

SEStran

SEStran Strategic Network Cupar to Guardbridge Active Travel Route Feasibility Study

Summary Report

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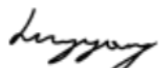


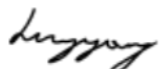


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1. Introduction

Arup has been appointed by SEStran to undertake a feasibility study and concept design proposals for the Cupar to Guardbridge active travel route, previously identified as part of the SEStran Strategic Network. The study investigates options for walking, wheeling and cycling facilities between these settlements.

The study follows the work undertaken on the SEStran Strategic Network Study ([SEStran-Strategic-Network-Final-Publication.pdf](#)), which identified this route as one of the high priority links to be progressed to feasibility stage. The area covered by this study is shown in **Figure 1**.



Figure 1-1: Study area (Source: Google Earth)

This study has been funded by SEStran’s [Regional Active Travel Network Grant Scheme](#) which supports active travel projects within the SEStran region, with a focus on strategic and cross-boundary infrastructure. This funding is primarily aimed at the delivery of projects that improve active travel infrastructure for everyday journeys.

1.1 SEStran Strategic Network

The SEStran Strategic Network was published in April 2020. The network proposes high-quality strategic active travel routes connecting cities, towns, neighbourhoods, settlements, and public transport hubs in the SEStran regional transport partnership area.

Delivery of the network will provide significant new opportunities for enabling walking, wheeling and cycling and links to key land uses such as public transport hubs.

For assessing and analysing purposes the Strategic Network was split into sections, with each section being scored based on its benefits using a multi-criteria assessment (MCA). This produced five phases of the network to progress, as illustrated in **Figure 2**.

The Active Travel Strategy is a key action within Fife’s Local Transport Strategy, which identifies four priorities to support its vision of ‘fair, sustainable access for all’. The vision is that the Active Travel Strategy will support more people to travel actively for everyday journeys and for leisure. The target is to increase the proportion of trips that are walked, cycled or wheeled by 30% by 2033 – from a baseline of 23% in 2019. The Active Travel Strategy is currently under development.

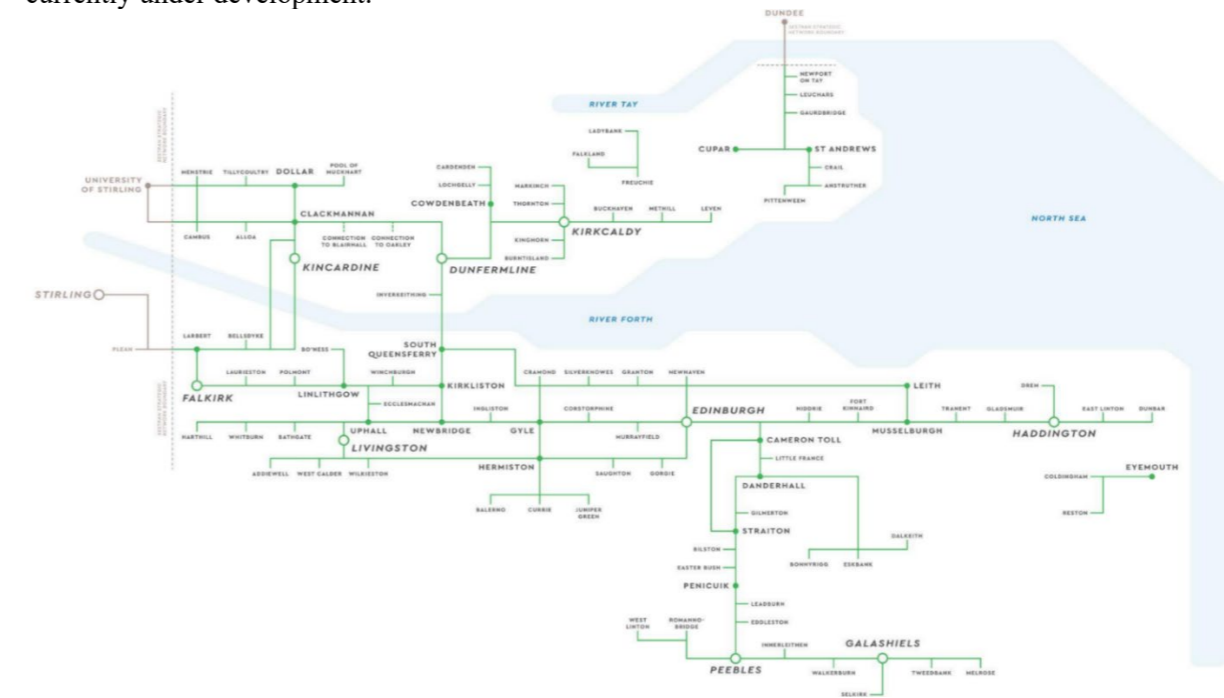


Figure 1-2: SEStran Strategic Network

1.2 Aims and Objectives

The purpose of this commission is to inform and support the future development of improved active travel facilities and connect Cupar and Guardbridge via a high-quality route which links to the wider active travel network.

“A high-quality route is a continuous route providing an attractive, safe, comfortable, and direct connection linking multiple destinations. It should be physically separated from traffic, have a smooth surface and be appropriately lit so that everyone can use it to walk, cycle or wheel their journey.”

The ultimate outcome is to improve the local environment, enrich the quality of life for local communities and improve people’s wellbeing by providing enhanced active travel facilities. The outputs of the study will consist of:

- A targeted desktop review of baseline data and existing information sources.
- Detailed engagement with partners, stakeholders, and wider community groups through a range of methods including meetings, workshops, online surveys and conversations.
- Proposals for the Cupar to Guardbridge corridor; including a route options appraisal exercise, concept visualisations and concept design sketch drawings and a supporting summary feasibility study report.

1.3 Methodology

The study has been undertaken in four stages to ensure a comprehensive assessment of the current, and potential, opportunities and aspirations are collected and fully considered to inform the concept design proposals:

Chapter 2: Desktop and Baseline Data Review

Chapter 3: Site Audit and Review

Chapter 4: Stakeholder Engagement

Chapter 5: Route Options and Concept Design Proposals

Chapter 6: Summary and Next Steps

2. Desktop and Baseline Data Review

To develop a comprehensive understanding of the Cupar to Guardbridge study area, a detailed baseline data review was undertaken. This included data and information gathered from both online open source data and Fife Council data.

Further details on the baseline data and information reviewed is provided **Appendix A** (Desktop Scrapbook for the Cupar to Guardbridge Feasibility Study).

2.1 Key Origins / Destinations

The proposed route will serve Cupar, Dairsie, Clayton, Guardbridge and the wider population in surrounding areas. The route will also connect with existing local walking and cycling routes, for example National Cycle Network (NCN 1) Route connecting Guardbridge and St Andrews. The key origins within Cupar and Guardbridge are seen in **Figures 2-1, 2-2, and 2-3**.

There are a number of residential areas in close proximity to, and accessible from, the proposed active travel route. These include Cupar, Dairsie, Clayton and Guardbridge.

The proposed route will improve links between public transport and active travel across the study area, through connecting with bus facilities along the A91 as well as Cupar railway station and onward to Leuchars railway station. The proposed route therefore further facilitates and promotes modal shift away from private vehicle trips and towards active travel and public transport.

Cupar town centre is identified as a key destination for leisure and retail purposes. This proposed route will provide residents of Cupar and surrounding towns with an active travel connection to key trip attractors within Cupar.

There are numerous key employment areas across the study area, including Cupar Town Centre, Cupar East Industrial Estate, Clayton Caravan Park, The University of St Andrews Eden Campus and Eden Mill Distillery located in Guardbridge.

The proposed route will enhance active travel connectivity to education facilities adjacent to the proposed route, such as:

- Busy Bee Nursery
- Ferryfield Nursery
- The Secret Garden Nursery
- Darsie Primary School
- St Columba Primary School
- Castlehill Primary School
- Kilmaron School
- St Andrews University
- Bell Baxter High School

The education facilities are within proximity of the proposed route, which will provide a high-quality walking, wheeling and cycling option for travelling to school for pupils, teachers, and parents.

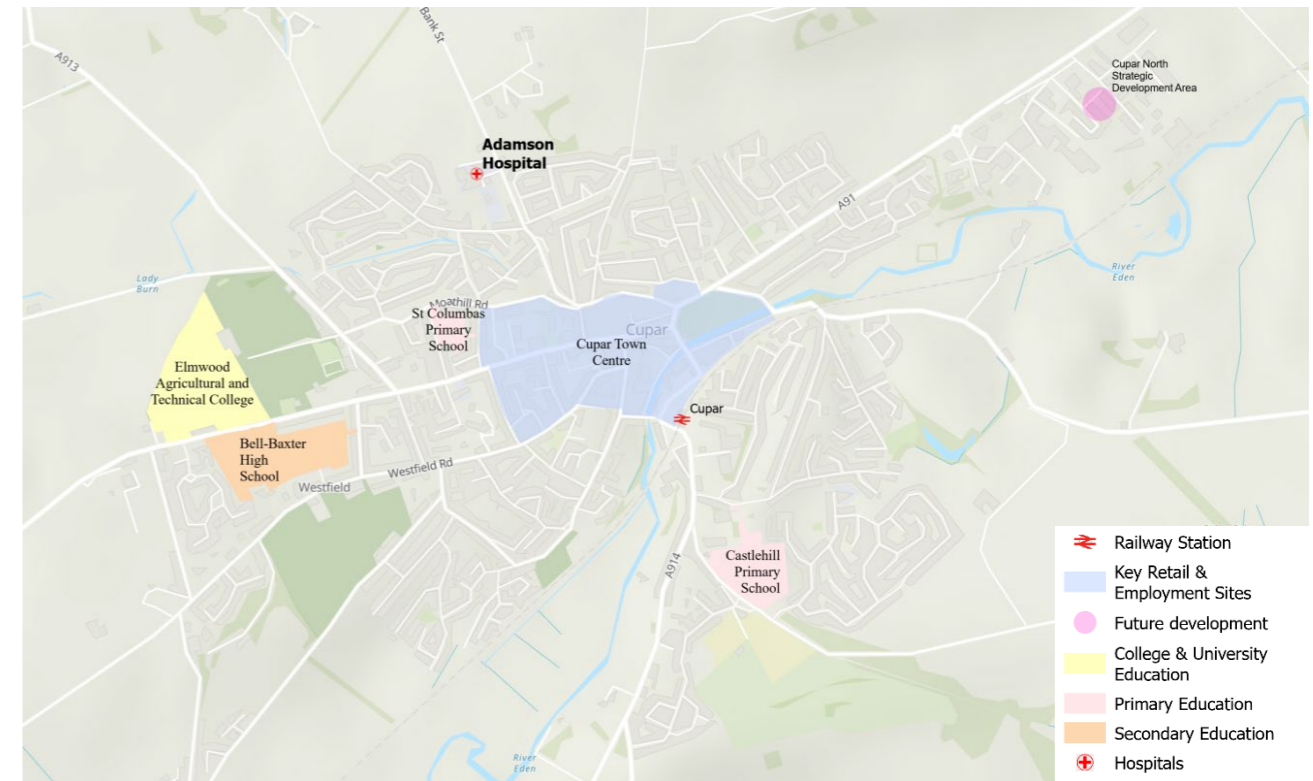


Figure 2-1: Map of key destinations across Cupar

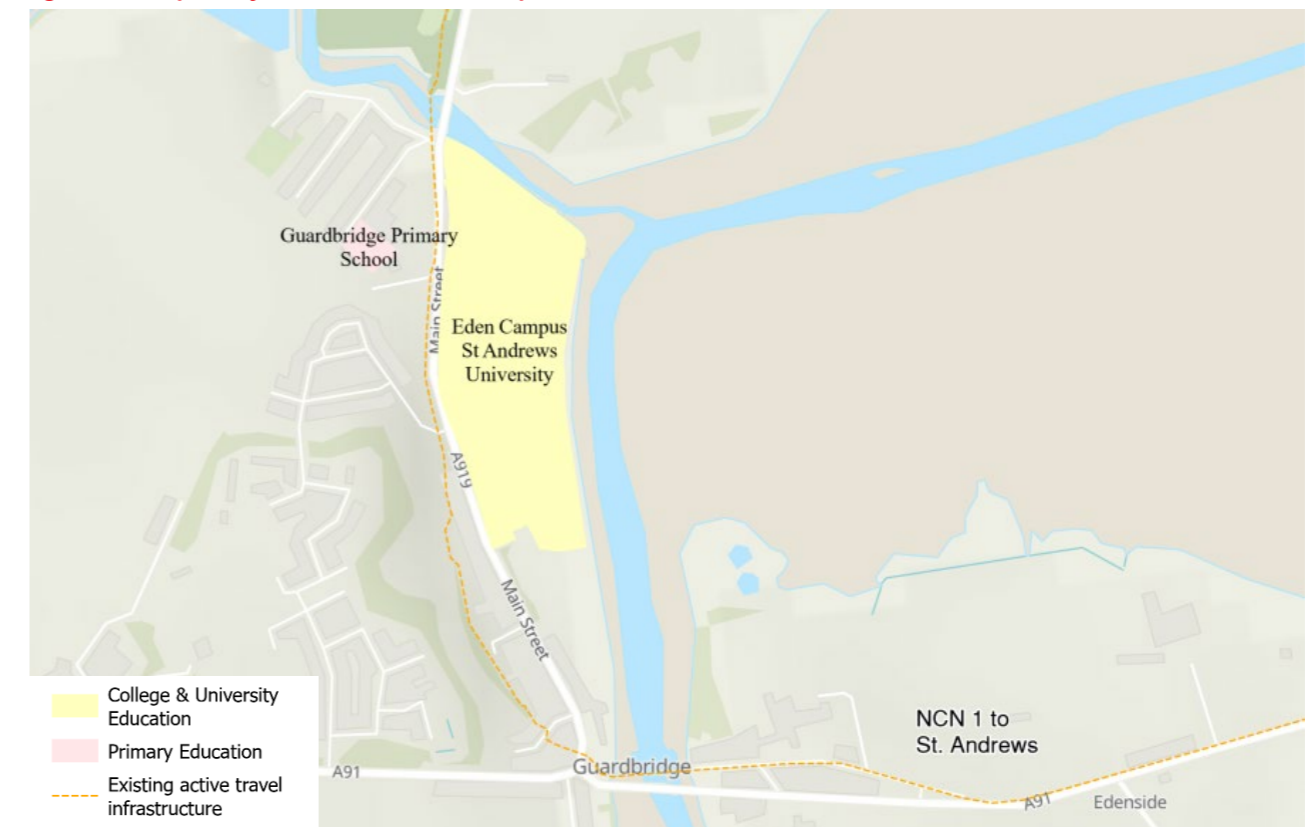


Figure 2-2: Map of key destinations across Guardbridge

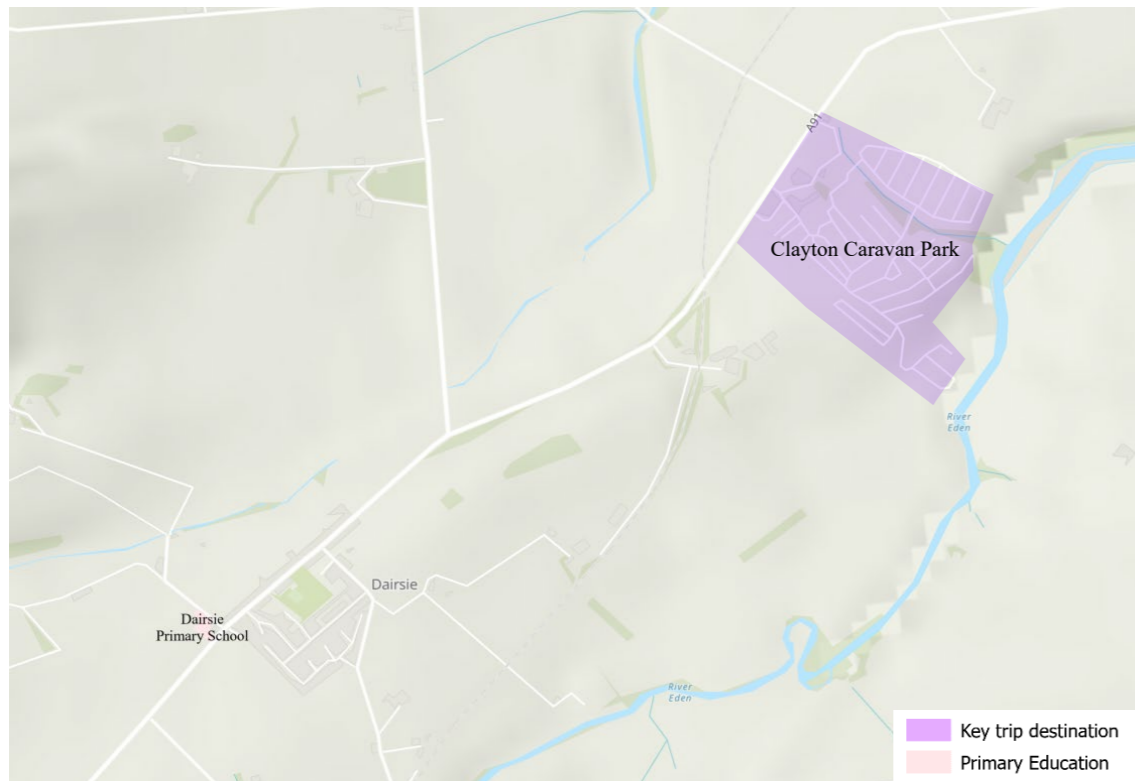


Figure 2-3: Map of key destinations across Dairsie and Clayton

2.2 School catchments

Figure 2-4 shows the school catchment areas around the study area. It can be seen that a high-quality active travel route between Cupar and Guardbridge would benefit multiple schools. Castlehill and Dairsie Primary Schools sit within the study corridor, therefore this route would enable pupils with the option of safe route to walk, wheel or cycle to school. Whilst only non-denominational schools are mapped, St Columba’s RC Primary is another primary school within the catchment which would benefit from a high-quality active travel route. The route would also create opportunity for more children to travel actively to Guardbridge Primary School, travelling from the west side of the catchment.

Bell Baxter High School is the high school which the majority of primary schools in the study area feed into, which sits in Cupar. Therefore, an active travel route between Cupar and Guardbridge would connect many of the children who attended schools such as Castlehill, Dairsie or Balmullo Primary Schools to Bell Baxter when they reach secondary school age. Pupils from Guardbridge Primary School would attend Madras College in St Andrews, therefore connecting the proposed route with the existing NCN route between Guardbridge and St Andrews can help maximise the benefits.

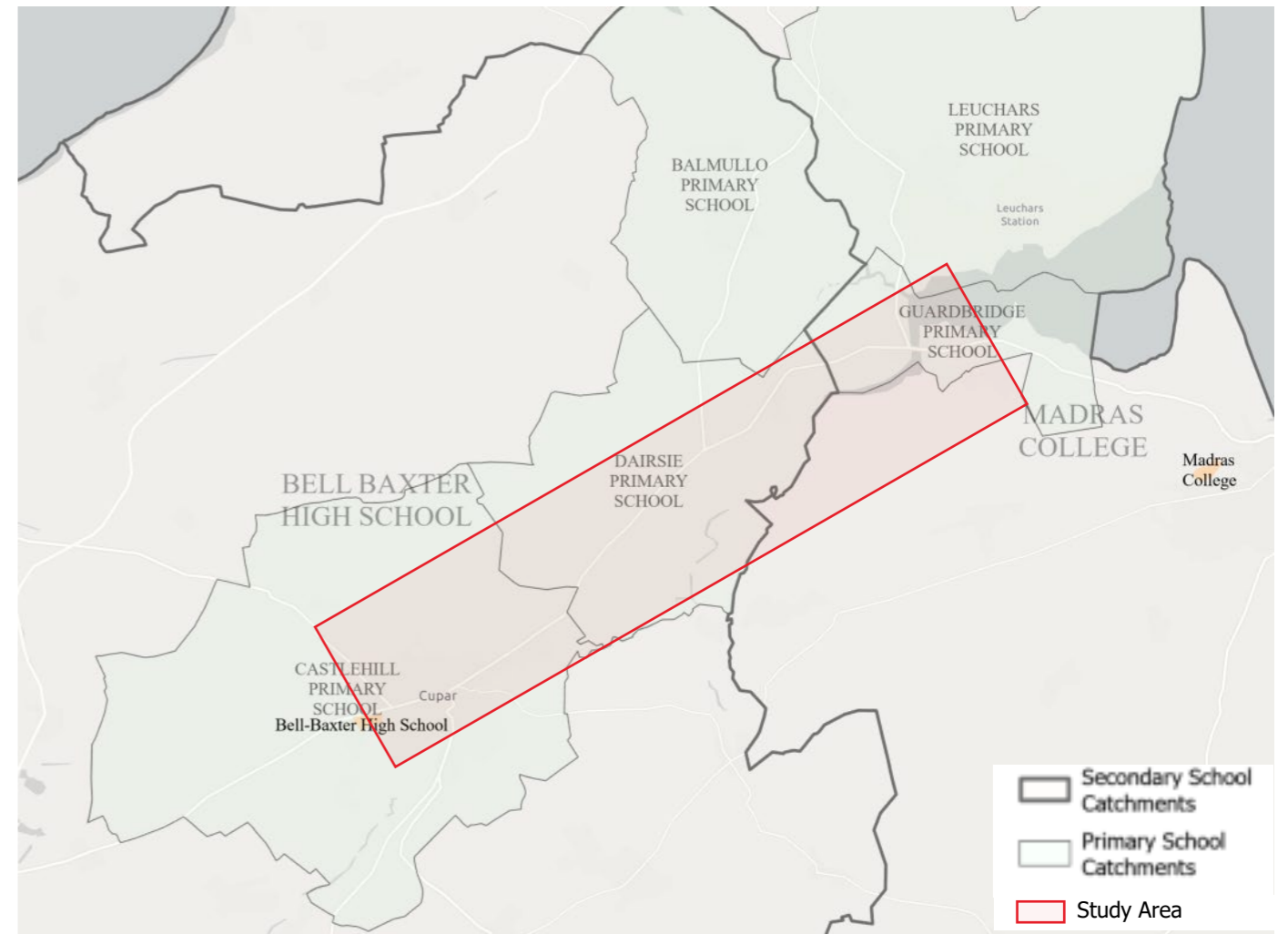


Figure 2-4: School Catchments for the study corridor and surrounding area (non-denominational schools only)

2.3 Mode Share

Mode share across the study area was derived using Census 2011 travel to work or study data, which can be seen in Table 1.

Table 1: Cupar and Guardbridge travel to work / study mode share statistics

Mode	Cupar	Guardbridge
Public Transport	11.5%	22%
Driving a car or van	53.7%	63.7%
Bicycle	1.2%	2.4%
On foot	23.4%	3.3%
Other	1.2%	1%
Work from home	9%	7.6%

The census 2011 method of travel to work or study results in Table 1 show that walking and cycling mode share across the study area is relatively low, in contrast to very high private vehicle mode share. There is a slightly higher cycling mode share in Guardbridge (2.4%) than Cupar (1.2%). However, walking mode share is significantly higher in Cupar (23.4%) than Guardbridge (3.3%).

Across both locations there is very low usage of public transport, with Cupar only experiencing 11.5% of users travelling by public transport.

In both locations, a notable proportion of individuals (9% in Cupar and 7.6% in Guardbridge) primarily work from home. However, this is likely to have increased significantly as a result of the COVID-19 pandemic.

These results indicate that there is significant opportunity to reduce the number of short private car trips and increase the proportion of active and sustainable trips made through the delivery of the proposed route. This is due to the proximity of key destinations such as schools, Cupar town centre, Haugh Park, and Cupar railway station. Short car journeys undertaken throughout the study area, that could be carried out by walking, wheeling and cycling, are also evidenced in **Figures 2-10 and 2-11**.

2.4 Private Vehicle Availability

Census 2011 car or van availability data was analysed to understand levels of private vehicle availability across households along the Cupar and Guardbridge corridor. **Figure 2-4** summarises car or van availability in Cupar and Guardbridge.

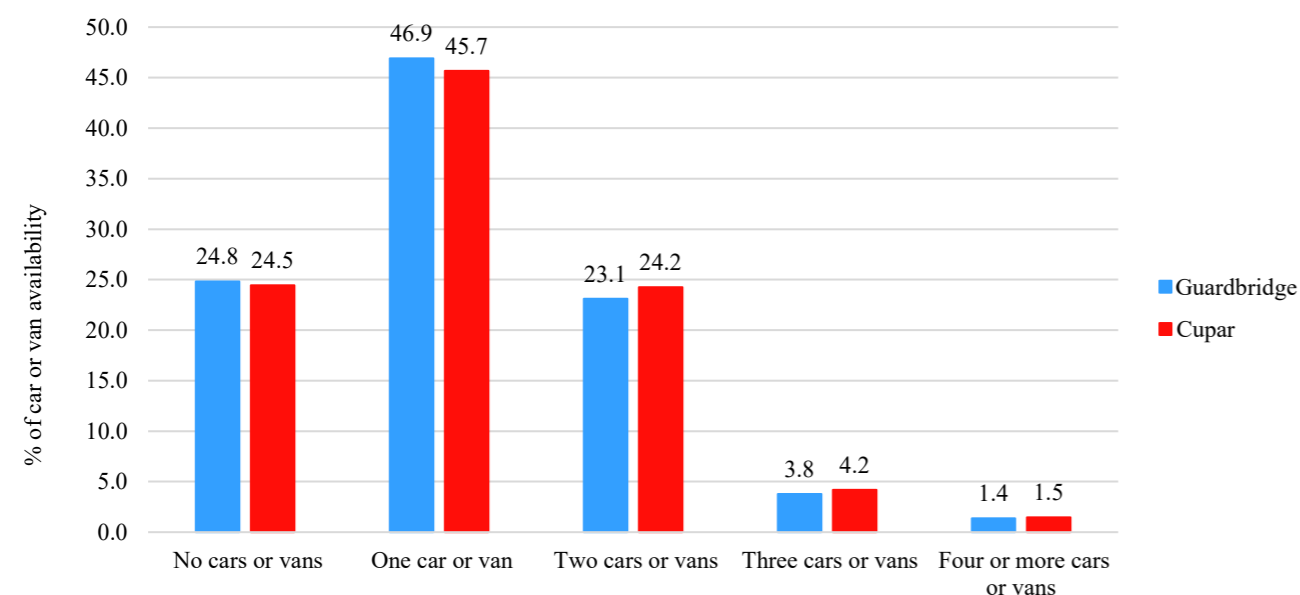


Figure 2-5: Census 2011 car or van availability

The results show that private car availability is very similar in both Cupar and Guardbridge. In Guardbridge a significant portion of households own one car or van (46.9%), which is slightly lower in Cupar (45.7%). This outlines the value of increasing active travel provision and providing high quality active travel facilities to increase transport options within these locations. Improving active travel infrastructure within this location, whilst also enhancing access to public transport facilities, will reduce the reliance on private vehicles and encourage modal shift towards more sustainable trip making.

2.5 Movement Data

2.5.1 Census Datashine Commute

To understand movement across the Cupar to Guardbridge study area, the Census Datashine Commute mapping tool was used to summarise movement across key settlements along the route by all transport modes.

Figure 2-7 and **2-8** reveals the volumes and direction of travel for those travelling both into and from Cupar across all modes of transport.

Cupar has a significant amount of people travelling to the town for employment but also others travelling elsewhere from Cupar employment. Most people commute towards Dundee, while a small portion travel south to Edinburgh or Glasgow.

A large portion of commuters travel to St. Andrews from Cupar, and alternatively, there are a few commuters travelling from St. Andrews to Cupar.

Those commuting into Cupar also originate from the settlements to the south, including Anstruther and Glenrothes.

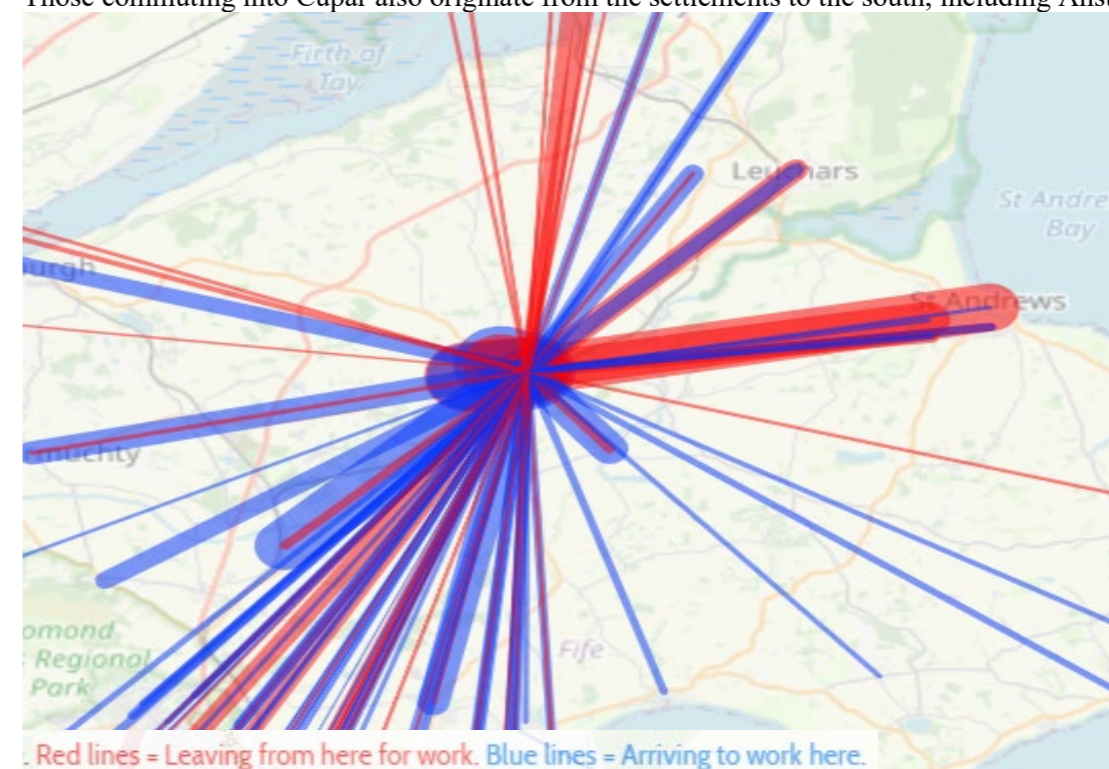


Figure 2-7: Census Datashine Commute 2011 - graphical representation of travel volumes and direction from Cupar of all modes

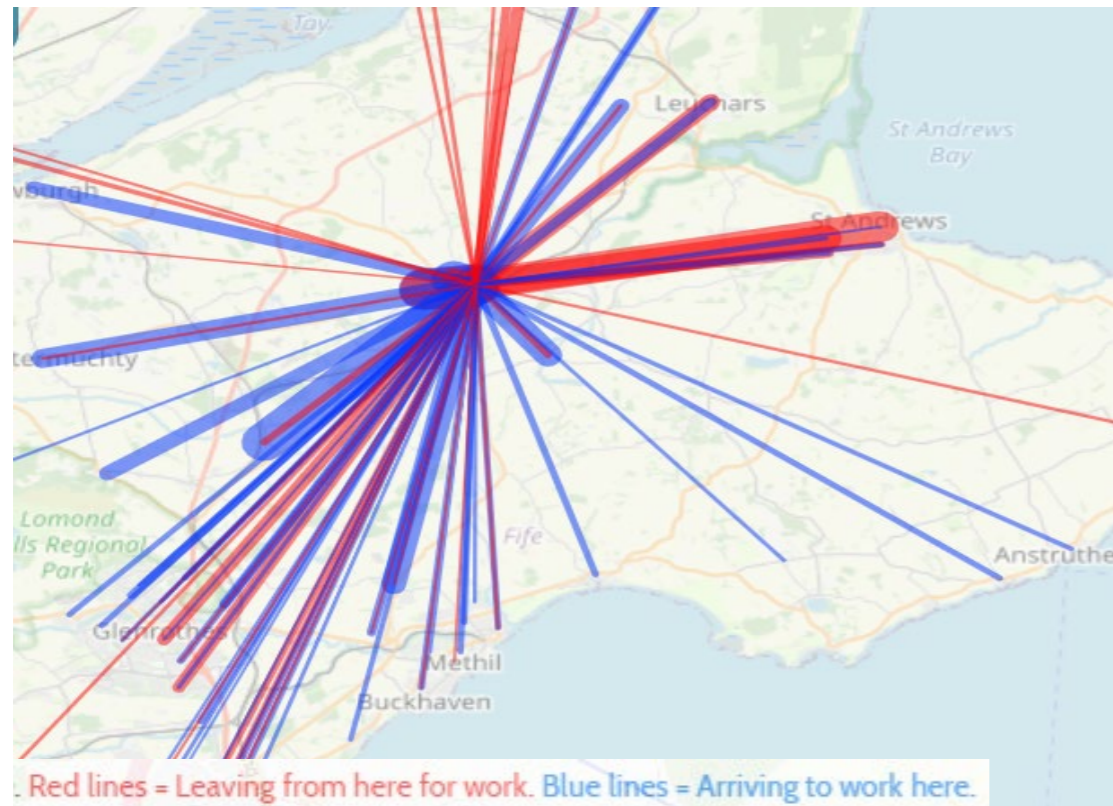


Figure 2-8: Census Datashine Commute 2011 - graphical representation of travel volumes and direction from Cupar car driving only

There is a significant amount of private vehicle movement for those commuting into and out of Cupar. Other areas people travel to Cupar by car include surrounding settlements such as Methill, St. Andrews and Leuchars. The delivery of an active travel route between Cupar and Guardbridge would contribute to the connectivity to St Andrews and therefore has the potential to encourage modal shift away from private car towards active and sustainable travel between both locations.

2.5.2 Traffic Movement

The table below demonstrates the total average daily traffic flow along the A91 between Cupar and Guardbridge (see location in **Table 2**), which was recorded using automatic traffic counters over the course of May 2023. Traffic counts included cars/vans, pedal cycles, LVGs, HVGs and buses. The table below demonstrates the total flow average over the course of 5 weeks in May, for a period of 24 hours. The location of this counter can be seen in **Figure 2-9**.

Table 2: Average daily traffic along A91 between Cupar and Guardbridge (Fife Council traffic data)

Week	Total average daily traffic flows
01/05/23	7,078
08/05/23	7,168
15/05/23	7,163
25/05/23	7,479
29/05/23	7,835
Overall average = 7,344	

The total flow average is 7,344 over the course of May 2023, this illustrates a substantial amount of vehicle activity. The delivery of an active travel route between Cupar and Guardbridge would encourage a shift away from private vehicle journeys.

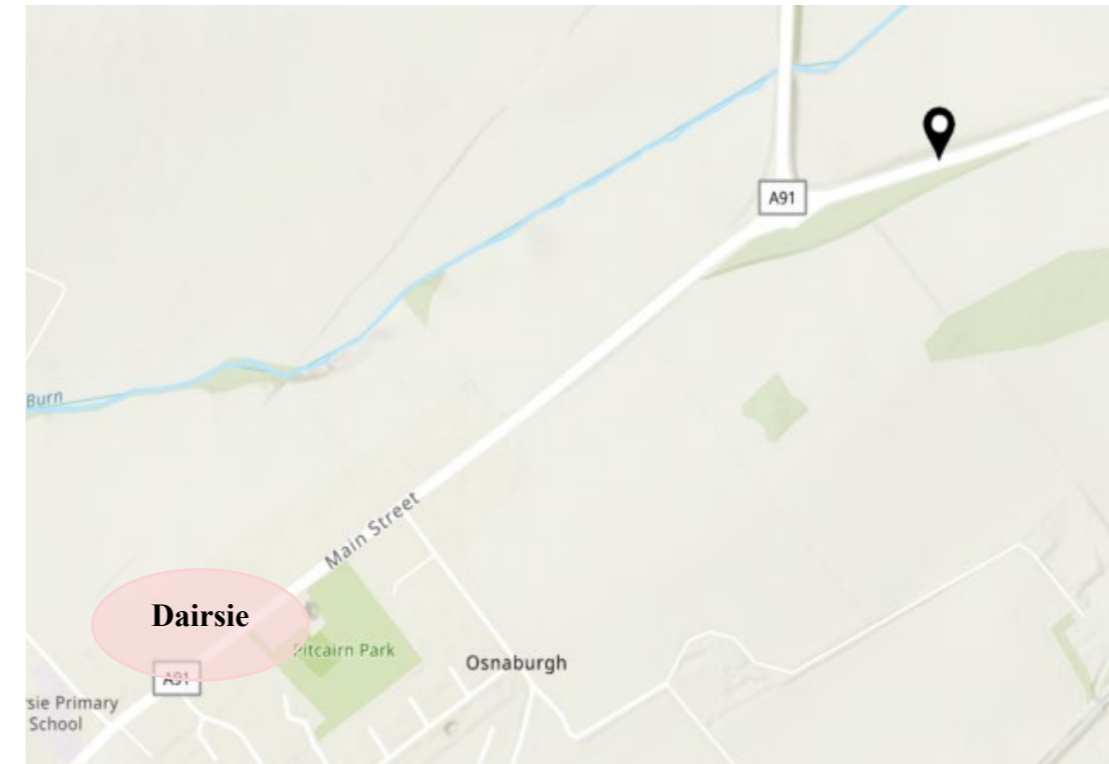


Figure 2-9: Fife traffic counter location

Department for Transport (DfT) *Road Traffic Statistics* data was also used to obtain estimated traffic volumes along the Cupar to Guardbridge A91 corridor. Along the corridor are two counters, one placed east of Cupar and the other west of Guardbridge (see **Figure 2-10** for exact location). The 2022 data showed an estimated Average Annual Daily Flow (AADF) of 15 cyclists in counter East of Cupar and 11 cyclists in the counter located close to Guardbridge. Estimated traffic and active travel volumes are important to be aware of for when applying Cycling by Design best practices in **Chapter 5**.



Figure 2-10: DfT location of traffic counters

2.6 Distance of Travel to Work or Study by Mode

Census 2011 distance of travel to work or study by mode of travel data was also analysed for key settlements along the proposed route, to understand the distances of local residents travel across different modes, in particular public transport and private car. These can be seen in Figure 2-11 and 2-12.

