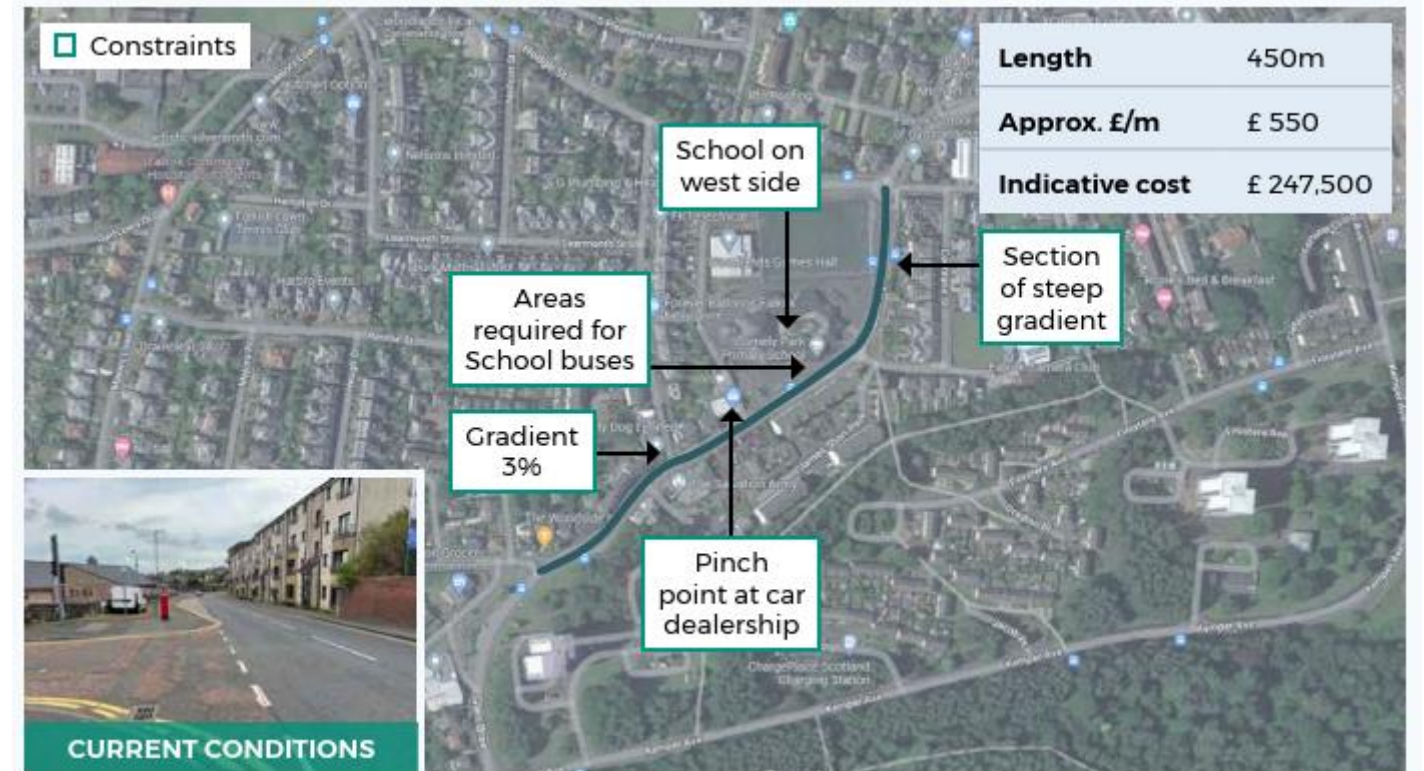
Summary of Alternative Options

The alternative options may be better in terms of integration of the scheme into the existing travel network than the Preferred Option, but they would have similar effects on the Ancient Woodland and the World Heritage Site. Construction would be complicated on this section of road so all options would require a construction management plan to limit negative effects on these important sites. However, they sites would encourage more active travel which would benefit health and well being as well as an individuals' connection to nature.

Cow Wynd – Conchrane Avenue to Gartcows Road

OPTIONS CONSIDERED	FEASIBILITY	FUNDABILITY	PUBLIC ACCEPTANCE
<input checked="" type="checkbox"/> Uni-directional carriageway level cycle lanes on one side with hard segregation	★ ★ ☆	★ ★ ☆	★ ★ ☆
<input checked="" type="checkbox"/> Uni-directional carriageway level cycle lanes on both sides with hard segregation	★ ★ ☆	★ ★ ★	★ ★ ☆
<input type="checkbox"/> Bi-directional carriageway level cycle lanes with hard segregation	★ ★ ☆	★ ★ ★	★ ★ ☆
<input type="checkbox"/> Uni-directional stepped cycle track on one side	★ ★ ☆	★ ★ ☆	★ ★ ☆
<input type="checkbox"/> Uni-directional stepped cycle track on both sides	★ ★ ☆	★ ★ ★	★ ★ ☆

PREFERRED OPTION: UNI-DIRECTIONAL CARRIAGEWAY LEVEL CYCLE LANES ON BOTH SIDES WITH HARD SEGREGATION



Assessment Overview – Preferred Option

Effect	SEA1: Population and Equalities	SEA2: Human Health	SEA3: Transport and Accessibility	SEA4: Community Safety	SEA5: Biodiversity and Natural Capital	SEA6: Landscape and Townscape	SEA7: Cultural Heritage	SEA8: Climate Resilience	SEA9: Greenhouse Gases (GHGs)	SEA10: Air Quality	SEA11: Water Environment	SEA12: Efficient use of Resources	SEA13: Protection of Land
Significance	+/-	++	+/-	?	0	+	0	?	+/-	+/-	?	?	0
Nature of Effect	D	D	D	N/A	N/A	D	N/A	N/A	D	D/I	N/A	N/A	N/A
Spatial Extent	L	L	L	N/A	N/A	L	N/A	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	N/A	N/A	I	N/A	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	N/A	N/A	P	N/A	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	N/A	N/A	LT	N/A	N/A	ST/LT	ST/LT	N/A	N/A	N/A

Assessment Summary of Preferred Option

The Preferred Option will be inclusive for those who live in the area as it offers different travel options for locals. It is especially beneficial for those who do not drive as they can walk or cycle instead. This scheme will also benefit mental and physical health as it will encourage residents to walk or cycle instead which will promote fitness. As it is along a school route (Comley Park Primary School), it could also school children to engage in fitness activities as part of their daily commute. The cycle track is wide enough to make allowances for all types bikes (e.g. trikes, handcycles and companion as it is proposed 2.5m in width, however, 1.5m width is also stated as the minimum which wouldn't be sufficient in accommodating all users. The steep gradient near the school could also present a challenge to disabled users as excessive camber can make it harder to steer. This option has resulted in significant positive effects for SEA2 (human health) and both positive and negative effects on SEA1 (population and equalities).

The route proposes the use of hard segregation which will provide a barrier between the motorised vehicles and cyclists, and will create a safer environment for road users as there is clear separation between the road and the paths. Although this scheme will be integrated with the already existing travel network, it may also cause complications at the pinch point at the car dealership as well as the access area for school busses during construction. However, this scheme will reduce congestion so may be beneficial long term in these areas. There are a number of bus stops and laybys along the route which will need to be taken into consideration, to ensure the safety of bus users, pedestrians and cyclists. Uncertain effects have therefore been identified for SEA4 (community safety) as it is not clear what design measures will come forward, and both positive and negative effects have been identified for SEA3 (transport and accessibility).

This route will promote wider access to the surrounding environment and provides opportunity to improve the local townscape through high quality design. The scheme will also improve road conditions, through reducing traffic, benefitting the quality of the townscape and landscape.

The Preferred Option will reduce the level of emissions in this area as walking and cycling will be easier and safer to do. During construction, air and noise quality could be negatively affected by construction vehicles and plant emissions. Uncertain effects have been identified for SEA8 (climate resilience), SEA11 (water environment) and SEA12 (efficient use of resources), as these measures will largely be determined by the scheme design. It is also currently uncertain if sustainable materials will be utilised and measures of minimising waste.

Mitigation and Enhancement Measures

- **SEA1:** The route should take into account the measures set out in the Transport Scotland Cycling by Design document [online] Available at: [Cycling By Design](#), to ensure that the route is accessible to all users.
- **SEA3:** The route could identify opportunities to link with bus services to encourage seamless integration of transport modes.
- **SEA 3:** Provide advanced notice of construction to the school and businesses nearby and continue communication with them to mitigate congestion issues.
- **SEA4:** The safety of the route users will need to be considered where the route crosses existing junctions. The route should make allowances for safe crossing such as toucan crossings. The design of existing bus stops will also need to be considered to ensure that all users can access the bus stop and no users are put at risk.
- **SEA 9 and SEA 10:** Create a construction management plan to prepare and limit the effects that construction will have on the area.
- **SEA6:** The route should be designed sensitively to consider the local townscape, including high quality, sensitive design.

Assessment of Alternative Options

Uni-directional carriageway level cycle lanes on one side with hard segregation

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+/-	+	+/-	+	0	+	0	?	+/-	+/-	?	?	0
Nature of Effect	D	D	D	D	N/A	D	N/A	N/A	D	D/I	N/A	N/A	N/A
Spatial Extent	L	L	L	L	N/A	L	N/A	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	N/A	I	N/A	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	N/A	P	N/A	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	N/A	LT	N/A	N/A	ST/LT	ST/LT	N/A	N/A	N/A

Bi-directional carriageway level cycle lanes with hard segregation

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+/-	++	+/-	+	0	+	0	?	+/-	+/-	?	?	0
Nature of Effect	D	D	D	D	N/A	D	N/A	N/A	D	D/I	N/A	N/A	N/A
Spatial Extent	L	L	L	L	N/A	L	N/A	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	N/A	I	N/A	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	N/A	P	N/A	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	N/A	LT	N/A	N/A	ST/LT	ST/LT	N/A	N/A	N/A

Uni-directional stepped cycle track on one side

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+/-	+	+/-	+/-	0	+	0	?	+/-	+/-	?	?	0
Nature of Effect	D	D	D	D	N/A	D	N/A	N/A	D	D/I	N/A	N/A	N/A
Spatial Extent	L	L	L	L	N/A	L	N/A	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	N/A	I	N/A	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	N/A	P	N/A	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	N/A	LT	N/A	N/A	ST/LT	ST/LT	N/A	N/A	N/A



Uni-directional stepped cycle track on both sides

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+/-	++	+/-	+/-	0	+	0	?	+/-	+/-	?	?	0
Nature of Effect	D	D	D	D	N/A	D	N/A	N/A	D	D/I	N/A	N/A	N/A
Spatial Extent	L	L	L	L	N/A	L	N/A	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	N/A	I	N/A	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	N/A	P	N/A	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	N/A	LT	N/A	N/A	ST/LT	ST/LT	N/A	N/A	N/A

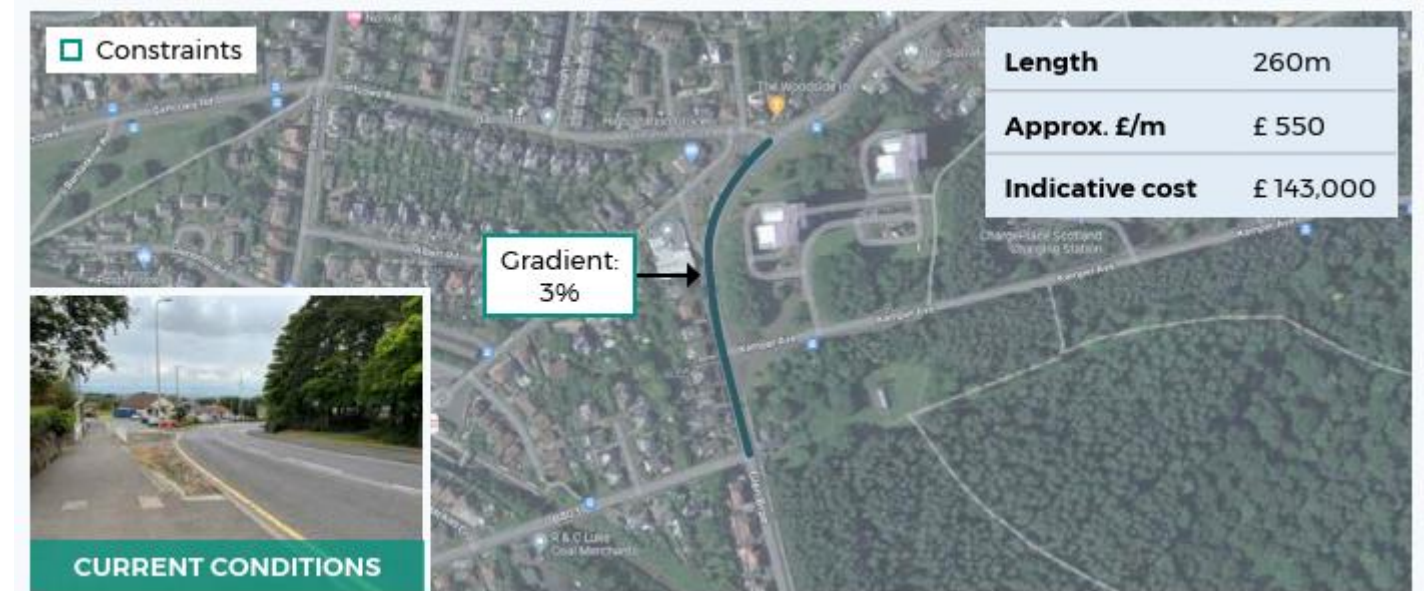
Summary of Alternative Options

Alternative options have performed broadly similarly to the Preferred Option. The alternative options will overall improve air quality and health and fitness in the area but most will not feel as safe as the Preferred Option due to lack of segregation between the road and the cycle track for walkers or cyclists. These alternative options however will be as equally beneficial to the environment and to the community. It is also likely that construction effects will be similar with the preferred and alternative options, particularly with regard to construction noise and congestion. Due to the nature of the uni-directional stepped cycle track on one side and uni-directional carriageway level cycle lanes on one side with hard segregation options with uni-directional access on one side, the route will only provide access in one direction. This may reduce access to the wider region and discourage users from utilising the route fully. This is likely to result in mixed positive and negative effects upon SEA3 (transport and accessibility) and minor positive effects on SEA2 (human health) as users are less likely to use the route if access is only provided in one direction.