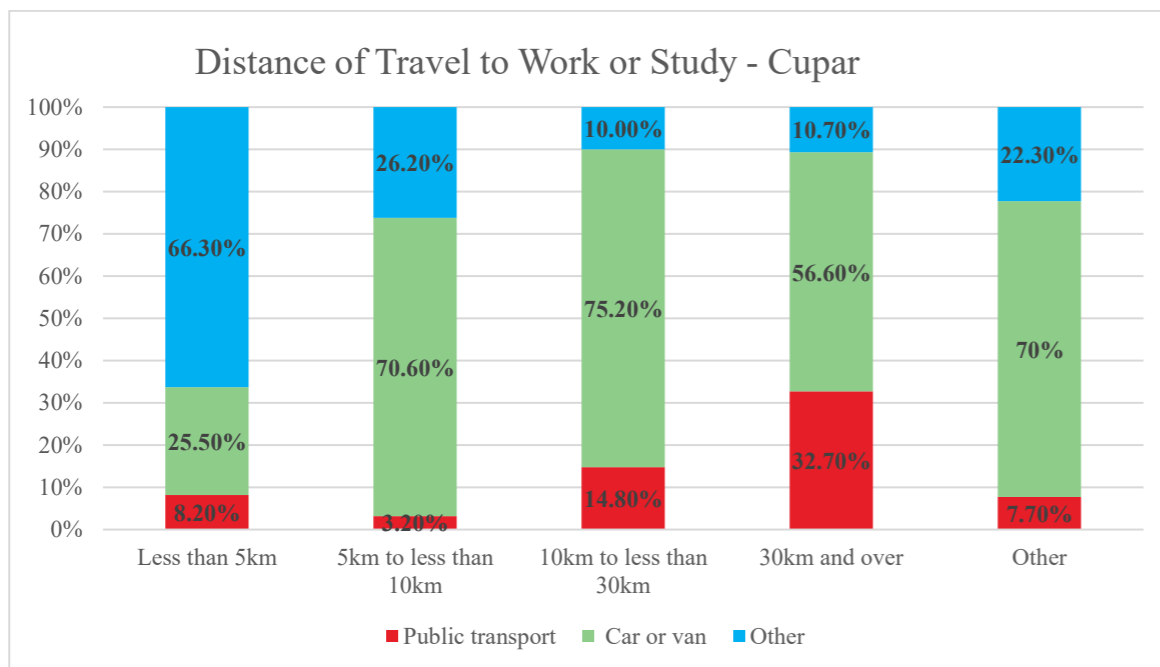


Figure 2-11: Census 2011 distance of travel to work or study - Cupar

Figure 2-10 above displays the modes of transportation to place of work or study based on distance categories. For distances less than 5km, the majority of individuals (66.3%) rely on other modes. These other modes include

walking, wheeling or cycling. Therefore, implementing this active travel route will benefit those already travelling actively and enhance their journey. In the 5km to less than 10km range, a significant number of people rely on car or van, with only 3.2% choosing public transport. For the 10km to less than 30km distance, reliance on car or van for travel increased to 75.20%, while only 10% use other modes. Additionally, in the *other* category, similarly 70% of individuals travel by car or van, while 22.3% choose other and 7.7% rely on public transport.

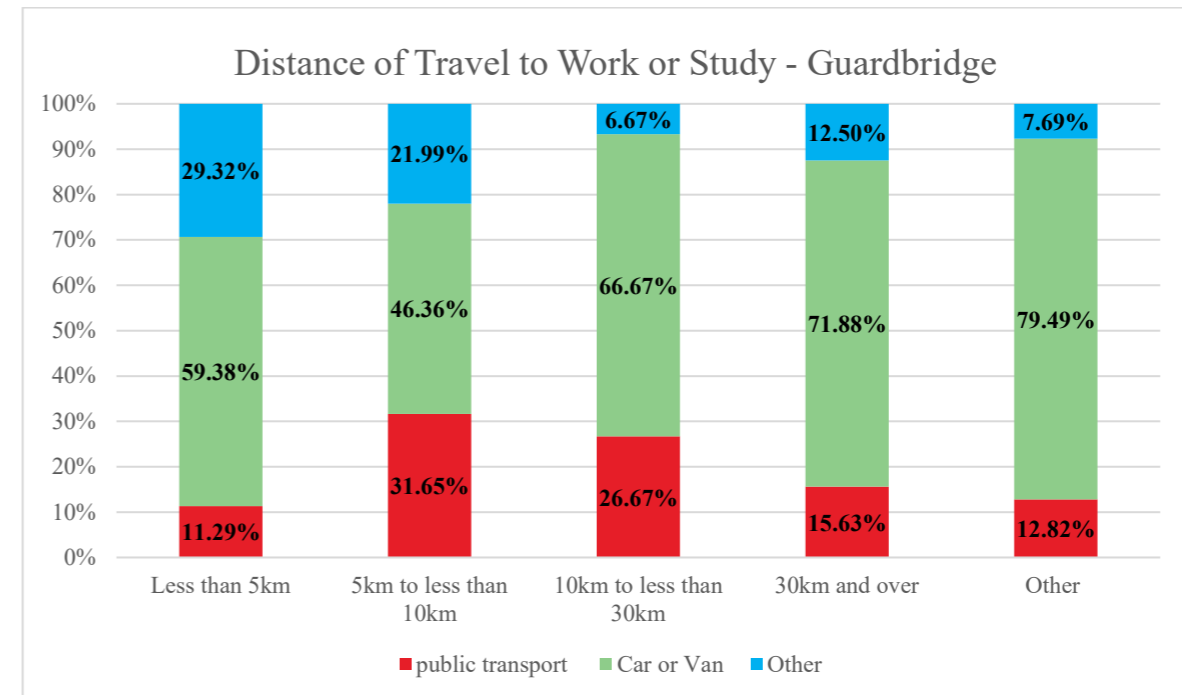


Figure 2-12: Census 2011 distance of travel to work or study Guardbridge

The majority of commuters rely on private vehicles as their primary mode of travel. However, a significant number of individuals opt for alternative methods of transportation when their workplace or place of study is within a distance of less than 5km. It is highly likely that these alternative options are walking, wheeling or cycling. In comparison to private vehicle usage, the amount of people travelling by public transport is relatively low in comparison to those driving.

In both results, a substantial percentage relies on car or van transportation. An active travel network would benefit such users, as this would give them an alternative option for travel. This could help to reduce local congestion, promote physical activity, and decrease environmental impact.

2.7 Land Ownership

Fife Council's *Land titles and Assets* webmap tool provides a high-level summary of where Fife Council land ownership is located adjacent to the proposed route. The key areas of council-owned land are within Cupar shown on Figure 2-13. Guardbridge and Dairsie also have some areas of council-owned land, however this is significantly less than Cupar as seen in Figure 2-14.

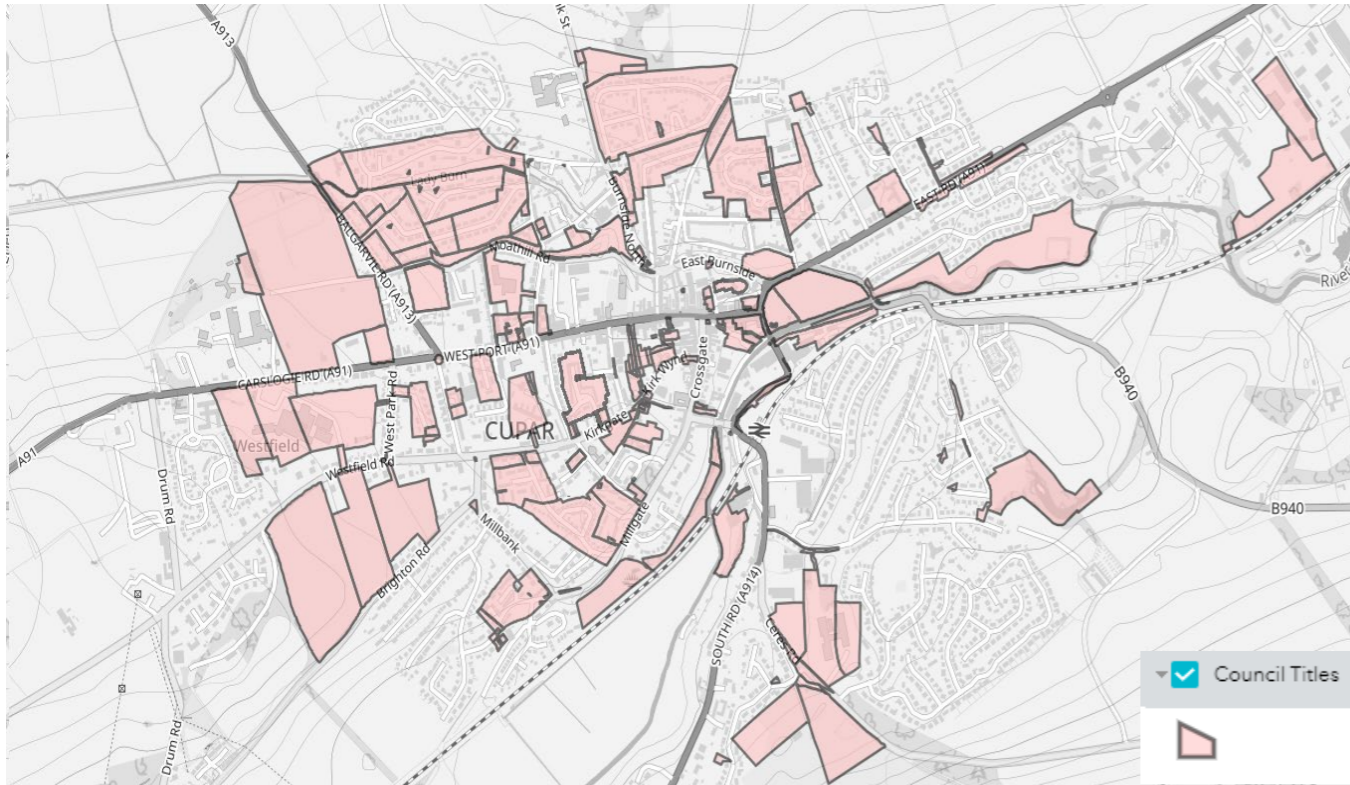


Figure 2-13: Fife Council land ownership for Cupar (Source: Fife Council)



Figure 2-14: Fife Council land ownership for Guardbridge and Dairsie (Source: Fife Council)

2.8 Road Adoption

Figure 2-15 and Figure 2-16 display the road adoption plans for the study area, taken from the Fife Council Road Adoption online webmap. Whilst the vast majority of the roads in the study area are adopted by Fife Council, one key exception currently is the residential streets associated with the Eden Woods development in Guardbridge. These streets make up an important part of some options, and therefore has an impact on the scoring of options within the options appraisal. This will be discussed further in Chapter 5.



Figure 2-15: Road adoption plan for Cupar east (Source: Fife Council)



Figure 2-16: Road adoption plan for Guardbridge (Source: Fife Council)

2.9 Collision Statistics

Detailed collision data and reports for the previous six years of available data (2018 - 2022) have been interrogated from Cupar to Guardbridge using Department for Transport (DfT) 'STATS19' data extracted from the *Crashmap* online mapping tool. The Figure below includes collisions involving pedestrians and cyclists. There are clusters of slight collisions, with one serious collision outside Baxter High School. This information will be important in determining the appropriate design solutions to help reduce collisions involving active travel users across the area.

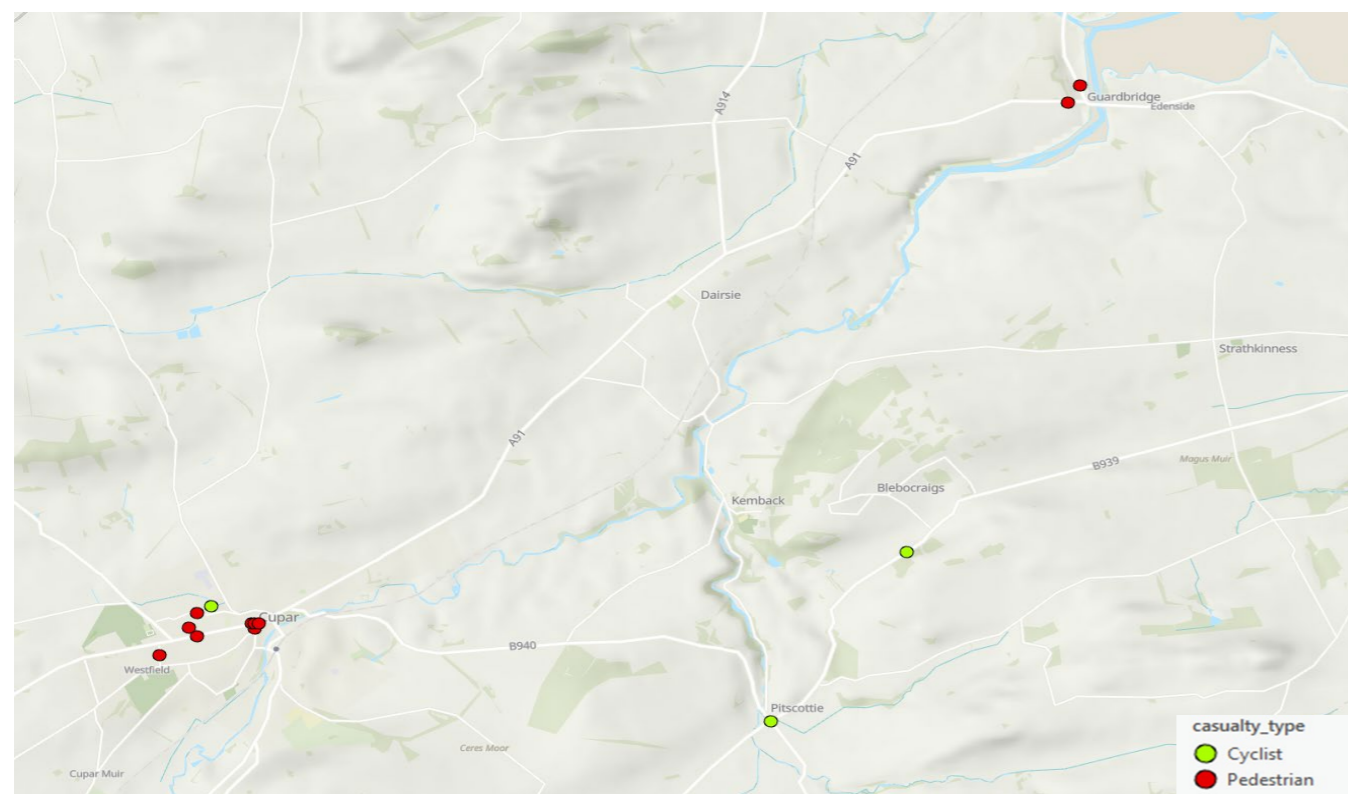


Figure 2-17: Pedestrian and cyclist accident data for 2017-2020 within study area

2.10 Sustrans Network Planning Tool

The Sustrans Network Planning Tool (NPT) provides evidence on existing and potential levels of cycling across Scotland. The NPT uses a number of factors to provide a score to sections of the network, this includes type of road, presence of cycle infrastructure, speed limit, surface quality, cycle signage, barriers or obstructions, path width and route legibility. The tool provides a score a score of 0 (very low quality) to 100 (very high quality). As can be seen from **Figure 2-18**, most of the main routes between Cupar and Guardbridge currently achieve a low score between 0-25. This demonstrates the need for high quality active travel infrastructure between Cupar and Guardbridge.

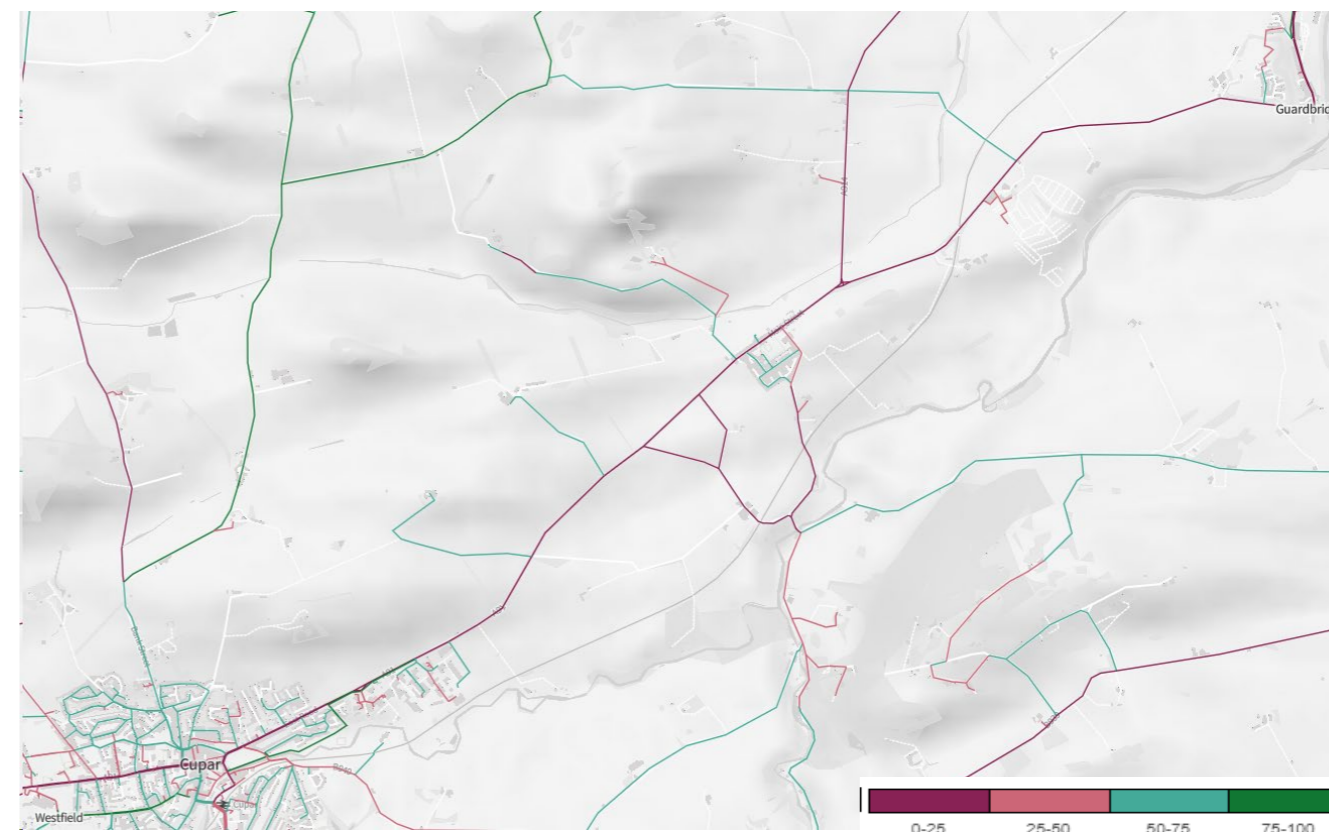


Figure 2-18: Sustrans Network Planning Tool cycle friendliness - Cupar to Guardbridge

3. Site Audit and Review

3.1 Introduction

A targeted site visit was undertaken in November 2023 to understand the existing conditions, opportunities, and constraints from Cupar Railway Station to St Andrews University Eden campus in Guardbridge. Prior to attending site, a pre-site audit scoping exercise was completed using online mapping tools to allow for a stronger understanding of areas to focus on when on site.

It was evident from the site visit that active travel facilities between Cupar and Guardbridge will need to be improved, however, it was considered that, where possible, these routes should be aligned with existing infrastructure, such as the NCN Route between Leuchars, Guardbridge and St Andrews.

The key land uses within the area along the route include residential, agriculture, leisure and recreational. There are several bus stops on the main routes entering and exiting Cupar. However, there are a lack of controlled pedestrian and cycle crossings, with the majority of crossing facilities consisting of uncontrolled crossings such as refuge islands and dropped kerbs.

The study area was separated into 4 sections to highlight the unique challenges and opportunities of each section and support the analysis of the existing situation:

- Section 1 – Cupar Railway Station to Cupar East Industrial Estate
- Section 2 – Cupar East to Dairsie
- Section 3 – Dairsie to Clayton
- Section 4 – Clayton to Guardbridge

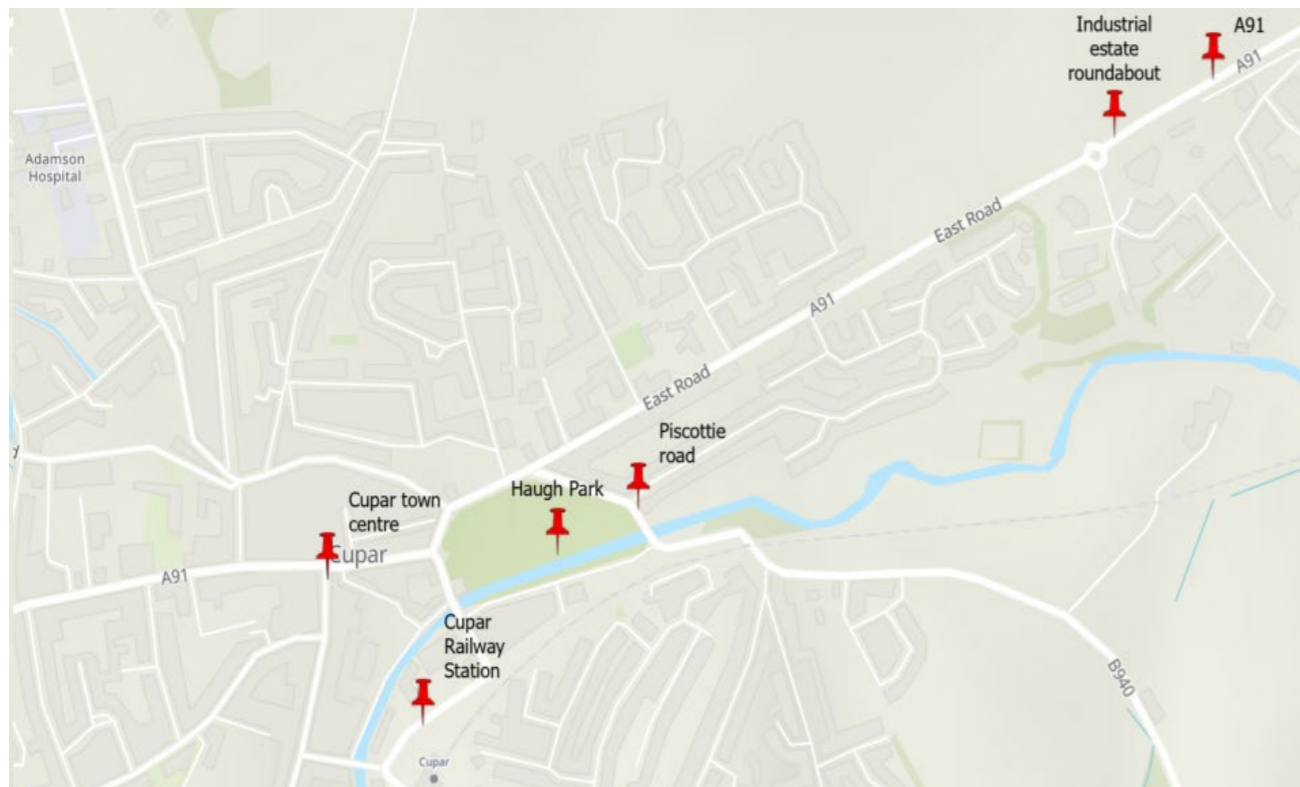


Figure 3-1: Key location on route Cupar

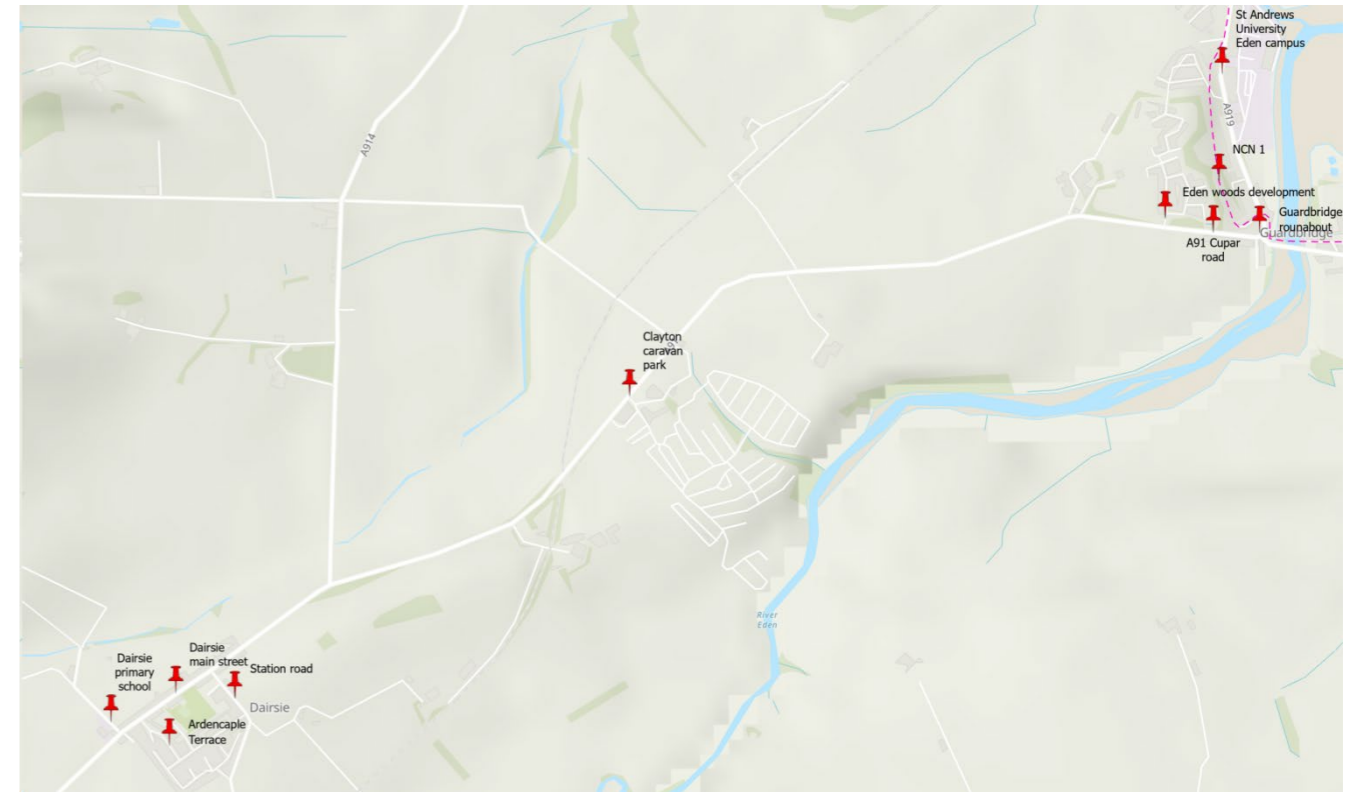


Figure 3-2: Key locations on route across study area

3.2 Section 1 – Cupar Railway Station to Cupar East

This section of the study area consists primarily of the settlement of Cupar. This area is mainly residential with other key land uses including Cupar Railway Station, Cupar town centre and leisure and recreational facilities. The site visit began at Cupar Railway Station, and the team headed east to Cupar town centre and through Haugh Park. Haugh Park was reviewed as a potential route to avoiding congested traffic at the A91 East Bridge roundabout. On arrival it was clear that Haugh Park had been impacted by recent weather events and had subsequent flooding and damage to the river walls, which were blocked off to public access.

Traffic congestion was observed on East Bridge Road, with a high volume of vehicles passing through the East Bridge double mini roundabout. The A91 westbound currently has two lanes, however one lane could be reallocated to deliver a high-quality active travel facility. The A91 eastbound (East Road to Cupar Industrial Estate) is a 30mph road with potential space for active travel infrastructure through the use of existing central hatching, right-turn ghost islands, footway widths and road narrowing. Existing pedestrian refuge islands and dropped kerbs were observed within this location.



Figure 3-3: Haugh Park

3.3 Section 2 – Cupar East to Dairsie

The A91 between Cupar East and Dairsie is a local distributor road running west-east between Cupar and Dairsie. The surrounding environment is primarily agricultural. This section of road was identified as the most direct route option between Cupar East and Dairsie.

Current active travel facilities along the A91 between Cupar East and Dairsie comprise narrow footways, often less than 1 metre wide (refer to **Figure 3-4**). Between Cupar and Dairsie there is only footway on the North side of the road and crossing facilities along this road are limited to dropped kerbs with no tactile paving.

The A91 currently adheres to a 60mph speed limit. The carriageway is narrow in sections, limiting the possibility of further narrowing to deliver a high-quality active travel infrastructure whilst also allowing two-way traffic flows. Therefore, land purchase will be required to create a safe active travel route that adheres to *Cycling by Design* guidance.



Figure 3-4: Cupar industrial estate



Figure 3-5: A91 heading into Dairsie

3.4 Section 3 – Dairsie to Clayton

The surrounding environment along the A91 between Dairsie and Clayton is agricultural, residential and leisure. Current active travel facilities along the A91 between Dairsie and Clayton consist of variable footways, some of which are less than 1 metre wide. This was very apparent along Dairsie main street which experiences high volumes of traffic. The speed limit within Dairsie is 30mph, however it was considered during the site visit that the speed limit was not adhered to by passing vehicles. Alternatives to Dairsie main street were also reviewed, such as residential streets to the south and an informal path to the north that passes Dairsie Primary School.

Apart from Dairsie, the rest of the section of the A91 adheres to a 60mph speed limit. Private land purchase for this section was also identified as a requirement for the active travel network to adhere to *Cycling by Design* guidance due to the current narrow footways and lack of opportunity for road narrowing.

This section of road was identified as the most direct option, however the constraints within Dairsie main street identified above make the delivery of a high-quality active travel network very challenging through this section.



Figure 3-6: Dairsie Main Street



Figure 3-8: Guardbridge roundabout



Figure 3-7: Clayton Caravan Park

3.5 Clayton to Guardbridge

The section of the A91 from Clayton to Guardbridge adheres to a 60mph speed limit with narrow footways and carriageway, between 1.5 – 2m wide. meaning that land purchase was also identified as a requirement at this location.

When arriving into Guardbridge, the environment becomes built up and primarily residential. Guardbridge adheres to a 30mph speed limit and there is a section of on-street parking along the A91 towards the Guardbridge roundabout. This, combined with narrow footways, carriageway and limited verge space, is considered to create challenges in delivering a high-quality active travel facility that complies with *Cycling by Design*.

The Eden Woods development is a residential development in Guardbridge that is mostly occupied. Potential ways of incorporating both existing and proposed active travel facilities associated with the development were observed during the site visit. Additionally, the route at this location could connect to the NCN route which connects Guardbridge to St Andrews and Leuchars.

4. Stakeholder Engagement

4.1 Introduction

Stakeholder engagement has been a fundamental part of the Cupar to Guardbridge Feasibility Study. The project has strived to develop the emerging proposals through a collaborative co-design approach with Fife Council, key stakeholders, and the local community.

The key engagement activities, which are summarised throughout this chapter, are as follows:

- Engagement with Fife Council departments and officers.
- Launch of a project Virtual Engagement Room.
- Hosting of an in-person Community Workshop.
- 1:1 conversations and email correspondence with key stakeholders.

In addition to the above activities, work undertaken to date by the Cupar Development Trust related to the Cupar and Country Community Action Plan 2023 will also be summarised within this chapter.

More details around the approach to engagement and the engagement findings can be found in the Cupar to Guardbridge Engagement Log in **Appendix B**.

4.2 Fife Council Engagement

Engagement with Fife Council has been ongoing throughout the development of the SEStran Strategic Network and during the delivery of the Cupar to Guardbridge feasibility study.

Fife Council active and sustainable transport officers have directly contributed to the feasibility study during the project inception meeting and monthly progress meetings. During these meetings, the project team have provided detailed updates on progress through the key project stages, which gave officers the opportunity to collaborate with the project team and influence the proposals, tapping into their local knowledge.

In addition, a meeting was held with the Fife Network Management Team to discuss the principles of the project and discuss key issues related to potential impacts on the local road network. The key points from this discussion were as follows:

- Fife Council's desired minimum two-way carriageway width is 6.75m and absolute minimum is 6.5m. However, they would be looking for 6.75m minimum, particularly on distributor roads, to minimise impacts of roadworks, maintenance etc.
- Fife Council were not keen on carriageway narrowing along A91 east of Cupar but did acknowledge the wide footways, wider carriageway and central hatchings that could be used at this location.
- There is also a railway line which passes below the A91 between Cupar and Guardbridge near Clayton which the project team should be aware of when developing designs as this will be a major pinch point.

The development team at Fife Council were also contacted in relation to the Eden Woods residential development in Guardbridge to ensure there are no conflicts. Collaboration with Fife Council has been crucial in the development of the route and the concept design proposals. This provided a comprehensive understanding of the local context, future Fife Council active travel proposals and how the proposed route will tie in with Fife Councils aspirations, for example alignment with the emerging Fife Council Active Travel Strategy.

4.3 Virtual Engagement Room

A combined Virtual Engagement Room (VER) was developed for the proposed Kinghorn to Kirkcaldy and Cupar to Guardbridge routes being progressed by SEStran on behalf of Fife Council. The VER allowed stakeholders and the wider public to access and view information digitally.

The Fife VER included the following information:

- Background information on the SEStran Strategic Network.
- Reasoning behind the Cupar to Guardbridge route being progressed.
- Project next steps.
- An online survey which provided an opportunity for stakeholders to provide early feedback on the study.

Early project information was shared with stakeholders using this platform, giving them the opportunity to provide feedback within the VER. The VER was shared via email, on Fife Council's website, on social media platforms, by local organisations such as Sustainable Cupar, and local news outlet 'Cupar Now'.

The early feedback from the VER was crucial in helping guide the discussions within the community workshop to help steer the emerging design proposals.



Figure 4-1: Fife Virtual Engagement Room

4.3.1 Key findings

For each VER question, analysis was undertaken to identify frequently occurring terms into key themes that provide an overall summary of responses. In many cases, responses were extensive and discuss more than one theme.

The VER received 184 responses related to the Cupar to Guardbridge route. 98% of respondents felt that a high-quality walking and cycling route would be beneficial to the local area, which demonstrates strong local backing for the project among participants. Responses were split 50:50 by gender, ensuring good representation across the opinions of both males and females, whilst 55-64 was the most common age group. **Figure 4-2** depicts the age distribution of respondents further, where it can be seen that overall, there were fewer young people to respond, with 75% of respondents being aged 45 or over. 13% of respondents stated they had a long term physical or mental illness, which provides valuable insights into mobility impaired and disabled users that took part in the survey and the potential impact on their travel choices.

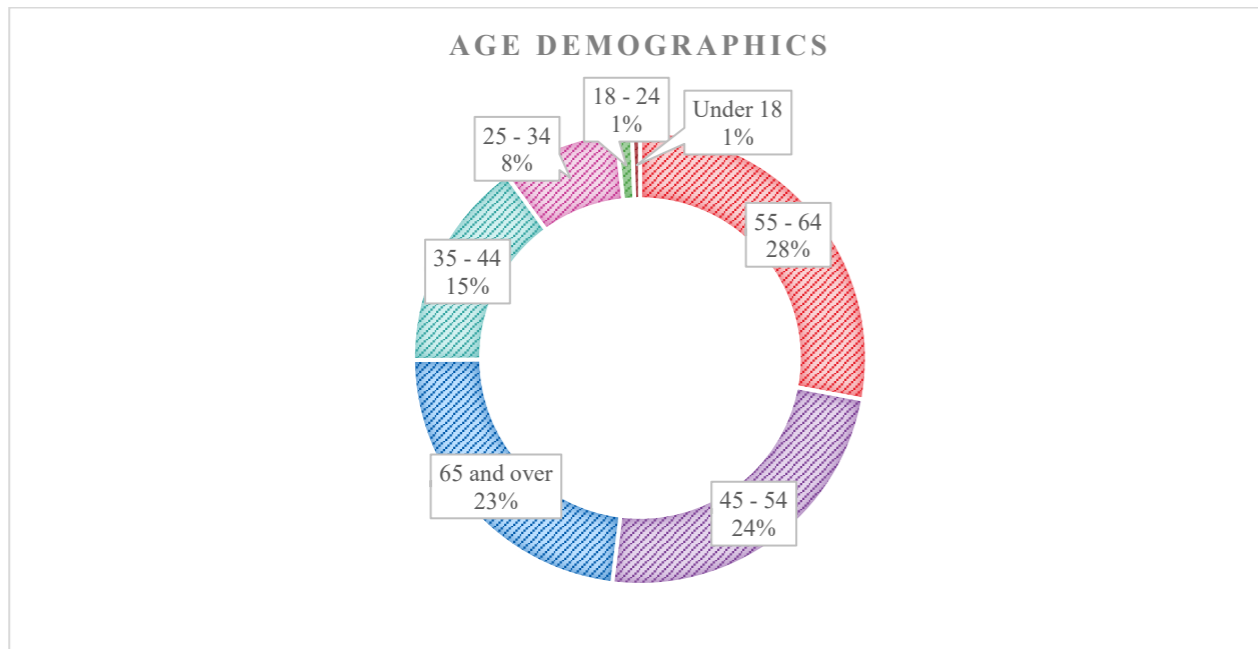


Figure 4-2: Age demographics of respondents

Key Facilities and Services

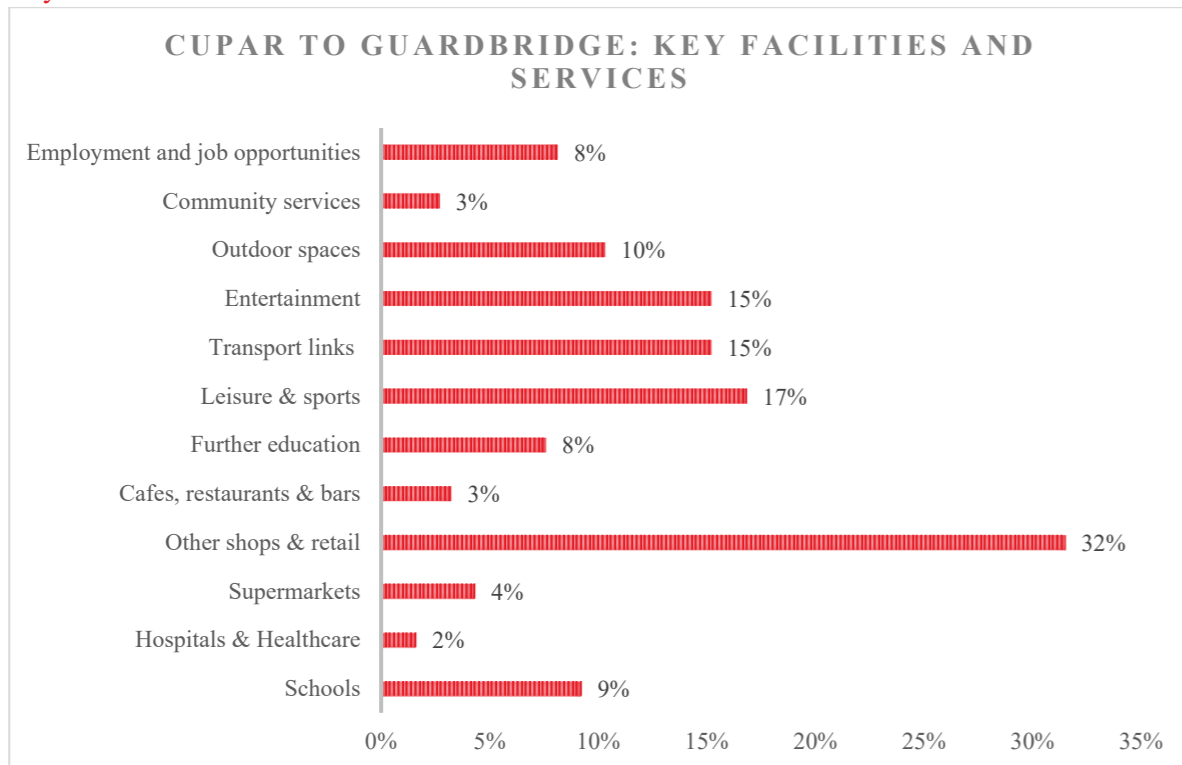


Figure 4-3: Thematic analysis of key facilities and services for the Cupar to Guardbridge route

Figure 4-3 shows the percentage of responses referring to each of the 12 broader destination themes. Shops and retail were the destinations referred to most (32%), and in particular the shops in St Andrews and Cupar town centres. Employment in Cupar, Guardbridge and St Andrews also regularly appeared in responses. In many cases, respondents referred to settlements rather than specific destinations, of which commonly appearing places are listed below. St Andrews town centre and the university are the most commonly cited destinations by respondents, with other key destinations including:

- Clayton Caravan Park
- Dundee City Centre
- Tentsmuir Forest
- Train stations at Cupar and Leuchars
- Dairsie

Barriers to Walking, Wheeling and Cycling

When asked what are the key barriers to walking, wheeling and cycling, responses generally relate to a lack of segregated infrastructure for active travel users in the area. Data showed that the primary barriers identified related to danger and lack of safety on the A91, the main road route between Cupar and Guardbridge. This is broken down in Figure 4-4, which outlines the most common responses. For example, 49% of responses outlined high traffic volume as being a barrier to travelling actively. The current footpath alongside the A91 between Cupar and Guardbridge was also regularly mentioned as being poor level of service.