Glen Brae – Gartcows Road to Slamannan Road

OPTIONS CONSIDERED	FEASIBILITY	FUNDABILITY	PUBLIC ACCEPTANCE
<input type="checkbox"/> Uni-directional carriageway level cycle lanes on one side with hard segregation	★ ★ ★	★ ★ ☆	★ ★ ☆
<input checked="" type="checkbox"/> Uni-directional carriageway level cycle lanes on both sides with hard segregation	★ ★ ★	★ ★ ★	★ ★ ☆
<input type="checkbox"/> Bi-directional carriageway level cycle lanes with hard segregation	★ ★ ★	★ ★ ★	★ ★ ☆
<input type="checkbox"/> Uni-directional stepped cycle track on one side	★ ★ ★	★ ★ ☆	★ ★ ☆
<input type="checkbox"/> Uni-directional stepped cycle track on both sides	★ ★ ☆	★ ★ ★	★ ★ ☆
<input type="checkbox"/> Bi-directional stepped cycle track	★ ★ ★	★ ★ ★	★ ★ ☆
<input type="checkbox"/> Remote from carriageway shared use path	★ ★ ☆	★ ★ ☆	★ ★ ☆

PREFERRED OPTION: UNI-DIRECTIONAL CARRIAGEWAY LEVEL CYCLE LANES ON BOTH SIDES WITH HARD SEGREGATION



Assessment Overview – Preferred Option

Effect	SEA1: Population and Equalities	SEA2: Human Health	SEA3: Transport and Accessibility	SEA4: Community Safety	SEA5: Biodiversity and Natural Capital	SEA6: Landscape and Townscape	SEA7: Cultural Heritage	SEA8: Climate Resilience	SEA9: Greenhouse Gases (GHGs)	SEA10: Air Quality	SEA11: Water Environment	SEA12: Efficient use of Resources	SEA13: Protection of land
Significance	+/-	++	++	+	+/-	+	0	?	+/-	+/-	?	?	0
Nature of Effect	D	D	D	D	D	D	N/A	N/A	D	D/I	N/A	N/A	N/A
Spatial Extent	L	L	L	L	L	L	N/A	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	I	I	N/A	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	P	P	N/A	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	LT	LT	N/A	N/A	ST/LT	ST/LT	N/A	N/A	N/A

Assessment Summary of Preferred Option

In this Preferred Option, it would be inclusive to the community as it offers option for multiple forms of travel. It allows vehicle drivers to still have equal access to the road as well as having a space for those who do not drive and who would prefer to cycle / walk instead. The steep gradient of 3% along the route could present a challenge to disabled users, as excessive camber can make it harder to steer. This results in mixed positive and negative effects on SEA1 (population and equalities). The hard segregation will allow this option to be safer for road users as it has clear separation between the carriageway and pedestrian and cycle track. As there are residential properties, this will be beneficial and safer for the locals. However, the number of residential properties may cause potential conflicts between cyclists and those accessing their properties. This may also result in a number of dropped kerbs, causing an uneven surface for cycle way users. Minor positive effects have therefore been identified for SEA4 (community safety).

This option will encourage more people to walk and cycle which positively impacts mental health as well as physical health. As a result, significant positive effects have been identified for SEA2 (human health). The preferred option will increase connectivity to Comely Park Primary School and will make the route safer for children to commute to school. It will also integrate well with the existing travel network in the area, providing improved access to Falkirk High Train Station. This could provide opportunities for integration of transport modes, allowing visitors and residents to travel further, more sustainably. This will also help those lower income groups access cheaper forms of transport. The potential modal shift offered by the scheme has resulted in significant positive effects for SEA3 (transport and accessibility).

Part of the route is located near Ancient Woodland so careful consideration will need to be taken to minimise potential degradation of this woodland during construction. The option will improve Falkirk's landscape and will maintain and benefit the local character as it will create a positive and more sustainable route of travel. This route will promote wider access to the surrounding environment and provides opportunity to improve the local townscape through high quality design. Mixed positive and negative effects are therefore identified for SEA5 (biodiversity and natural capital), with minor positive effects for SEA6 (landscape and townscape).

In terms of SEA9 (greenhouse gases), this scheme will limit the amount of greenhouse gasses in the area as fewer people will use vehicles. Mixed positive and negative effects have been identified for SEA10 (air quality). During construction, the air quality will be affected as a result of construction vehicles and machinery. However, during operation, air quality in the area is likely to improve as a result of a modal shift away from private vehicle use. Temporary noise pollution may also be an issue during this time.

Uncertain effects have been identified for SEA8 (climate resilience), SEA11 (water environment) and SEA12 (efficient use of resources), as these measures will largely be determined by the scheme design. It is also currently uncertain if sustainable materials will be utilised and measures of minimising waste.

Mitigation and Enhancement Measures

- **SEA1:** The route should take into account the measures set out in the Transport Scotland Cycling by Design document [online] Available at: [Cycling By Design](#), to ensure that the route is accessible to all users.
- **SEA3:** The route could identify opportunities to link with bus and train services to encourage seamless integration of transport modes
- **SEA4:** The safety of the route users will need to be considered where the route crosses existing junctions. The route should make allowances for safe crossing such as toucan crossings. The design of existing bus stops will also need to be considered to ensure that all users can access the bus stop and no users are put at risk.
- **SEA 5:** Limit the risk of damage on the Ancient Woodland by coming up with mitigation measures and well as considering alternative options or replanting.
- **SEA6:** The route should be designed sensitively to consider the local townscape, including high quality, sensitive design.
- **SEA 9 and 10:** Create a construction management plan to ensure the option has the correct mitigation measures in place. Try to limit the number of vehicles that are used in construction.

Assessment of Alternative Options

Uni-directional carriageway level cycle lanes on one side with hard segregation

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Nature of Effect	D	D	D			D			D	D/I			
Reversibility	I	I	I			I			I	I			
Duration	LT	LT	LT			LT			ST/LT	ST/LT			

Bi-directional carriageway level cycle lanes with hard segregation

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+/-	++	++	+	+/-	+	0	?	+/-	+/-	?	?	0
Nature of Effect	D	D	D	D	D	D	N/A	N/A	D	D/I	N/A	N/A	N/A
Spatial Extent	L	L	L	L	L	L	N/A	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	I	I	N/A	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	P	P	N/A	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	LT	LT	N/A	N/A	ST/LT	ST/LT	N/A	N/A	N/A

Uni-directional stepped cycle track on one side

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+/-	++	++	+/-	+/-	+	0	?	+/-	+/-	?	?	0
Nature of Effect	D	D	D	D	D	D	N/A	N/A	D	D/I	N/A	N/A	N/A
Spatial Extent	L	L	L	L	L	L	N/A	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	I	I	N/A	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	P	P	N/A	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	LT	LT	N/A	N/A	ST/LT	ST/LT	N/A	N/A	N/A



Uni-directional stepped cycle track on both sides

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+/-	++	++	+/-	+/-	+	0	?	+/-	+/-	?	?	0
Nature of Effect	D	D	D	D	D	D	N/A	N/A	D	D/I	N/A	N/A	N/A
Spatial Extent	L	L	L	L	L	L	N/A	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	I	I	N/A	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	P	P	N/A	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	LT	LT	N/A	N/A	ST/LT	ST/LT	N/A	N/A	N/A

Bi-directional stepped cycle track

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+/-	++	++	+/-	+/-	+	0	?	+/-	+/-	?	?	0
Nature of Effect	D	D	D	D	D	D	N/A	N/A	D	D/I	N/A	N/A	N/A
Spatial Extent	L	L	L	L	L	L	N/A	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	I	I	N/A	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	P	P	N/A	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	LT	LT	N/A	N/A	ST/LT	ST/LT	N/A	N/A	N/A

Remote from carriageway shared use path

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+/-	++	++	+/-	?	?	0	?	+/-	+/-	?	?	?
Nature of Effect	D	D	D	D	N/A	N/A	N/A	N/A	D	D/I	N/A	N/A	N/A
Spatial Extent	L	L	L	L	N/A	N/A	N/A	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	N/A	N/A	N/A	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	N/A	N/A	N/A	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	N/A	N/A	N/A	N/A	ST/LT	ST/LT	N/A	N/A	N/A

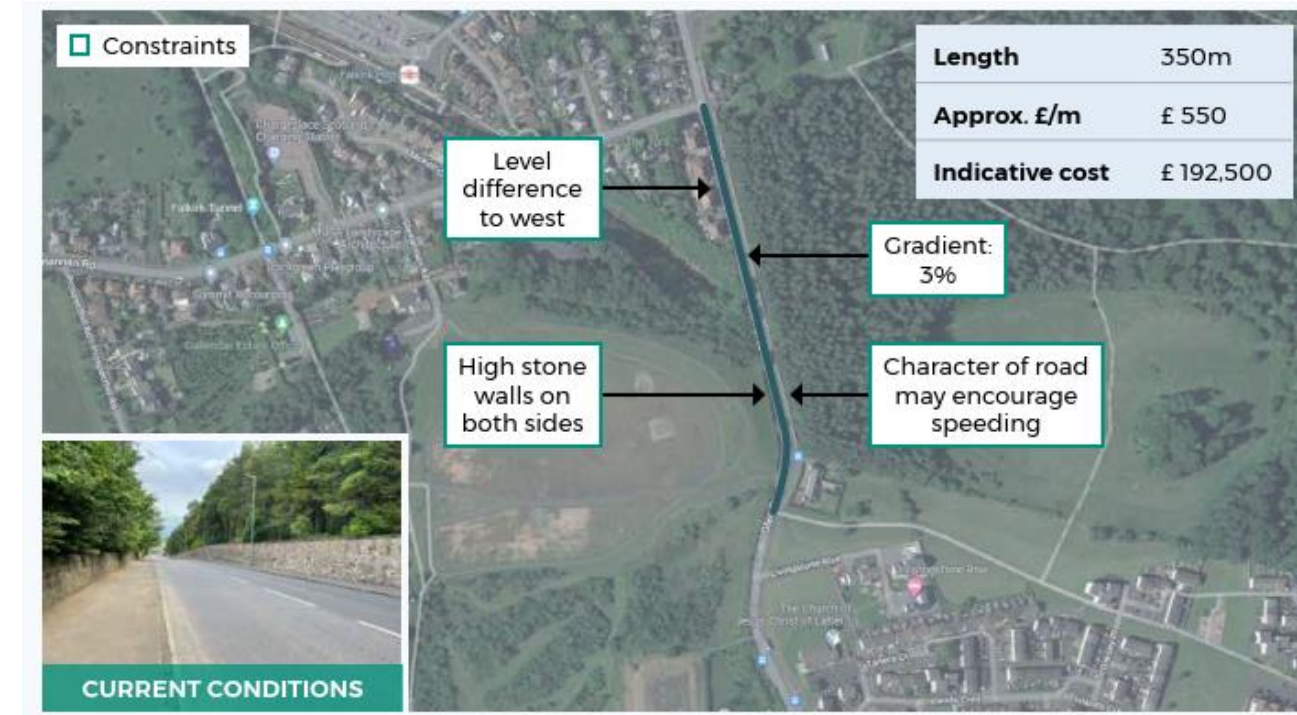
Summary of Alternative Options

The alternative options would give similar effects to the Preferred Option, however, as there is no hard segregation, these alternative options could mean that users feel more unsafe due to no physical separation between the carriageway and the cycle / footpath. These alternative options would also be beneficial for the environment as they would encourage more residents to cycle and therefore reduce emissions. During construction, there would be an increase in noise and air pollution due to construction vehicles. Additional uncertain effects have also been identified for the remote from carriageway shared use path alternative as it is unclear where this path may be located.