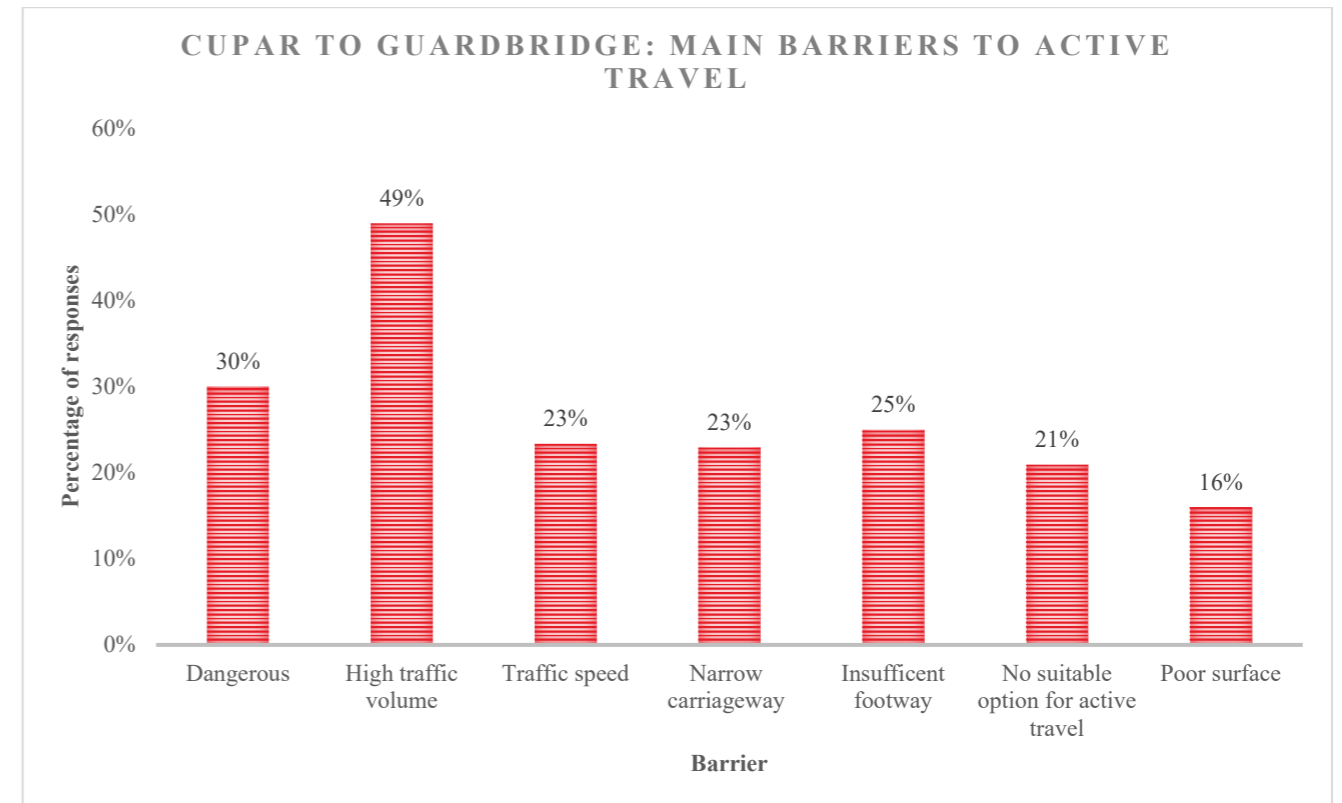


Figure 4-4: Thematic analysis of the barriers to active travel between Cupar and Guardbridge

Active Travel Opportunities

When looking at opportunities, 65% of responses directly mention the terms 'path' or 'cycle lane', whilst other frequently occurring terms were 'safe', 'segregated', 'separated' and 'traffic free'. This data makes it clear that the primary improvement people want to see in the area is a high-quality active travel corridor that provides sufficient separation from vehicle traffic. Other responses referred to an increased buffer / separation from traffic, improved surface that is wide enough to accommodate all users, and lighting improvements as desirable interventions.

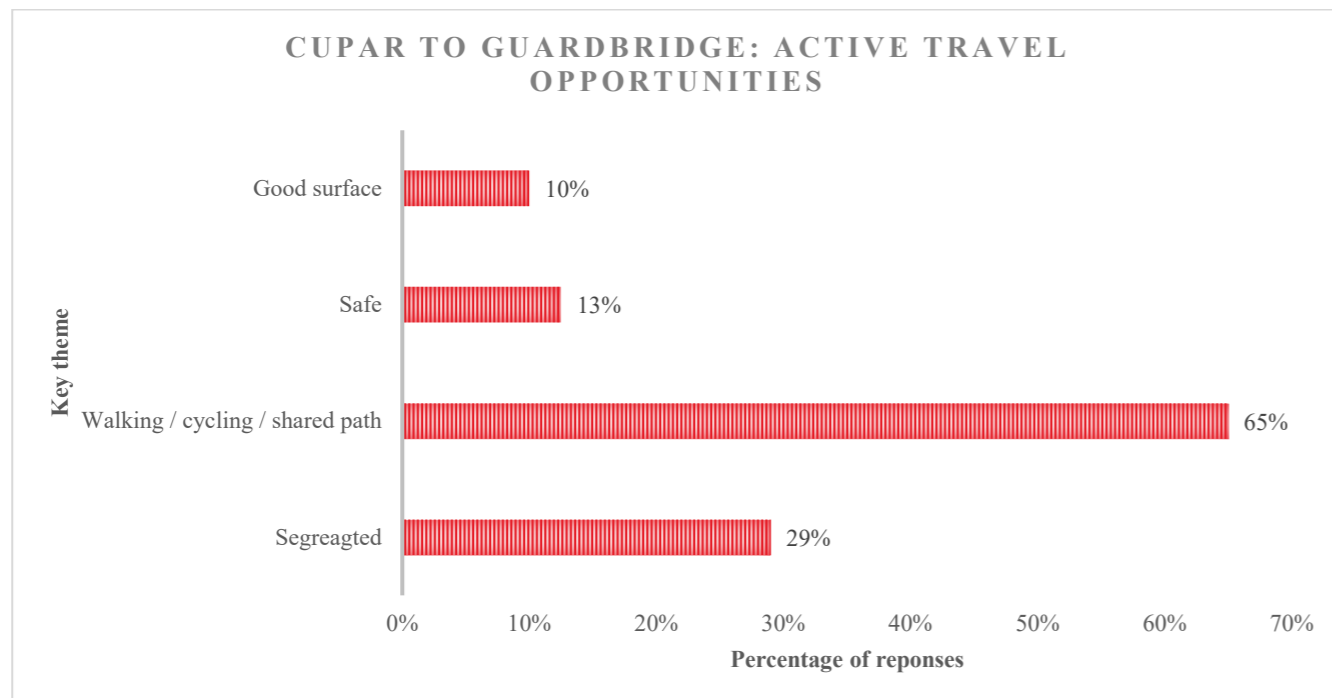


Figure 4-5: Thematic analysis of the barriers to active travel between Cupar and Guardbridge

An emerging theme from responses was that the existing path adjacent to the A91 between Guardbridge and St Andrews is popular among respondents – with many outlining that they would be happy to see a similar shared-use path implemented for the stretch between Cupar and Guardbridge.

Summary

Overall responses were very positive to the VER and provided critical local knowledge that will aid the project going into option appraisal and concept design stages.

More details on the VER findings can be found in **Appendix C**.

4.4 Community Workshop

Key stakeholders in the Cupar to Guardbridge area, which were identified in collaboration with Fife Council, were given the opportunity to attend a community workshop on Tuesday 5th of December 2023 at the Old Parish Centre in Cupar to discuss a potential Cupar to Guardbridge active travel route. The workshop included discussions surrounding key facilities and services, barriers to walking, wheeling and cycling, potential opportunities and types of interventions that could be delivered through this project.

Participants of the community workshop included the following groups:

- Sustainable Cupar
- Cupar Community Council
- Guardbridge Community Council
- A Local Elected Member
- Cupar Development Trust
- North East Fife Health and Social Care Partnership
- Castlehill Community Council
- St Andrews University
- Local residents

All feedback throughout the workshop was recorded digitally and is summarised below. A more detailed summary of responses during the workshop can be found in **Appendix B**.



Figure 4-6: Cupar to Guardbridge community workshop

4.4.1 Key Findings

The key themes from the workshop are shown in the following diagram:

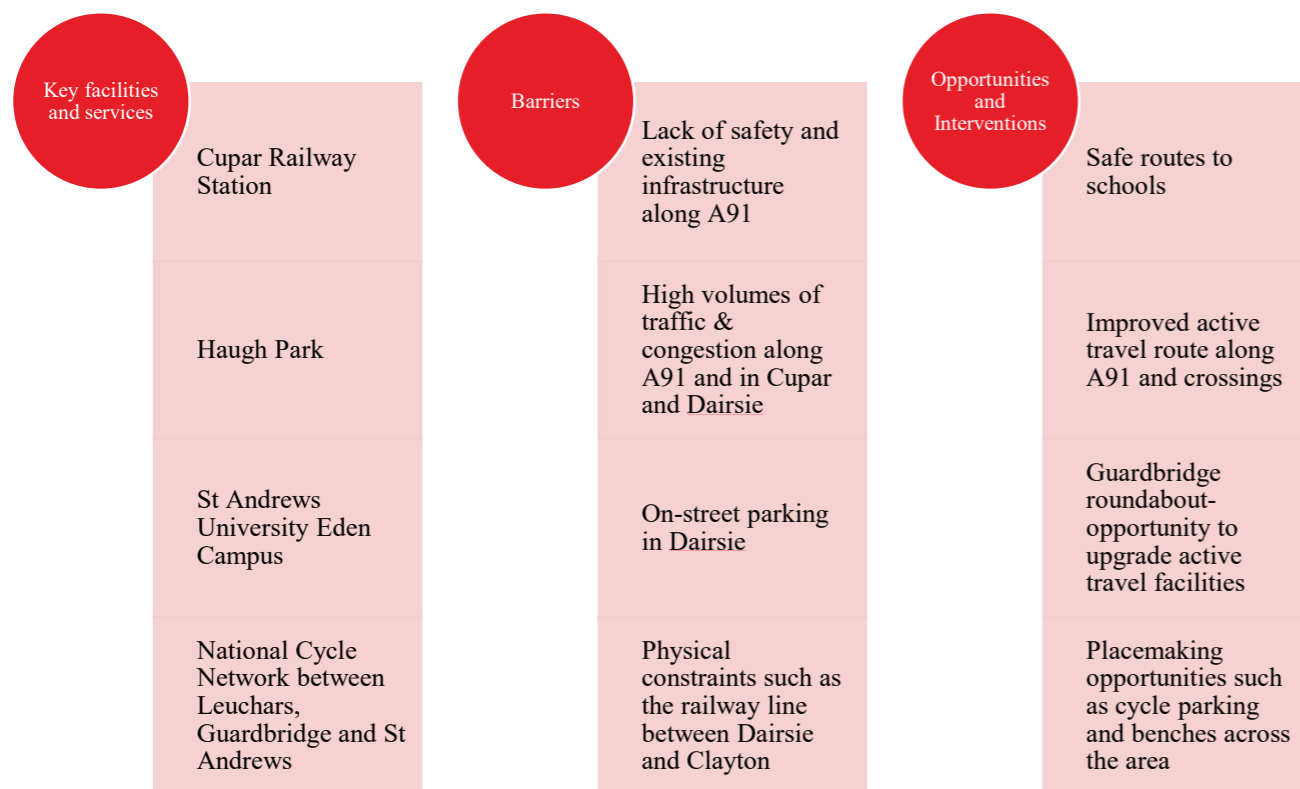


Figure 4-7: Summary of key themes emerging from community workshop

The workshop provided a clear summary of the issues along the A91, including key origins and destinations within the study area; barriers to active travel such as physical constraints, on-street parking, and traffic; and active travel opportunities such as improvements along the A91 and upgraded crossing facilities at the Guardbridge roundabout.

4.5 1:1 Meetings and Correspondence

In addition to the above engagement activities, follow-up meetings and discussions were held, and email correspondence were exchanged, with the following key stakeholders:

- Sustainable Cupar
- Cupar Development Trust
- Transition University of St Andrews
- St Andrews University Eden Campus

The key findings from these activities were as follows:

- Key land uses in the area include agricultural, tourism, recreation, and employment such as St Andrews University Eden Campus.
- There is a significant volume of commuting from the Cupar and Guardbridge area and onwards to St Andrews.
- Cycling is currently an unpleasant experience within the local area.
- There should be a push to reduce current levels of transportation and focus on creating local connections and opportunities.

4.6 Cupar and Country Community Action Plan 2023

Discussions with the Cupar Development Trust (CDT) during the workshop and through email correspondence made the project team aware of community engagement undertaken by CDT as part of the *Cupar and Country Community*

Action Plan 2023. One of their 15 outcomes identified within the action plan was "Improvements to active travel routes would be required to allow a more active, healthy and safe community".

The action plan was informed by comprehensive community engagement, which included the following:

- 448 survey responses, on behalf of 1545 people.
- 190+ people in attendance at open drop-in events.
- 13 one to one interviews carried out with organisations active in the area.
- 28 people in attendance at the stakeholder summit, with representation from at least 18 groups.
- Updates on the process sent to 2,000 subscribers by CuparNow, including over 200 businesses and over 400 community groups' contacts.

CDT used the priority outcomes from the Community Action Plan to devise 33 separate planning proposals for the *Cupar Ward Local Place Plan*. One of the proposals is "Creation of an active travel route between Cupar and Guardbridge to allow connection with the existing cycle path between Guardbridge and St Andrews". These proposals will be submitted to Fife Council in early 2024 for consideration in the new Fife Development Plan 2027 onwards. The Local Place Plan is still at draft stage as this has not yet undertaken statutory consultation.

This information provided by the CDT shows the already existing local support for a high quality active travel connection between Cupar and Guardbridge. This also emphasises the importance of regular liaison with the CDT and other relevant stakeholders to ensure alignment between the Cupar to Guardbridge active travel proposals and the vision outlined within the emerging Local Place Plan.

4.7 Land Registry Search

To support Fife Council's engagement with adjacent landowners following the delivery of this study, Title Deed Plans have been collated using the Scotlis website. This search has been informed by the collection of Fife Council land ownership data during the desktop review (see **Chapter 2**), discussions throughout the engagement stage related to land ownership, and early findings from the route options appraisal and concept design stages (see **Chapter 6**) which provided a summary of location where the purchase of third-party land would be required to progress the proposals.

The Title Deeds collected for the Cupar to Guardbridge route have been primarily located adjacent to the rural sections of the A91 from the east of Cupar to the west of Guardbridge. These are key locations throughout the study area that are considered to require third-party land purchase.

Full Title Deed Plans will be provided alongside this report.

5. Route Options and Concept Design Proposals

5.1 Introduction

The proposed active travel route between Cupar and Guardbridge aims to deliver strategic active travel infrastructure along the Cupar to Guardbridge corridor, in line with the objectives of the SEStran Strategic network and Cycling by Design (CbD) guidance (see **Section 5.2**). The route therefore strives to deliver high quality active travel infrastructure separated from vehicle traffic where possible. The route also aims to minimise the number of times users are required to cross the carriageway to ensure a continuous and direct link is being provided.

Following the desktop review, site audit and stakeholder engagement, options for the Cupar to Guardbridge route have been identified and assessed for each of the sections outlined in **Chapter 5** through a route options appraisal exercise. This exercise outlined the positives and negatives for each option, and considered a number of factors such as the local environment, physical constraints and CbD level of service (LoS) indicators. The identified options are explained throughout this chapter, with more details of route options appraisal exercise outlined in **Appendix E**.

Concept design proposals were developed for the preferred route options between Cupar and Guardbridge. This consists of concept drawings, cross-sections and concept visualisations. The concept design proposals for the preferred route option can be found in **Appendix G**.

Ongoing collaboration with SEStran and Fife Council throughout the project was undertaken to discuss the various options along each section of the route.

5.2 Options Appraisal

5.2.1 Overview

To undertake the Options Appraisal process to identify the preferred route, the route was split into four sections outlined in **Figure 5-1**.

Preferred route options have been determined through a route options appraisal exercise, which was informed by CbD guidance and reviewing the objectives of the SEStran Strategic Network, which is to provide high quality, strategic active travel routes. The options appraisal has been undertaken using the six design principles outlined throughout CbD (see **Table 3**) with the aim of delivering a high level of service. This was combined with an assessment on the cost effectiveness and deliverability of each option, which are defined using the same scoring system. Full details of the scoring criteria used to inform this options appraisal is summarised in **Table 3**.

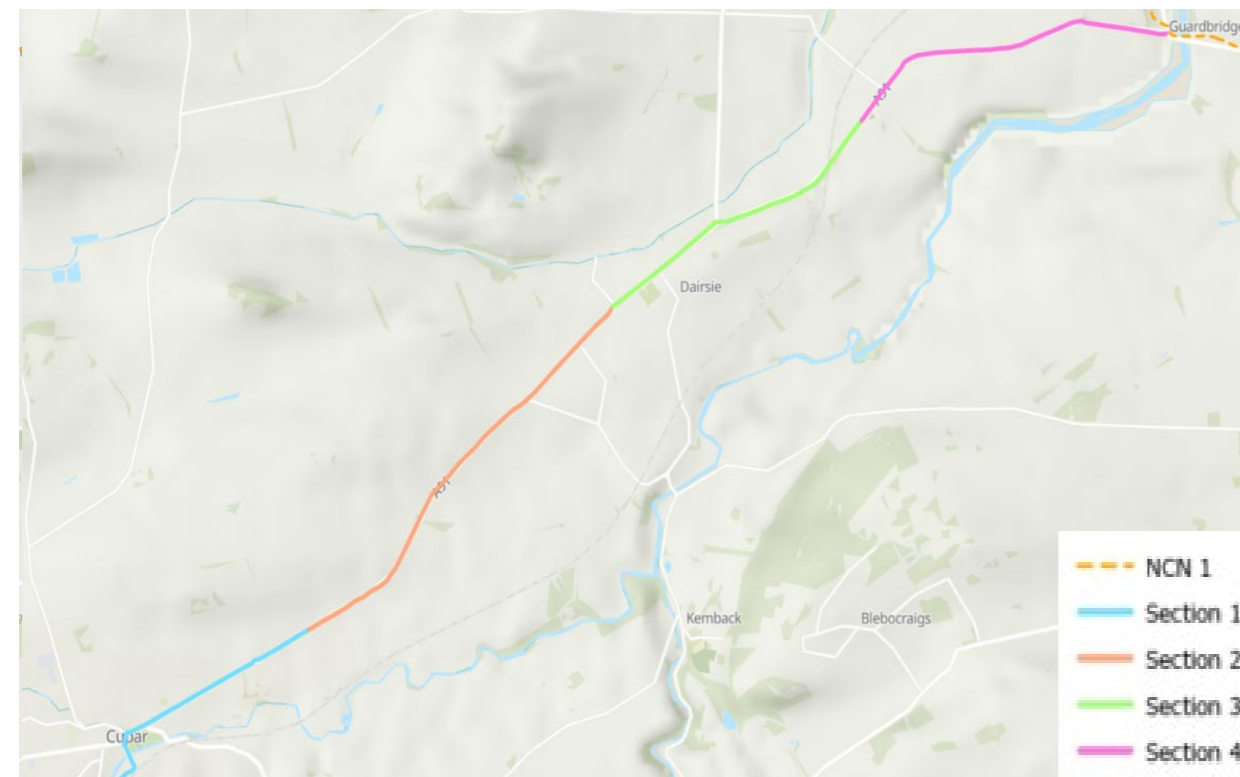


Table 3: Options appraisal full scoring criteria

Principle	High Level of Service scoring (3)	Medium Level of Service scoring (2)	Low Level of Service scoring (1)
Cycling by Design			
Safety	Cycle users are always protected from motor traffic when required by the conditions set in Table 3.2 in Chapter 3 (Cycling by Design).	In some cases, cycle users are expected to mix with motor traffic in higher speed or volume conditions that are set in Table 3.2 in Chapter 3 (Cycling by Design).	In some cases, cycle users are expected to mix with motor traffic in significantly higher speed or volume conditions that are set in Table 3.2 in Chapter 3 (Cycling by Design).
Coherence	Cycle routes are continuous and fully joined-up. They allow cycle users to maintain consistent speed, are well-signed and intuitive.	Cycle routes contribute to a network, but users experience some disruption when connecting between routes, and navigation may be difficult.	Cycle users must dismount or are 'abandoned' at the end of a route.
Directness	Cycle route is at least as direct as the equivalent motor traffic journey, with minimal need to stop or give-way. Delay for cycle users at junctions is less than for motor traffic.	Cycle route is up to 20% less direct than the equivalent motor traffic journey, with some need to stop or give-way. Delay for cycle users at junctions is equal to motor traffic delay.	Cycle route is more than 20% less direct than the equivalent motor traffic journey, with frequent need to stop or give-way. Delay for cycle users at junctions is greater than for motor traffic.
Comfort	Cycle route surfaces are machine laid, smooth and well-maintained (at least as regularly as the road network). Desirable minimum widths and gradients are fully achieved.	Sections of route are hand-laid with frequent joints. Route is maintained less frequently than the road network. Desirable minimum widths or gradients are not achieved for some of the route.	Sections of the route are unbound, bumpy, not regularly maintained or otherwise hazardous. Desirable minimum widths or gradients are not achieved for the majority of the route.
Attractiveness	Cycle route and parking areas are well lit, overlooked and do not create any personal security issues for users. The cycle route adds to the sense of place in the area, encouraging people to spend time there.	Some sections of the route are infrequently lit or not overlooked. Parking areas are secure but not overlooked or are insufficient in number.	The majority of the route is infrequently lit or not overlooked. Parking areas are not secure or are insufficient in number.
Adaptability	Cycle route and parking areas have the flexibility to expand, evolve or adapt to changing demands.	Only some of the cycle route or parking areas has the flexibility to expand, evolve or adapt to changing demands.	No scope to amend cycling infrastructure once installed.
Additional Criteria			
Cost effectiveness	This option requires minor improvements which are low cost in comparison to other options.	This option requires work to incorporate the infrastructure within the existing space, however, it can be done without acquiring land, large structures (bridges) or significant earthworks (coastal protection).	Any route option that requires land acquisition, large structures (bridges) or significant earthworks (coastal protection).
Deliverability	There are no issues such as physical constraints, speed limit changes and on-street parking which will impact the deliverability of the project.	The option will include one of the following: physical constraints, speed limit changes and on-street parking.	The option will include a combination of the following: physical constraints, speed limit changes and on-street parking.

Each route option has been scored against these design principles using a combination of a quantitative and qualitative assessment. The highest scoring option from each section of the study area will be recommended to determine the preferred route.

The remainder of this chapter summarises the options that were considered and their overall score as part of the options appraisal. The full options appraisal, including options mapping, descriptions, positives, negatives and the rationale for the scoring of each option against each criteria, can be found in **Appendix D**.

5.2.2 Section 1- Cupar Railway Station to Cupar Industrial Estate

Section 1 comprises the Cupar section of the route, travelling easterly through Cupar on the A91 to Cupar Industrial Estate. The A91 at this location experiences high levels of traffic and congestion, therefore taking the route through Haugh Park has also been considered.

This study recognises the importance of connectivity to public transport hubs such as Cupar Railway Station. However, due to physical constraints along Station Road identified during the concept design stage, it was concluded that it is not possible to provide a high-quality active travel route between Cupar Railway Station and Haugh Park which adheres to CbD route guidance. Other options were considered, such as taking the route from the railway station through Cupar town centre. However, this option was found to be less direct than the other options, and additional considerations such as the removal of on-street parking would be required, which is likely to impact route deliverability. Therefore it was concluded that active travel connectivity to the railway station should be considered as part of a wider town centre strategy for Cupar. The route will therefore begin at Haugh Park and continue east along the A91.

A summary of each option considered for this section can be found in the table below and **Appendix D**.

Table 4: Route section overview - section 1

Section 1 – Haugh Park to Cupar Industrial Estate		Overall score
1.1	High quality active travel facility passing through East Bridge and East Road and continuing along the A91.	18
1.2	High quality active travel facility at Haugh Park and joining East Bridge Road where along the A91.	19
1.3	High quality active travel facility at Haugh Park and joining Piscottie Road where it will be a mixed traffic street then become segregated from vehicles on the A91.	17
1.4	High quality active travel facility along Coal Street and joining Piscottie Road, where it will be a mixed traffic street then continued mixed traffic street through Edenbank Road. The route will then become segregated from vehicles on the A91.	20
1.5	High quality active travel facility through the north of Haugh Park and joining East Bridge Road where it will be segregated from vehicles along the A91.	21
1.6	High quality active travel facility on Station Road, South Bridge, Crossgate and A91 which connects into Haugh Park and continues along the A91.	14

Based on the above scores Option 1.5 has been identified as the preferred option. This route is an option which is safe from flooding from the River Eden. This route will then travel into Haugh Park, where new infrastructure is proposed. This route will be situated north of the park away from any potential flooding from the River Eden, which means this route can be used all year round. The route will then cross at Piscottie road from the B940 onto the A91. Upgrades to the junction may be required to enhance safety for active travel users. The current traffic lights will be required to be upgraded to a toucan crossing to provide active travel users with the crossing facilities required to safely cross the junction.

One small pinch point has been noted along this section which is not compliant with CbD requirements. This is located at the crossing area exiting Haugh park, where the width of the active travel facility is 2.5m for a short section. This is due to physical constraints associated with the carriageway width and surrounding buildings and residential properties.

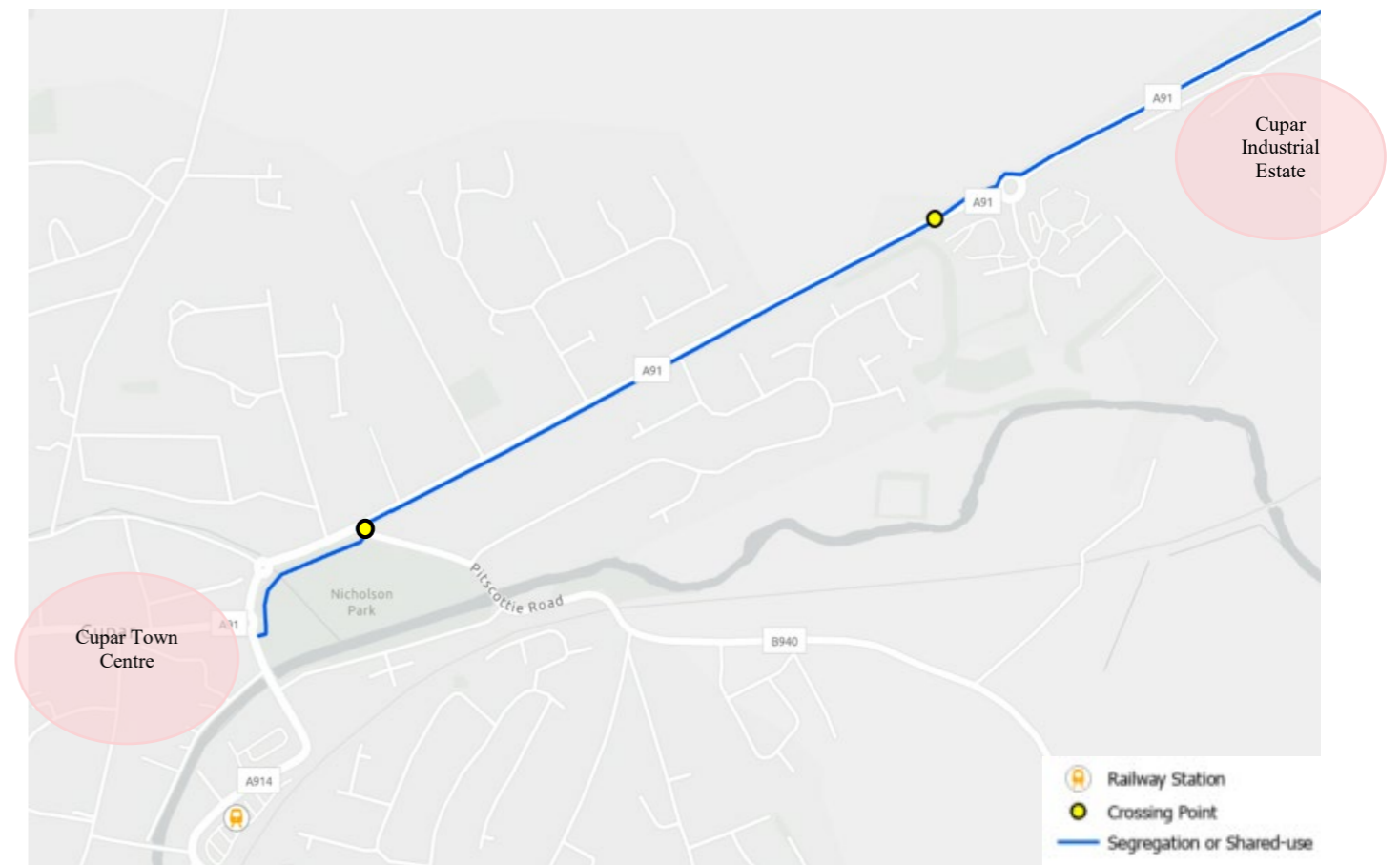


Figure 5-2: Option 1.5, the preferred option for section 1



Figure 5-3: Haugh Park concept visualisation

5.2.3 Section 2- Cupar Industrial Estate to Dairsie

Section 2 continues to travel east along the A91 entering the rural section of the network. Due to physical constraints and the lack of off-road paths, the A91 was considered the only feasible option. An option travelling along the B940 and B939 was also considered as an alternative based on discussions during the community workshop.

Section 2 experiences high volumes of traffic travelling at the national speed limit, this also includes buses, coaches and HVGs. In some areas of this section there are very narrow footways. After Cupar Industrial Estate there is only one section of footway located on the northern side of the carriageway. It is likely land will need to be purchased to ensure there is sufficient space for a high-quality active travel route in accordance with CbD standards.

Table 4: Route section overview - section 2

Section 2 – Cupar Industrial Estate to Dairsie		Overall score
2.1	High quality active travel facility to the north of the A91 carriageway between Cupar Industrial Estate and Dairsie. The northern stretch of the path has been chosen as there is already an existing footway.	21
2.2	High quality active travel route along B940 passing through Piscottie, then continuing north along the B939 through Strathkinness and Edenside and arriving into Guardbridge from the east.	17

Option 2.1 has been identified as the preferred option at this location due to its strategic, direct nature and connectivity with Dairsie. This option begins at Cupar Industrial Estate and continues east along the A91. Segregation from vehicles is deemed to be most appropriate at this location. This is because of the high volumes and speed of traffic which is experienced on the A91. Segregation from vehicles is considered to ensure safety for active travel users.

To follow the CbD guidance, land purchase will be required to achieve a high-quality active travel facility. In addition, the carriageway is currently unlit, which is unsuitable when delivering a high-quality active travel route in line with CbD. Potential lighting solutions are discussed further in **Section 5.5**.

One small pinch point has been noted along this section which is not compliant with CbD requirements. This is located at a residential property, where the frontage is directly adjacent to the existing footway. At this location, the active travel facility is narrowed to around 2.9 metres with a 0.5m buffer for a short section. This has been proposed due to the lack of alternatives to the A91 at this location. Realigning the carriageway has also been explored at this location.

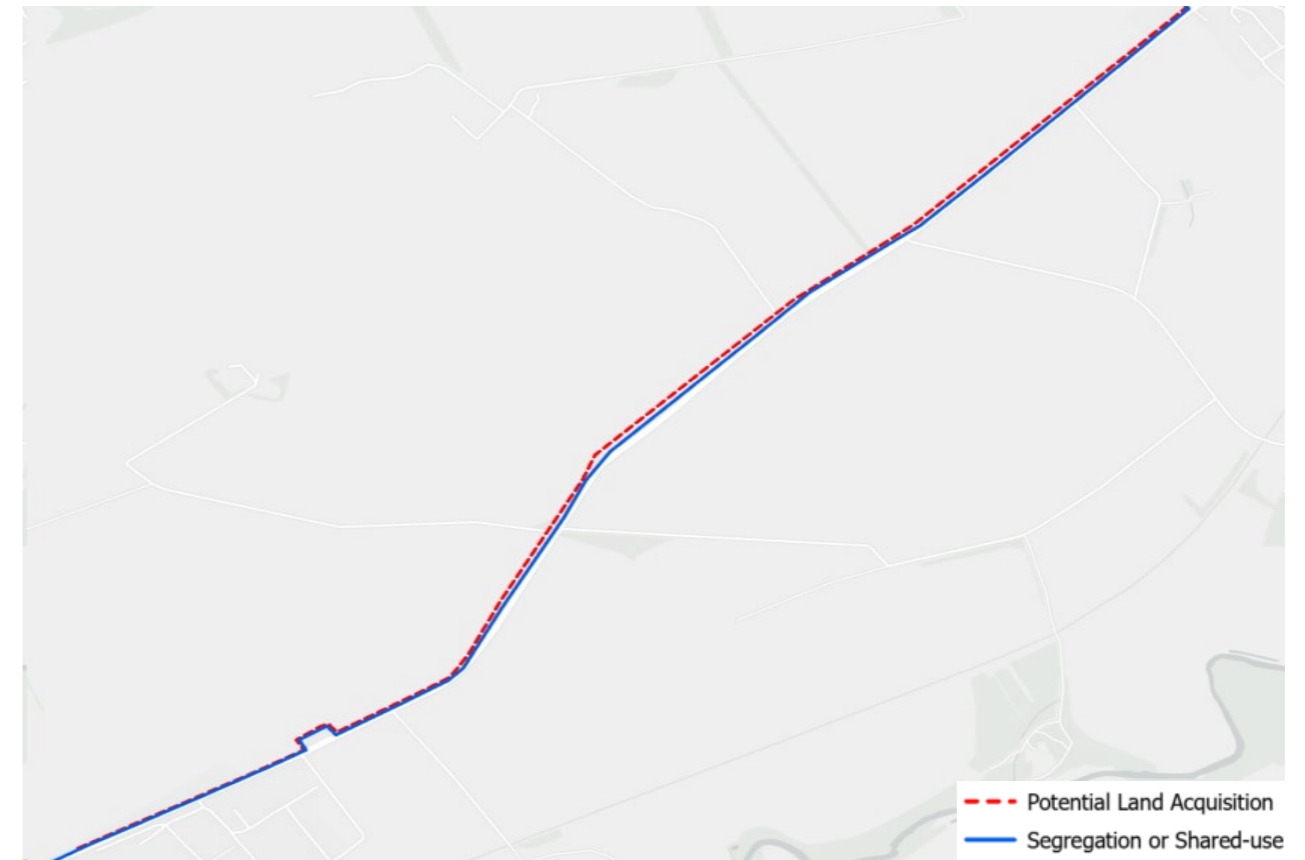


Figure 5-4: Option 2.1, the preferred option for section 2

5.2.4 Section 3- Dairsie to Clayton

Section 3 begins in Dairsie and continues east along the A91. Dairsie is a small village which has limited carriageway and footway space along the main street.

This section of road experiences high volumes of traffic and high levels of speed, especially through Dairsie which has a speed limit of 30mph, however during the site visit it was observed that many vehicles did not adhere to the speed limit. Additionally, conversations held with local residents during the community workshop, and observations noted during the site visit, expressed concerns over many vehicles speeding along Dairsie main street on the A91.

It is likely land purchase will be required along the majority of this section to ensure delivery of a high-quality active travel route.

Table 5: Route section overview - section 3

Section 3 – Dairsie to Clayton		Overall score
3.1	Active travel route going directly along Dairsie main street on the carriageway.	14
3.2	High quality active travel route entering Dairsie, then a mixed traffic street along Ardencaple Terrace, Osanborough Court and Station Road, then continuing along the A91 as a high quality active travel route.	17
3.3	High quality active travel route entering Dairsie, then turning left past Dairsie primary school and utilising an existing informal path to the north, then continuing along the A91 as a high-quality active travel route.	19

Option 3.3 has been identified as the preferred option. This option will pass through Dairsie Primary School and utilise an existing informal path. Ensuring the route passes the primary school enables connectivity to an existing ‘Sustrans Safer Routes to School’ route which will encourage children to actively travel to school.

This option will require land acquisition due to physical constraints. This location is also currently unlit, which is unsuitable when proposing a high-quality active travel route. Potential lighting solutions are discussed further in **Section 5.5**.

Two small pinch points have been noted along this section which are not compliant with CbD requirements. The first pinch point is located in Dairsie when the proposed route re-enters the A91 to the east of the village. This is a small section which is currently very narrow with an existing footway of around 1.5 metres. There are physical constraints here associated with carriageway width and surrounding buildings and residential properties. There are also no alternatives to the A91 at this location. The second pinch point is located between Dairsie and Clayton at the railway overbridge. Due to physical constraints associated with the overbridge and surrounding environment, the active travel facility proposed at this location is 2.5m wide with a 0.5m buffer. There are no alternatives to the A91 at this location. Based on the short distances of these pinch points, and the justification outlined above, these concept proposals are considered to be acceptable.