Glen Brae to Pedestrian Access to Orkney Place

OPTIONS CONSIDERED	FEASIBILITY	FUNDABILITY	PUBLIC ACCEPTANCE
<input checked="" type="checkbox"/> Uni-directional carriageway level cycle lanes on both sides with hard segregation	★★★★	★★★★	★★★★
<input type="checkbox"/> Bi-directional carriageway level cycle lanes with hard segregation	★★★★	★★★★	★★★★
<input type="checkbox"/> Uni-directional stepped cycle track on both sides	★★★★	★★★★	★★★★
<input type="checkbox"/> Bi-directional stepped cycle track	★★★★	★★★★	★★★★
<input type="checkbox"/> Shared use path next to carriageway	★★★★	★★☆☆	★★★★

PREFERRED OPTION: UNI-DIRECTIONAL CARRIAGEWAY LEVEL CYCLE LANES ON BOTH SIDES WITH HARD SEGREGATION



Assessment Overview – Preferred Option

Effect	SEA1: Population and Equalities	SEA2: Human Health	SEA3: Transport and Accessibility	SEA4: Community Safety	SEA5: Biodiversity and Natural Capital	SEA6: Landscape and Townscape	SEA7: Cultural Heritage	SEA8: Climate Resilience	SEA9: Greenhouse Gases (GHGs)	SEA10: Air Quality	SEA11: Water Environment	SEA12: Efficient use of Resources	SEA13: Protection of Land
Significance	+/-	++	++	+	-	+	0	?	+/-	+/-	?	?	0
Nature of Effect	D	D	D	D	D	D	N/A	N/A	D	D/I	N/A	N/A	N/A
Spatial Extent	L	L	L	L	L	L	N/A	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	I	I	N/A	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	P	P	N/A	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	LT	LT	N/A	N/A	ST/LT	ST/LT	N/A	N/A	N/A



Assessment Summary of Preferred Option

In this Preferred Option, it would be inclusive to the community as it offers option for multiple forms of travel. It allows vehicle drivers to still have equal access to the road as well as having a space for those who do not drive and who would prefer to cycle / walk instead. The steep gradient of 3% along the route could present a challenge to disabled users, as excessive camber can make it harder to steer. This results in mixed positive and negative effects on SEA1 (population and equalities). This option will encourage more people to walk and cycle which positively impacts mental health as well as physical health. As a result, significant positive effects have been identified for SEA2 (human health).

This option will also improve connectivity for cycle users and make seamless travel easier to maintain and it will be integrated with the existing road well so will not negatively impact road users. The scheme also encourages a modal shift offered by the scheme has resulted in significant positive effects for SEA3 (transport and accessibility). For SEA4 (community safety), this scheme will improve safety as it involves hard segregation. This means that there is a clear separation between the pedestrian pathway, cycle track and the main carriageway. However, the gradient of the cycleway and road in this area and the character of the road may encourage speeding, reducing safety for users. Minor positive effects are therefore identified for SEA4 (community safety).

The road is located adjacent to an area of Ancient Woodland and this could have negative effects on this area of woodland. Construction may potentially damage this area through potential for land take and habitat loss. Additionally, this area includes priority habitat so construction close to this area of habitat may result in increased noise and air quality disturbance for species in the area. Minor negative effects are therefore identified for SEA5 (biodiversity and natural capital).

This will also encourage residents to use this option more as they will feel comfortable. The option improves access to Callender Park, as well as promoting wider access to the surrounding environment. There are also opportunities to improve the local landscape setting through high quality design. Minor positive effects are therefore identified for SEA6 (landscape and townscape).

In terms of SEA9 (greenhouse gases), this scheme will limit the amount of greenhouse gasses in the area as fewer people will use vehicles. However, there are likely to be higher levels of emissions during construction, negatively impacting greenhouse gases and air quality. Mixed positive and negative effects have been identified for SEA10 (air quality) as a result of construction emissions. However, during operation, air quality in the area is likely to improve as a result of a modal shift away from private vehicle use.. Temporary noise pollution may also be an issue during construction.

Uncertain effects have been identified for SEA8 (climate resilience), SEA11 (water environment) and SEA12 (efficient use of resources), as these measures will largely be determined by the scheme design. It is also currently uncertain if sustainable materials will be utilised and measures of minimising waste.

Mitigation and Enhancement Measures

- **SEA1:** The route should take into account the measures set out in the Transport Scotland Cycling by Design document [online] Available at: [Cycling By Design](#), to ensure that the route is accessible to all users.
- **SEA3:** The route could identify opportunities to link with bus services to encourage seamless integration of transport modes.
- **SEA 5:** Limit the risk of damage on the Ancient Woodland by coming up with mitigation measures and well as considering alternative options or replanting.
- **SEA 9 and 10:** Create a construction management plan to ensure the option has the correct mitigation measures in place. Try to limit the number of vehicles that are used in construction.

Assessment of Alternative Options

Bi-directional carriageway level cycle lanes with hard segregation

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+/-	++	++	+	-	+	0	?	+/-	+/-	?	?	0
Nature of Effect	D	D	D	D	D	D	N/A	N/A	D	D/I	N/A	N/A	N/A
Spatial Extent	L	L	L	L	L	L	N/A	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	I	I	N/A	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	P	P	N/A	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	LT	LT	N/A	N/A	ST/LT	ST/LT	N/A	N/A	N/A

Uni-directional stepped cycle track on both sides

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+/-	++	++	+/-	-	+	0	?	+/-	+/-	?	?	0
Nature of Effect	D	D	D	D	D	D	N/A	N/A	D	D/I	N/A	N/A	N/A
Spatial Extent	L	L	L	L	L	L	N/A	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	I	I	N/A	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	P	P	N/A	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	LT	LT	N/A	N/A	ST/LT	ST/LT	N/A	N/A	N/A

Bi-directional stepped cycle track

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+/-	++	++	+/-	-	+	0	?	+/-	+/-	?	?	0
Nature of Effect	D	D	D	D	D	D	N/A	N/A	D	D/I	N/A	N/A	N/A
Spatial Extent	L	L	L	L	L	L	N/A	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	I	I	N/A	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	P	P	N/A	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	LT	LT	N/A	N/A	ST/LT	ST/LT	N/A	N/A	N/A



Shared use path next to carriageway

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+/-	++	++	-	-	+	0	?	+/-	+/-	?	?	?
Nature of Effect	D	D	D	D	D	D	N/A	N/A	D	D/I	N/A	N/A	N/A
Spatial Extent	L	L	L	L	L	L	N/A	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	I	I	N/A	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	P	P	N/A	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	LT	LT	N/A	N/A	ST/LT	ST/LT	N/A	N/A	N/A

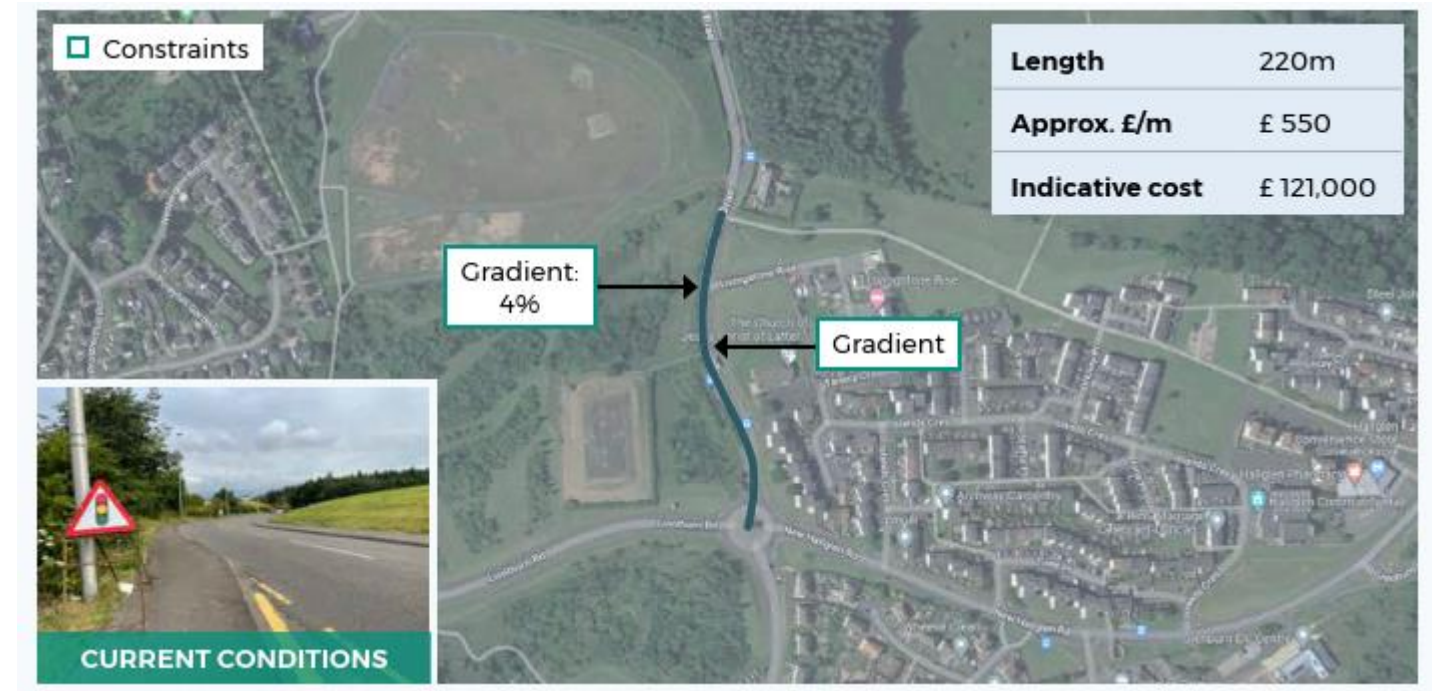
Summary of Alternative Options

These alternative options are very similar to the Preferred Option. The bi-directional carriageway is the same as the Preferred Option as it has a hard segregation design between the cycle lanes and the carriageway, making this option safe. However, the other alternative options are not as safe and may make users feel uncomfortable as there is no segregation method for these options. The shared use path will make cyclists and pedestrians particularly uncomfortable as they would be sharing space. All options would have positives effects for climate change and lowering emissions' levels but these would be temporarily affected negatively during construction. Additional uncertain effects have also been identified for the shared use path next to carriageway alternative as it is unclear where this path may be located and therefore any land take required.

Glen Brae Pedestrian Access to Orkney Place to Falkirk Road Roundabout

OPTIONS CONSIDERED	FEASIBILITY	FUNDABILITY	PUBLIC ACCEPTANCE
<input checked="" type="checkbox"/> Uni-directional carriageway level cycle lanes on both sides with hard segregation	★★★★	★★★★	★★★★
<input type="checkbox"/> Bi-directional carriageway level cycle lanes with hard segregation	★★★★	★★★★	★★★★
<input type="checkbox"/> Uni-directional stepped cycle track on both sides	★★★★	★★★★	★★★★
<input type="checkbox"/> Bi-directional stepped cycle track	★★★★	★★★★	★★★★
<input type="checkbox"/> Shared use path next to carriageway	★★★★	★★★★	★★★★
<input type="checkbox"/> Remote from carriageway shared use path	★★★☆☆	★★★★	★★★★

PREFERRED OPTION: UNI-DIRECTIONAL CARRIAGEWAY LEVEL CYCLE LANES ON BOTH SIDES WITH HARD SEGREGATION



Assessment Overview – Preferred Option

Effect	SEA1: Population and Equalities	SEA2: Human Health	SEA3: Transport and Accessibility	SEA4: Community Safety	SEA5: Biodiversity and Natural Capital	SEA6: Landscape and Townscape	SEA7: Cultural Heritage	SEA8: Climate Resilience	SEA9: Greenhouse Gases (GHGs)	SEA10: Air Quality	SEA11: Water Environment	SEA12: Efficient use of Resources	SEA13: Protection of Land
Significance	+/-	++	++	+	0	+	0	?	+/-	+/-	?	?	0
Nature of Effect	D	D	D	D	N/A	D	N/A	N/A	D	D/I	N/A	N/A	N/A
Spatial Extent	L	L	L	L	N/A	L	N/A	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	N/A	I	N/A	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	N/A	P	N/A	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	N/A	LT	N/A	N/A	ST/LT	ST/LT	N/A	N/A	N/A



Assessment Summary of Preferred Option

The preferred option would be inclusive to the community as it offers options for multiple forms of travel. It allows vehicle drivers to still have equal access to the road as well as offering cycle and walking options for those who do not use cars. However, the steep gradient of 4% along the route could present a challenge to disabled users, as excessive camber can make it harder to steer. This results in mixed positive and negative effects on SEA1 (population and equalities). In regards to SEA2 (human health), this option will encourage more people to walk and cycle which is highly beneficial for health and well-being. As it features on both sides of the road, this will allow more route options for cyclists and walkers. This option will encourage more people to walk and cycle which positively impacts mental health as well as physical health. As a result, significant positive effects have been identified for SEA2 (human health).

This option will also increase and improve connectivity to bus services through the bus stops along the route, allowing seamless travel. This will also improve access to Falkirk and the wider area. The scheme also encourages a modal shift away from private car use, however it will also be integrated with the existing road so will not affect the original road for road users. Significant positive effects are therefore identified for SEA3 (transport and accessibility).

For SEA 4, this scheme will improve safety as it involves hard segregation. This means that there is a clear separation between the pedestrian pathway, cycle track and the main carriageway. This will also encourage residents to use this option more as they will feel comfortable. However, the route does intersect with a roundabout at its southern end, which will need to be considered as part of design in order to ensure safety to all users particularly given that roundabouts pose a significant safety risk to cyclists. Minor positive effects are therefore identified for SEA4 (community safety). The option will also improve access to Falkirk's landscape and will maintain and benefit the local character as it will create a positive and more sustainable route of travel. There are also opportunities to improve the local landscape setting through high quality design. Minor positive effects are therefore identified for SEA6 (landscape and townscape).

In terms of SEA9 (greenhouse gases), this scheme will limit the amount of greenhouse gasses in the area as fewer people will use vehicles. However, during construction, the air quality may be affected due to construction vehicles and machinery. Noise pollution may also be an issue during this time, but it will be temporary. Mixed positive and negative effects have been identified for SEA10 (air quality) as air quality will improve as more people will make use of the cycle lane and footway, however during construction air quality will be negatively affected due to construction vehicles being used as mentioned previously.

Uncertain effects have been identified for SEA11 (water environment) and SEA12 (efficient use of resources), as these measures will largely be determined by the scheme design. It is also currently uncertain if sustainable materials will be utilised and measures of minimising waste.

Mitigation and Enhancement Measures

- **SEA1:** The route should take into account the measures set out in the Transport Scotland Cycling by Design document [online] Available at: [Cycling By Design](#), to ensure that the route is accessible to all users.
- **SEA3:** The route could identify opportunities to link with bus services to encourage seamless integration of transport modes.
- **SEA4:** Clear signage, use of tactile paving and segregation should be considered to reduce conflicts between users. Use of rumble strips and speedbumps may also help to reduce speeds of cyclists, making the route safer for all users.
- **SEA 9 and 10:** Create a construction management plan to ensure the option has the correct mitigation measures in place. Try to limit the number of vehicles that are used in construction.

Assessment of Alternative Options

Bi-directional carriageway level cycle lanes with hard segregation

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+/-	++	++	+	0	+	0	?	+/-	+/-	?	?	0
Nature of Effect	D	D	D	D	N/A	D	N/A	N/A	D	D/I	N/A	N/A	N/A
Spatial Extent	L	L	L	L	N/A	L	N/A	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	N/A	I	N/A	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	N/A	P	N/A	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	N/A	LT	N/A	N/A	ST/LT	ST/LT	N/A	N/A	N/A

Uni-directional stepped cycle track on both sides

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+/-	++	++	+/-	0	+	0	?	+/-	+/-	?	?	0
Nature of Effect	D	D	D	D	N/A	D	N/A	N/A	D	D/I	N/A	N/A	N/A
Spatial Extent	L	L	L	L	N/A	L	N/A	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	N/A	I	N/A	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	N/A	P	N/A	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	N/A	LT	N/A	N/A	ST/LT	ST/LT	N/A	N/A	N/A

Bi-directional stepped cycle track

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+/-	++	++	+/-	0	+	0	?	+/-	+/-	?	?	0
Nature of Effect	D	D	D	D	N/A	D	N/A	N/A	D	D/I	N/A	N/A	N/A
Spatial Extent	L	L	L	L	N/A	L	N/A	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	N/A	I	N/A	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	N/A	P	N/A	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	N/A	LT	N/A	N/A	ST/LT	ST/LT	N/A	N/A	N/A



Shared use path next to carriageway

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+/-	++	++	-	0	+	0	?	+/-	+/-	?	?	?
Nature of Effect	D	D	D	D	N/A	D	N/A	N/A	D	D/I	N/A	N/A	N/A
Spatial Extent	L	L	L	L	N/A	L	N/A	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	N/A	I	N/A	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	N/A	P	N/A	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	N/A	LT	N/A	N/A	ST/LT	ST/LT	N/A	N/A	N/A

Remote from carriageway shared use path

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+/-	++	++	+/-	?	?	0	?	+/-	+/-	?	?	?
Nature of Effect	D	D	D	D	N/A	N/A	N/A	N/A	D	D/I	N/A	N/A	N/A
Spatial Extent	L	L	L	L	N/A	N/A	N/A	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	N/A	N/A	N/A	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	N/A	N/A	N/A	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	N/A	N/A	N/A	N/A	ST/LT	ST/LT	N/A	N/A	N/A

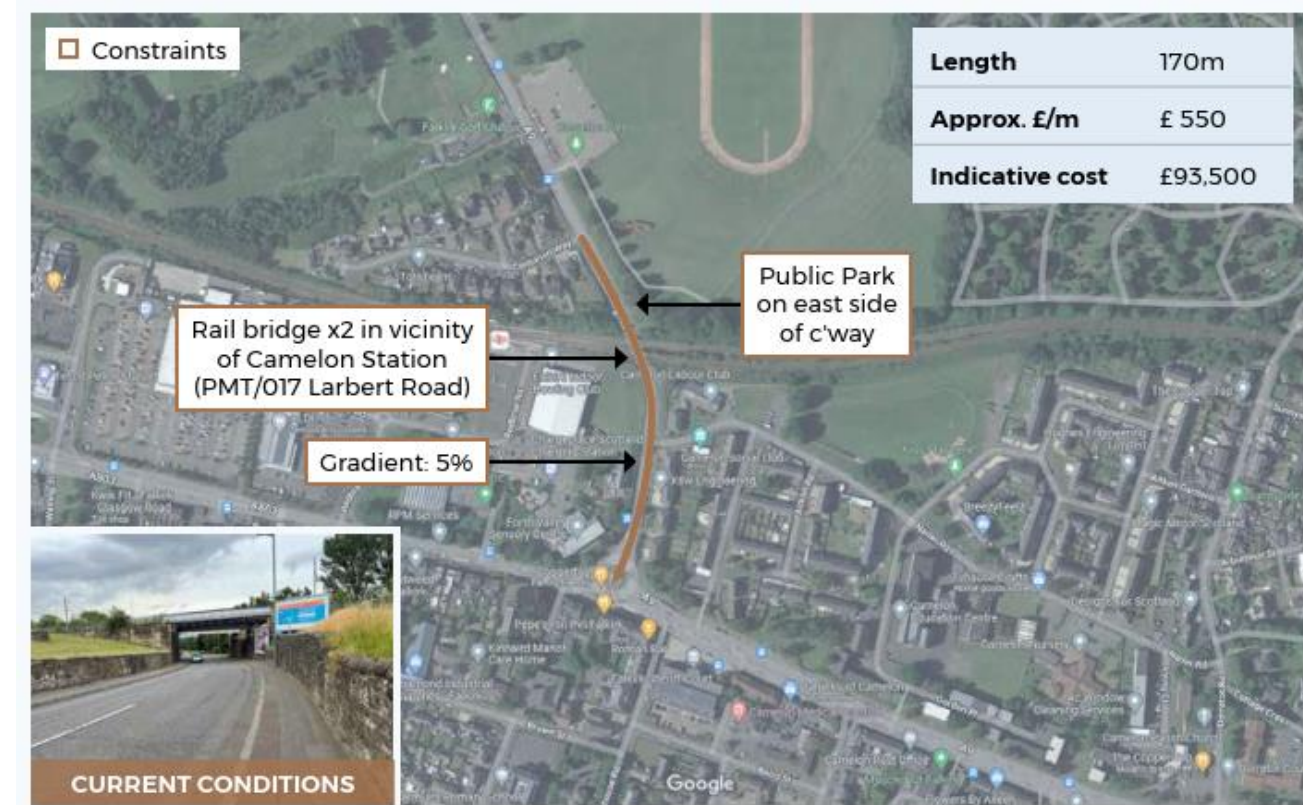
Summary of Alternative Options

Overall, the alternative options are similar in regards to their effects on each SEA objective when compared to the preferred option . The only variation would be SEA 4 as road users may feel less safe due to no hard segregation, especially on a shared use path where walkers and cyclists would be sharing a travel space. However, each option would also support the move to a more climate resilient society and would help in the reduction of emissions. Construction for each option would result in a short term negative effect on air and noise pollution but in the long term, levels of emissions would be reduced. Additional uncertain effects have also been identified for the remote from carriageway shared use path option as the location of this route, and any land take required, is currently uncertain.

Stirling Road – A9 Roundabout to Camelon Train Station

OPTIONS CONSIDERED	FEASIBILITY	FUNDABILITY	PUBLIC ACCEPTANCE
<input type="checkbox"/> Uni-directional carriageway level cycle lanes on both sides with light segregation	★★★★	★★★★	★★★☆☆
<input type="checkbox"/> Bi-directional carriageway level cycle lanes with light segregation	★★★★	★★★★	★★☆☆☆
<input checked="" type="checkbox"/> Bi-directional carriageway level cycle lanes with hard segregation	★★★★	★★★☆☆	★★☆☆☆
<input checked="" type="checkbox"/> Uni-directional stepped cycle track on both sides	★★★★	★★★☆☆	★★☆☆☆

PREFERRED OPTION: BI-DIRECTIONAL CARRIAGEWAY LEVEL CYCLE LANES WITH HARD SEGREGATION



Assessment Overview – Preferred Option

Effect	SEA1: Population and Equalities	SEA2: Human Health	SEA3: Transport and Accessibility	SEA4: Community Safety	SEA5: Biodiversity and Natural Capital	SEA6: Landscape and Townscape	SEA7: Cultural Heritage	SEA8: Climate Resilience	SEA9: Greenhouse Gases (GHGs)	SEA10: Air Quality	SEA11: Water Environment	SEA12: Efficient use of Resources	SEA13: Protection of Land
Significance	+	++	++	+	0	+	0	?	+/-	+/-	?	?	0
Nature of Effect	D	D	D	D	N/A	D	N/A	N/A	D	D/I	N/A	N/A	N/A
Spatial Extent	L	L	L	L	N/A	L	N/A	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	N/A	I	N/A	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	N/A	P	N/A	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	N/A	LT	N/A	N/A	ST/LT	ST/LT	N/A	N/A	N/A



Assessment Summary of Preferred Option

Minor positive effects have been identified for SEA1 (population and equalities). Greater access to free active travel routes will provide greater accessibility to facilities and services for low-income groups and support healthy lifestyles. However, some elements of the route may disproportionately affect some groups. To allow faster cyclists to overtake, and to accommodate disabled cyclists (non-standard bikes), cycle tracks should ideally be 2m wide in each direction, or 3 to 4m for bidirectional tracks though there may have to be exceptions. The 5% gradient may also present a challenge to disabled users as excessive camber can make it harder to steer. In regards to SEA2 (human health), this option will encourage more people to walk and cycle which is highly beneficial for health and well-being. Additionally, the scheme will provide improved access to the public park on the east of the route, improving health and wellbeing through improved green space access. Significant positive effects are therefore identified for SEA2 (human health).