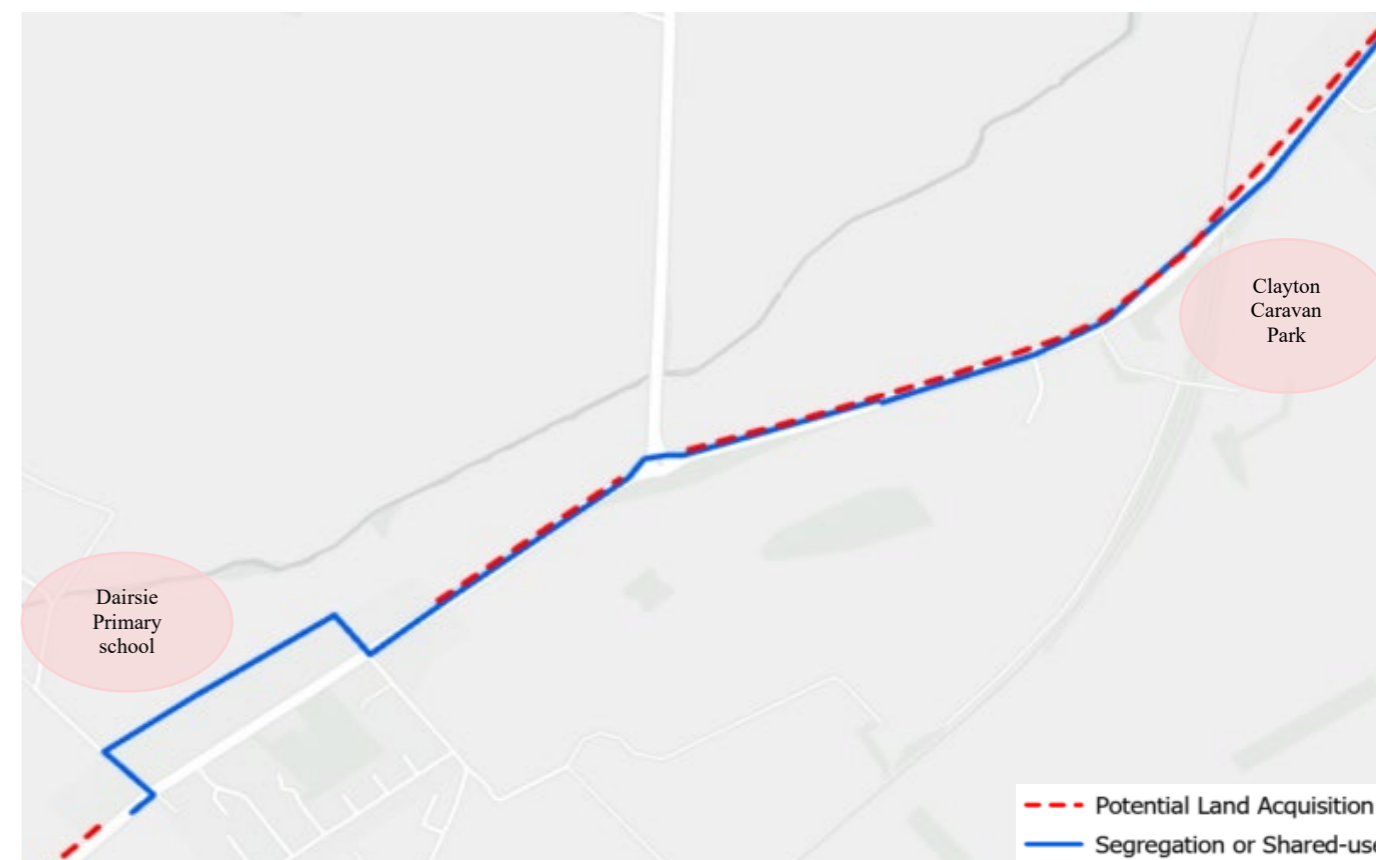


Figure 5-5: Option 3.3, the preferred option for section 3

5.2.5 Section 4- Guardbridge

The final section of the route will finish in Guardbridge. Located here is the University of St Andrews Eden Campus and the NCN connecting Guardbridge with Leuchars and St Andrews. Therefore, there is opportunity to connect the existing NCN to the proposed route network to ensure delivery of an active travel network approach.

Similar to the previous route options, it is likely that land purchase will be required for the majority of the section due to physical constraints.

Table 6: Route section overview - Section 4

Section 4 – Clayton to Guardbridge		Overall score
4.1	High quality active travel route along the A91 until Guardbridge where the route will potentially become an absolute minimum shared footway/cycleway or light segregation, and the route will finish on Guardbridge roundabout which connects to the NCN route.	17
4.2	High quality active travel route along the A91 then upgrade of a future footpath identified as part of the Eden Woods Development Plans, which connects to the NCN route.	24
4.3	High quality active travel route along the A91 and a mixed traffic street going through the Eden Woods Developments residential street which connects with the NCN route adjacent to the University of St Andrews Eden Campus.	23

Option 4.3 has been identified as the preferred option. This makes effective use of the Eden Woods development future plans and effectively connects with the NCN route.

Along the A91 before entering Guardbridge there will be required land acquisition in order to create a high-quality design active travel network. As this option is within a rural area with no lighting there will need to be consideration to the potential for any future lighting as part of the route proposals. Lighting considerations are discussed in **Section 5.5**.



Figure 5-6: Option 4.3, the preferred option for section 4

5.3 Preferred Route

A summary of these preferred route options, crossing points, and areas where land acquisition may be potentially required can be seen in **Figure 5-7**.

In summary, route begins at Cupar Railway Station, passes through Haugh Park (option 1.5) then continues along the A91 from Cupar Industrial Estate to Dairsie (option 2.1). The route then passes by Dairsie Primary School and utilises an existing informal path, before continuing along the A91 towards Clayton (option 3.3). The route then enters Guardbridge and utilises plans for a future active travel infrastructure as part of the Eden Woods development, before connecting with the NCN route which provides onward connectivity to Leuchars and St Andrews.

Overall, this route is considered to offer the highest level of service to active travel users based on CbD's six design principles, whilst also considering additional factors such as cost and deliverability.

The concept design proposals for the preferred route are provided in **Appendix F**.

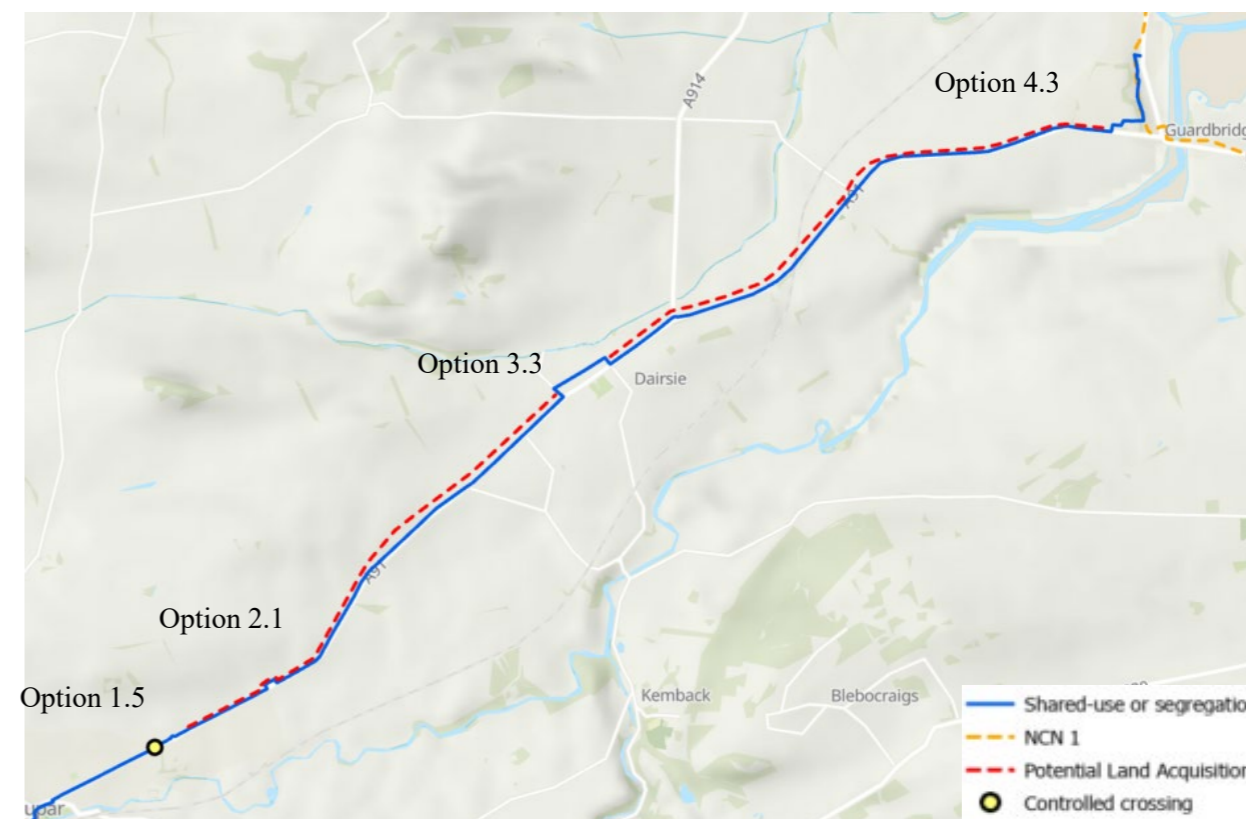


Figure 5-7: Cupar to Guardbridge summary of preferred route

5.4 Lighting

Lighting on remote cycle tracks is recommended in CbD to provide a high level of service along a route. CbD points toward the Institute of Lighting Professionals Lighting for Cycling Infrastructure document which lists the following as mitigating factors to the adverse impact lighting can have on wildlife. These factors include:

- Protecting existing dark spaces.
- Creating new dark spaces.
- Altering the spectrum of artificial lighting.
- Reducing artificial light trespass.
- Dimming of artificial lighting.
- Part-night lighting.

In future technical design stages it is recommended that designers work with ecologists to identify the level of mitigation required where lighting is being provided. An example of lighting that could be used within the rural sections of the routes include solar-powered studs to delineate the edge of the route.

5.5 Public Utilities

High-level utility searches have been undertaken for key sections along this route, such as the A921. The search included using a service called 'Line Search Before U Dig (LSBUD)' where service members such as the Scottish Gas Network and SP Energy Networks have registered their assets on the online service. LSBUD is used to highlight utilities within specific areas and bring them to attention within the concept design drawings. Although LSBUD is a key preliminary utilities tool, there is a possibility not all members have registered the relevant information. Therefore, it is considered that utilities should be explored further at future design stages.

Unknown utilities at this stage are telecommunications, water and waste, which should also be explored further during future technical design stages.

5.6 Budget Cost Estimate

High level, order of magnitude cost estimates for the active travel route between Cupar and Guardbridge shown in **Appendix G** have been developed through a costings exercise based on DfT research on average costs associated with implementing high quality and ambitious active travel projects¹.

Within this report typical costs are provided for a:

- “Mixed strategic cycle route”- a cycle route along a strategic corridor, consisting of a combination of physically segregated cycle routes, shared facilities and cycle routes away from roads (typical cost range: £460,000-£880,000 per km).
- Crossing facilities- including uncontrolled crossings, parallel crossings and toucan crossings, which allow active travel users to cross safely (typical cost range: £5,000-£50,000 per crossing).
- Signage has been considered for the full route (typical cost range: £6,000 to £12,000 per km).

An estimated inflation rise 20% has been applied to the above costs and an optimism bias of 44% for this stage in the project as recommended by Scottish Transport Appraisal Guidance (STAG).

Based on the above cost estimates, the preferred route between Cupar and Guardbridge described throughout this chapter could cost in the region of between £7,000,000 and £13,400,000.

More details regarding the costings exercise undertaken for this project, including a detailed breakdown of the proposed interventions, can be found in **Appendix G**.

The costs outlined above have not included the following:

- Land acquisition.
- Alterations to utilities.
- Significant works or structures.

¹ Typical costs of cycling interventions: interim analysis of Cycle City Ambition schemes (publishing.service.gov.uk)

6. Summary and Next Steps

6.1 Summary

This feasibility study has been carried out to support the delivery of the SEStran Strategic Network, which strives to deliver a continuous high-quality active travel network across the South East of Scotland.

The output of this feasibility study is the delivery of a concept vision for the Cupar to Guardbridge active travel corridor, articulated through concept design proposals that provide high-quality continuous and direct facilities for active travel users. Proposals have also considered placemaking opportunities along the route.

The vision for the proposed route strives to achieve significant change in future travel behaviour along the corridor, leading to an increase in walking, wheeling and cycling trips.

The recommendations for the corridor have been informed by a desktop review exercise, detailed site audit and extensive stakeholder engagement exercise, which included ongoing engagement with Fife Council, a community workshop with key stakeholders and community groups and use of the Fife VER to inform stakeholders and gather feedback on the key issues within the local area.

The preferred route for the Cupar to Guardbridge route has been identified through a route options appraisal exercise, which considered the objectives of the SEStran Strategic Network, the design principles within *Cycling by Design* and the active travel infrastructure required to achieve a high level of service.

The concept proposals developed contribute significantly to a number of strategic objectives. These are as follows:

- Provision of a strategic active travel connection in and between Cupar, Dairsie, Clayton and Guardbridge, whilst also linking to Cupar Railway Station and future and existing developments such as Cupar North and Eden Woods (Guardbridge).
- Connecting numerous trip generators, shared services, and facilitating onward connectivity to St Andrews, which has been identified as a key employment and tourism destination.
- Improving actual and perceived safety. Where possible, the route has been separated with a buffer from vehicle traffic. A number of controlled road crossings were also introduced to facilitate safe crossing, provide priority for active travel users and address desire lines.

These proposals have been informed by *Cycling by Design*, which helped advise on the type of infrastructure proposed along the route, based on local context and physical constraints. The concept layouts also provide a guide to steer future design stages.

The concept design proposals have been developed on the basis that adjacent third-party land will be required to be purchased to deliver the proposals. This is due to physical constraints along the A91, with limited scope to utilise the existing local adopted road network. Local land ownership information has been collected through undertaking a land registry search.

This study has not incorporated a detailed assessment of information such as topographical surveys, planning/environmental constraints or wider landowner engagement and consultation, which should be undertaken for future design stages.

6.2 Next Steps

The wide range of information supporting the concept design have been collated in this summary report and the appendices. It is recommended that:

- In further development of detailed plans or proposals, the relevant evidence should again be reviewed in detail to ensure local and specific issues form part of the detailed design process.
- Further utilities investigations and surveys.
- The land ownership information collected through the land registry search undertaken should be used to begin discussions with landowners about land purchasing procedures.

- A topographic survey of the corridor is undertaken to inform the design process.
- Ecological appraisal of assessment to determine the impact of proposals on the surrounding environment and ecology.
- A wider public consultation engagement exercise is undertaken.

Funding opportunities for future design and implementation stages are explored such as the Transport Scotland 'Active Travel Transformation Fund' and 'Places for Everyone' funding.

The next stage of the design process is to develop the concept proposals further and progress the proposed route to the detailed design stage.

Subsequent design stages should identify suitable locations for signage and information and allocate street space for utility features such as cycle parking and seating, building on the placemaking opportunities already identified within this study. This should aim to provide a more welcoming and stimulating street environment as well as biodiversity improvements across the study area.

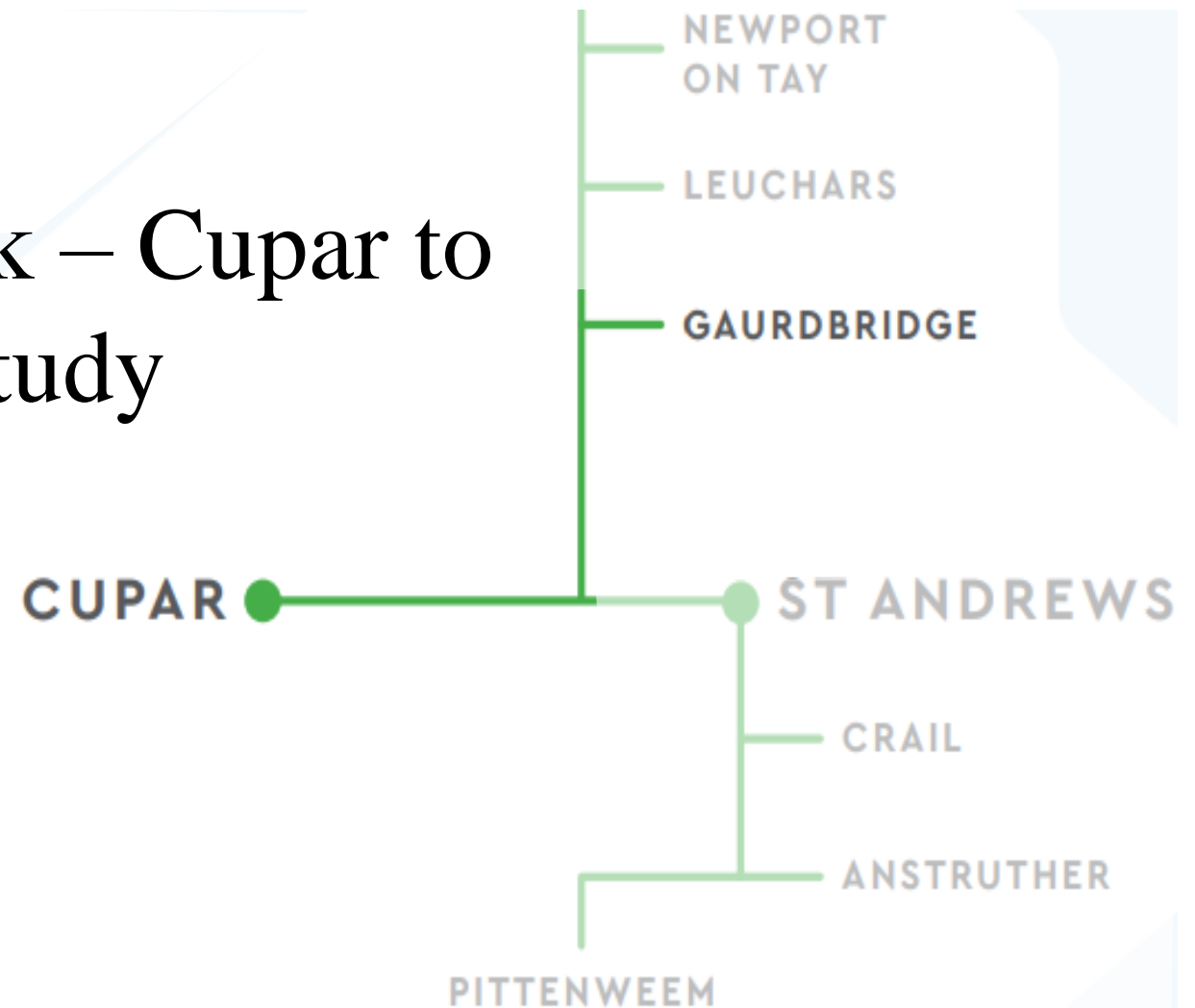
Whilst being subject to further technical, political and design development, the implementation of the concept proposals will contribute to transforming travel behaviours along this corridor linking Cupar and Guardbridge and areas further afield by active and sustainable modes of travel.

Appendix A

Desktop Review Scrapbook

SEStran Strategic Network – Cupar to Guardbridge Feasibility Study

Desktop Scrapbook



Introduction

Study Boundary

Arup have been appointed by SEStran to undertake a feasibility study for a high quality strategic active travel route between Cupar and Guardbridge.

The study boundary will run from Cupar to Guardbridge.



Initial Observations

A92 – East onwards to Guardbridge



Key observations:

- There are rural roads with a speed limit of 60mph when exiting Cupar eastbound.
- There is a speed limit change when approaching Dairsie (30mph) and Clayton (40 mph).
- There is currently a narrow pavement on the left side of the carriageway, with only space for one pedestrian / cyclist.
- There are currently 2 roundabouts along the route with a lack of pedestrian priority.

Initial Observations

A92 – West onwards to Cupar



Key observations:

- Rural roads with national speed limit.
- Speed limit change when approaching Dairsie (30mph) and Clayton (40 mph).
- There is an area of narrow footway.
- There is no segregation or current priority for cyclists and pedestrians.

Policy

Fife Local Development Plan 2017- Cupar



Main developments to consider:

- Cupar North – proposal for 1,400 new homes and a primary school.

Policy

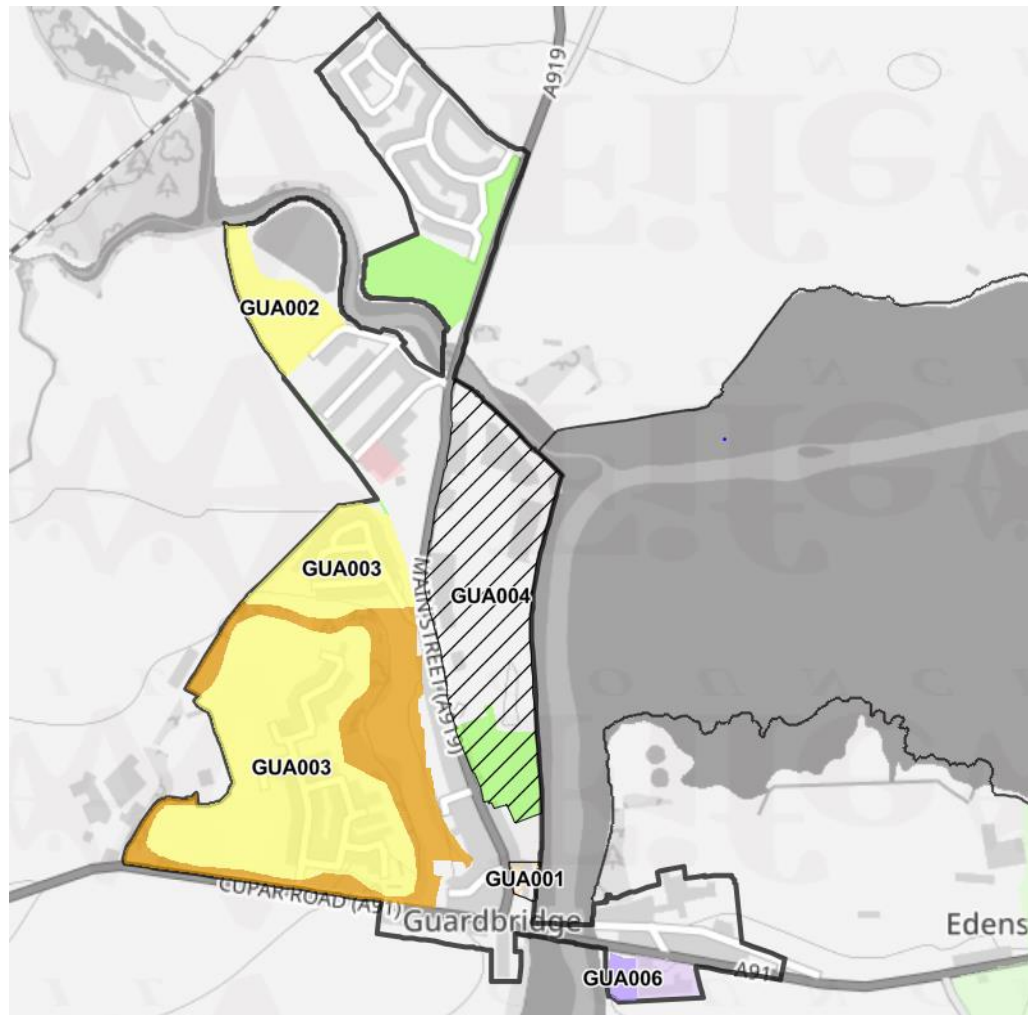
Fife Local Development Plan 2017- Cupar North



There is a relief road proposed to the north of the development and the A91, which the proposed active travel route will consider moving forward.

Policy

Fife Local Development Plan 2017- Guardbridge

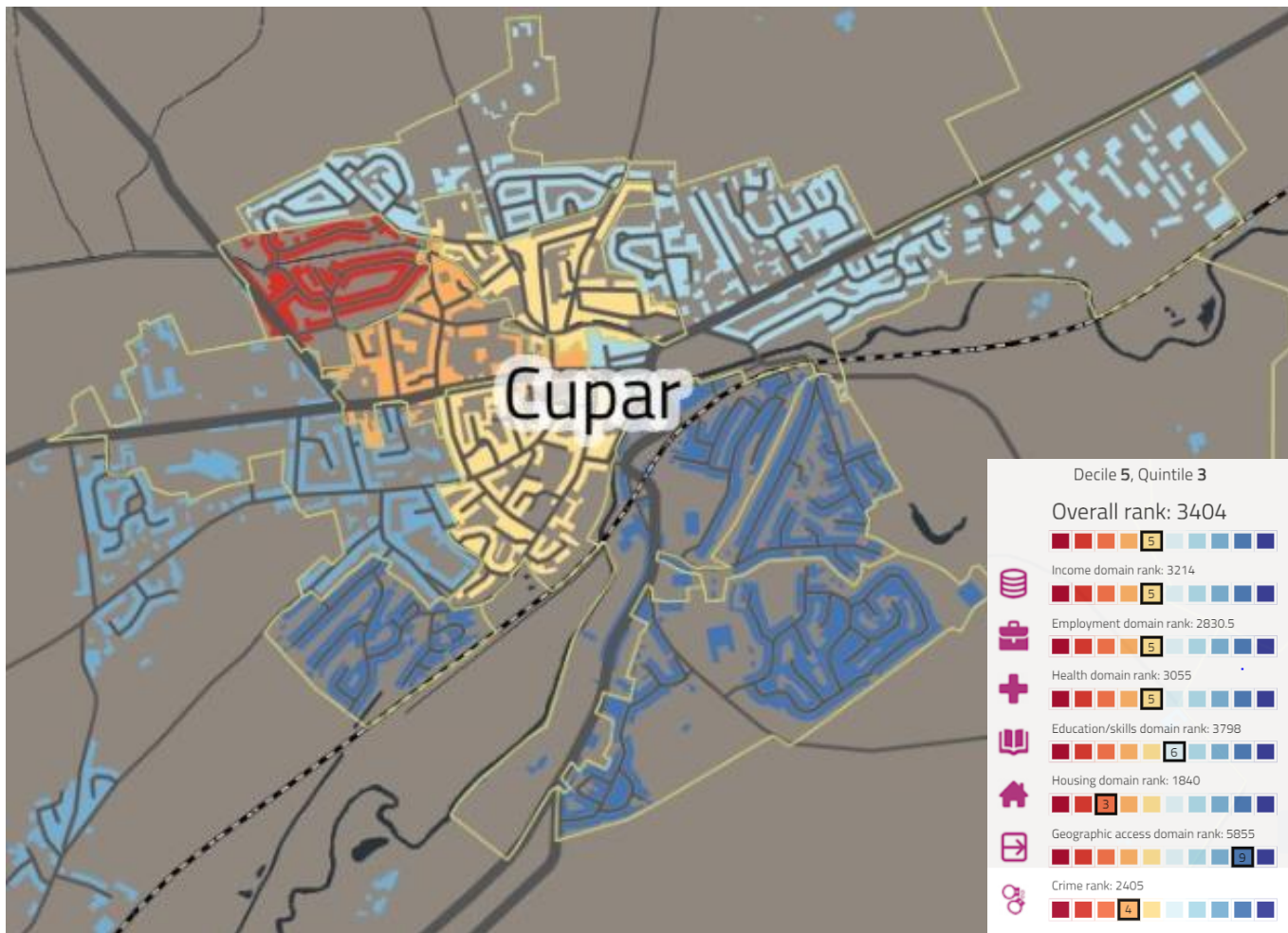


Key Observations:

- There are no significant developments proposed in Guardbridge that will impact the proposed route.

Baseline Data

Scottish Index of Multiple Deprivation 2020- Cupar

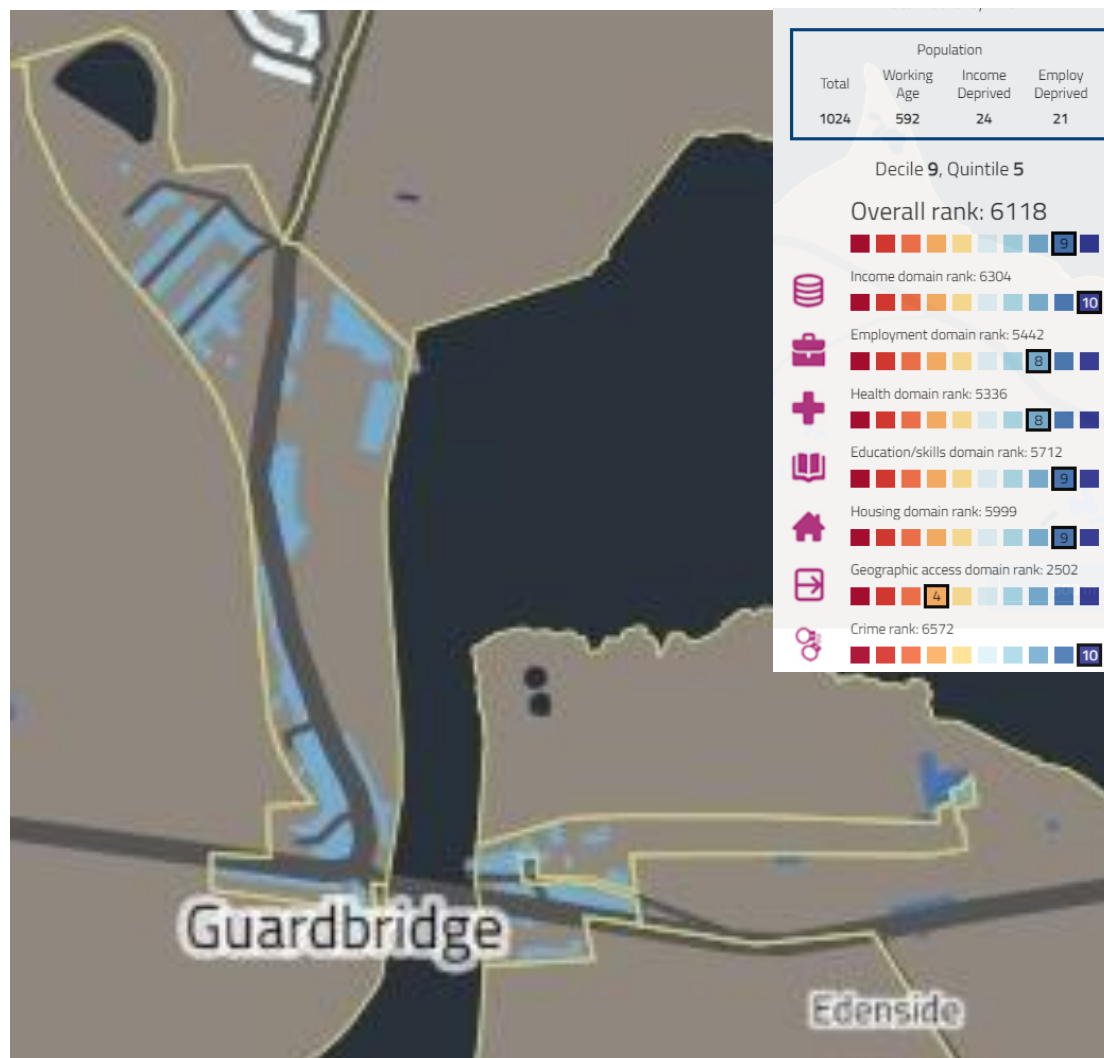


Key observations:

- Cupar has a mix of deprivation levels.
- The majority of Cupar is characterised by areas of low levels of deprivation.
- Cupar town centre is in the medium range of deprivation rankings.
- The north-west of Cupar predominantly consists of areas of high deprivation.

Baseline Data

SIMD 2020



Key observations:

- There are very low levels of deprivation across Guardbridge.

Baseline Data

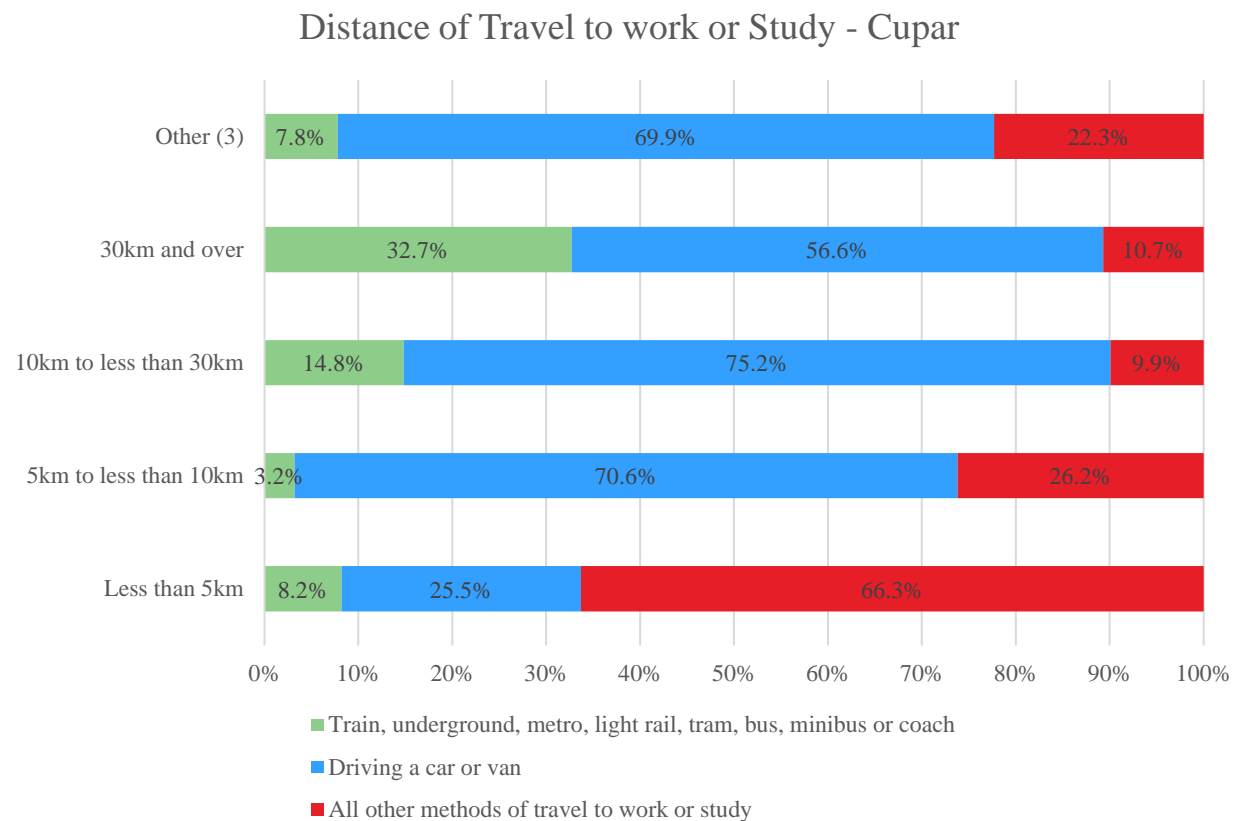
Census Scotland 2011- Method of Travel to Work

Transport to place of work or study	All people aged 16 to 74	Work mainly at or from home	Underground, metro, light rail or tram	Train	Bus, minibus or coach	Taxi or minicab	Driving a car or van	Passenger in a car or van	Motorcycle, scooter or moped	Bicycle	On foot	Other
Cupar	100%	8.4%	0.0%	3.3%	4.3%	0.0%	62.3%	4.4%	0.4%	1.6%	14.2%	0.3%
Guardbridge	100%	8.2%	0.0%	1.7%	13.7%	0.0%	63.7%	9.1%	0.3%	2.3%	1.2%	0.3%

- Private vehicles dominate travel across the route, with 62.35% in Cupar and 63.74% in Guardbridge driving cars or vans, while an additional 4.40% and 9.06% respectively travel as car/van passengers.
- There is moderate public transport usage, particularly in Guardbridge, where 13.74% of the population rely on buses, minivans or coaches.
- In both locations, a notable proportion of individuals (8.44% in Cupar and 8.19% in Guardbridge) primarily work from home.

Baseline Data

Census Scotland 2011- Distance of Travel to Work by Mode- Cupar

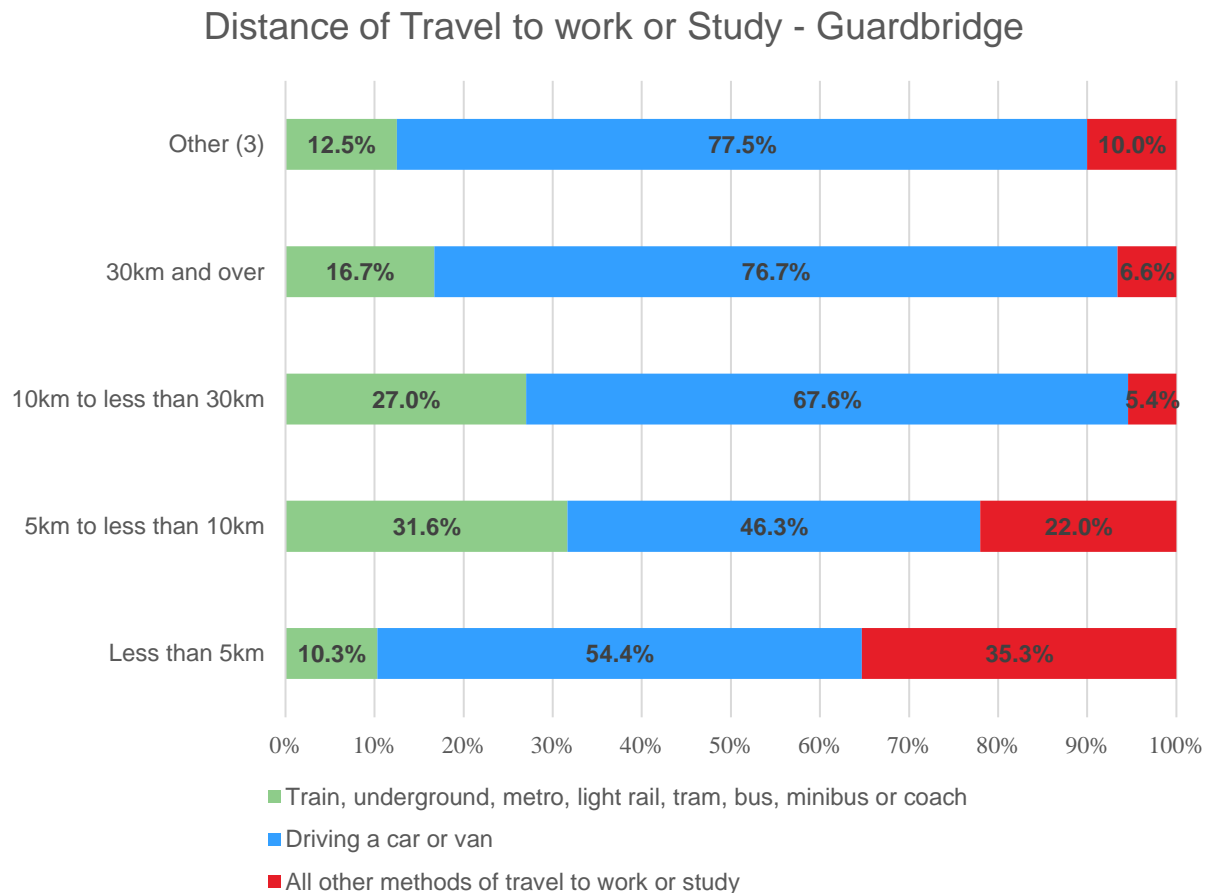


Key observations:

- Private vehicle is the primary mode of travel for the majority of people.
- Train, underground, metro, tram and bus are the least used methods of travel, except from distances between 5km to less than 10km (3.2%).
- For journeys less than 5km, all other modes is the most used, which included walking and cycling (66.3%).
- All other methods of transport are favoured over bus or train.

Baseline Data

Census Scotland 2011- Distance of Travel to Work by Mode- Guardbridge

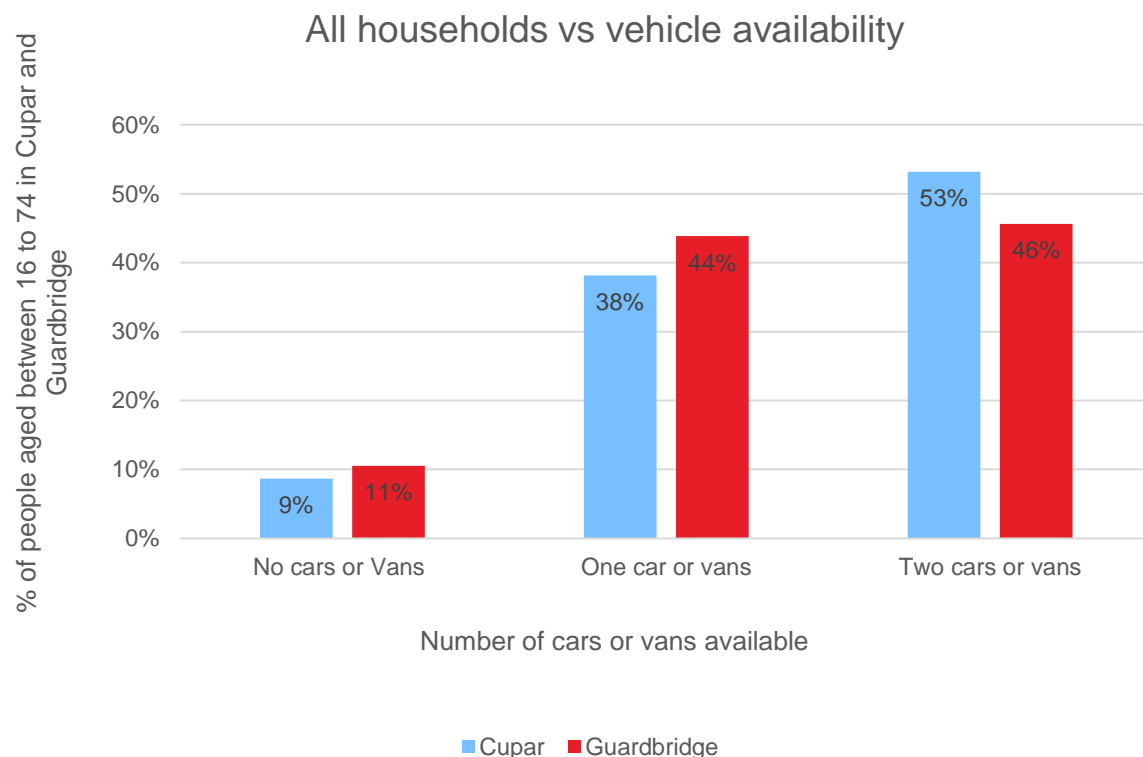


Key observations:

- Private vehicles are the primary mode of travel for the majority of people.
- A significant number of individuals choose other modes of transport (which includes walking and cycling) if their workplace or place of study is within less than 5km (35.5%)
- Train and bus usage scores low in journeys less than 5km (10.3%) and in journey 30km or more (16.7%)

Baseline Data

Census Scotland 2011- Car or Van Availability

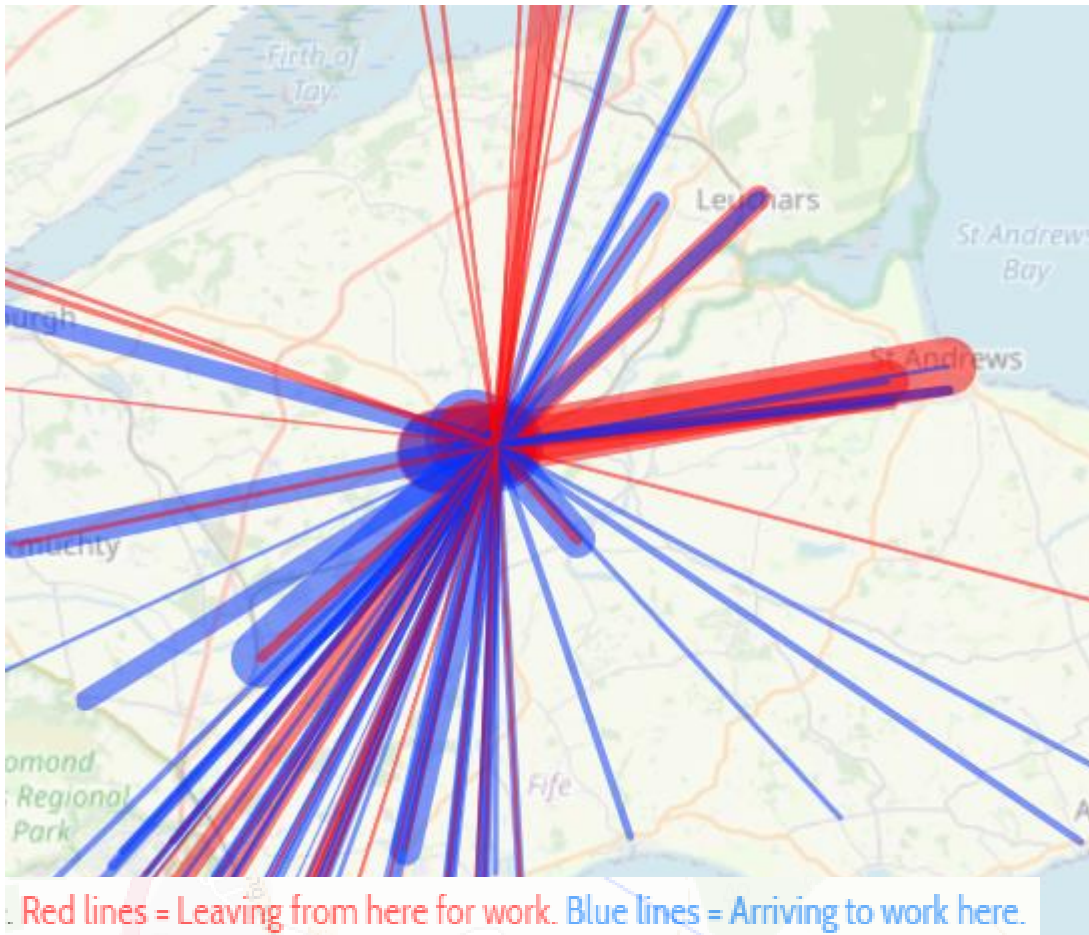


Key Observations:

- 9% of houses in Cupar do not have access to a car or van. Similarly, 11% of houses in Guardbridge do not have access to a car or van. This emphasises the importance of the availability of alternative modes of transport such as walking, wheeling and cycling.
- Cupar has a higher access to two cars or vans (53%) versus Guardbridge (46%). This suggests that there is a reliance of private vehicle travel in Cupar, and that alternative transport options should be provided to encourage modal shift.
- The delivery of an active travel route between Cupar and Guardbridge has the potential to encourage modal shift away from private car towards active and sustainable travel at both locations.

Baseline Data

Census Scotland Datashine Commute - Cupar (All modes)



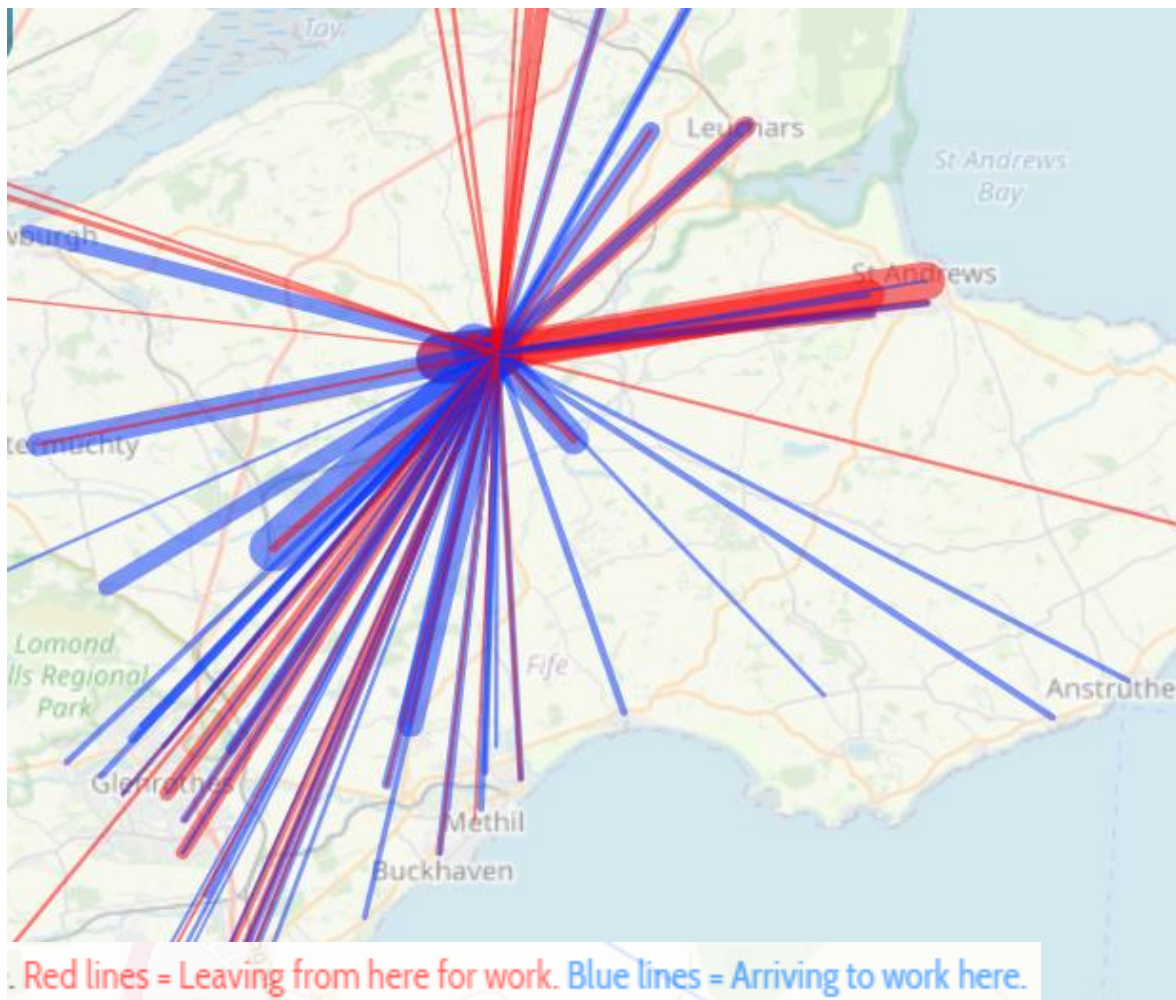
Cupar has a significant amount of people travelling to the town for employment but also others travelling elsewhere from Cupar for employment. The majority of people commute towards Dundee, while a small portion travel south to Edinburgh or Glasgow.

A large portion of commuters travel to St. Andrews, and alternatively, there are a number of commuters travelling from St. Andrews to Cupar.

Those commuting into Cupar also originate from the settlements to the south, including Anstruther and Glenrothes.

Baseline Data

Census Scotland Datashine Commute- Cupar (Car Driving)



There is a significant amount of private vehicle movement for those commuting into and out of Cupar. Other areas people travel to Cupar by car include surrounding settlements such as Methil, St. Andrews and Leuchars.

The delivery of an active travel route between Cupar and Guardbridge therefore has the potential to encourage modal shift away from private car towards active and sustainable travel between both locations.

Baseline Data

Fife Council Traffic Data- east of Dairsie

Week	Total flow average
01/05/23	7078
08/05/23	7168
15/05/23	7163
25/05/23	7479
29/05/23	7835
Total average = 7344	



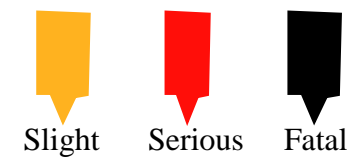
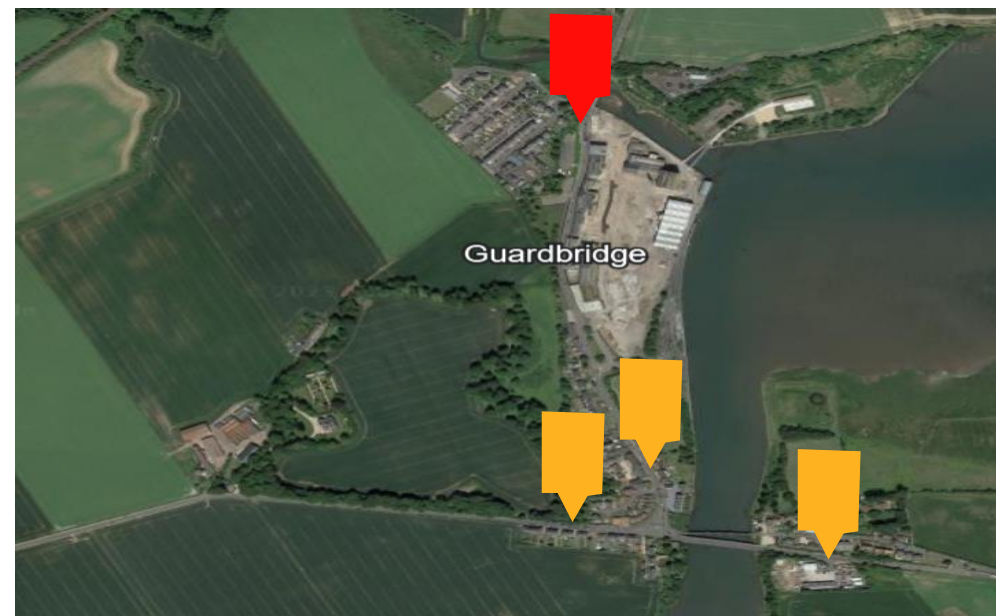
Baseline Data

Collision data in Cupar and Guardbridge 2019-2021 (Crashmap)

Cupar



Guardbridge

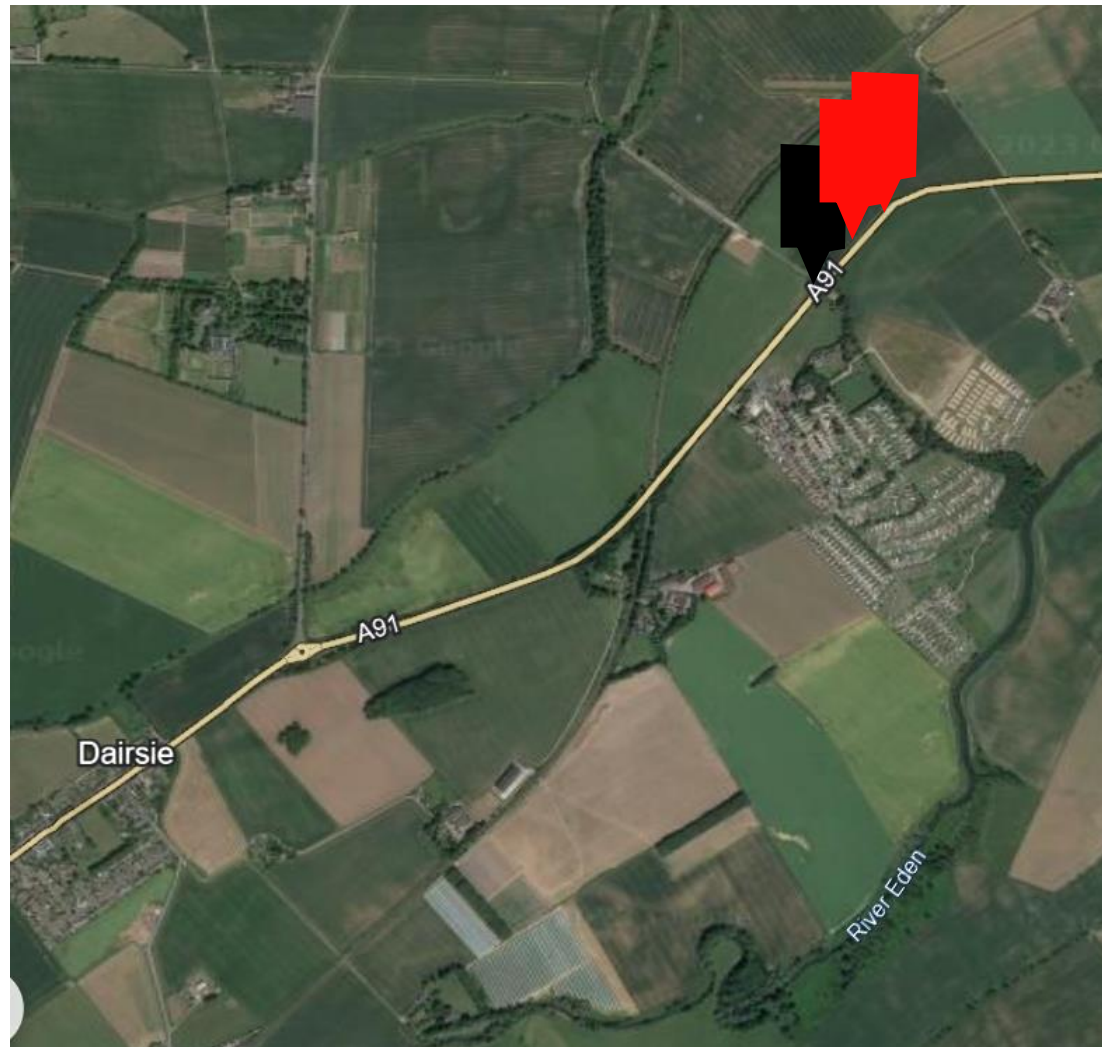


Key observations:

- Most incidents located in Cupar are slight, however there was one serious incident.
- Similarly, Guardbridge has a mix of slight and various incidents, but only a small amount of collisions compared with Cupar.

Baseline Data

Collision data on A91 in between Dairsie and Clayton 2019-2021 (Crashmap)



Key observations:

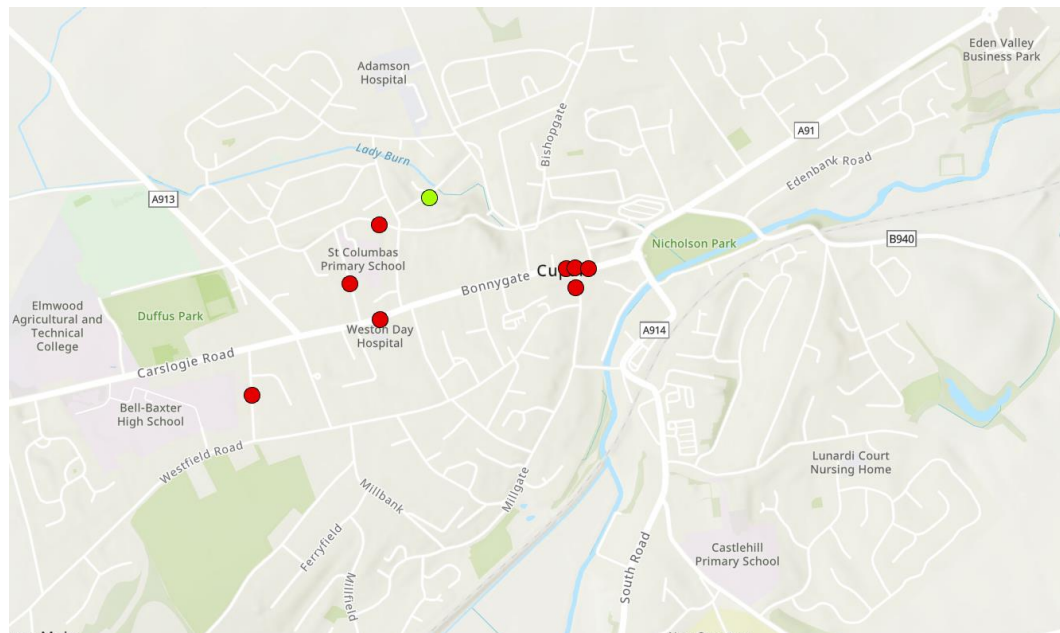
- At one specific location on the A91 adjacent to Clayton Caravan Park, over the past 4 years there has been two serious incidents and one fatal collision located within proximity.



Baseline Data

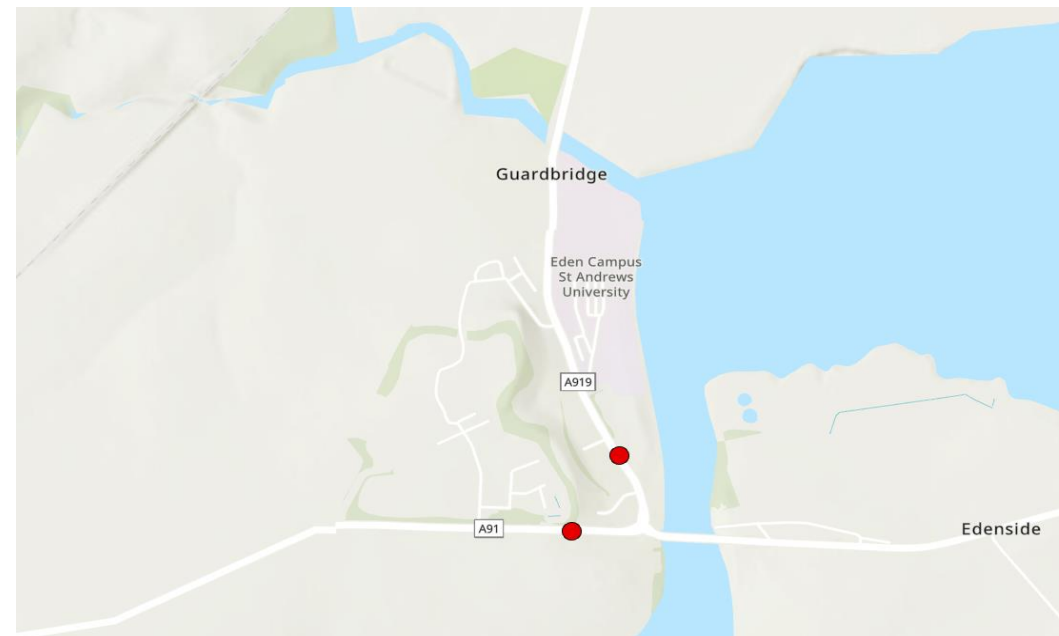
Collision data for cyclists / pedestrians from 2017-2020 (DfT STATS19)

Cupar



● Cyclist ● Pedestrian

Guardbridge



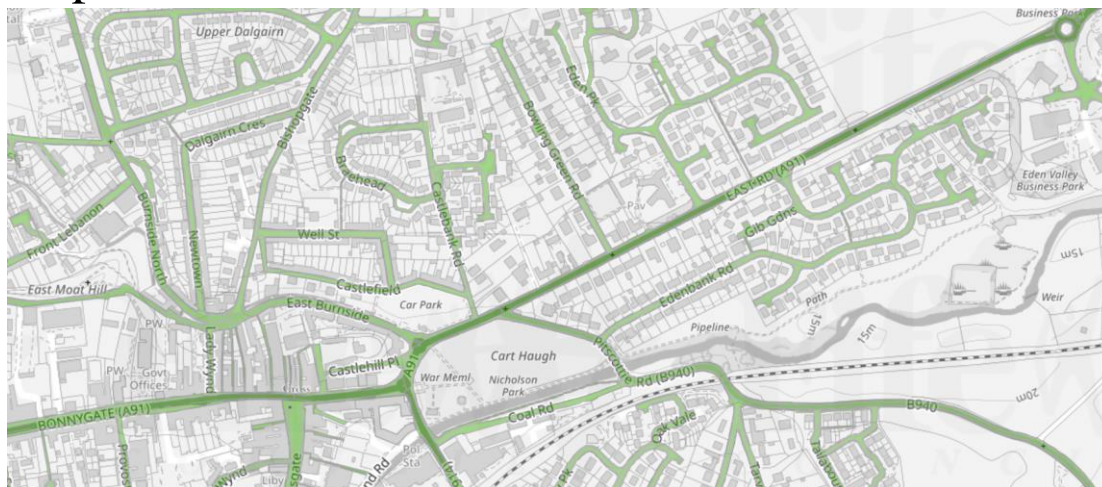
The maps above show cyclist and pedestrian collisions in Cupar and Guardbridge. Note there are no recorded incidents involving pedestrians and cyclists on the section of the A91 between Cupar and Guardbridge.

In Guardbridge there have been 2 pedestrian incidents, one of which located on A91 Cupar Road. Cupar has experienced 4 pedestrian collisions on the A91 and one cyclist incident located on Moathil road.

Baseline Data

Fife Council Road Adoption Plans

Cupar



Guardbridge



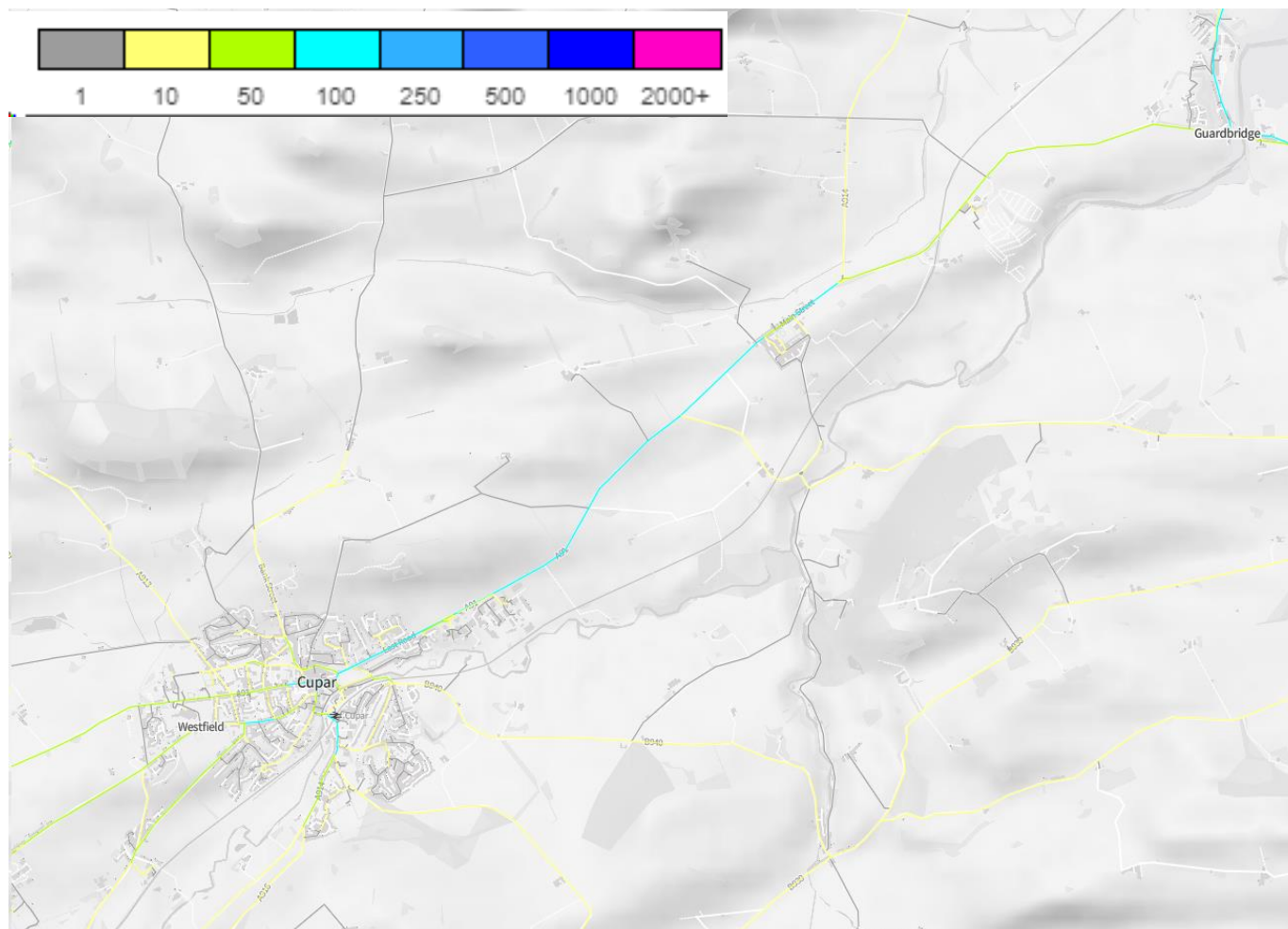
Images above show Cupar and Guardbridge are at the start and end of the study area. The map shows that the majority of roads are adopted by Fife Council in both locations.

It has also been recognised that the active travel proposals may have to go beyond the adopted road network and utilise private land in order to achieve high-quality active travel infrastructure in line with Cycling by Design guidance.

Baseline Data

Sustrans Network Planning Tool for strategic cycle network planning

Cupar to Guardbridge- estimated number of cyclists per day

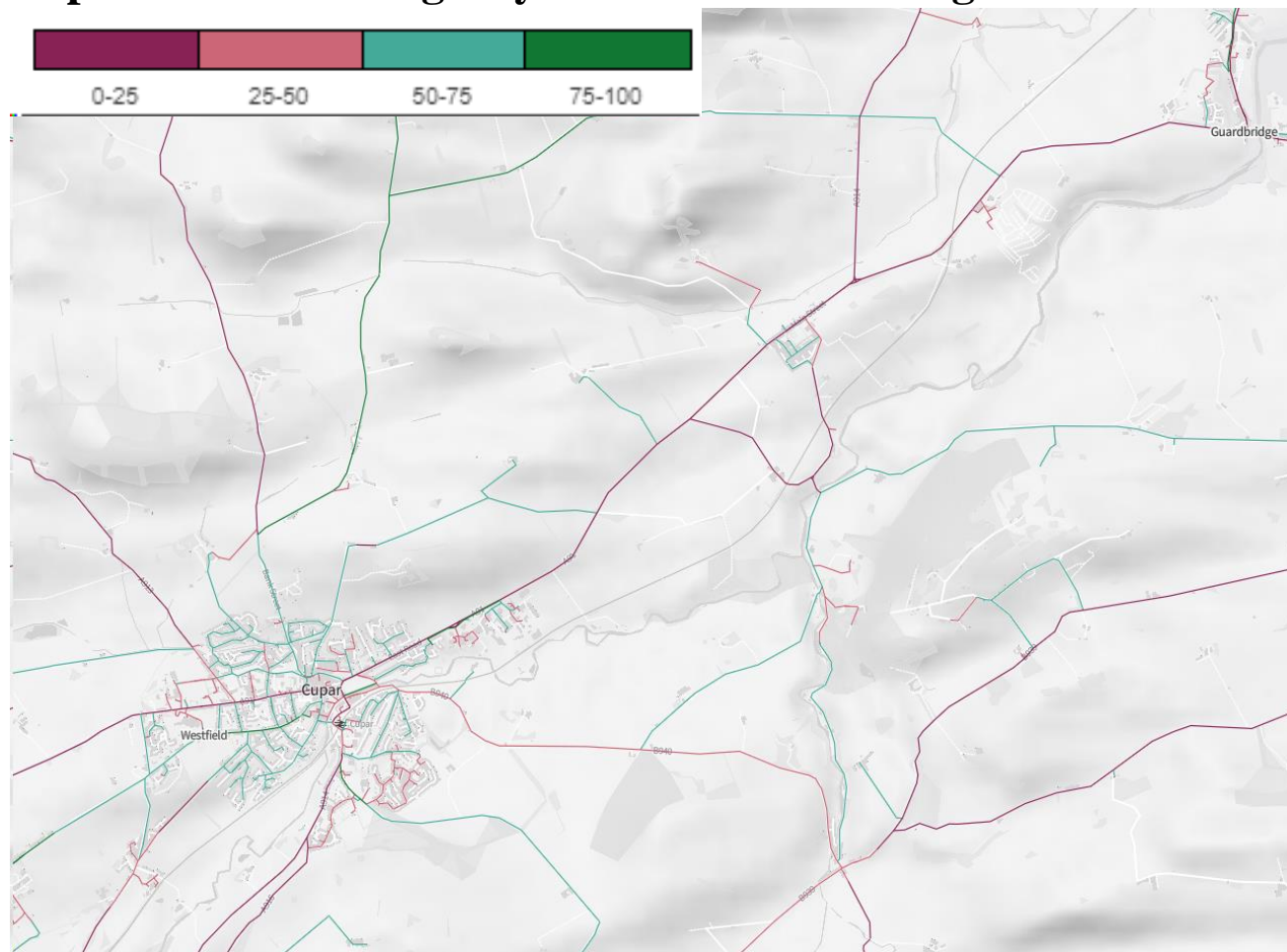


- On the A91 travelling through Cupar there are between 50 to 100 cyclists per day.
- There are 100 cyclists estimated to be travelling from Cupar to Dairsie.
- From Dairsie to Guardbridge there are an estimated 50 cyclists per day.

Baseline Data

Network Planning Tool for strategic cycle network planning

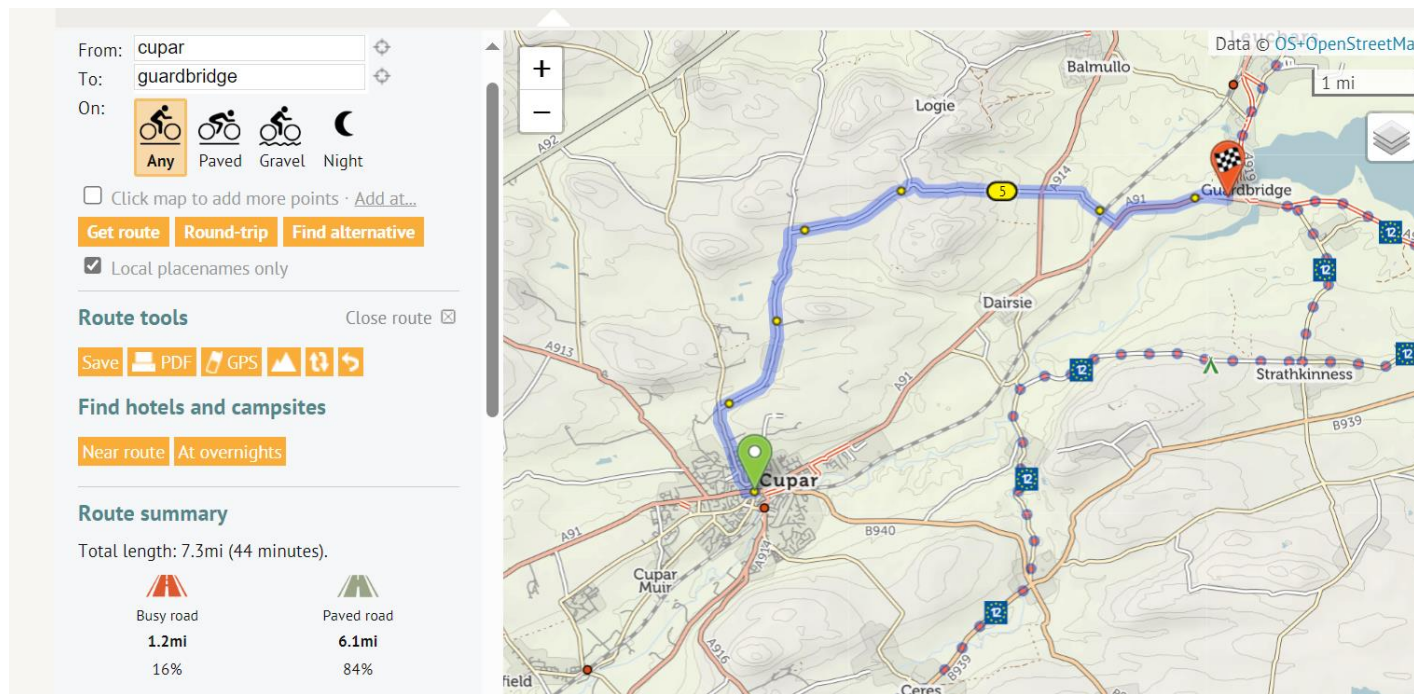
Cupar to Guardbridge- cycle friendliness rating



The A91 from Cupar to Guardbridge has been scored the lowest rating of 0-25, suggesting that this location is not cycle friendly in its current form.

Baseline Data

Cycle Travel Cupar



This webpage is dedicated to creating the best walking, wheeling and cycling routes across Cupar and throughout. The platform suggested a different route to the active travel route proposed to Guardbridge. Instead, it suggested a route on a minor road, which then turns into the A92. This demonstrates the need to deliver a high-quality active travel route along the A91 to improve the attractiveness of this area for walking, wheeling and cycling.

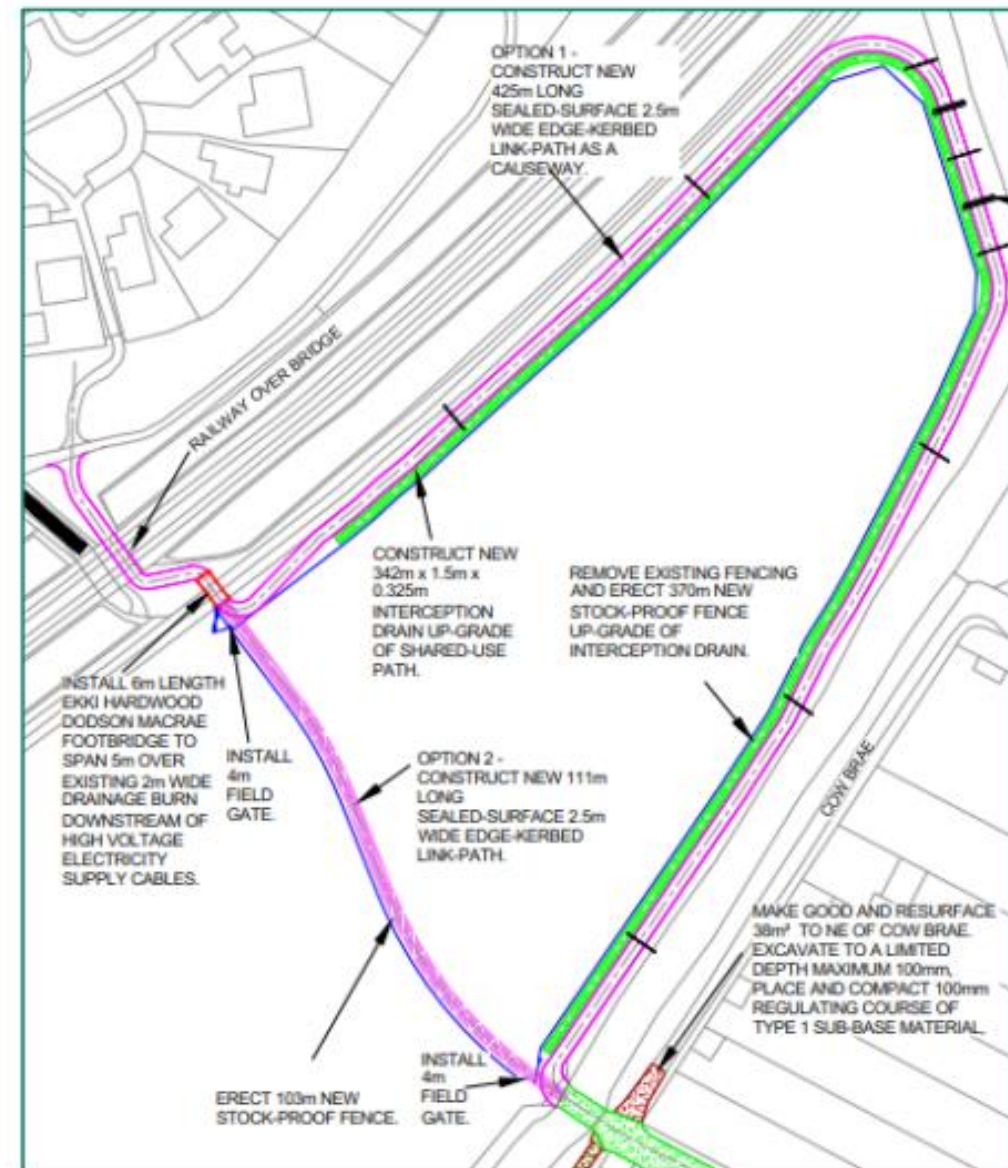
Baseline Data

Other Transport Projects – The Red Route (Sustainable Cupar)

Proposals:

- New 6m length timber footbridge. This will cross the existing 2m wide drainage burn that runs parallel to the railway line, to be used by pedestrians and cyclists.
- New shared use foot/cycle path following the route of current informal path beneath railway overbridge, linking the new footbridge to the existing path network to the north.
- New shared use foot/cycle path and replacement of existing fencing and new field gates. This will cross the existing field ('Mill Lade') to link the existing railway underpass to the north-west of the site with the existing stone bridge across the Eden River to the southeast, and link into Cow Brae road.
- Resurfacing of the existing carriageway at Cow Brae.
- Use of existing stone built 'Cow Bridge' to convey route.