The hard segregation between the footway, cycle path and carriageway will be beneficial for safety as it gives each form of travel its own space, therefore creating a safer environment. In regards to SEA4 (community safety), this option will improve safety as it offers a hard segregation. However, road users will need to be made aware of this scheme as it is connected to a busy roundabout and main road. The intersection with a roundabout at its southern end will need to be considered as part of design in order to ensure safety to all users, particularly given that roundabouts pose a significant safety risk to cyclists. Minor positive effects are therefore identified for SEA4 (community safety).

This scheme will integrate well with already existing form of transportation, such as bus services and Camelon Station, as well as existing road traffic. This will also improve access to Falkirk and the wider area. The scheme also encourages a modal shift away from private car use, however it will also be integrated with the existing road so will not affect the original road for road users. Significant positive effects are therefore identified for SEA3 (transport and accessibility). For SEA6 (landscape and townscape), the scheme will provide more character for the area as well as improving the condition of the townscape through opportunities to improve the local landscape setting through high quality design and reduction in traffic numbers. Minor positive effects are therefore identified for SEA6 (landscape and townscape).

The Preferred Option will encourage a reduction in the use of motor vehicles. The Preferred Option will reduce levels of emissions released from vehicles as it will create a safer route for cyclists to use and promote more walking. However, construction may temporarily increase the level of dust and emissions in this area. Mixed positive and negative effects have been identified for SEA9 (greenhouse gases) and SEA10 (air quality).

Uncertain effects have been identified for SEA8 (climate resilience), SEA11 (water environment) and SEA12 (efficient use of resources), as these measures will largely be determined by the scheme design. It is also currently uncertain if sustainable materials will be utilised and measures of minimising waste.

Mitigation and Enhancement Measures

- **SEA1:** The route should take into account the measures set out in the Transport Scotland Cycling by Design document [online] Available at: [Cycling By Design](#), to ensure that the route is accessible to all users.
- **SEA3:** The route could identify opportunities to link with bus services to encourage seamless integration of transport modes.
- **SEA 4:** Give advanced notice of the scheme to road users to bring awareness, could prepare people for potential congestion.
- **SEA4:** The safety of the route users will need to be considered where the route crosses existing junctions. The route should make allowances for safe crossing such as toucan crossings. The design of existing bus stops will also need to be considered to ensure that all users can access the bus stop and no users are put at risk.
- **SEA 9 and 10:** Create a construction management plan to ensure the option has the correct mitigation measures in place. Try to limit the number of vehicles that are used in construction.

Assessment of Alternative Options

Uni-directional carriage level cycle lanes on both sides with light segregation

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+	++	++	+/-	0	+	0	?	+/-	+/-	?	?	0
Nature of Effect	D	D	D	D	N/A	D	N/A	N/A	D	D/I	N/A	N/A	N/A
Spatial Extent	L	L	L	L	N/A	L	N/A	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	N/A	I	N/A	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	N/A	P	N/A	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	N/A	LT	N/A	N/A	ST/LT	ST/LT	N/A	N/A	N/A

Bi-directional carriageway level cycle lanes with light segregation

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+	++	++	+/-	0	+	0	?	+/-	+/-	?	?	0
Nature of Effect	D	D	D	D	N/A	D	N/A	N/A	D	D/I	N/A	N/A	N/A
Spatial Extent	L	L	L	L	N/A	L	N/A	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	N/A	I	N/A	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	N/A	P	N/A	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	N/A	LT	N/A	N/A	ST/LT	ST/LT	N/A	N/A	N/A

Uni-directional stepped cycle track on both sides

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+	++	++	+/-	0	+	0	?	+/-	+/-	?	?	0
Nature of Effect	D	D	D	D	N/A	D	N/A	N/A	D	D/I	N/A	N/A	N/A
Spatial Extent	L	L	L	L	N/A	L	N/A	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	N/A	I	N/A	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	N/A	P	N/A	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	N/A	LT	N/A	N/A	ST/LT	ST/LT	N/A	N/A	N/A



Summary of Alternative Options

All the alternative options perform similarly as they all offer cycle tracks and segregation methods, aside from the uni-directional stepped cycle track on both side, which may cause some more safety issues or concerns from road users. The alternative options have light segregation instead of hard segregation so this may cause more safety concerns from these options than from the Preferred Option. All options will promote the use of bikes and will encourage more people to walk or cycle instead of drive, which will lead to lower air emissions in this area. Construction noise and air quality during construction will be a temporary problem but like the Preferred Option, there will be an improvement in the long term.

Stirling Road – Camelon Train Station to Larbert Bus Depot

OPTIONS CONSIDERED	FEASIBILITY	FUNDABILITY	PUBLIC ACCEPTANCE
<input type="checkbox"/> Uni-directional carriageway level cycle lanes on both sides with light segregation	★★★★	★★★★	★★★☆☆
<input type="checkbox"/> Bi-directional carriageway level cycle lanes with light segregation	★★★★	★★★★	★★★☆☆
<input type="checkbox"/> Bi-directional carriageway level cycle lanes with hard segregation	★★★★	★★★★	★★★☆☆
<input type="checkbox"/> Uni-directional stepped cycle track on both sides	★★★★	★★★★	★★★☆☆
<input checked="" type="checkbox"/> Shared use path next to carriageway	★★★★	★★★★	★★★☆☆
<input checked="" type="checkbox"/> Remote from carriageway shared use path	★★★★	★★★★	★★★☆☆

PREFERRED OPTION: REMOTE FROM CARRIAGEWAY SHARED USE PATH



Assessment Overview – Preferred Option

Effect	SEA1: Population and Equalities	SEA2: Human Health	SEA3: Transport and Accessibility	SEA4: Community Safety	SEA5: Biodiversity and Natural Capital	SEA6: Landscape and Townscape	SEA7: Cultural Heritage	SEA8: Climate Resilience	SEA9: Greenhouse Gases (GHGs)	SEA10: Air Quality	SEA11: Water Environment	SEA12: Efficient use of Resources	SEA13: Protection of Land
Significance	?	++	++	+/-	+/-	+/-	0	-	+/-	+	-	?	-
Nature of Effect	N/A	D	D	D	D	D	N/A	I	D	D	I	N/A	D
Spatial Extent	N/A	L	L	L	L	L	N/A	L	L	L	L	N/A	L
Reversibility	N/A	I	I	I	I	I	N/A	I	I	I	I	N/A	I
Permanence	N/A	P	P	P	P	P	N/A	P	P	P	P	N/A	P
Duration	N/A	LT	LT	LT	LT	LT	N/A	LT	ST/LT	LT	LT	N/A	LT



Assessment Summary of Preferred Option

The development of this option encourages walking, wheeling, and cycling and provides potential for a modal shift away from private transportation. The proposed route links with Camelon Train Station in the south of the route, and there are two bus stops located along the route. This could provide opportunities for integration of transport modes, allowing visitors and residents to travel further, more sustainably. This will also help those lower income groups access cheaper forms of transport. The potential modal shift offered by the scheme has resulted in significant positive effects for SEA3 (transport and accessibility). Potential reductions in use of private vehicles will also help to reduce levels of transport related emissions, resulting in minor positive effects identified for SEA10 (air quality).

Although the route does support a modal shift, which will significantly help to reduce levels of greenhouse gas (GHGs) emissions from the transport network, due to the infrastructure required to construct the shared use path, there are likely to be high levels of embodied carbon associated with construction. Both positive and negative effects have therefore been identified for SEA9 (GHGs).

Walking and cycling are important sources of everyday activity and are independently associated with a wide range of health benefits. The remote from carriageway path may also encourage more residents to use the route, to ensure that cycling and walking are the default choices in modes of transport. Significant positive effects have therefore been identified for SEA2 (human health).

Mixed positive and negative effects have been identified for SEA4 (community safety). Creating a remote cycleway away from the carriageway will help to increase levels of safety and reduce levels of fear and intimidation particularly given that roundabouts pose a significant safety risk to cyclists. However, there are also potential negative effects upon SEA4 (community safety) due to potential conflicts between cyclists and pedestrians. Despite low levels of pedestrian-cyclist collisions on shared paths, as detailed in the Department for Transport's Cycle Infrastructure Design Local Transport Note 1/20 [online] Available at: [Cycle Infrastructure Design Local Transport Note](#), users travelling at different speeds, such as cyclists and pedestrians, present opportunities for increased collisions as well as fear and intimidation.

Both positive and negative effects have been identified for biodiversity and natural capital (SEA5) landscape and townscape (SEA6). The length of the route borders Falkirk Golf Club to the west, and green space to the east. The route currently benefits from large green verges which can provide small scale habitats for wildflowers, pollinating insects, reptiles, amphibians and small mammals and can also provide essential green corridors for which these species disperse. Green verges can also make contributions to the landscape and townscape setting, particularly in predominantly urban environments. It is not currently clear on whether all or some of these verges will be lost for development. Design will need to be sensitive to these environments, to protect both existing habitats and landscapes. Positive effects may be sought from sensitive design, incorporation of green infrastructure and increases in tranquillity from reduce traffic. There may also be potential for positive placemaking.

Minor negative effects have been identified for SEA13 (protection of land) as the route is located within the Falkirk – Skinflats Green Belt land. It is currently uncertain the scale of land take required for the proposed option; however, this is likely to require small scale land take from the green belt.

Minor negative effects have been identified for SEA8 (climate resilience) and SEA11 (water environment) given the location of the route within 100m of the River Carron. The length of this route is also located within an area of high likelihood of river flooding (each year this area has a 10% chance of flooding). It is currently unclear whether the design of the option will include additional drainage measures to minimise flooding along the route. Any increase in hard standing is likely to contribute to increased flood risk in this area. Additionally, due to the close proximity of the path to the River Carron, there is a risk of increased pollution in this water body through a mobilisation of contaminants during construction work. Uncertain effects have also been identified for SEA12 (sustainable resources) as these measures will be determined by the scheme design. It is also currently uncertain if sustainable materials will be utilised and measures of minimising waste.

It is recommended that the minimum widths of shared use routes carrying up to 300 pedestrians per hour should be at least 3m. The proposed path width is 4m, however, a minimum width of 2.5m is stated, which may not be wide enough to support all types of bikes, wheelchairs and trikes. The pinch point of the route at the underpass may also result in narrower cycle tracks. Effects on SEA1 (population and equality) will be better determined at scheme level design.

Mitigation and Enhancement Measures

- **SEA1:** The route should take into account the measures set out in the Transport Scotland Cycling by Design document [online] Available at: [Cycling By Design](#), to ensure that the route is accessible to all users.
- **SEA4:** The safety of the route users will need to be considered where the route joins with existing junctions at the north and south of the route. The route should make allowances for safe crossing such as toucan crossings. The design of existing bus stops will also need to be considered to ensure that all users can access the bus stop and no users are put at risk. Clear signage, use of tactile paving and segregation should be considered to reduce conflicts between users. Use of rumble strips and speedbumps may also help to reduce speeds of cyclists, making the route safer for all users.
- **SEA5:** Where possible, the route should minimise biodiversity loss and disturbance. If loss cannot be minimised, biodiversity net gain should be included within the design.
- **SEA11:** Drainage systems, particularly SuDS, should be included within the design of the path to minimise flood risk along the route.
- **SEA13:** Where practicable, land take from green belt or high value land should be minimised.

Assessment of Alternative Options

Uni-directional carriageway level cycle lanes on both sides with light segregation

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	?	++	++	+/-	+/-	+/-	0	-	+/-	+	-	?	-
Nature of Effect	N/A	D	D	D	D	D	N/A	I	D	D	I	N/A	D
Spatial Extent	N/A	L	L	L	L	L	N/A	L	L	L	L	N/A	L
Reversibility	N/A	I	I	I	I	I	N/A	I	I	I	I	N/A	I
Permanence	N/A	P	P	P	P	P	N/A	P	P	P	P	N/A	P
Duration	N/A	LT	LT	LT	LT	LT	N/A	LT	ST/LT	LT	LT	N/A	LT

Bi-directional carriageway level cycle lanes with light segregation

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	?	++	++	+/-	+/-	+/-	0	-	+/-	+	-	?	-
Nature of Effect	N/A	D	D	D	D	D	N/A	I	D	D	I	N/A	D
Spatial Extent	N/A	L	L	L	L	L	N/A	L	L	L	L	N/A	L
Reversibility	N/A	I	I	I	I	I	N/A	I	I	I	I	N/A	I
Permanence	N/A	P	P	P	P	P	N/A	P	P	P	P	N/A	P
Duration	N/A	LT	LT	LT	LT	LT	N/A	LT	ST/LT	LT	LT	N/A	LT

Bi-directional carriageway level cycle lanes with hard segregation

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	?	++	++	+	+/-	+/-	0	-	+/-	+	-	?	-
Nature of Effect	N/A	D	D	D	D	D	N/A	I	D	D	I	N/A	D
Spatial Extent	N/A	L	L	L	L	L	N/A	L	L	L	L	N/A	L
Reversibility	N/A	I	I	I	I	I	N/A	I	I	I	I	N/A	I
Permanence	N/A	P	P	P	P	P	N/A	P	P	P	P	N/A	P
Duration	N/A	LT	LT	LT	LT	LT	N/A	LT	ST/LT	LT	LT	N/A	LT

Uni-directional stepped cycle track on both sides

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	?	++	++	-	+/-	+/-	0	-	+/-	+	-	?	-
Nature of Effect	N/A	D	D	D	D	D	N/A	I	D	D	I	N/A	D
Spatial Extent	N/A	L	L	L	L	L	N/A	L	L	L	L	N/A	L
Reversibility	N/A	I	I	I	I	I	N/A	I	I	I	I	N/A	I
Permanence	N/A	P	P	P	P	P	N/A	P	P	P	P	N/A	P
Duration	N/A	LT	LT	LT	LT	LT	N/A	LT	ST/LT	LT	LT	N/A	LT

Shared use path next to carriageway

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	?	++	++	+/-	+/-	+/-	0	-	+/-	+	-	?	-
Nature of Effect	N/A	D	D	D	D	D	N/A	I	D	D	I	N/A	D
Spatial Extent	N/A	L	L	L	L	L	N/A	L	L	L	L	N/A	L
Reversibility	N/A	I	I	I	I	I	N/A	I	I	I	I	N/A	I
Permanence	N/A	P	P	P	P	P	N/A	P	P	P	P	N/A	P
Duration	N/A	LT	LT	LT	LT	LT	N/A	LT	ST/LT	LT	LT	N/A	LT

Summary of Alternative Options

All alternative options have performed broadly similarly to the Preferred Option. However, SEA4 (community safety) has performed differently for most alternative options. The uni-directional stepped cycle track on both sides option has performed the worst for community safety as this option does not offer the same level of subjective safety as a cycleway with hard segregation between it and the carriageway. Similarly, both the uni-directional carriageway level cycle lanes on both sides with light segregation and bi-directional carriageway level cycle lanes with light segregation have resulted in mixed positive and negative effects on SEA4 (community safety) as light segregation does not offer the same level of subjective safety as a cycleway with hard segregation between it and the carriageway.



The shared use path also results in mixed positive and negative effects upon SEA4 (community safety) due to the potential for conflicts between cyclists and pedestrians. Despite low levels of pedestrian-cyclist collisions on shared paths, as detailed in the Department for Transport's Cycle Infrastructure Design Local Transport Note 1/20 [online] Available at: [Cycle Infrastructure Design Local Transport Note](#), users travelling at different speeds, such as cyclists and pedestrians, present opportunities for increased collisions.

The bi-directional carriageway level cycle lanes with hard segregation option has performed the same as the proposed option, however, less road space and infrastructure may be required to support development on one side of the road, as is required with bi-directional cycle lanes.

Uni directional alternative options are also likely to require more land take from the green belt due to their nature on both sides of the carriageway, however all other alternatives are likely to require a similar level of infrastructure to the Preferred Option. However, bi-directional and share use options next to the existing carriageway will require less land take from the green belt.

Park from Dorrator Bridge to Carronvale Road

OPTIONS CONSIDERED	FEASIBILITY	FUNDABILITY	PUBLIC ACCEPTANCE
<input checked="" type="checkbox"/> Remote from carriageway shared use path	★★★★	★★★☆☆	★★★☆☆
PREFERRED OPTION: REMOTE FROM CARRIAGEWAY SHARED USE PATH			



Assessment Overview – Preferred Option

Effect	SEA1: Population and Equalities	SEA2: Human Health	SEA3: Transport and Accessibility	SEA4: Community Safety	SEA5: Biodiversity and Natural Capital	SEA6: Landscape and Townscape	SEA7: Cultural Heritage	SEA8: Climate Resilience	SEA9: Greenhouse Gases (GHGs)	SEA10: Air Quality	SEA11: Water Environment	SEA12: Efficient use of Resources	SEA13: Protection of Land
Significance	?	++	+	+/-	+/-	+/-	0	-	+/-	+	-	?	-
Nature of Effect	N/A	D	D	D	D	D	N/A	I	D/I	D	I	N/A	D
Spatial Extent	N/A	L	L	L	L	L	N/A	L	L	L	L	N/A	L
Reversibility	N/A	I	I	I	I	I	N/A	I	I	I	I	N/A	I
Permanence	N/A	P	P	P	P	P	N/A	P	P	P	P	N/A	P
Duration	N/A	LT	LT	LT	ST/LT	ST/LT	N/A	LT	LT	LT	LT	N/A	LT

Assessment Summary of Preferred Option

The development of this route will provide greater access to free active travel routes will provide greater accessibility to facilities and services for low-income groups and support healthy lifestyles. It will support initiatives like the 'daily mile' as it will encourage residents to cycle, walk and wheel. Walking and cycling are important sources of everyday activity and are independently associated with a wide range of health benefits. The remote from carriageway path may encourage those more residents to use the route due to protection from the carriageway, ensuring that cycling and walking are the default choices in modes of transport. Significant positive effects have therefore been identified for SEA2 (human health).

The development of this option also provides potential for a modal shift away from private transportation. However, there are no bus stops along this route, limiting integration of transport modes and the distance users can travel. The potential modal shift offered by the scheme has resulted in minor positive effects for SEA3 (transport and accessibility). Potential reductions in use of private vehicles will also help to reduce levels of transport related emissions, resulting in minor positive effects identified for SEA10 (air quality).

Although the route does support a modal shift, which will significantly help to reduce levels of greenhouse gas (GHGs) emissions from the transport network, due to the infrastructure required to upgrade the existing path, there are likely to be embodied carbon associated with construction. Both positive and negative effects have therefore been identified for SEA9 (GHGs).

Mixed positive and negative effects have been identified for SEA4 (community safety). Creating a remote cycleway away from the carriageway will help to increase levels of safety and reduce levels of fear and intimidation particularly given that roundabouts pose a significant safety risk to cyclists. However, there are also potential negative effects upon SEA4 (community safety) due to potential conflicts between cyclists and pedestrians. Despite low levels of pedestrian-cyclist collisions on shared paths, as detailed in the Department for Transport's Cycle Infrastructure Design Local Transport Note 1/20 [online] Available at: [Cycle Infrastructure Design Local Transport Note](#), users travelling at different speeds, such as cyclists and pedestrians, present opportunities for increased collisions as well as fear and intimidation. In addition to this, the route joins with multiple junctions at both the northern and southern ends of the alignment. These will need to be considered as part of design in order to ensure safety to all users. Additionally, as this area is through a park, with a high level of tree cover and off a main road, it may be slightly darker than other areas, increasing fear along the route. Design should therefore, consider including lighting measures to improve the feeling of safety along the route during dark hours.

Both positive and negative effects have been identified for biodiversity and natural capital (SEA5) landscape and townscape (SEA6). The length of the route runs through green space to both the east and west. The route currently benefits from large fields either side, which can provide small scale habitats for wildflowers, pollinating insects, reptiles, amphibians and small mammals and can also provide essential areas for these species to inhabit. Additionally, construction along this route may disturb the biodiversity in close proximity to the route. Design will need to be sensitive to these environments, to protect both existing habitats and landscapes. Positive effects may be sought from sensitive design, incorporation of green infrastructure and increases in tranquillity from reduce traffic. There may also be potential for positive placemaking.

Minor negative effects have been identified for SEA13 (protection of land) as the route is located within the Falkirk – Skinflats Green Belt land. It is currently uncertain the scale of land take required for the proposed option; however, this is likely to require small scale land take from the green belt.

Minor negative effects have been identified for SEA8 (climate resilience) and SEA11 (water environment) given the location of the route within 100m of the River Carron. The length of this route is also located within an area of high likelihood of river flooding (each year this area has a 10% chance of flooding). Any increase in hard standing is likely to contribute to increased flood risk in this area. It is currently unclear whether the design of the option will include additional drainage measures to minimise flooding along the route. Additionally, due to the close proximity of the path to the River Carron, and the route crossing the river at Dorrator Bridge, there is a risk of increased pollution in this water body through a mobilisation of contaminants during construction work. Uncertain effects have also been identified for SEA12 (sustainable resources) as these measures will be determined by the scheme design. It is also currently uncertain if sustainable materials will be utilised and measures of minimising waste.

It is recommended that the minimum widths of shared use routes carrying up to 300 pedestrians per hour should be at least 3m. The proposed path width is 4m, however, a minimum width of 2m is stated at the Dorrator Bridge pinch point, which may not be wide enough to support all types of bikes, wheelchairs and trikes. Effects on SEA1 (population and equality) will be better determined at scheme level design.



Mitigation and Enhancement Measures

- **SEA 1:** To enhance this area of the Preferred Option, street lights or smaller lights alongside the path may be beneficial
- **SEA5:** Where possible, the route should minimise biodiversity loss and disturbance. If loss cannot be minimised, biodiversity net gain should be included within the design. **SEA 8 and 9:** As this section of the scheme is along a park route, it would be recommended to include the use of more bins and there will be an increased amount of pedestrians. This will encourage individuals to bin their litter and keep the green space in good condition.
- **SEA 10:** Construction has the possibility of affecting air quality due to emissions from construction vehicles and construction may cause creation of dust. Creating a Construction Management Plan will help in preparation.
- **SEA11:** Drainage systems, particularly SuDS, should be included within the design of the path to minimise flood risk along the route.
- **SEA13:** Where practicable, land take from green belt or high value land should be minimised.

Assessment of Alternative Options

There are no identified alternatives for the Park from Dorrator Bridge to Carronvale Road scheme.

Carronvale Road to B905

OPTIONS CONSIDERED	FEASIBILITY	FUNDABILITY	PUBLIC ACCEPTANCE
<input checked="" type="checkbox"/> Traffic calmed on-carriageway cycling/ Quiet street	★★★★	★★★☆☆	★★★☆☆
PREFERRED OPTION: TRAFFIC CALMED ON-CARRIAGEWAY CYCLING/QUIET STREET			



Assessment Overview – Preferred Option

Effect	SEA1: Population and Equalities	SEA2: Human Health	SEA3: Transport and Accessibility	SEA4: Community Safety	SEA5: Biodiversity and Natural Capital	SEA6: Landscape and Townscape	SEA7: Cultural Heritage	SEA8: Climate Resilience	SEA9: Greenhou se Gases (GHGs)	SEA10: Air Quality	SEA11: Water Environment	SEA12: Efficient use of Resources	SEA13: Protection of Land
Significance	+	++	+	+/-	0	+	0	?	+	+	?	?	0
Nature of Effect	D/I	D	D	D	N/A	D	N/A	N/A	D/I	D	N/A	N/A	N/A
Spatial Extent	L	L	L	L	N/A	L	N/A	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	N/A	I	N/A	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	N/A	P	N/A	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	N/A	LT	N/A	N/A	LT	ST/LT	N/A	N/A	N/A



Assessment Summary of Preferred Option

Minor positive effects have been identified for SEA1 (population and equalities) as this active travel scheme will increase connectivity of the active travel network and reduce inequalities as it will be more cycle / walker friendly. This will benefit those who do not have access to cars and will make this area more accessible. This Preferred Option will also encourage residents in the local area to engage in more physical activity like walking and cycling and this will enhance physical and mental health. The option is on a long stretch of road (1,100 m) and connects to areas of green space which will benefit the locals further as they will be more connected to nature. Significant positive effects are therefore identified for SEA2 (human health). The development of this option also provides potential for a modal shift away from private transportation. However, there are no bus stops along this route, limiting integration of transport modes and the distance users can travel. The potential modal shift offered by the scheme has resulted in minor positive effects for SEA3 (transport and accessibility). This scheme will increase connectivity while not having major effects on the existing road. However, the route is currently used for on street parking, which may remove this provision for local residents.

The route will make the commute to the local primary school (Ladeside Primary School) safer for children who are walking to school through reduced traffic. However, the use of the route for both vehicles and cyclists/walkers may increase user conflicts along the route. This reduces safety and increases fear and intimidation along the route. Mixed positive and negative effects are therefore identified for SEA4 (community safety).