Fife Council does not support this project in its current form.



Appendix B

Engagement Log

Cupar to Guardbridge Active Travel Workshop
Tuesday 5th December 2023, Old Parish Centre, Cupar (6pm-8pm)
Number of Attendees: 16

Summary of Key Themes / Findings

	Key facilities, Services and Trip Attractions	Barriers to walking, wheeling and cycling	Opportunities to improve walking, cycling and wheeling infrastructure
Responses	<ul style="list-style-type: none"> • Poor bus services currently between Cupar & Guardbridge • Bellbaxter High School • Cupar primary school • Cupar Railway Station • Industrial estate • Haugh Park • Marie Curie Walk (Cupar) • Informal path to the north of Dairsie that could be upgraded • National Cycle Network route Leuchars to St Andrews • St Andrews Eden Campus (Guardbridge) • Eden Woods Development (Guardbridge) 	<ul style="list-style-type: none"> • Lack of safety, especially for young people • Lack of existing infrastructure • No bikeability training within schools • 30mph speed limit - should be slowed down to 20mph. • High vehicle speeds- how do you control these speeds? • High volumes of traffic. People feel exposed to the traffic, especially between Cupar and Dairsie, due to the lack of buffer from the road. Lack of protection. • Maintenance- vegetation is often on cycle routes which reduces their width. • On-street parking in Dairsie • Unpleasant • Lack of speed enforcement, therefore a lot of cars and delivery vans speeding • size and volume of traffic • Smell and noise of traffic • Congestion • Cupar infrastructure focuses on private car use and does not prioritise pedestrian / cycles. • Carslogie Road-Bonnygate- high vehicle speeds and congestion. • Unsafe crossings • The upkeep of footpath / road maintenance 	<ul style="list-style-type: none"> • Safer routes to schools- Dairsie school kids go to Cupar, as do many of the kids who live in Eden Woods. • Young people having bikeability training • Improved crossings • Improved road safety • Roads will be safer and quieter • Back road options which are quieter and more appealing to users • Physical / mental health improvements • Cycle parking- opportunity for more at key locations such as Cupar Station, Flothers Car Park, Dairsie centre and Guardbridge. • Placemaking such as picnic benches at key locations. • Flothers Car Park- opportunity for cycle hub which includes parking, small cycle repair stand etc. • Electric bike parking. • Guardbridge roundabout- opportunity to upgrade pedestrian and cycle facilities here which tie into NCN route. Likely to need a toucan crossing facility. • Safe route is required over the River Eden. • White paint which is reflective is likely to increase safety perceptions and reassure families who are letting young kids cycle. • The Scottish Government's decision to prioritise pedestrians and cyclists above cars was seen as an opportunity, but one that was not being carried into "active" planning. In real terms cars are still being prioritised in Cupar and along the whole route.

Email Correspondence

Group	Date	Key facilities, Services and Trip Attractions	Barriers to walking, wheeling and cycling	Opportunities to improve walking, cycling and wheeling infrastructure
Sustainable Cupar	24/12/2024		<ul style="list-style-type: none"> •The levels of traffic and congestion on the A91, particularly through Cupar and between Cupar and Dairsie. This makes it very dangerous (heavy lorries) and polluted. There would be a need to ensure a barrier between the road and a cycle route / footpath – perhaps something natural like a hedge. •Dairsie High Street was seen as a major barrier on the route, as there are few opportunities for a path within the village, and any cycle route or footpath would have either go through farmland to the north, or nearer the river to the south, building on existing paths / small roads identified by one of the participants. •Traffic in central Cupar was also a barrier, with the need for clearer crossings e.g. in the areas around the station and between the bus stops, the school and the Retail Park and more traffic calming options. This should include bringing in a 20 mile per hour speed limit for all of Cupar, as it is shown to reduce death and injury from vehicle traffic accidents. •The need for the upkeep of any potential cycle routes or footpaths, ensuring that they remain usable and do not become overgrown, blocked, flooded or snowed / iced. This would need to be planned for and budgeted. Suggestions included using non tarmac surface, with adjacent ditch on one side and hedge on the other. It was also recommended that gritting of pavements was included in future to enable pedestrians to move about safely. •Another barrier that was raised, was that the lack of safe cycle space in Cupar was stopping school pupils from taking safe cycling classes in local schools – Cupar has a very low rate of cycle awareness training in schools and there is little encouragement to improve on this when there are no safe places to cycle (“this generation is missing out”). It would be positive to look at building some key cycle routes around school access routes and in bike training in Cupar and other local schools ... and for adults. •The condition of the roads is a problem. There are a high number of potholes which make cycling dangerous for young people and older adults. This would have to be addressed as part of any planned new route. 	<ul style="list-style-type: none"> •The Scottish Government’s decision to prioritise pedestrians and cyclists above cars was seen as an opportunity, but one that was carried into “active” planning. In real terms cars are still being prioritised in Cupar and along the whole route. •There was also seen to be an opportunity to improve health and welfare by addressing some of these issues (this was picked up by representative from the Health and Social Care Partnership) and linked with their efforts to improve activity levels and address pollution. •There was a question about whether there were opportunities for the Council or SEStran to use a “compulsory purchase order” or equivalent, to be able to use a small area of farmland next to the A91 in places and whether that was a viable or affordable option. •There are opportunities to make whole of central Cupar more manageable through the addition of some simple traffic calming and a town-wide 20 mph limit. •There are also opportunities to plan and implement some safe cycling routes using the existing back streets of Cupar and allocating designated “safe cycle routes”. •Sustainable Cupar have already made suggestions to Fife Council, including the possible option to make a safe cycle path / footpath the station area through the back of the industrial estate and out of town. There have been concerns of this being on the flood path that would need to be managed, as many of the options may be exposed to flooding risk. •Another option would be set up cycling groups to provide support for people to gain more knowledge of routes and experience of cycling. (This has already been started in a low-key way). There was a discussion around the option to have bikes for hire at the station other key points, but this would be dependent on ongoing work to plan and implement safe cycle routes. •There may be opportunities to link to the planning for Cupar North, designing in cycle paths to link to the town. The proposed relief could reduce traffic volume on Bonnygate and through the town. This would increase options for cyclists and pedestrians (potential pedestrianised area?).

1:1 Meetings

Group	Meeting Date/Time	Key facilities, Services and Trip Attractions	Barriers to walking, wheeling and cycling	Opportunities to improve walking, wheeling and cycling infrastructure	General Comments
Transition University St Andrews	20/12/2023	<ul style="list-style-type: none"> •Lots of staff and colleagues commute from the Cupar region to work • Crail to St Andrews Path •St Andrews town network of cycle paths / AT routes 	<ul style="list-style-type: none"> •Land accusation - land owners are putting their foot down to give over their land •Section 75 of Fife Council funding to community groups 	<ul style="list-style-type: none"> •Behaviour change 	
D'Arcy Thompson Simulator Centre Limited (Guardbridge)	10/01/2024	<ul style="list-style-type: none"> •Agricultural land •Tourism •Clayton Caravan Park •St Andrews University- many people who work at the university live in Cupar 	<ul style="list-style-type: none"> •Safety •Increasing traffic •Farmers utilising the road •Increasing tourism levels •Dairsie Main Street •Cycling is currently an unpleasant experience •Lighting- what will the strategy be? 	<ul style="list-style-type: none"> •We should not be accepting the level of transportation that there is currently- more emphasis on local connections and opportunities. •Better links to coastal paths which is a more wider consideration. 	
Fife Council- Roads Network Team	11/01/2024	N/A	N/A	N/A	<ul style="list-style-type: none"> •FC's desired minimum two-way carriageway width is 6.75m and absolute minimum is 6.5m. However they would really be looking for 6.75m minimum, particularly on distributor roads, to minimise impacts of roadworks, maintenance etc. •Cupar East- FC were not overly keen on carriageway narrowing along A91 but did acknowledge the wide footways, wider carriageway and central hatchings that could be used at this location. There is also a railway bridge in the rural section between Cupar and Guardbridge which we should be conscious of.

Appendix C

Virtual Engagement Room Findings

SEStran Fife Feasibility Studies VER findings

As of 26th January 2024, when the Virtual Engagement Room was closed, a total of 386 responses to the VER had been registered:

- 202 responses regarding the Kinghorn to Kirkcaldy route
- 184 responses regarding the Cupar to Guardbridge route

Both are seen as very high levels of engagement and will provide an excellent basis for these projects going forward.

Summary of approach

For each VER question, a spreadsheet-based thematic analysis was undertaken to group frequently occurring terms into key themes that can then provide an overall summary of responses. This was carried out as follows:

1. Firstly, all responses were input into an online text analyser, which lists the most frequently occurring words and phrases in order.
2. All terms occurring > 5 times were grouped into key themes. Irrelevant terms (and, or etc.) were filtered out.
3. Excel formulas were used to search each response, and would be scored 1 if it contained one of the terms associated to a theme. Otherwise the response would score zero. This is illustrated below.
4. Scores were summed to identify the most regularly occurring themes, which are then presented in the Figures in this report.

1.c. What are the key facilities and services within the Kinghorn and Kirkcaldy area?	Schools		Hospitals & Healthcare					Supermarkets		
	school	hospital	dentist	GP	healthcare	SUM	supermarket s	Morrison	SUM	
search term										
School, hospital, promenade	1	1	0	0	0	1	0	0	0	
	0	0	0	0	0	0	0	0	0	
School	1	0	0	0	0	0	0	0	0	
Pavement lacking between both	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	
Stations, hospitals, supermarkets and other retail premises	0	1	0	0	0	1	1	0	1	
All key facilities and services in the area as well as people's work and outdoor spaces.	0	0	0	0	0	0	0	0	0	
Shops, leisure centres, entertainment	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	
Onward travel using other active travel infra. Schools, shops and medical facilities.	1	0	0	0	0	0	0	0	0	
schools, workplaces, tourist routes	1	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	
Leisure and retail facilities.	0	0	0	0	0	0	0	0	0	
All the services are in place in that the public transport is good and there are plenty of refreshment facilities in both locations.	0	0	0	0	0	0	0	0	0	
Kirkcaldy is the town where services for Burntisland and Kinghorn are based: Secondary school at Balwearie, Fife College, supermarkets, banks and post office services, Hospital and Hospice services at Victoria Hospital, employment opportunities, bus links outside of the immediate area. Burntisland has a thriving High Street but no banking or post office services and the subpostoffice in Kinghorn is small with queues.	1	1	0	0	0	1	1	0	1	

This approach is not designed to identify every relevant comment, but to provide an efficient summary of the key themes discussed in responses.

Cupar to Guardbridge

Of the 184 responses relating to the Cupar to Guardbridge active travel route, only 4 believed that a high-quality walking, wheeling and cycling route would not be beneficial to the local area (4 also left blank). This shows an extremely strong backing for the project among participants.

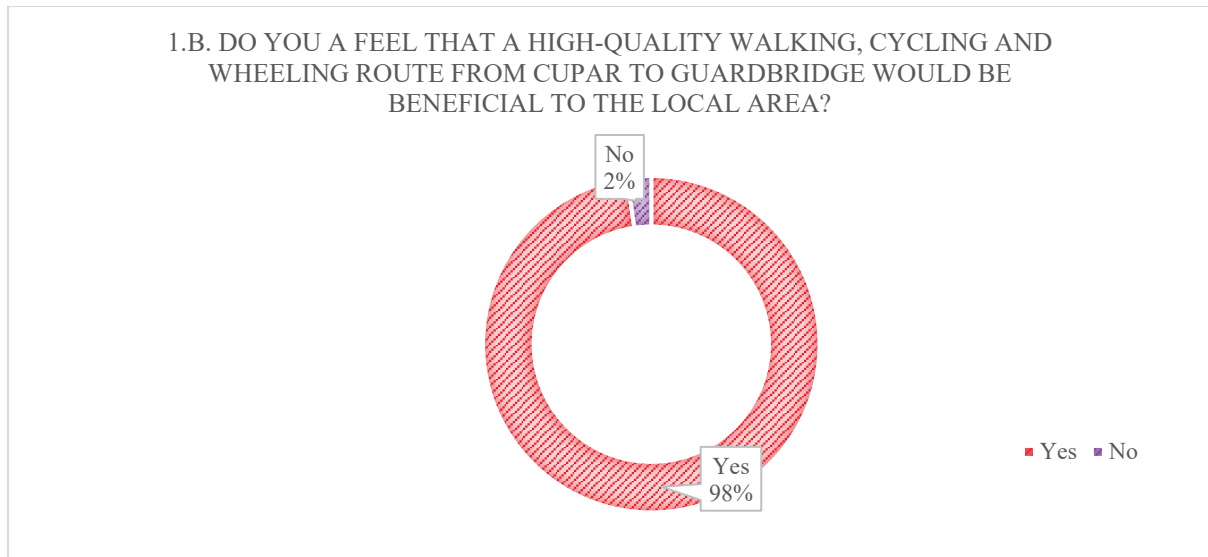


Figure 5: Would a high-quality active travel route from Cupar to Guardbridge would be beneficial to the local area?

Key facilities and destinations

1.d. What are the key facilities and services within the Cupar to Guardbridge area?

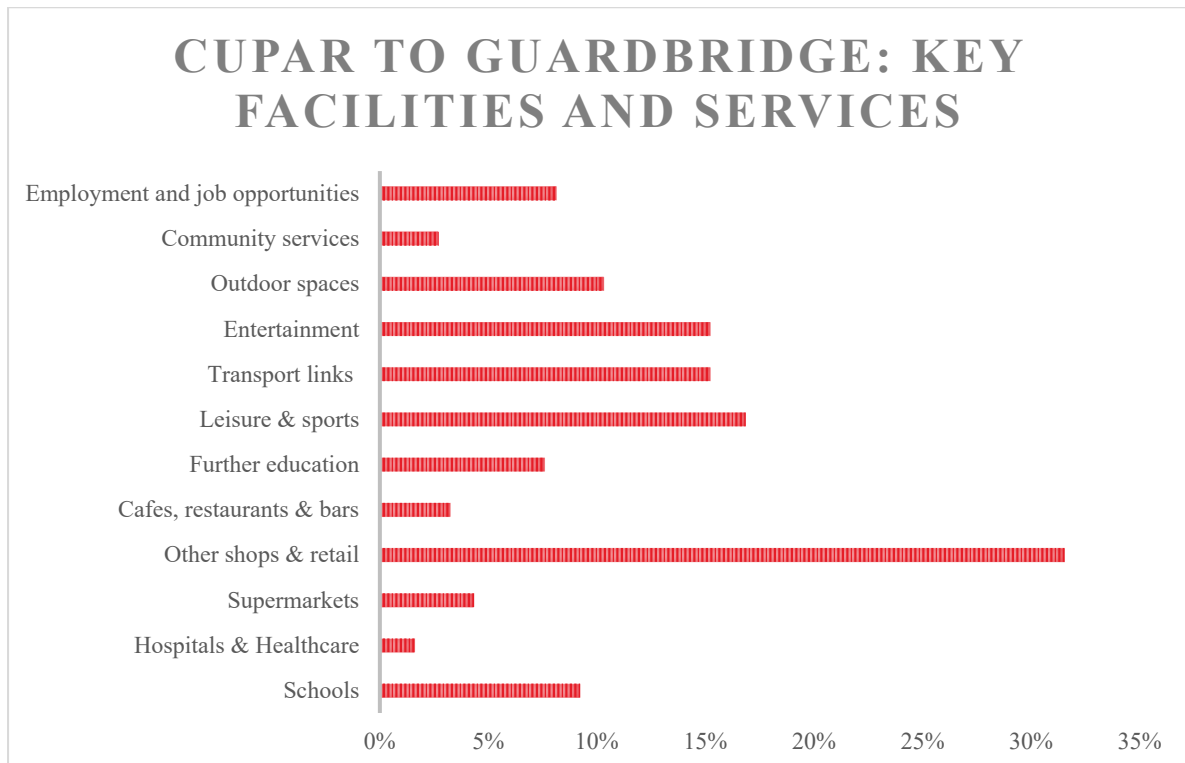


Figure 6: Thematic analysis of key facilities and services for the Cupar to Guardbridge route

Figure 6 shows the percentage of responses referring to each of the 12 broader destination themes. Shops and retail was the destination that most answers referred to, and in particular the shops in both

St. Andrew’s and Cupar town centres. Employment in Cupar, Guardbridge and St Andrews also regularly appeared in responses. In many cases, responders referred to settlements rather than specific destinations, therefore many categories appear low. **St Andrews town and university** are the most commonly cited destinations by responders, with other key destinations including:

- Clayton Caravan Park
- Dundee City Centre
- Tentsmuir Forest
- Train stations at Cupar and Leuchars
- Dairsie & Clayton

Barriers to walking, wheeling and cycling

1.f. What are the current barriers for walking, wheeling or cycling between Cupar to Guardbridge?

Responses generally relate to lack of segregated infrastructure for active travel users in the area, which is a major barrier. Similarly to the Kinghorn to Kirkcaldy route, thematic analysis of response data showed that the primary barriers identified related to danger and lack of safety on the A91, the main road route between Cupar and Guardbridge. This is broken down in **Figure 7**, which outlines the most common themes. In total, **82% of respondents** outlined that they had concerns around at least one of: **the traffic levels, traffic speed or width of the road/footway** – which together create a dangerous road environment and act as major barriers to active travel.

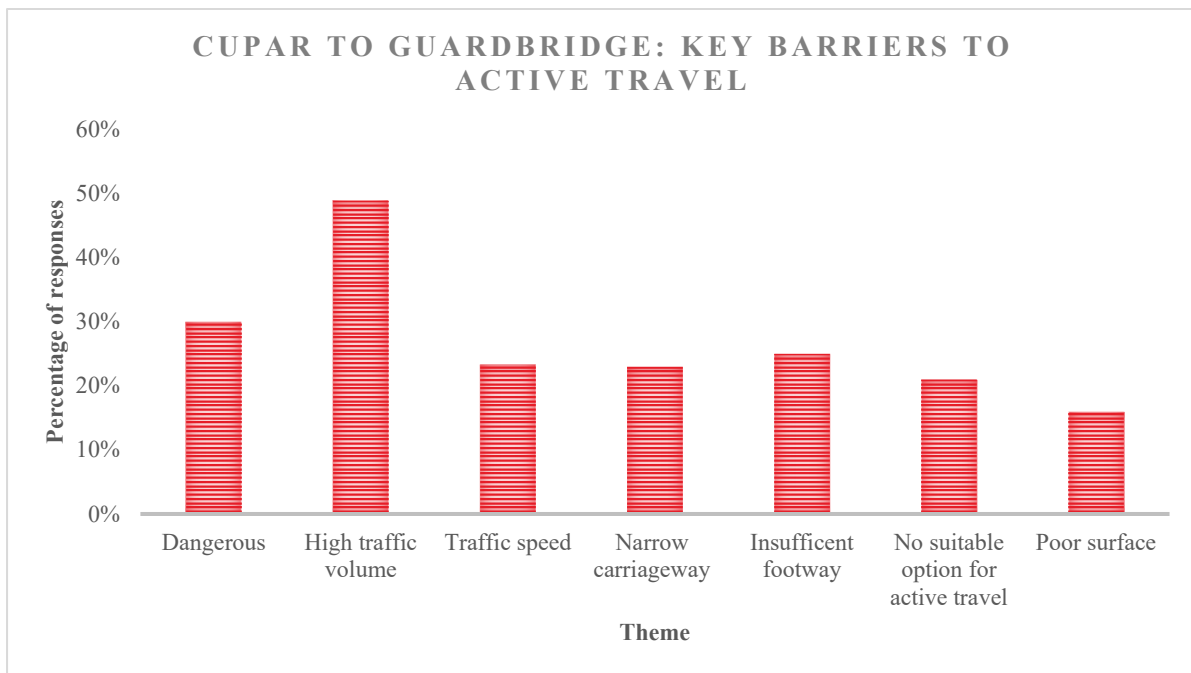


Figure 7: Thematic analysis of the primary barriers to active travel for the Cupar to Guardbridge route

Whilst danger posed by motor traffic was the most commonly cited barrier, **poor quality surface**, both on the road but particularly the adjacent footpath, which makes it very difficult for those walking and wheeling. The path is narrow in many places and the lack of a buffer to the traffic is also regularly cited as a barrier. Respondents regularly refer to the overgrown hedges adjacent to the footpath, which further this problem.

Active travel opportunities

1.h. What types of walking, wheeling and cycling improvements would you like to see and where?

From the analysis of regularly occurring terms, 65% of responses directly mention the terms ‘path’ or ‘cycle lane’, whilst other frequently occurring terms include: safe, segregated, separated and traffic free. This data makes it clear that the primary improvement people want to see in the area is a high-quality active travel corridor that provides sufficient separation from the fast-moving motor traffic.

Additional responses include:

- As outlined in the barriers section, the speed of traffic on this route is intimidating for active travel users, therefore a **buffer of appropriate size** (in accordance with CbD) is also regularly mentioned.
- A **high quality, tarmac surface** that is **wide enough to accommodate all user groups** including wheelchairs and those with restricted mobility is a major priority – particularly given the number of respondents who cited surface and width as barriers at present.
- Furthermore, **lighting improvements** are seen as crucial for the full length of the route – to create a path that is adequate for all ages and abilities.

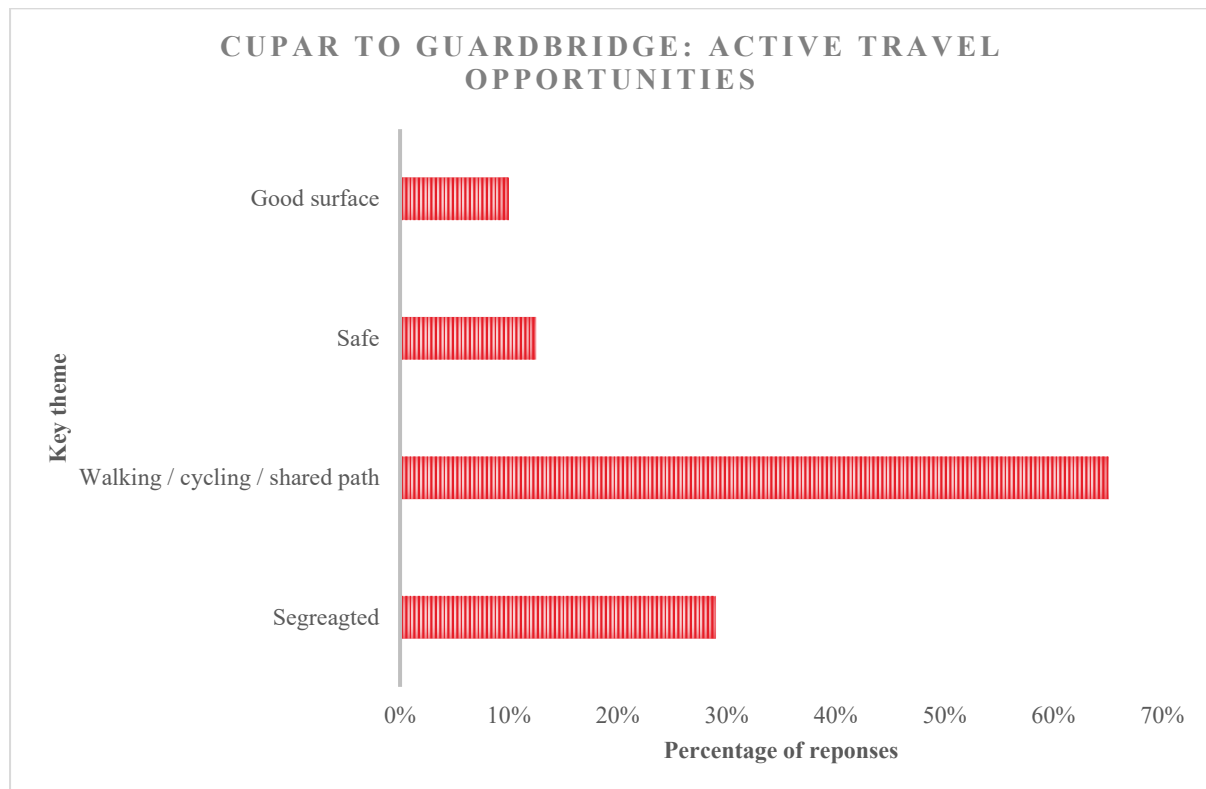


Figure 8: Thematic analysis of the active travel opportunities for the Cupar to Guardbridge route

Whilst responses indicated a clear desire for a segregated path for walking, wheeling and cycling, there were limited responses that detailed further factors such as accessibility, directness or elevation. However what was clear was that **the existing path adjacent to the A91 between Guardbridge and St Andrews** is popular among respondents – with many outlining that they would be happy to see a similar shared-use path implemented for the stretch between Cupar and Guardbridge.

There was a preference amongst responders for the route to follow the A91 closely. **Being alongside the A91 was seen as desirable** due to the increased perception of safety with having other people around. This can be kept in mind when it comes to design phases later in the project.

Overall Summary

- The VER saw a high number of responses for both routes, with nearly 400 total responses.
- In both routes, it was seen as key to provide active travel links to the larger towns (Kirkcaldy, Cupar, St. Andrews), to provide better access for neighbouring settlements to the wealth of facilities and services they offer. Supermarkets, transport hubs and employment destinations are examples of facilities that were mentioned across both routes.
- At present, locals feel there are many barriers to active travel in both study areas. Many responses to both routes stated that there are currently no suitable options to allow for safe and efficient active travel between Kinghorn and Kirkcaldy, or Cupar and Guardbridge. Common reasons for this include busy roads, that are dangerous and narrow, whilst poor surfaces and visibility are also issues. Hilliness and terrain was also listed as a barrier for Kinghorn to Kirkcaldy.
- Responses across both routes generally agree that they want to see a high-quality active travel route, that is direct, separated from traffic and is well lit and well surfaced.
- For the Kinghorn to Kirkcaldy route, opinions were mixed for where the route should go, whereas for the Cupar to Guardbridge route, being alongside the A91 was strongly preferred due to the increased perception of safety with having other people around.

Appendix D

Route Options Appraisal

SEStran Fife Feasibility Studies

Cupar to Guardbridge- Option Development and Appraisal

Options Appraisal

Principle	●●● High level of service	●● Medium level of service	● Low level of service
Safety	Cycle users are always protected from motor traffic when required by the conditions set in Table 3.2 in Chapter 3.	In some cases, cycle users are expected to mix with motor traffic in higher speed or volume conditions that are set out in Table 3.2 in Chapter 3.	In some cases, cycle users are expected to mix with motor traffic in significantly higher speed or volume conditions that are set out in Table 3.2 in Chapter 3.
Coherence	Cycle routes are continuous and fully joined-up. They allow cycle users to maintain consistent speed, are well-signed and intuitive.	Cycle routes contribute to a network, but users experience some disruption when connecting between routes, and navigation may be difficult.	Cycle users must dismount or are 'abandoned' at the end of a route.
Directness	Cycle route is at least as direct as the equivalent motor traffic journey, with minimal need to stop or give-way. Delay for cycle users at junctions is less than for motor traffic.	Cycle route is up to 20% less direct than the equivalent motor traffic journey, with some need to stop or give-way. Delay for cycle users at junctions is equal to motor traffic delay.	Cycle route is more than 20% less direct than the equivalent motor traffic journey, with frequent need to stop or give-way. Delay for cycle users at junctions is greater than for motor traffic.
Comfort	Cycle route surfaces are machine laid, smooth and well-maintained (at least as regularly as the road network). Desirable minimum widths and gradients are fully achieved.	Sections of route are hand-laid with frequent joints. Route is maintained less frequently than the road network. Desirable minimum widths or gradients are not achieved for some of the route.	Sections of the route are unbound, bumpy, not regularly maintained or otherwise hazardous. Desirable minimum widths or gradients are not achieved for the majority of the route.
Attractiveness	Cycle route and parking areas are well lit, overlooked and do not create any personal security issues for users. The cycle route adds to the sense of place in the area, encouraging people to spend time there.	Some sections of the route are infrequently lit or not overlooked. Parking areas are secure but not overlooked or are insufficient in number.	The majority of the route is infrequently lit or not overlooked. Parking areas are not secure or are insufficient in number.
Adaptability	Cycle route and parking areas have the flexibility to expand, evolve or adapt to changing demands.	Only some of the cycle route or parking areas has the flexibility to expand, evolve or adapt to changing demands.	No scope to amend cycling infrastructure once installed.
Cost effectiveness	The option requires minor improvements which are low cost in comparison to other options.	This option requires work to incorporate the infrastructure within the existing space, however, it can be done without acquiring land, large structures (bridges) or significant earthworks (coastal protection)	Any route option that requires land acquisition, large structures (bridges) or significant earthworks (coastal protection)
Deliverability	There are no issues such as physical constraints, speed limit changes and on-street parking which will impact the deliverability of the project.	The option will include one of the following: physical constraints, speed limit changes and on-street parking.	The option will include a combination of the following: physical constraints, speed limit changes and on-street parking.

This document provides a summary of the options appraisal undertaken for the Cupar to Guardbridge active travel route.

Cycling by Design provides six core design principles that contribute to the overall quality of cycling and active travel infrastructure. These can be seen pictured (see right), and outline the requirements to reach high, medium or low level of service (LoS). These descriptions were used as the basis for scoring each option either 3 (high LoS), 2 (medium LoS) or 1 (low LoS).

Two additional scoring criteria were added as well as the CbD principles, which were:

- Cost effectiveness
- Deliverability

These additional criteria were agreed with Fife Council and SEStran.

Therefore, there was a total of eight factors that options were scored upon, and a maximum possible score of 24.

It is considered that the preferred options should achieve a high LoS for each CbD principle and additional factor where possible.

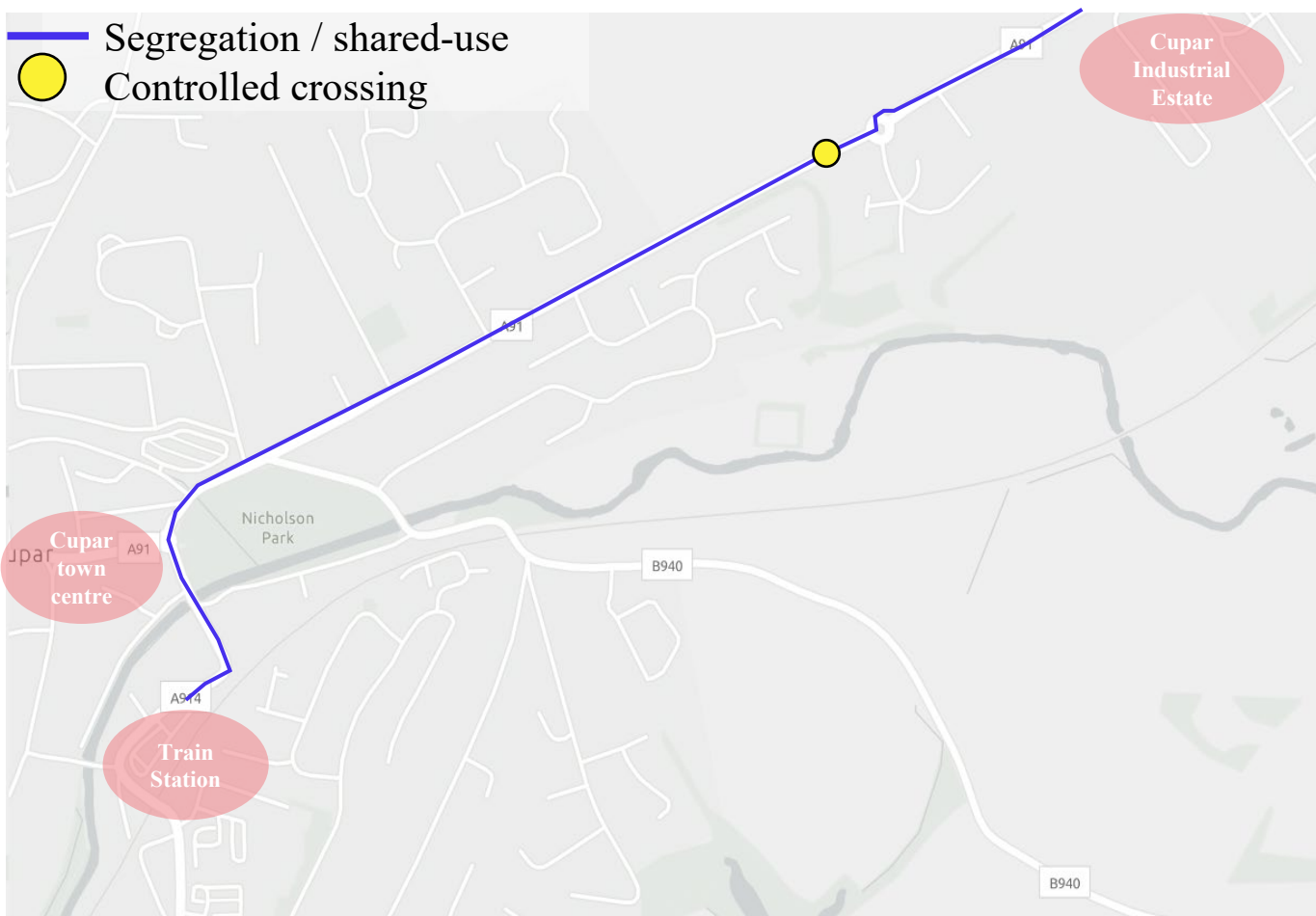
Route Sections



Route Options Summary

Route option	Description	CbD Level of Service
Section 1 – Cupar Station / Haugh Park		
1.1	Shared-use facility on Station Road and passing through East Bridge and East Road.	High
1.2	Shared-use facility on Station Road, off-road route going through Haugh Park and joining East Bridge Road where it will be segregated along the A91	High
1.3	Shared-use facility on Station Road, off-road route through Haugh Park and joining Piscottie Road where it will be a mixed traffic street then become segregated from vehicles on the A91.	High
1.4	Shared-use facility on Station Road, off-road route through Coal Street and joining Piscottie Road where it will be a mixed traffic street then continued mixed traffic street through Edenbank Road. The route will then become segregated from vehicles on the A91.	High
1.5	Shared-use facility on Station Road, off-road route going through North Haugh Park and joining East Bridge Road where it will be segregated along the A91.	High
1.6	Shared-use facility on Station Road, South Bridge, Crossgate and A91 which connects into Haugh Park and continues along the A91.	Medium
Section 2 – Cupar East		
2.1	High quality active travel facility to the north of the A91 carriageway between Cupar Industrial Estate and Dairsie.	High
2.2	High quality active travel route along B940 passing through Piscottie, then continuing north along the B939 through Strathkinness and Edenside and arriving into Guardbridge from the east.	Medium
Section 3 – Dairsie		
3.1	Shared use facility / mixed traffic street going directly through Dairsie main street then continuing along the A91.	Low
3.2	High quality active travel facility going into Dairsie and then a mixed traffic street along Ardencaple Terrace, Osnaburgh Court and Station Road, then continuing along the A91.	Medium
3.3	High quality active travel route entering Dairsie, then turning left past Dairsie Primary School and utilising an existing informal path to the north, then continuing along the A91.	high
Section 4 – Guardbridge		
4.1	High quality active travel route along the A91 until the Guardbridge entrance where it will become shared-use, and the route will finish on Guardbridge roundabout.	Medium
4.2	High quality active travel route along the A91 then shared-use within the Eden Woods Development connecting to the NCN which connects Leuchars to St Andrews.	High
4.3	High quality active travel route along the A91 and a mixed traffic street going through the development which ends adjacent to the University of St Andrews Eden Campus.	High

Option 1.1: East Bridge Roundabout



Summary: option begins at the train station and travels through Station Road and East Bridge. The route will then continue along A91 to Dairsie.

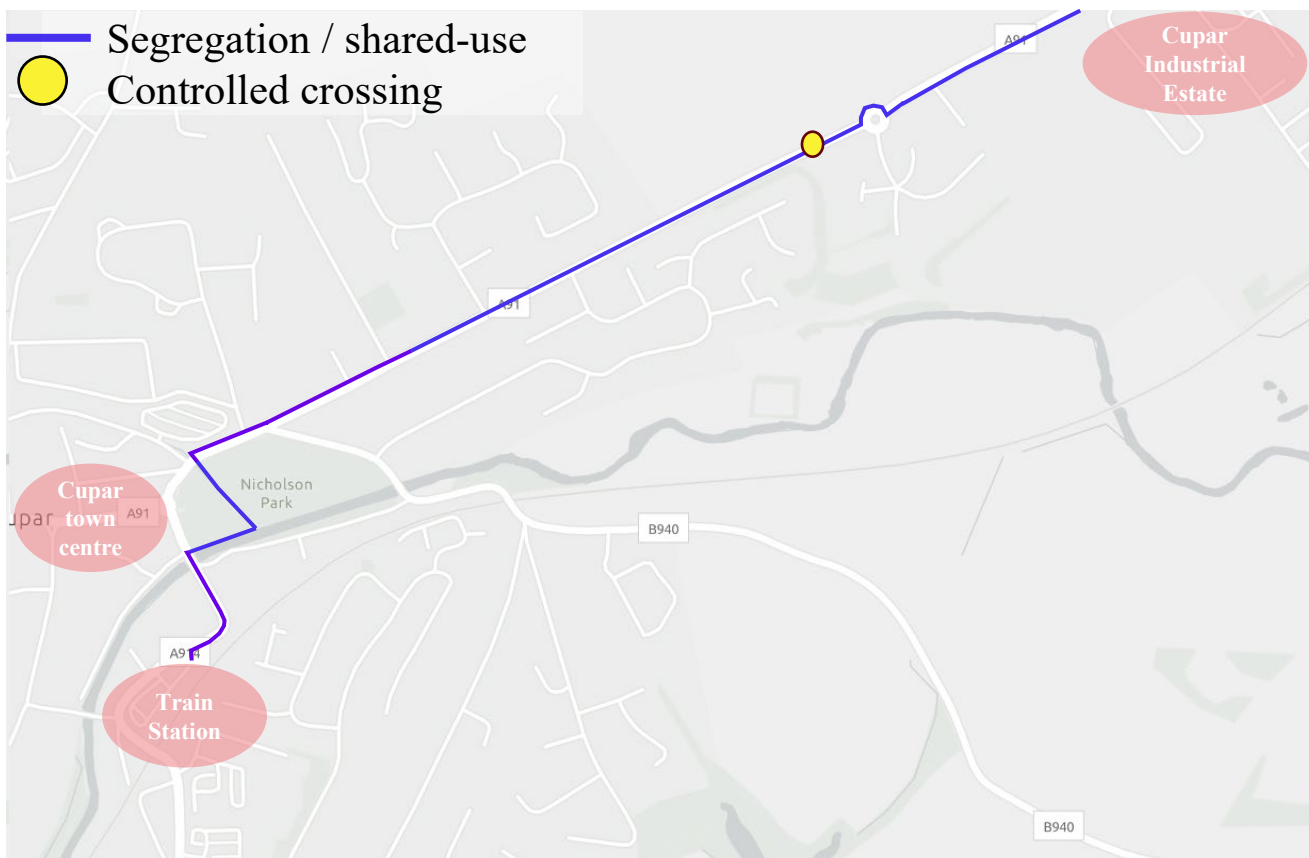
Positives:

- This is the most direct option.
- Aligns well with principles of strategic network.
- Achieves Cycling by Design (CbD) high level of service.
- This option is visible.
- Connects well into the key facilities, such as Cupar High Street.