Construction may have a temporary effect on accessibility but in the long term, access will be improved. During construction, access may be difficult depending on the scale of works but this will be temperamental. The scheme will promote wider access to the environment as it is surrounded by green space. There is potential for the design of traffic calming measures to positively contribute to the landscape and townscape, however, if insensitively designed, features may detract from the local landscape character. Minor positive effects are therefore identified for SEA6 (landscape and townscape).

The Preferred Option will help in the local environments resilience to climate change and will aid in reducing levels of emissions of greenhouse gases as it will encourage fewer cars on the road. It will encourage residents to connect with nature and promote sustainability as it will make areas of green space more accessible. The Preferred Option will protect and enhance local air quality and will lead to the reduction of congestion as it will encourage more residents to not use cars. However, during the construction phase, congestion and emissions may go up temporarily but will go down in the long term. Minor positive effects are therefore identified for SEA9 (greenhouse gases) and SEA10 (air quality).

Uncertain effects have been identified for SEA8 (climate resilience), SEA11 (water environment) and SEA12 (efficient use of resources), as these measures will largely be determined by the scheme design. It is also currently uncertain if sustainable materials will be utilised and measures of minimising waste.

Mitigation and Enhancement Measures

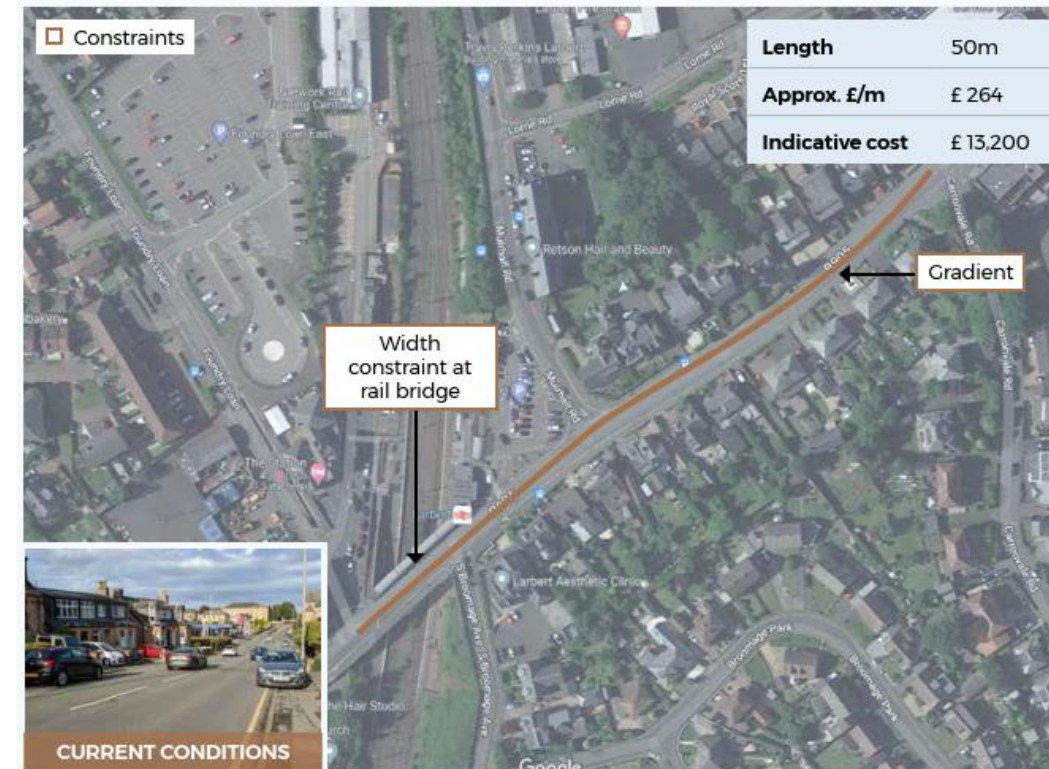
- **SEA1:** The route should take into account the measures set out in the Transport Scotland Cycling by Design document [online] Available at: [Cycling By Design](#), to ensure that the route is accessible to all users.
- **SEA3:** The route could identify opportunities to link with bus services to encourage seamless integration of transport modes.
- **SEA4:** Clear signage, use of tactile paving and segregation should be considered to reduce conflicts between users. Use of rumble strips and speedbumps may also help to reduce speeds of cyclists, making the route safer for all users. The safety of the route users will need to be considered
- **SEA4:** Where the route crosses existing junctions, the route should make allowances for safe crossing such as toucan crossings. The design of existing bus stops will also need to be considered to ensure that all users can access the bus stop and no users are put at risk.

Assessment of Alternative Options

There are no identified alternatives for the Carronvale Road to B905 scheme.

B905 – Carronvale Road to Foundry Loan

OPTIONS CONSIDERED	FEASIBILITY	FUNDABILITY	PUBLIC ACCEPTANCE
<input type="checkbox"/> Traffic calmed on-carriageway cycling/Quiet street	★★★★	★★★☆☆	★★★☆☆
<input checked="" type="checkbox"/> Shared use path next to carriageway	★★★★	★★★☆☆	★★★☆☆
PREFERRED OPTION: SHARED USE PATH NEXT TO CARRIAGEWAY			



Assessment Overview – Preferred Option

Effect	SEA1: Population and Equalities	SEA2: Human Health	SEA3: Transport and Accessibility	SEA4: Community Safety	SEA5: Biodiversity and Natural Capital	SEA6: Landscape and Townscape	SEA7: Cultural Heritage	SEA8: Climate Resilience	SEA9: Greenhouse Gases (GHGs)	SEA10: Air Quality	SEA11: Water Environment	SEA12: Efficient use of Resources	SEA13: Protection of Land
Significance	+	+	++	+/-	0	+	0	?	+	+	?	?	0
Nature of Effect	I	D/I	D	I	N/A	D	N/A	N/A	D	D	N/A	N/A	N/A
Spatial Extent	L	L	L	L	N/A	L	N/A	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	N/A	I	N/A	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	N/A	P	N/A	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	ST/LT	LT	N/A	LT	N/A	N/A	LT	LT	N/A	N/A	N/A



Assessment Summary of Preferred Option

Minor positive effects have been identified for SEA1 (population and equalities) as this active travel scheme will increase connectivity of the active travel network and reduce inequalities as it will be more cycle / walker friendly. This will benefit those who do not have access to cars and will make this area more accessible. This proposed option will benefit human health as it will encourage local residents to walk or cycle more. This will enhance physical and mental health, resulting in minor positive effects for SEA2 (human health). This option will also encourage a potential modal shift away from private transportation and contribute to reducing emissions. This will also positively impact human health. The modal shift away from private transportation also provides increased transport options for those without access to a private car. The route improves access to Falkirk, and the wider area through its close proximity to Larbert train station. This provides opportunities for integration of transport modes, including rail and bus transportation, providing further access to the wider area. Significant positive effects have therefore been identified for SEA3 (transport and accessibility). This scheme will also have a positive impact on Falkirk's landscapes as it will strengthen local character and promote active travel and access to wider areas, resulting in minor positive effects on SEA6 (landscape and townscape).

The width constraint on the bridge may cause difficulty with access to the footpath. To allow faster cyclists to overtake, and to accommodate disabled cyclists (non-standard bikes), cycle tracks should ideally be 2m wide in each direction, or 3 to 4m for bidirectional tracks though there may have to be exceptions— the cycle track is proposed to be 4m is likely to be sufficient for all users. The width constraint section over the bridge may also make pedestrians feel nervous as it is a narrow pathway. The scheme route also goes past the station carpark which is a risk if cars are coming in and out of the car park. However, locating this route off the carriageway could reduce levels of surveillance and even increase levels of fears of intimidation particularly after dark. Implementing designing out crime principles such as lighting may minimise this. Mixed positive and negative effects have therefore been identified for SEA4 (community safety) as the inclusion of these measures are largely determined at the design stage. Additionally, the shared nature of the path may result in increased conflicts between pedestrians and cyclists, this should therefore be considered within the design.

The new pathway will increase resilience to climate change as it will promote cycling and walking in the local area and lead to fewer cars on the road. This will reduce level of emissions released by cars and other motor vehicles, improving air quality. It will also reduce congestion and encourage more people to take the train as it is more accessible. Minor positive effects are therefore identified for SEA9 (greenhouse gases), with minor positive effects identified for SEA10 (air quality).

Uncertain effects have been identified for SEA8 (climate resilience), SEA11 (water environment) and SEA12 (efficient use of resources), as these measures will largely be determined by the scheme design. It is also currently uncertain if sustainable materials will be utilised and measures of minimising waste.

Mitigation and Enhancement Measures

- **SEA1:** The route should take into account the measures set out in the Transport Scotland Cycling by Design document [online] Available at: [Cycling By Design](#), to ensure that the route is accessible to all users.
- **SEA3:** The route could identify opportunities to link with bus and train services to encourage seamless integration of transport modes.
- **SEA4:** Clear signage, use of tactile paving and segregation should be considered to reduce conflicts between users. Use of rumble strips and speedbumps may also help to reduce speeds of cyclists, making the route safer for all users. The safety of the route users will need to be considered
- **SEA4:** Where the route crosses existing junctions, the route should make allowances for safe crossing such as toucan crossings. The design of existing bus stops will also need to be considered to ensure that all users can access the bus stop and no users are put at risk.
- **SEA 4:** Potentially alter plans to make the width constraint at the bridge safer and give advance notice to bridge users.



Assessment of Alternative Options

Traffic calmed on-carriageway cycling/quiet street

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+	+	++	+/-	0	+	0	?	++	+	?	?	0
Nature of Effect	D/I	D	D	D	N/A	D	N/A	N/A	D/I	D	N/A	N/A	N/A
Spatial Extent	L	L	L	L	N/A	L	N/A	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	N/A	I	N/A	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	N/A	P	N/A	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	N/A	LT	N/A	N/A	LT	ST/LT	N/A	N/A	N/A

Summary of Alternative Options

The alternative option has overall a positive impact on SEA objectives and performed broadly similar to the preferred option. It would positively affect the air quality, health impacts and transport and accessibility. It will encourage residents to engage in more activity and will reduce emissions of greenhouse gases as it will likely reduce the number of vehicles on the road in the local area. However, like the Preferred Option, the width constraint on the bridge may be an obstacle to disabled users as the width of the path would likely be reduced.

Foundry Loan

OPTIONS CONSIDERED	FEASIBILITY	FUNDABILITY	PUBLIC ACCEPTANCE
<input type="checkbox"/> Traffic calmed on-carriageway cycling/Quiet street	★★★★	★★★☆☆	★★★☆☆
<input checked="" type="checkbox"/> Cycle street	★★★★	★★★★	★★★☆☆

PREFERRED OPTION: CYCLE STREET



Assessment Overview – Preferred Option

Effect	SEA1: Population and Equalities	SEA2: Human Health	SEA3: Transport and Accessibility	SEA4: Community Safety	SEA5: Biodiversity and Natural Capital	SEA6: Landscape and Townscape	SEA7: Cultural Heritage	SEA8: Climate Resilience	SEA9: Greenhouse Gases (GHGs)	SEA10: Air Quality	SEA11: Water Environment	SEA12: Efficient use of Resources	SEA13: Protection of Land
Significance	+	++	++	+/-	0	+	0	?	+	+	?	?	0
Nature of Effect	I	D	D	I	N/A	D	N/A	N/A	D	D	N/A	N/A	N/A
Spatial Extent	L	L	L	L	N/A	L	N/A	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	N/A	I	N/A	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	N/A	P	N/A	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	N/A	LT	N/A	N/A	LT	LT	N/A	N/A	N/A

Assessment Summary of Preferred Option

The proposed option will provide greater access to free active travel routes will provide greater accessibility to facilities and services for low-income groups and support healthy lifestyles. It will support initiatives like the 'daily mile' as it will encourage residents to cycle, walk and wheel. Walking and cycling are important sources of everyday activity and are independently associated with a wide range of health benefits. The cycle street option may encourage more residents to use the route due to reductions in vehicle numbers, ensuring that cycling and walking are the default choices in modes of transport. This scheme will promote more active travel to green areas and the wider environment. Close to the scheme is Russell (Greengate) Park and this cycle street will make the park more accessible to residents who want to cycle to the park. Significant positive effects have therefore been identified for SEA2 (human health), with minor positive identified for SEA1 (population and equalities). The option will provide increased access to the Foundry Loan area, as well as the wider area of Falkirk, particularly to those who rely on public or active travel modes.

The development of this option also provides potential for a modal shift away from private transportation. The route also provides opportunities to integrate with both bus stops and Larbert Station, allowing visitors and residents to travel further, more sustainably. The potential modal shift offered by the scheme, and opportunities for integration of sustainable transport modes, has resulted in significant positive effects for SEA3 (transport and accessibility). Potential reductions in use of private vehicles will also help to reduce levels of transport related emissions, resulting in minor positive effects identified for SEA10 (air quality).

Mixed positive and negative effects have been identified for SEA4 (community safety). This option provides cyclists with increased access and majority use of the route. However, private vehicles are still able to utilise the route, although this is only for access to residential areas. The surrounding area of the route is residential in nature, resulting in a number of vehicles utilising the cycle street, particularly during peak times. The use of the route by both cyclists and cars may intimidate cyclist users during peak times. There is also an increased likelihood of collisions due to vehicular and cyclist use. Bus stops along the route are also likely to increase bus and cyclist interactions, reducing safety. The development of the route is, however, likely to improve pedestrian safety on the route. The route is also relatively flat with no sharp turns or inclines and is well lit by streetlights, so visibility will be adequate.

The option is likely to result in reduced numbers of vehicles along the route as there will be no through traffic. This is likely to reduce the noise and disturbance along the route, contributing to improving the setting of the area and minor positive effects on SEA6 (landscape and townscape).

Although the route does support a modal shift, which will significantly help to reduce levels of greenhouse gas (GHGs) emissions from the transport network. There is likely to be construction required to upgrade the existing road to a cycle street. However, these levels of embodied carbon are unlikely to be high. Minor positive effects have therefore been identified for SEA9 (GHGs) due to the supporting of modal shift and reducing transport emissions.

Uncertain effects have been identified for SEA8 (climate resilience), SEA11 (water environment) and SEA12 (sustainable resources) as these measures will be determined by the scheme design.

Mitigation and Enhancement Measures

- **SEA 1:** To enhance this area of the Preferred Option, street lights or smaller lights alongside the path may be beneficial.
- **SEA3:** The route could identify opportunities to link with Larbert Station, to form an interchange hub, to encourage seamless integration of transport modes. This could also include electric bike hire.
- **SEA 4:** A combination of cars and bikes on the road may lead to more crashes. It is important to make road users aware that there may be cyclists using the road and the use of signage may be beneficial. The risks could be limited by encouraging cyclists to wear bright clothing and have appropriate bike lights.

Assessment of Alternative Options

Traffic calmed on-carriageway cycling/quiet street

Effect	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	SEA11	SEA12	SEA13
Significance	+	++	++	+/-	+	+	0	?	++	+	?	?	0
Nature of Effect	I	D	D	D	D	D	N/A	N/A	D	D	N/A	N/A	N/A
Spatial Extent	L	L	L	L	L	L	N/A	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	I	I	N/A	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	P	P	N/A	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	LT	LT	LT	LT	N/A	N/A	LT	ST/LT	N/A	N/A	N/A

Summary of Alternative Options

The alternative option has performed the same as the Preferred Option. However, SEA3 (transport and accessibility) has performed worse for the alternative option. However, the traffic calmed street is likely to increase interaction between cyclists and road users, potentially reducing safety along the route.

Old Bellsdyke Road

OPTIONS CONSIDERED	FEASIBILITY	FUNDABILITY	PUBLIC ACCEPTANCE
<input checked="" type="checkbox"/> Traffic calmed on-carriageway cycling/ Quiet street	★★★★	★★☆☆	★★★★
PREFERRED OPTION: TRAFFIC CALMED ON-CARRIAGEWAY CYCLING/QUIET STREET			



Assessment Overview – Preferred Option

Effect	SEA1: Population and Equalities	SEA2: Human Health	SEA3: Transport and Accessibility	SEA4: Community Safety	SEA5: Biodiversity and Natural Capital	SEA6: Landscape and Townscape	SEA7: Cultural Heritage	SEA8: Climate Resilience	SEA9: Greenhouse Gases (GHGs)	SEA10: Air Quality	SEA11: Water Environment	SEA12: Efficient use of Resources	SEA13: Protection of Land
Significance	+	++	+/-	+/-	+	+	0	?	+	+/-	?	?	0
Nature of Effect	I	I	D	D	D/I	D	N/A	N/A	I	D/I	N/A	N/A	N/A
Spatial Extent	L	L	L	L	L	L	N/A	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	I	I	N/A	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	P	P	N/A	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	ST/LT	LT	LT	LT	N/A	N/A	LT	ST/LT	N/A	N/A	N/A



Assessment Summary of Preferred Option

This will benefit the population as it will encourage more time outdoors and will lead to a sociable community and more residents will be inclined to walk. This will also positively impact human health as the scheme will encourage residents to walk or cycle more in this area. This will lead to better fitness but also better air quality for the residents as there will be fewer cars on this road. Minor positive effects have therefore been identified for SEA1 (population and equalities), with significant positive for SEA2 (human health). This scheme will provide opportunities for an integrated transport network, as there are opportunities to link the cycle route with bus stops along the route. This will improve access to both the local area of Falkirk and the wider area. However, the road size will be smaller and may lead to more congestion if the road has a higher volume of traffic. Mixed positive and negative effects are therefore identified for SEA3 (transport and accessibility).

The traffic calmed option may make the road safer as it would reduce road speeds so would benefit SEA4 (community safety). However, the traffic calmed street may increase interactions between road users and cyclists, creating conflicts between users and increasing the potential for collisions. Mixed positive and negative effects have therefore been identified for SEA4 (community safety). In regards to SEA5 (biodiversity and natural capital) and SEA6 (landscape and townscape), minor positive effects have been identified. This proposed scheme will maintain and benefit the biodiversity of the area as segregation measures could provide planting and green infrastructure, providing small scale habitats. As it is quite a heavy residential area, this will be most beneficial as there is limited green space next to this road. There is residential parking along the road which could cause conflicts if removed and it may cause issues with parking elsewhere, however removal of on street parking could improve visibility and safety in the area. The incorporation of green infrastructure could benefit the area visually also.

Although the route does support a modal shift, which will significantly help to reduce levels of greenhouse gas (GHGs) emissions from the transport network. There is likely to be construction required to upgrade the existing road. However, these levels of embodied carbon are unlikely to be high. Minor positive effects have therefore been identified for SEA9 (GHGs) due to the supporting of modal shift and reducing transport emissions. In terms of SEA10 (air quality), this scheme is likely to improve air quality as it will encourage residents to walk or cycle more. However, due to a smaller road size, it may lead to more congestion which will lead to an increase in emissions as well as noise pollution in this area. Construction may also cause further temporary negative effects to air and noise pollution in this area. Uncertain effects have been identified for SEA8 (climate resilience), SEA11 (flooding) and SEA12 (sustainable resources) as these measures will be determined by design.

Mitigation and Enhancement Measures

- **SEA 1:** To enhance this area of the Preferred Option, street lights or smaller lights alongside the path may be beneficial.
- **SEA 3:** Road size may decrease so keeping road users aware of the scheme is essential.
- **SEA3:** The route could identify opportunities to link with bus services, to encourage seamless integration of transport modes.
- **SEA 4:** A combination of cars and bikes on the road may lead to more crashes. It is important to make road users aware that there may be cyclists using the road and the use of signage may be beneficial. The risks could be limited by encouraging cyclists to wear bright clothing and have appropriate bike lights.
- **SEA5/SEA6:** The scheme should include green infrastructure segregation within the scheme to improve biodiversity and landscape value.
- **SEA 10:** Create a Construction Management Plan and work to a specific schedule. Keep communication strong with residents and send frequent updates.

Assessment of Alternative Options

There are no identified alternatives for the Old Bellsdyke Road scheme.

Old Denny Road

OPTIONS CONSIDERED	FEASIBILITY	FUNDABILITY	PUBLIC ACCEPTANCE
<input checked="" type="checkbox"/> Traffic calmed on-carriageway cycling/ Quiet street	★★★★	★★☆☆	★★★★
PREFERRED OPTION: TRAFFIC CALMED ON-CARRIAGEWAY CYCLING/QUIET STREET			



Assessment Overview – Preferred Option

Effect	SEA1: Population and Equalities	SEA2: Human Health	SEA3: Transport and Accessibility	SEA4: Community Safety	SEA5: Biodiversity and Natural Capital	SEA6: Landscape and Townscape	SEA7: Cultural Heritage	SEA8: Climate Resilience	SEA9: Greenhouse Gases (GHGs)	SEA10: Air Quality	SEA11: Water Environment	SEA12: Efficient use of Resources	SEA13: Protection of Land
Significance	+	++	+/-	+/-	+/-	+	0	?	+	+/-	?	?	0
Nature of Effect	I	I	D	D	D/I	D	N/A	N/A	I	D/I	N/A	N/A	N/A
Spatial Extent	L	L	L	L	L	L	N/A	N/A	L	L	N/A	N/A	N/A
Reversibility	I	I	I	I	I	I	N/A	N/A	I	I	N/A	N/A	N/A
Permanence	P	P	P	P	P	P	N/A	N/A	P	P	N/A	N/A	N/A
Duration	LT	LT	ST/LT	LT	LT	LT	N/A	N/A	LT	ST/LT	N/A	N/A	N/A

Assessment Summary of Preferred Option

The traffic calmed option on Denny Road could have many positive impacts on the local area. It will benefit the population as it will encourage active lifestyles and support active travel as part of commuting. This option would benefit those who do not drive and will create a more inclusive form of travel. Due to a more appealing appearance surrounding the road and contributing to green space, this could positively impact the residents of the area as it could encourage individuals to undertake active pursuits, resulting in significant positive effects on SEA2 (human health) and minor positive effects on SEA1 (populations and equalities). The scheme could also improve accessibility to facilities at the hospital for workers, patients and visitors.



This option may make the roadside more visually appealing, however, it could lead to an increase in traffic and congestion (during both construction and operation) as it will narrow the road, resulting in mixed positive and negative effects on SEA3 (transport and accessibility). Additionally, there are no bus stops located along the route, minimising further accessibility. Construction (particularly associated construction traffic) may also temporarily affect access to the Royal Scottish National Hospital; however, it will not affect long term access nor significantly adversely affect accessibility or public transport as there is no bus route along this road. The traffic calmed option may make the road safer as it would reduce road speeds so would benefit SEA4 (community safety). However, this option provides a shared space with motorised vehicles and cyclists using the same route with no segregation. This may increase collisions between vehicles and cyclists, particularly with users travelling at different speeds. The route is also used for resident parking, therefore increasing conflicts between road users. Mixed positive and negative effects are therefore identified for SEA4 (community safety).

Although the scheme offers planters which could provide small scale increases in biodiversity and have a positive visual impact, there is an Ancient Woodland which runs alongside this road. The scheme would potentially have a negative impact (through vibration and temporary reductions in air quality) on this area of Ancient Woodland and mitigation measures to limit effects on this are imperative.

Long term, it will encourage more people to walk or cycle so will reduce the number of cars on this section of road and could reduce overall noise and air pollution. However, construction may cause temporary negative effects on air and noise. This will have additional benefits for surrounding biodiversity. Air quality does not seem like an issue for this area as it is not in an Air Quality Management Area (AQMA) but should still be considered. Therefore, mixed positive and negative effects are identified for SEA10 (air quality). Uncertain effects have been identified for SEA8 (climate resilience), SEA11 (water environment) and SEA12 (sustainable resources) as these measures will be determined by design. However, the route is located within an area of medium risk for surface water flooding (least 0.5% chance of flooding each year). Therefore any increase in hard standing in this area may increase flood risk. SuDS should therefore be considered as part of the design to minimise this risk.

Mitigation and Enhancement Measures

- **SEA 3:** The scheme will need to take into account that the Royal Scottish National Hospital is located on the same road that will be facing construction. Construction may affect access to the hospital or cause disturbance to patients due to noise. A noise management plan may be beneficial as well as communication with the hospital.
- **SEA 5:** Construction noise may temporarily disturb wildlife and residents and creation of cycling/quiet street may have a negative impact on the Ancient Woodland. A Construction Management Plan would be beneficial as this could prevent damage and prepare mitigation measures to limit effects on the forest.
- **SEA8:** The scheme design should incorporate SuDS to mitigate against any additional flood risk created by the scheme.
- **SEA 10:** Construction has the possibility of affecting air quality due to emissions from construction vehicles and construction may cause creation of dust.

Assessment of Alternative Options

There are no identified alternatives for the Old Denny Road scheme.