Observations:

- Road space reallocation in the form of a lane removal may be required.
- High level of congestion observed during the site visit at the East bridge roundabout which may impact perceptions of safety.
- Narrow footway observed on the east of the carriageway.

Option 1.2: Haugh Park (1)



Summary: Option starts at the train station and travels through Station Road and East Bridge, then enters Haugh Park and rejoins the A91 at the roundabout. The route would then continue along A91 to Dairsie.

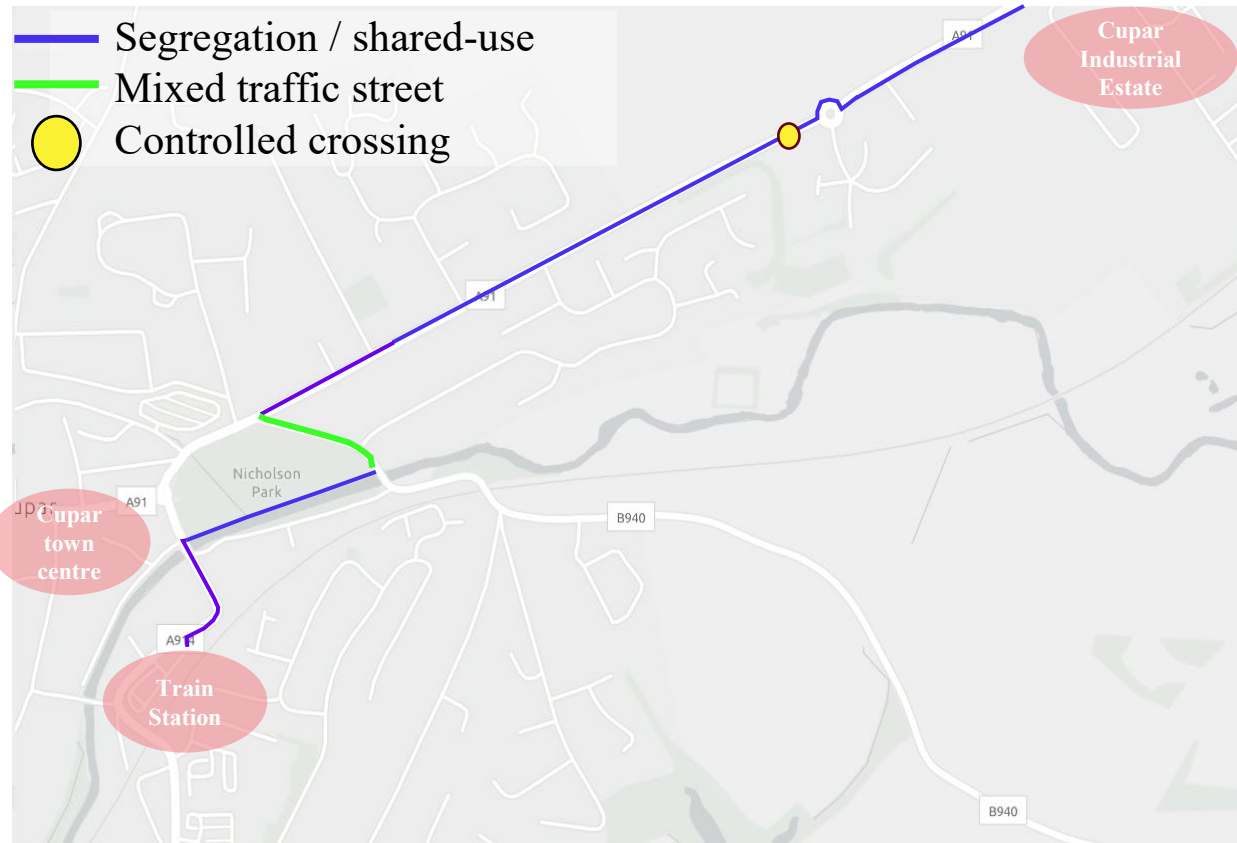
Positives:

- Avoids the route utilising congested areas.
- This option is considered better for perceptions of user safety compared to option 1.1 as the route avoids going through East Bridge road.

Observations:

- This would be a less direct route than option 1.1.
- Flooding issues at Haugh Park have been identified, therefore flood protection measures may be required.

Option 1.3: Haugh Park (2)



Summary: option starts at the train station and travels through Station Road, then enters Haugh Park and continues onto Pitscottie Road as a mixed traffic street, then re-enters the A91.

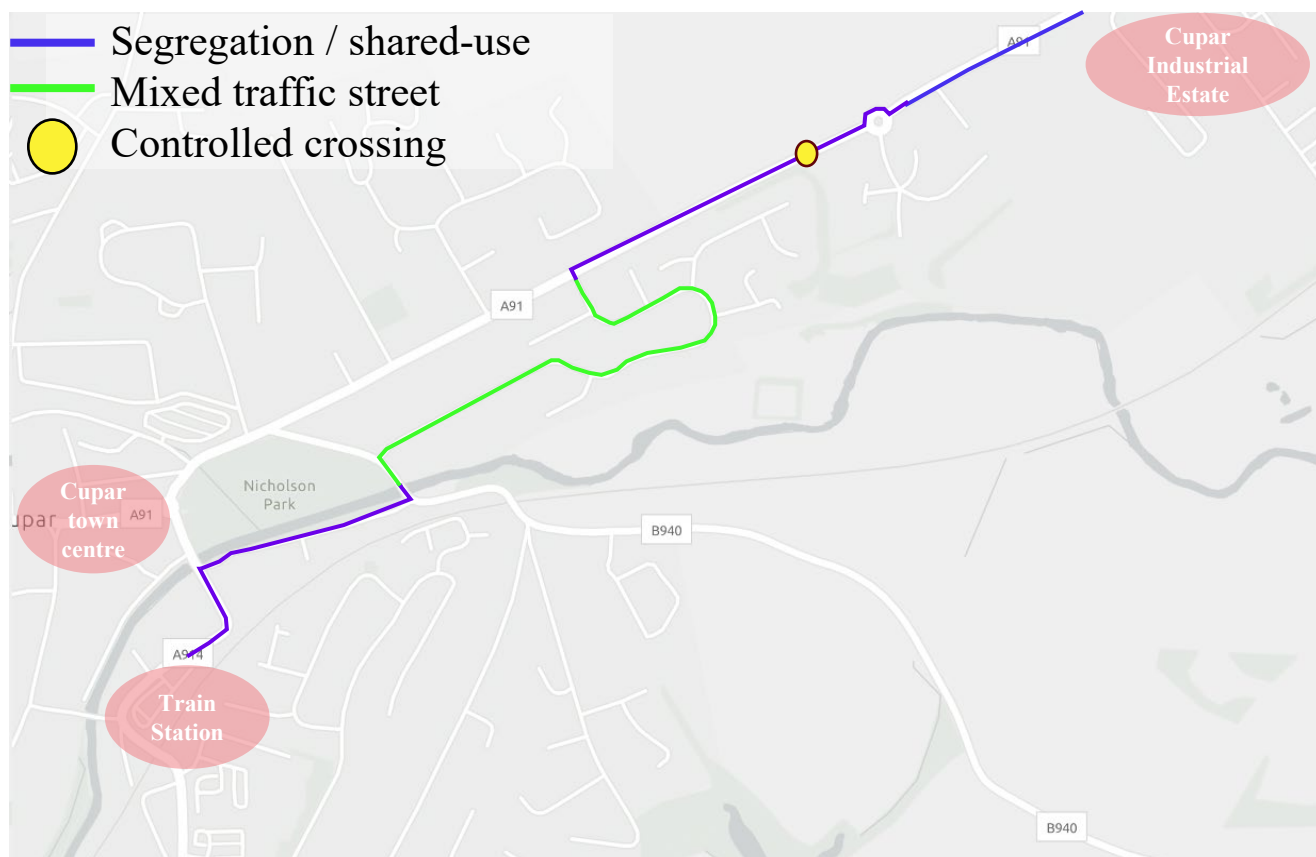
Positives:

- This avoids using the congested East Bridge roundabouts therefore improving perceptions of safety.
- This option is considered attractive due to passing through green space.

Observations:

- This would be a less direct route than option 1.1 and 1.2.
- Flooding issues at Haugh Park have been identified, therefore flood protection measures will be required.

Option 1.4: Coal Road/ Eskbank Road



Summary: Option starts at the train station and travels through Station Road, then enters Coal Road and continues onto Piscottie Road as well as Eskbank road as a mixed street traffic. The route will then join the A91.

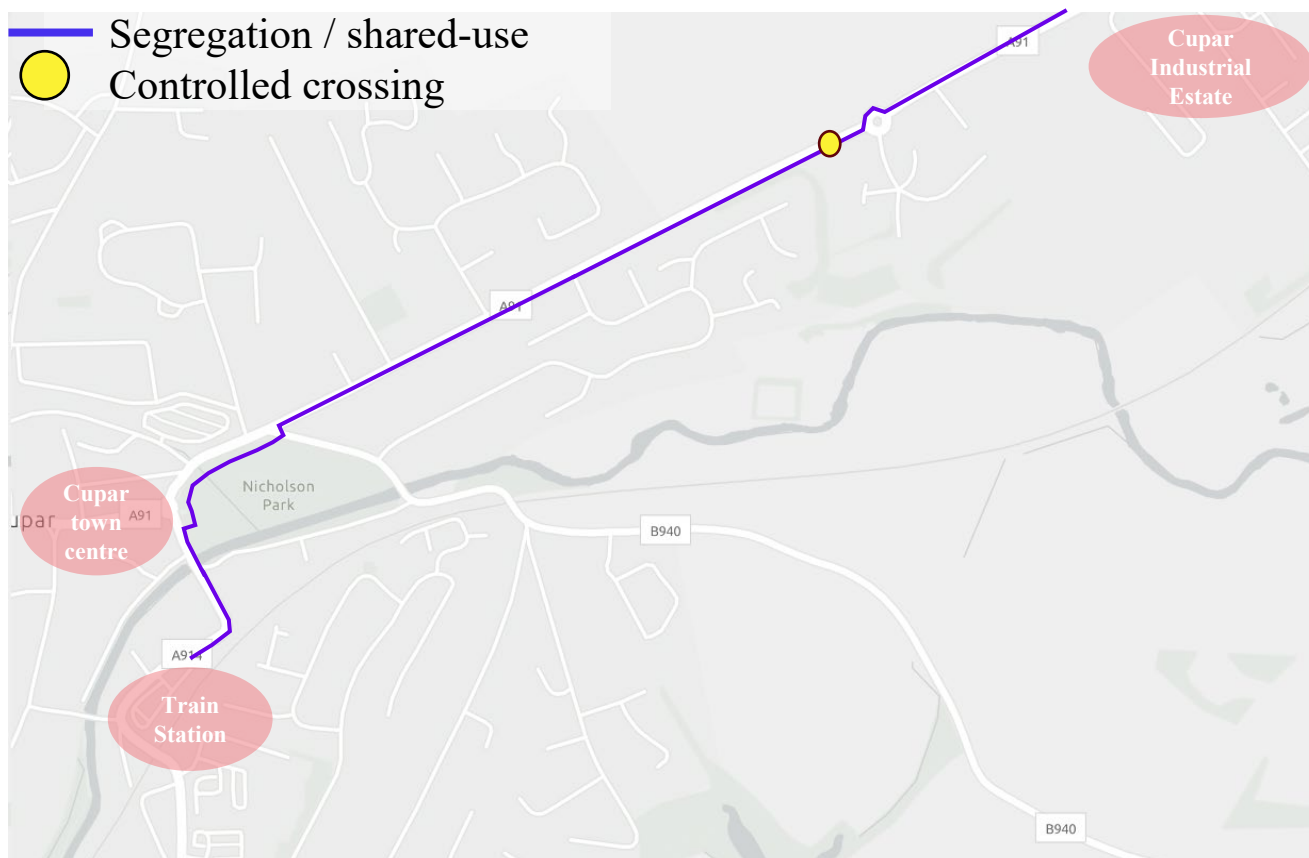
Positives:

- Avoids using observed congested areas.
- This is considered to improve perceptions of user safety compared to other options.
- This option utilises existing infrastructure and is considered to require minimal works.

Observations:

- This would be a less direct route than the other options.

Option 1.5: Haugh Park (3)



Summary: Option starts at the train station and travels through Station Road and East Bridge, then enters Haugh park and travels onto the A91.

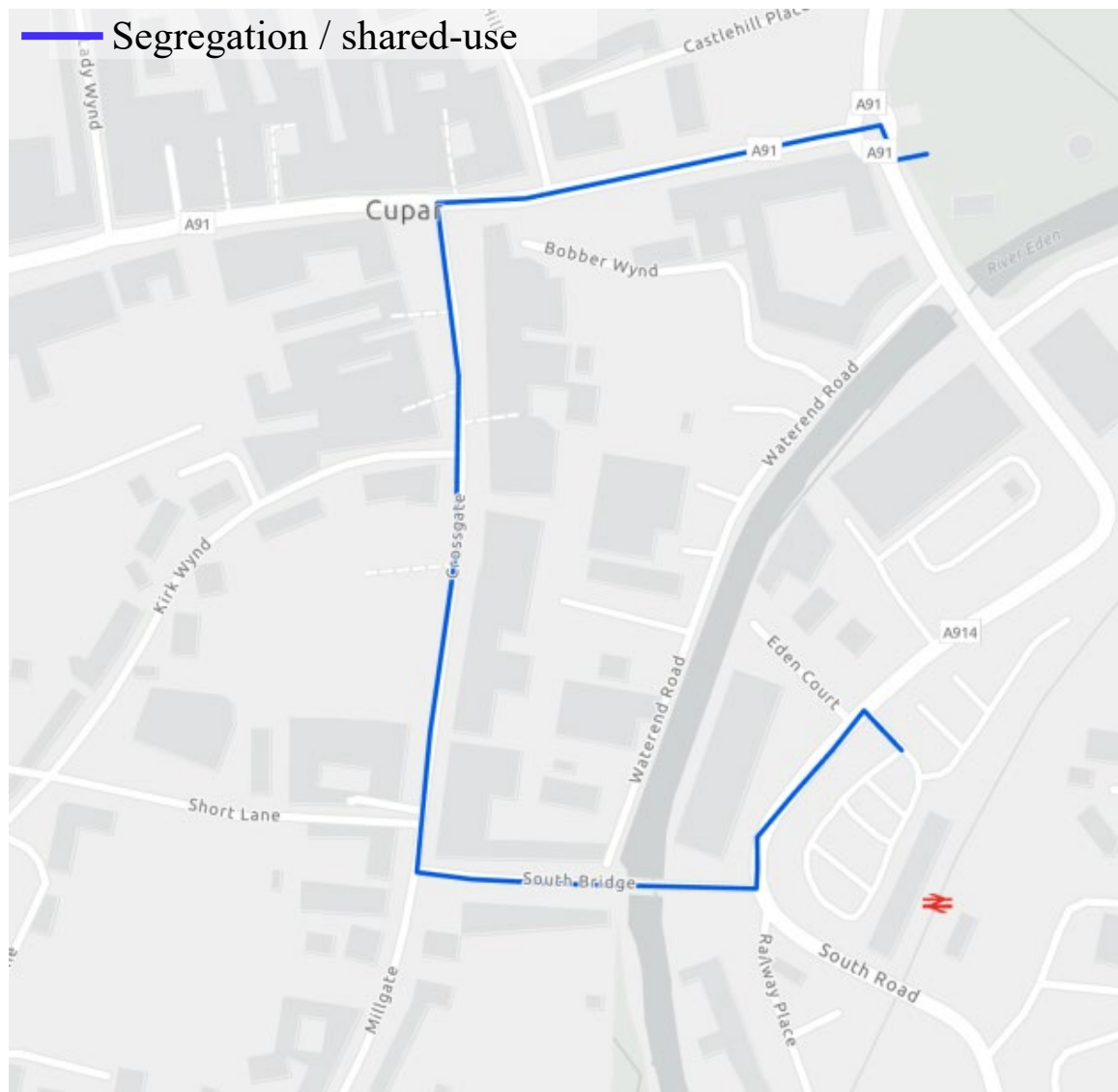
Positives:

- Avoids using congested roundabouts.
- Considered to increase user safety compared to other options.
- Utilises existing signalised crossing to the south of the East Bridge roundabouts.
- Increases access to green space.
- Avoids flooding issue identified to the south of Haugh Park

Observations:

- New infrastructure required through Haugh Park, therefore potential green space/ ecological impacts.

Option 1.6: Cupar Town Centre



Summary: Option starts at the train station and travels along Station Road, South Bridge, Crossgate and A91, then enters Haugh park and onto the A91.

Positives:

- This option would connect the train station and Cupar town centre.
- This option would bring improvements to the town centre environment.

Observations:

- This option is less direct than the other options.
- Removal of on-street parking may be required.
- Road space reallocation, and/or road network changes, will require traffic modelling to assess the impacts.

Section 1- Route Option Scoring

Design Principle	Option 1.1	Option 1.2	Option 1.3	Option 1.4	Option 1.5	Option 1.6
Cycling by Design						
Safety	2	3	2	2	3	3
Coherence	3	2	2	2	2	2
Directness	3	2	2	2	3	1
Comfort	2	2	2	3	2	2
Attractiveness	2	2	3	3	3	2
Adaptability	2	3	2	2	3	1
General						
Cost effectiveness	2	2	2	3	2	2
Deliverability	2	3	2	3	3	1
Overall score	18	19	17	20	21	14

Summary: Based on the scores **option 1.5** has been identified as the preferred option for section 1. All 5 options scored highly during the route options scoring exercise; however, **option 1.5** has been chosen as this best aligns with CbD, the objectives of the SEStran Strategic Network and is considered to be the most deliverable.

Although most direct, **option 1.1** was not preferred due to the route travelling through East Bridge double mini roundabout which experience high levels of congestion. **Options 1.2, 1.3 and 1.4** were also not preferred due to the flood risk identified in the southern section of Haugh Park and the lack of directness. Option 1.6 was also not preferred due to lack of directness and issues such as on-street parking removal impacting deliverability.

Option 2.1: Cupar East A91



Summary: Arriving eastwards the route will begin on the southern section of the carriageway. A toucan crossing is proposed where users will cross to the northern section of the carriageway where the route will continue to Dairsie.

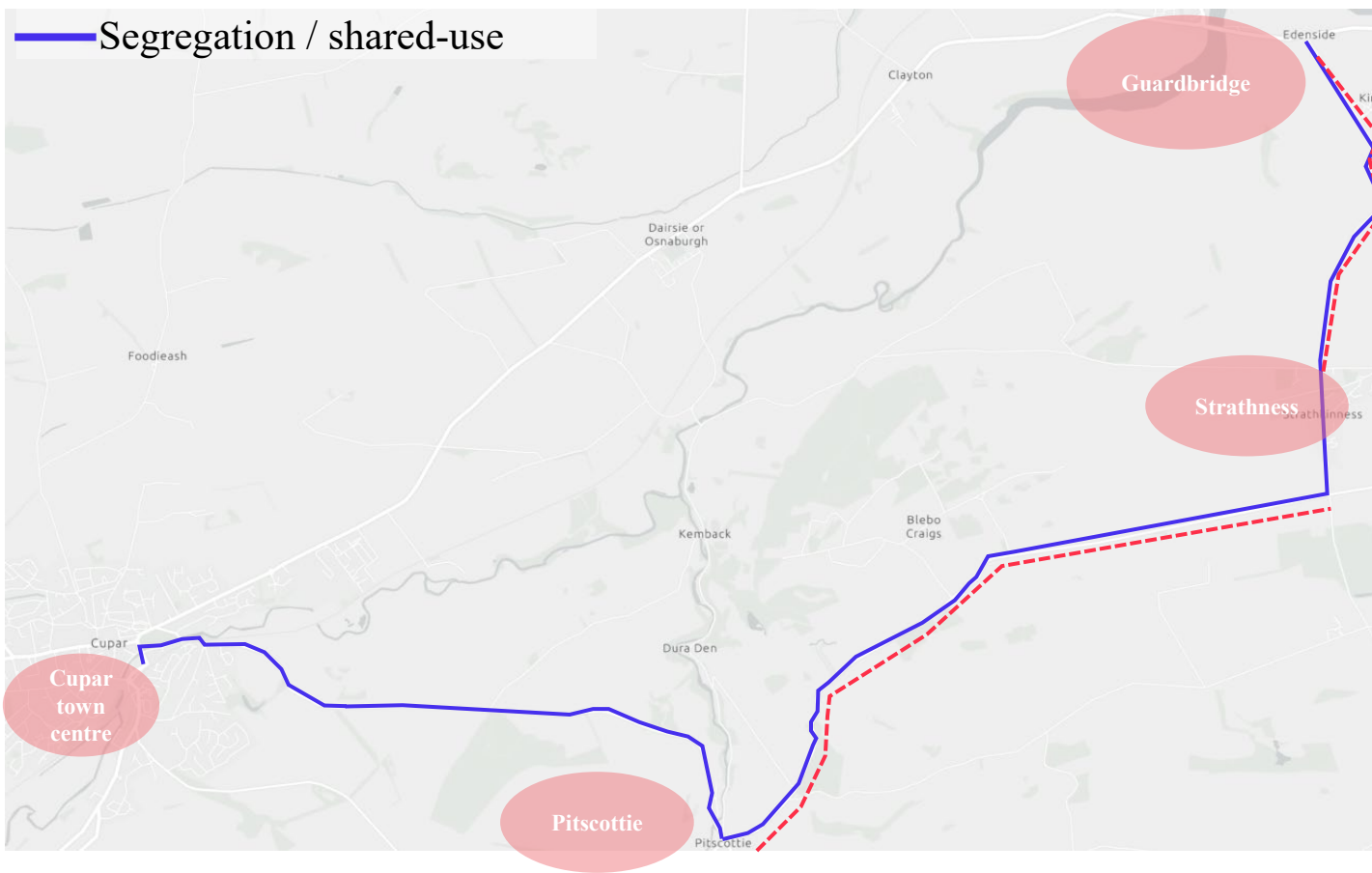
Positives:

- This route is the most direct option between Cupar and Dairsie.
- Aligns well with the principles of the strategic network.

Observations:

- In most parts of this section land will need to be purchased to achieve CbD width and buffer requirements.
- High vehicle speeds and volumes may negatively impact safety perceptions.

Option 2.2: Cupar East B940/ B939



Summary: The route will begin on the B940 and pass through Pitscottie. The route will then continue north along the B939 through Strathkinness and Edenside and arrive into Guardbridge from the east.

Positives:

- This route was raised during the engagement workshop.
- This option would connect the rural settlements to the south of Cupar and Guardbridge

Observations:

- In most parts of this section land will need to be purchased to achieve CbD width and buffer requirements.
- There are significant physical constraints that create feasibility / deliverability challenges.
- This option does not capture key settlements such as Dairsie and Clayton.

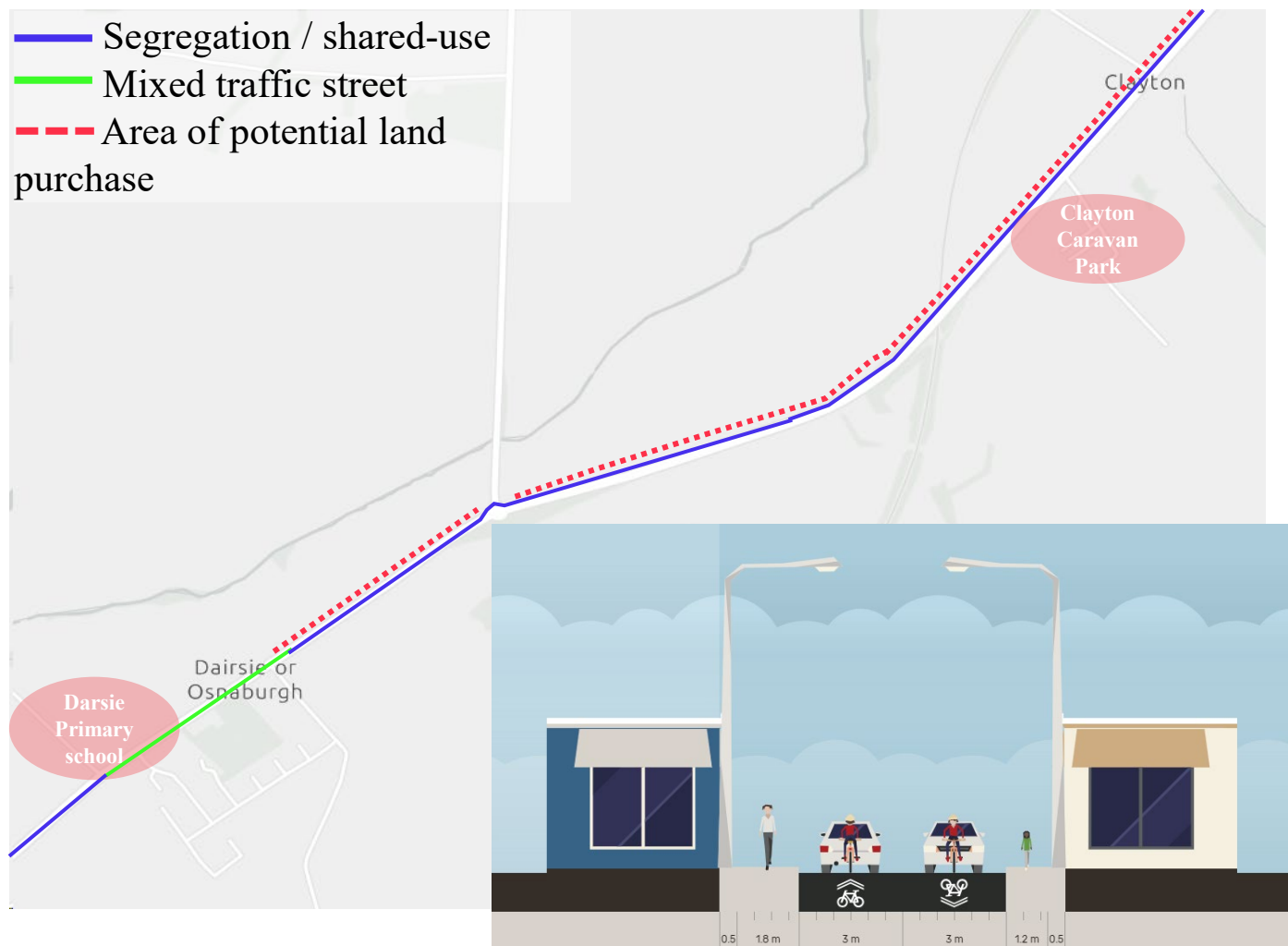
Section 2- Route Option Scoring

Design Principle	Option 2.1	Option 2.2
Cycling by Design		
Safety	3	3
Coherence	3	2
Directness	3	1
Comfort	3	3
Attractiveness	3	3
Adaptability	3	3
General		
Cost effectiveness	1	1
Deliverability	2	1
Overall score	21	17

Summary: Option 2.1 is the only feasible route option between Cupar East and Dairsie, this therefore is the most direct option. This route scored highly against CbD level of service. However, cost effectiveness scored lower due to the fact there would be a requirement for land purchase.

Option 2.2 was suggested by some individuals who attended the workshop. This route is not preferred due to the lack of connectivity for residents in Dairsie and Clayton and the poor LoS score against CbD principles. This route would also require more land purchase and presents significant feasibility challenges.

Option 3.1: Dairsie Main Street



Summary: option will go through Dairsie and continue on the A91. This would be a mixed traffic street along the main street.

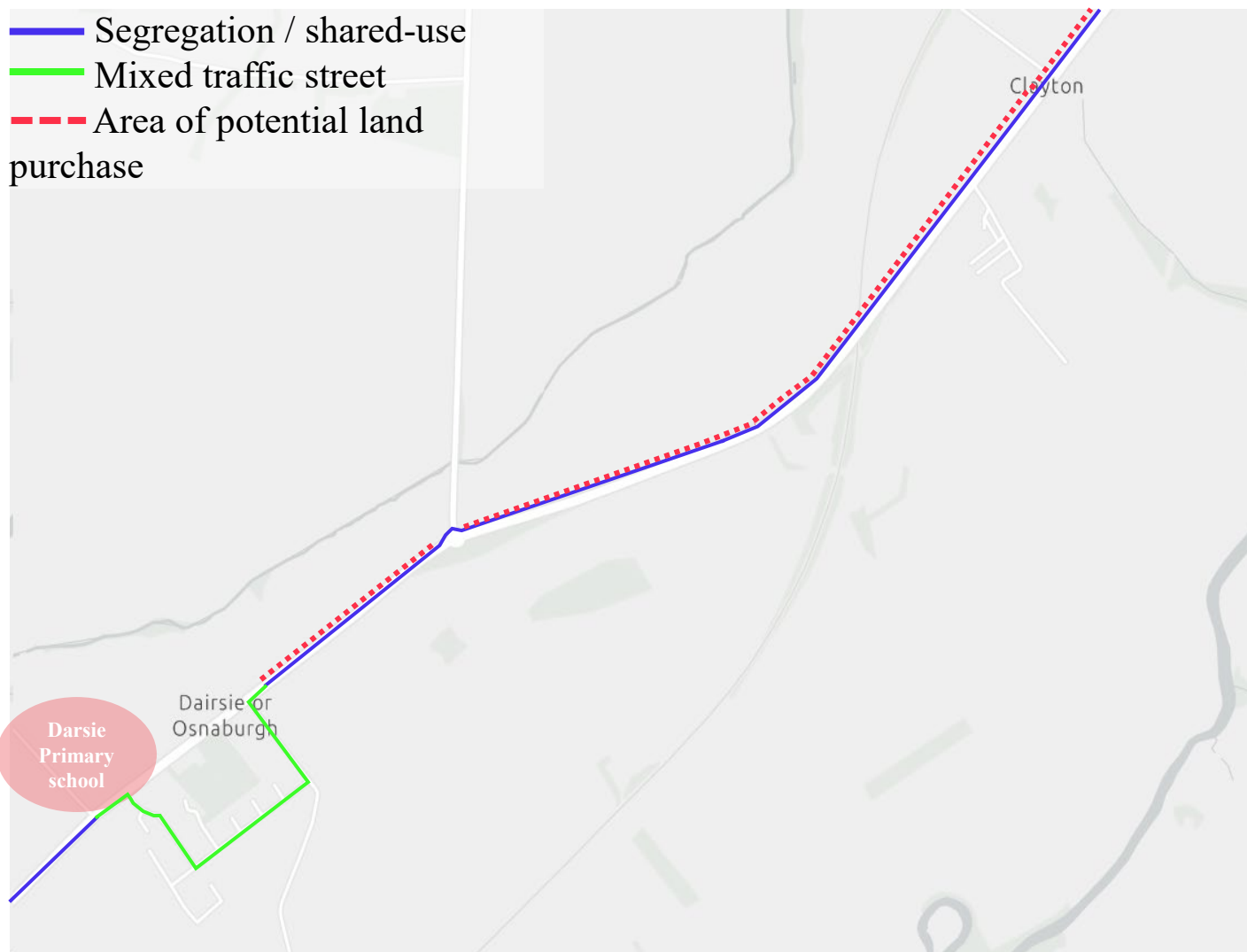
Positives:

- This is the most direct option.
- Opportunity to link with the primary school and create a Sustrans School Street.
- Opportunity to incorporate minor improvements such as signing, lining and placemaking.

Observations:

- Fife Council multi modal counters show high traffic volumes and a large percentage of HGVs and buses passing through this area.
- On the site visit it was observed that Dairsie Main Street was very congested and physically constrained.
- This option would achieve a medium-low level of service due to the speed limit and traffic volumes.

Option 3.2: Ardencaple Terrace and Station Road



Summary: option will take the route into Ardencaple Terrace, through to Station road and then back to the A91. This would be in the form of a mixed traffic street.

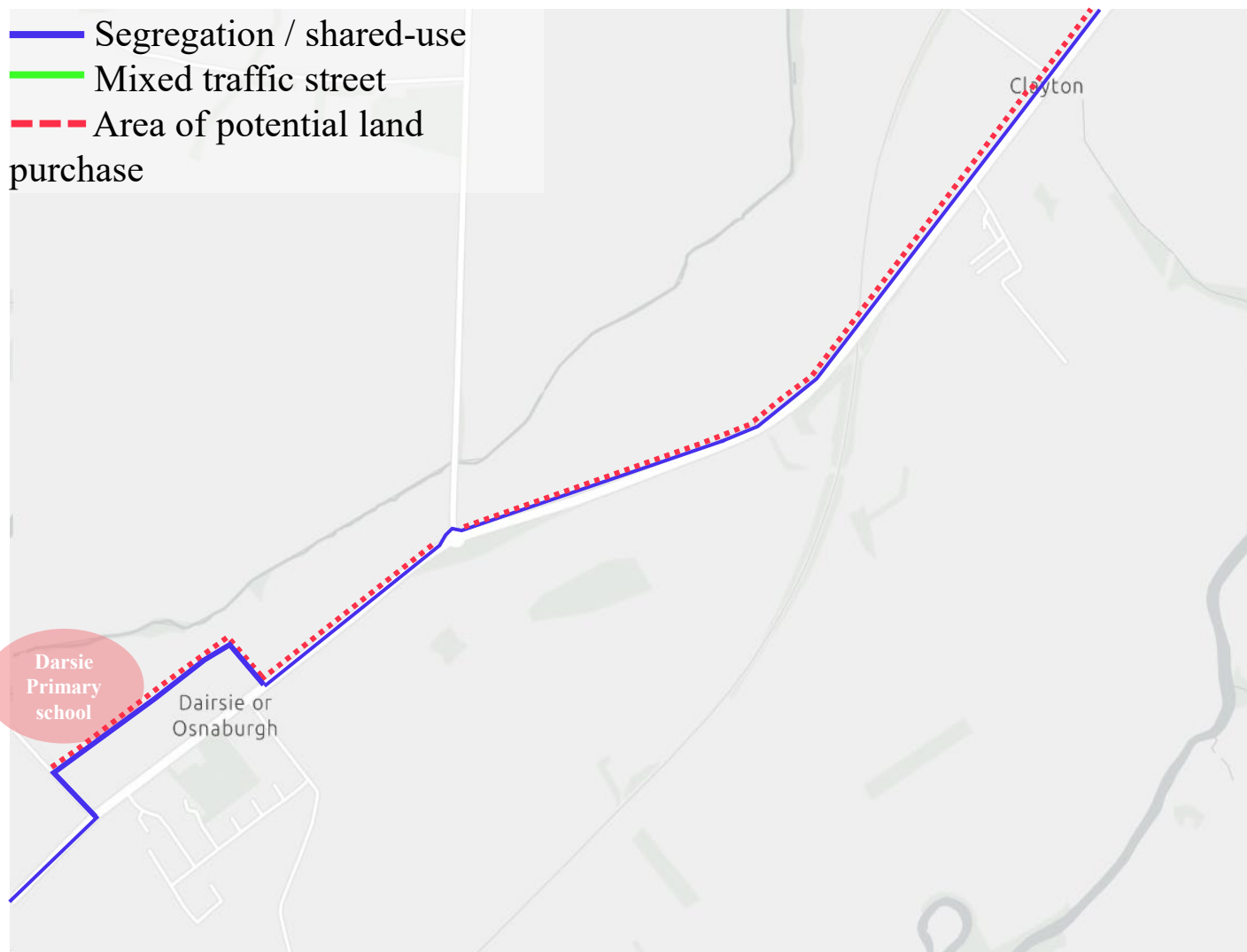
Positives:

- This is considered safer and more feasible option than option 1.1.
- There would be minimal works required other than signing, lining and minor resurfacing to deliver the mixed traffic street.

Observations:

- This is a less direct option than option 1.1 and a diversion that many active travel users would be unlikely to take.
- There is no connection to the main street where there are local trip attractors.
- This option would bring conflicts between vehicles and active travel users.

Option 3.3: Existing informal path



Summary: This option will take the route behind Dairsie Primary School and avoid the main street using an existing informal path. The route will then re-enter the A91 to the north-east of Dairsie.

Positives:

- This is considered a safer and more feasible option than option 1.1.
- This option utilises an existing informal path.
- There is an opportunity to link with the primary school and create a Sustrans School Street.

Observations:

- This is a less direct option than option 1.1.
- There is no connection to the main street where there are some local trip destinations.

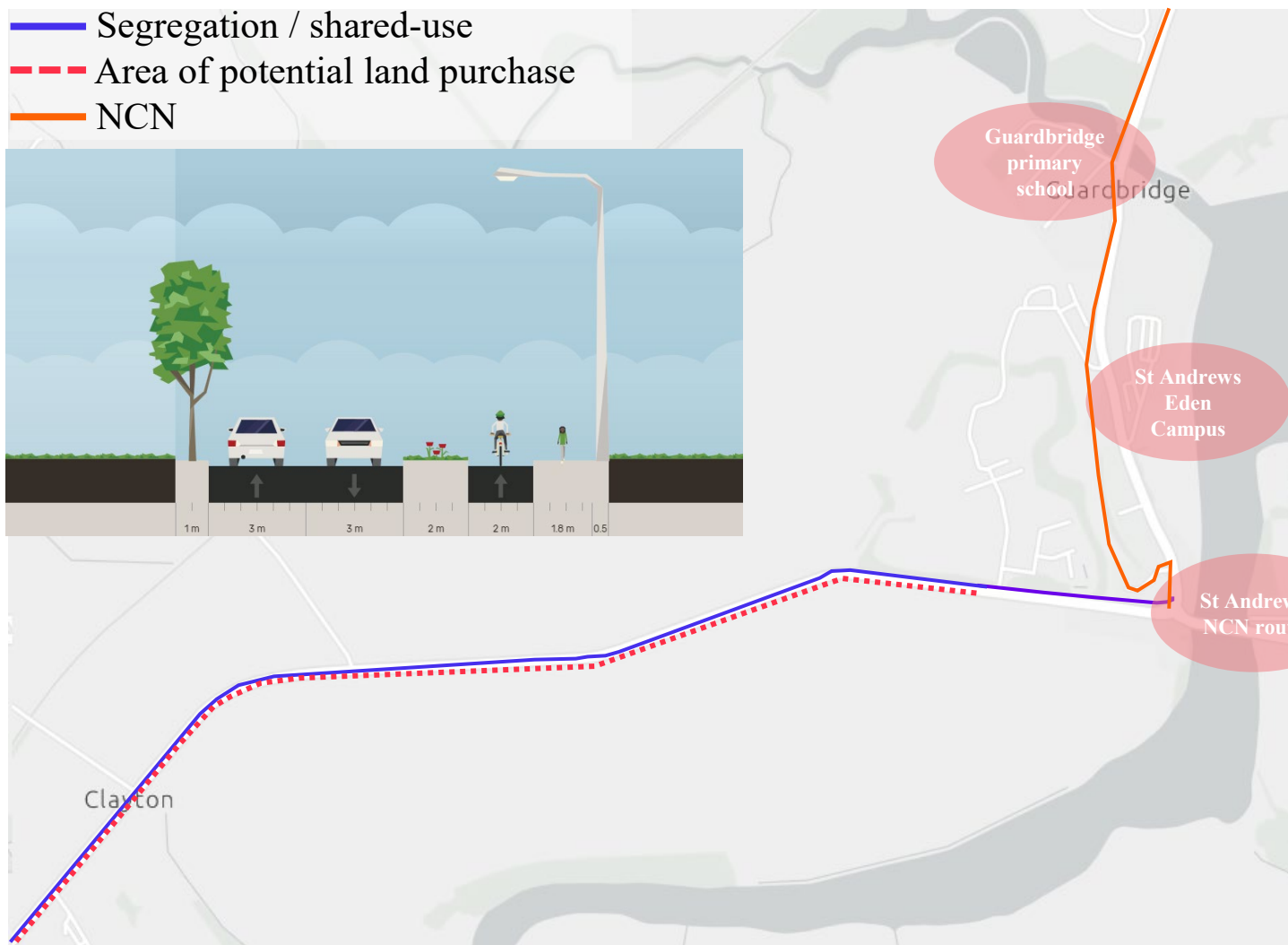
Section 3- Route Option Scoring

Design Principle	Option 3.1	Option 3.2	Option 3.3
Cycling by Design			
Safety	1	2	3
Coherence	2	2	2
Directness	3	1	2
Comfort	1	2	3
Attractiveness	2	2	3
Adaptability	2	2	3
General			
Cost effectiveness	1	3	1
Deliverability	2	3	2
Overall score	14	17	19

Summary: Based on the score, **option 3.3** has been identified as the preferred option for this section. This option was considered the most feasible and achieved the highest level for service across all route options. This route option is also adaptable, with scope for local extensions to contribute to the local active travel network with existing local footpaths adjacent to Dairsie Primary School.

Option 3.1 was not preferred due to physical constraints and therefore the limited feasibility of high-quality infrastructure required to achieve a high level of service. **Option 3.2** was also not preferred due to the mixed traffic street causing less comfort for cyclists, the directness of this option and footway parking and driveways along this section. This option would also cause conflicts between vehicles and active travel users.

Option 4.1: A91 Guardbridge



Summary: This option continues along the A91 from Clayton until arriving at Guardbridge where the route will likely be shared-use or light segregation due to physical constraints. The route will end at the Guardbridge roundabout.

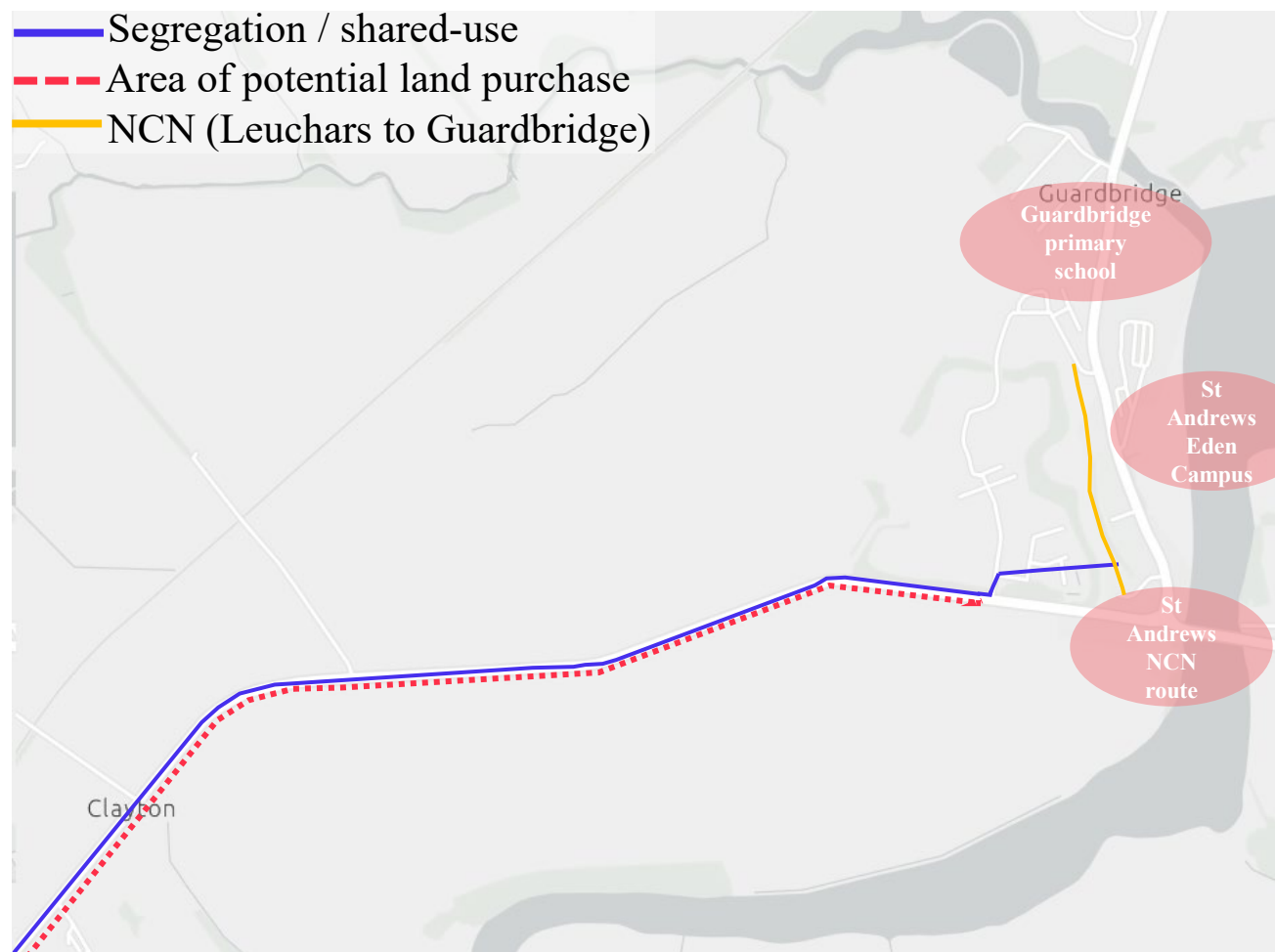
Positives:

- This option will link to the NCN shared-use path from Leuchars to St Andrews at the Guardbridge roundabout.
- This is the most direct option.

Observations:

- The site visit showed clear issues with footway parking, which will likely be required to be removed to allow this option to be feasible.
- Medium level of service would be achieved due to estimated traffic volumes, speed limit and type of infrastructure that is feasible.

Option 4.2: Eden Woods off-road path



Summary: This option will utilise a future footpath to be constructed by the Eden Woods development as a developer contribution and connect to the NCN. This would be upgraded to a shared-use path.

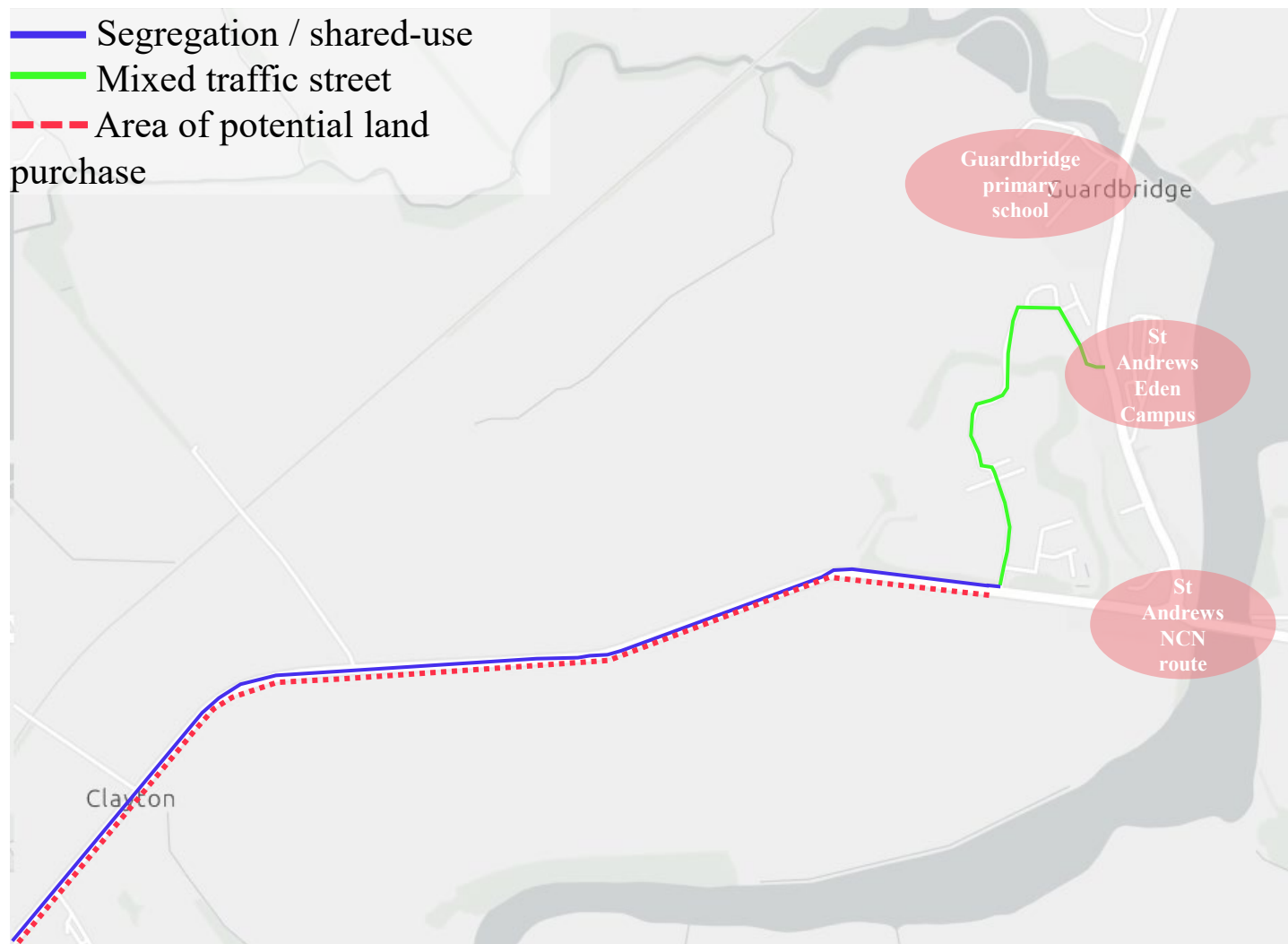
Positives:

- There is an opportunity to build on future committed infrastructure.
- This route option is considered a safer option than option 4.1.
- This avoids the physically constrained section of the A91.

Observations:

- Consultation/ buy-in will be required from the Eden Woods developer.
- Small connection will be required as part of the footpath proposals for the Eden Woods development. However, these paths will need to be upgraded from a standard footpath to a shared-use facility.

Option 4.3: Eden Woods residential street



Summary: This option would be a mixed traffic street passing through the Eden Woods development and back onto A919 Main Street.

Positives:

- This option is considered a safer route option into Guardbridge than option 4.1.
- Connects effectively into the NCN route, and the St Andrews University Eden Campus.
- This option requires minimal works such as signing and lining, therefore will be lower cost than options 4.1 and 4.2.

Observations:

- This option is less direct than options 4.1 and 4.2.
- Road adoption plans show this street is not currently adopted. This will require engagement with Fife Council to confirm whether this road will be adopted in the future.

Section 4- Route Option Scoring

Design Principle	Option 4.1	Option 4.2	Option 4.3
Cycling by Design			
Safety	2	3	3
Coherence	3	3	3
Directness	3	3	2
Comfort	2	3	3
Attractiveness	2	3	3
Adaptability	2	3	3
General			
Cost effectiveness	1	3	3
Deliverability	2	3	3
Overall score	17	24	23

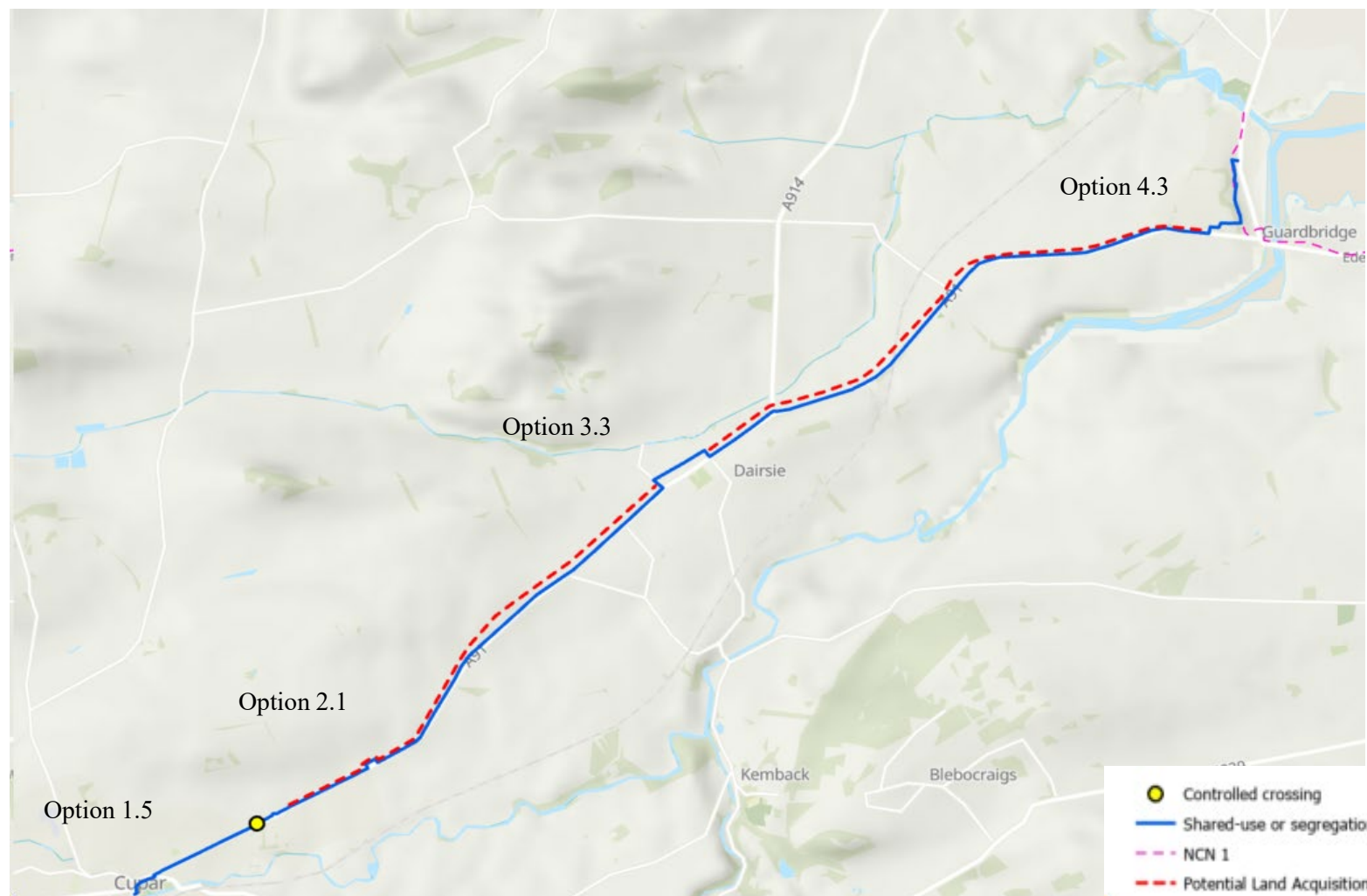
Summary: Based on the score, it is clear that **option 4.2** is the preferred route for section 4. **Option 4.1** was not preferred due to the issues with pavement parking on the A91 arriving into Guardbridge. **Option 4.2** was not preferred due to the lack of directness and uncertainty in relation to road adoption.

Summary

Preferred Route Option

Based on the scoring of options in these slides, the preferred route can be seen. Option 1.5 was chosen, which passes through the north of Haugh Park and onto the A91 to Cupar Industrial Estate. This was seen as advantageous in providing a safe and direct route which is not impacted by flooding. Route option 2.1 was chosen due to this being the most direct route along the A91. Option 3.3 was chosen due to connecting in with Dairsie Primary School and avoiding physical constraints along the main street. Option 4.1 was the most preferred option due to the directness of the A91 connecting into Guardbridge and utilisation of active travel facilities that form part of the Eden Woods development proposals.

Overall, this route is believed to offer the highest level of service to active travel users based on Cycling by Design's six guiding principles, whilst also taking into account their potential cost and deliverability.



Appendix E

Designer Risk Register

Designer Risk Register



Register reference

Project SEStran Strategic Network Study (Cupar to Guardbridge Feasibility Study)

Job number 297148-02

Package/ topic Active Travel Route Design

Design stage Feasibility Study / Concept Design

Remember: Avoid – Reduce – Control and communicate relevant information to others

Date (+ initials)	Area/location of risk exposure	Description of hazard and risk exposure	Mitigation of risk (potential or achieved)	A	R	C	Further action	By	Status
									Active/closed
19/12/23	Full extent of proposed route	Limited information on existing utilities	Use line search to receive available utility plans. Highlight risks on drawings and in reports. Communicate to client		✓		A more comprehensive utility search to be carried out at detailed design stage where appropriate.	LY/ JS	Active
19/12/23	Full extent of proposal	Limited information on land ownership.	Undertake a land registry search for areas where land purchase is required as part of the concept design proposals. Highlight unknowns on drawings and in reports and communicate to the client.		✓		Continued communication with Fife Council to confirm land ownership at specific locations.	LY/ JS	Active
19/12/23	Full extent of proposal	OS mapping could be inaccurate.	Concept design proposals being developed with the			✓	Best judgement to be used in assessing the amount of space available.	LY/ JS	Active

Designer Risk Register



Register reference

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Job number 297148-02

**Package/
topic** Active Travel Route Design

Design stage Feasibility Study / Concept Design

Remember: Avoid – Reduce – Control and communicate relevant information to others

Date (+ initials)	Area/location of risk exposure	Description of hazard and risk exposure	Mitigation of risk (potential or achieved)	A	R	C	Further action	By	Status
									Active/closed
			caveat that topographical survey to be collected at future detailed design stage.				Topographical surveys to be carried out at a detailed design stage.		
19/12/23	Full extent of proposed route	On-street parking may need to be removed or relocated to accommodate the route.	Highlighting areas where it is proposed parking is removed or reallocated to share with Fife Council.		✓		Continued communication with Fife Council to discuss on street parking.	LY/ JS	Active
19/12/23	Multiple sections of the route such as Eden Woods development or Dairsie main street	Conflict between cyclists and pedestrians	Shared use facilities will aim to achieve CbD desirable minimum so that users can pass comfortably.		✓		Review in detailed design and undertake further engagement / consultation about appropriateness.	LY/ JS	Active
16/02/24	Multiple sections of the route such as A91, Eden developments,	Conflict between active travel users and vehicles	Mixed traffic streets have been avoided within the proposals to create separation	✓			Review in detailed design and use further consultation about appropriateness of routes.	JS	Active

Designer Risk Register

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Project SEStran Strategic Network Study (Cupar to Guardbridge Feasibility Study)

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Design stage Feasibility Study / Concept Design

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									Active/closed
	Dairsie main street and residential streets		between vehicles and active travel users. Appropriate buffers between carriageway and active travel facilities in line with CbD guidance have also been proposed.						
19/12/23	Crossings, junctions and roundabouts	Lack of vehicle numbers to inform design of junctions.	Design has been informed mainly by CbD guidance, best practice and an assumption on traffic levels to guide the design of interventions.			✓	Traffic surveys and modelling may be required to inform detailed design.	LY/ JS	Active
19/12/23	Continuous crossings and raised junctions	Conflicts between vehicles and vulnerable users.	Use of clear markings and reduction in vehicle speed.			✓	In detailed design the suitability of visibility splays for blind people and the design of drainage should be considered.	LY/ JS	Active

Designer Risk Register



Register reference

Project SEStran Strategic Network Study (Cupar to Guardbridge Feasibility Study)

Job number 297148-02

**Package/
topic** Active Travel Route Design

Design stage Feasibility Study / Concept Design

Remember: Avoid – Reduce – Control and communicate relevant information to others

Date (+ initials)	Area/location of risk exposure	Description of hazard and risk exposure	Mitigation of risk (potential or achieved)	A	R	C	Further action	By	Status
									Active/closed
19/12/23	Full extent of proposal	Vehicles conflicting with footpath users.	Ensure clear signage and markings are put in place.			✓	Continued communication with Fife Council so that plans for signage are consistent.	LY/ JS	Active
19/12/23	Full extent of proposal	Crossing improvements	Ensure that current uneven dropped kerbs throughout the area are improved.			✓	In the detailed design stage ensure there is consideration for improved crossings.	LY/ JS	Active
19/12/23	Full extent of proposal	Accessibility for people with disabilities	Followed CbD to ensure that environments will be accessible to everyone including those with mobility challenges.			✓	Ensure during the detailed design stage that infrastructure designs accommodate all individuals. Key considerations may include physical delineation and location of tactile paving.	LY/ JS	Active
16/02/24	Haugh Park	Flood risk identified to the south of Haugh Park through review of SEPA mapping tool.	Avoided use of the south of Haugh Park at the options appraisal stage.	✓			Review flooding in greater detail at detailed design stage.	JS	Active

Designer Risk Register



Register reference

Project SEStran Strategic Network Study (Cupar to Guardbridge Feasibility Study)

Job number 297148-02

**Package/
topic** Active Travel Route Design

Design stage Feasibility Study / Concept Design

Remember: Avoid – Reduce – Control and communicate relevant information to others

Date (+ initials)	Area/location of risk exposure	Description of hazard and risk exposure	Mitigation of risk (potential or achieved)	A	R	C	Further action	By	Status
									Active/closed
			Preferred option uses the north of the park where flooding is not considered to be a major risk.						
14/03/24	Haugh Park	Level difference at south-west entry/exit of Haugh Park.	Ensure adequate earthworks are proposed to remove the harsh slope on the proposed path.			✓	Follow CbD to achieve desirable gradients during detailed design stage.	EAL	Active
14/03/24	A91	South of carriageway at the Cupar Ford Centre there is a level difference between proposed pathway and the sloped verge.	Ensure adequate barrier is installed across area of risk to protect cyclists.			✓	Propose a safety barrier like fencing or similar during detailed design stage.	EAL	Active
14/03/24	A91, East of Industrial Estate	Constrained area passing the property east of the industrial estate.	Proposed carriageway narrowing and if necessary propose carriageway			✓	Follow standards such as CbD and DMRB to propose appropriate realignment during detailed design stage.	EAL	Active

Designer Risk Register

Register reference

Project SEStran Strategic Network Study (Cupar to Guardbridge Feasibility Study)

Job number 297148-02

**Package/
topic** Active Travel Route Design

Design stage Feasibility Study / Concept Design

Remember: Avoid – Reduce – Control and communicate relevant information to others

Date (+ initials)	Area/location of risk exposure	Description of hazard and risk exposure	Mitigation of risk (potential or achieved)	A	R	C	Further action	By	Status
									Active/closed
			realignment to achieve buffer widths.						
14/03/24	A91, Rail Bridge	Constrained area passing over the existing rail overbridge.	Use existing verge space to both extend pathway and realign carriageway over the bridge. Potential to use alternative route across existing bridge to the south.			✓	Continue communication with the council to define viable solution and propose appropriate infrastructure during detailed design.	EAL	Active
14/03/24	A91, North of Rail Bridge	When rejoining the proposed pathway offset from the existing vegetation there is a significant level difference.	Ensure adequate earthworks are proposed to remove the harsh slope between the offset and carriageway alignment.			✓	Follow CbD to achieve desirable gradients during detailed design stage.	EAL	Active
14/03/24	Cupar Road	Constrained area entering Guardbridge where existing vegetation	Propose removal of vegetation for the 50m section to			✓	During detailed design stage ensure minimal ecological damage is	EAL	Active

Designer Risk Register



Register reference

Project SEStran Strategic Network Study (Cupar to Guardbridge Feasibility Study)

Job number 297148-02

**Package/
topic** Active Travel Route Design

Design stage Feasibility Study / Concept Design

Remember: Avoid – Reduce – Control and communicate relevant information to others

Date (+ initials)	Area/location of risk exposure	Description of hazard and risk exposure	Mitigation of risk (potential or achieved)	A	R	C	Further action	By	Status
									Active/closed
		conflicts with proposed path.	provide required widths.				made with reference to topographical surveys.	⋮	

Appendix F

Concept Design Proposals



Notes

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- All dimensions in metres unless specified otherwise.

Design & Safety Risks

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- Works adjacent to live carriageway will require traffic management.
- Inherent inaccuracies of using OS mapping. Topographical survey required for detailed design.
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- Works around rail infrastructure should be co-ordinated with Network Rail.

Legend

Route

P01	18/03/24	EAL	JS	MB
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Rev	Date	By	Chkd	Appd

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Client
SEStran

Project Title
SEStran Strategic Network

Drawing Title
**Cupar to Guardbridge
 Route Overview Plan**

Scale at A1 1:12500

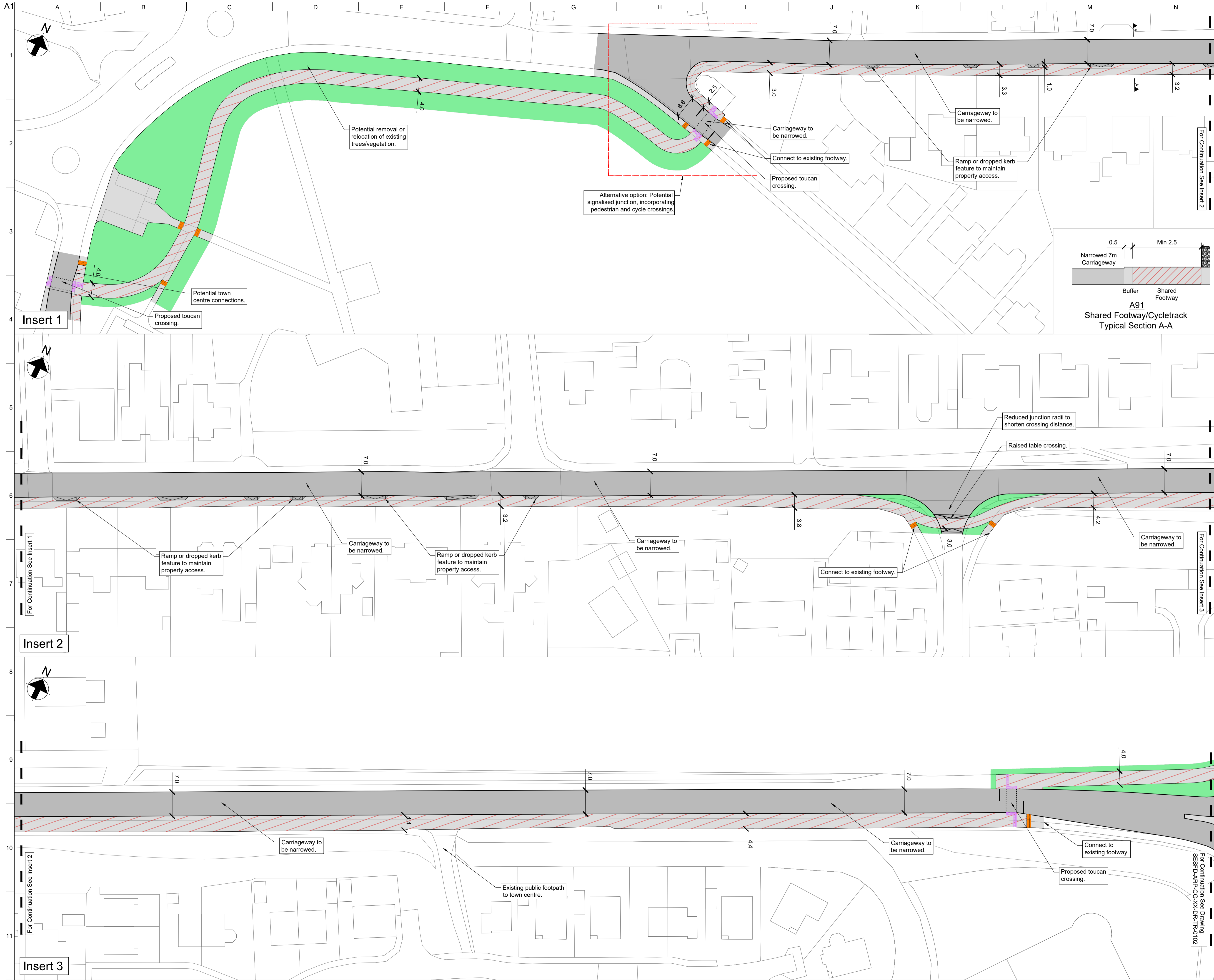
Role Consultancy

Suitability Information

Arup Job No **297148-00**

Name **SESFDR-ARP-CG-XX-DR-TR-0001**

Rev **P01**



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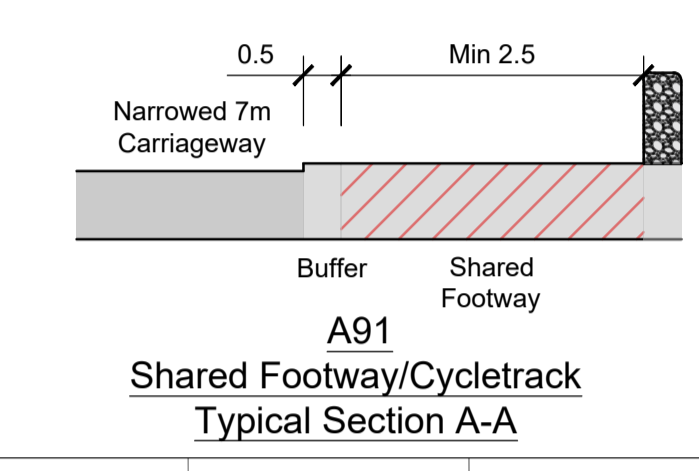
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Insert 3

- Legend**
- Footway
 - Shared Footway/Cycletrack
 - Cycletrack
 - Landscaping and Other Vegetation
 - Blister Tactile Paving
 - Ladder & Trampoline Tactile Paving

- Notes**
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Drawing Title
**Cupar to Guardbridge
Haugh Park to East Road Roundabout
Proposed Layout
Sheet 1 of 9**

Scale at A1: 1:500

Role: Consultancy

Suitability: Information

Arup Job No: **297148-00** Rev: **P01**

Name: **SESFD-ARP-CG-XX-DR-TR-0101**



- Legend**
- Footway
 - Shared Footway/Cycletrack
 - Cycletrack
 - Landscaping and Other Vegetation
 - Blister Tactile Paving
 - Ladder & Trampoline Tactile Paving

- Notes**
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**Cupar to Guardbridge
East Road Roundabout to A91
Proposed Layout
Sheet 2 of 9**

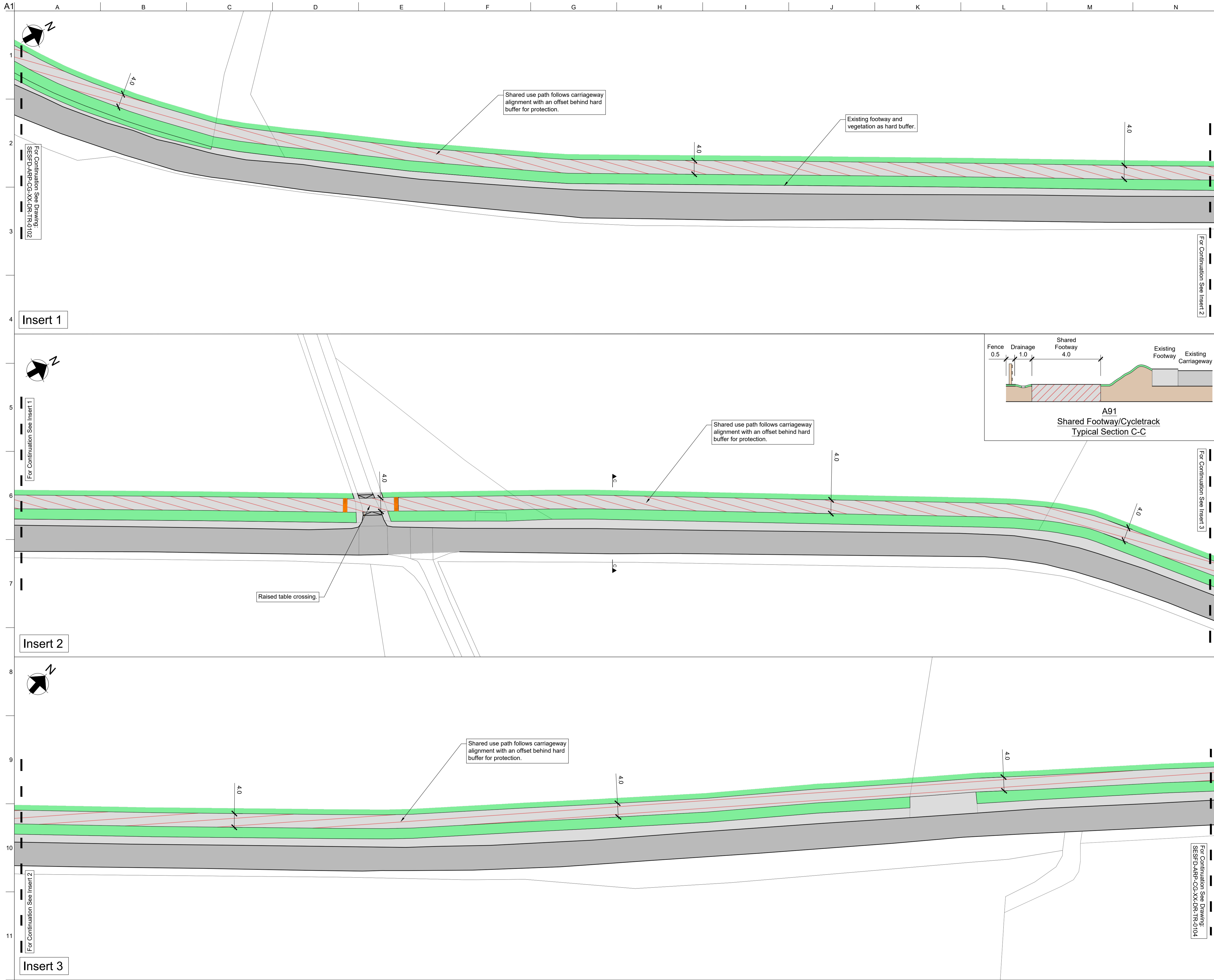
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Role: Consultancy

Suitability: Information

Arup Job No: **297148-00** Rev: **P01**

Name: **SESFD-ARP-CG-XX-DR-TR-0102**



Legend

- Footway
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- Landscape and Other Vegetation
- Blister Tactile Paving
- Ladder & Tramline Tactile Paving

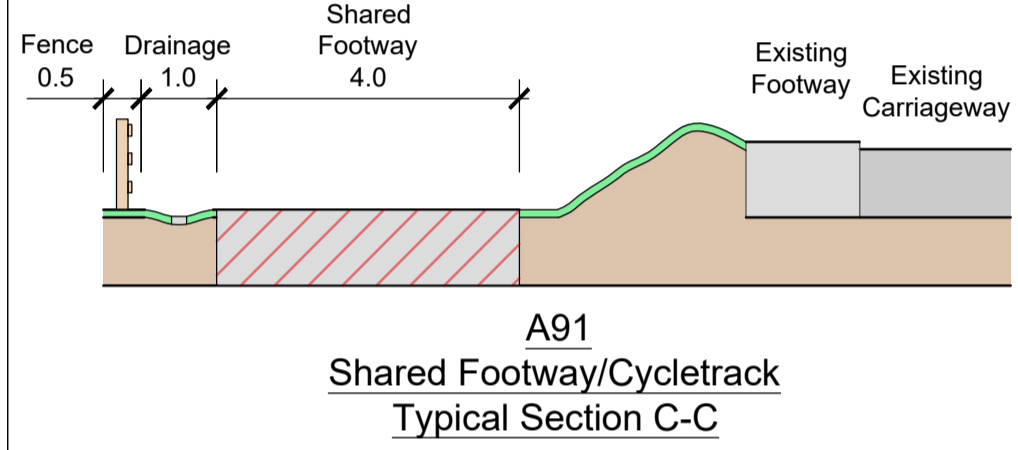
- Notes**
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**Cupar to Guardbridge
A91
Proposed Layout
Sheet 3 of 9**

Scale at A1
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Role
Consultancy

Suitability
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Arup Job No
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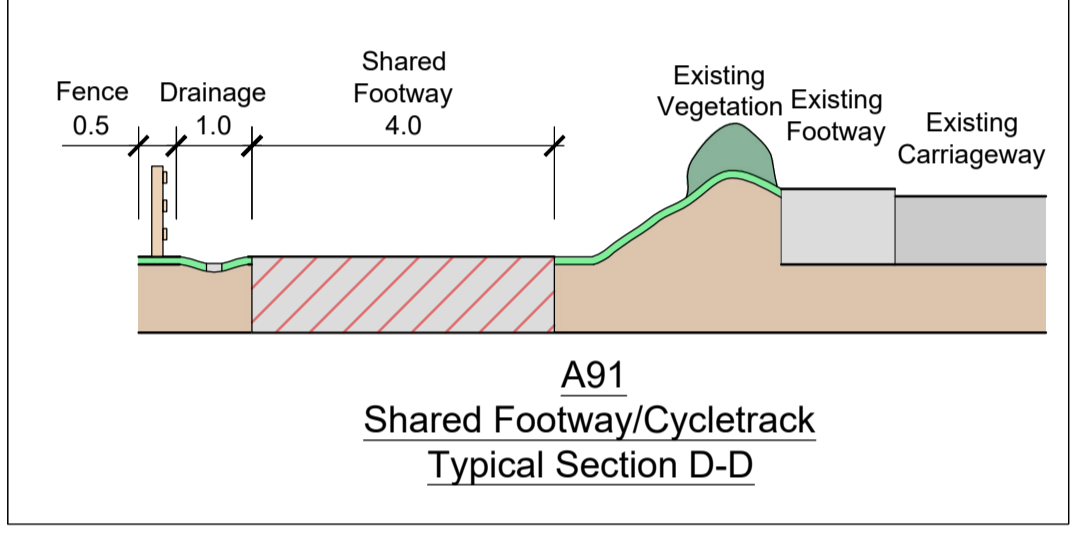
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Legend

	Footway
	Shared Footway/Cycletrack
	Cycletrack
	Landscaping and Other Vegetation
	Blister Tactile Paving
	Ladder & Tramline Tactile Paving

- Notes**
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Drawing Title
Cupar to Guardbridge A91 Proposed Layout Sheet 4 of 9

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Role
Consultancy

Suitability
Information

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Name
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- Legend**
- Footway
 - Shared Footway/Cycletrack
 - Cycletrack
 - Landscaping and Other Vegetation
 - Blister Tactile Paving
 - Ladder & Trampoline Tactile Paving

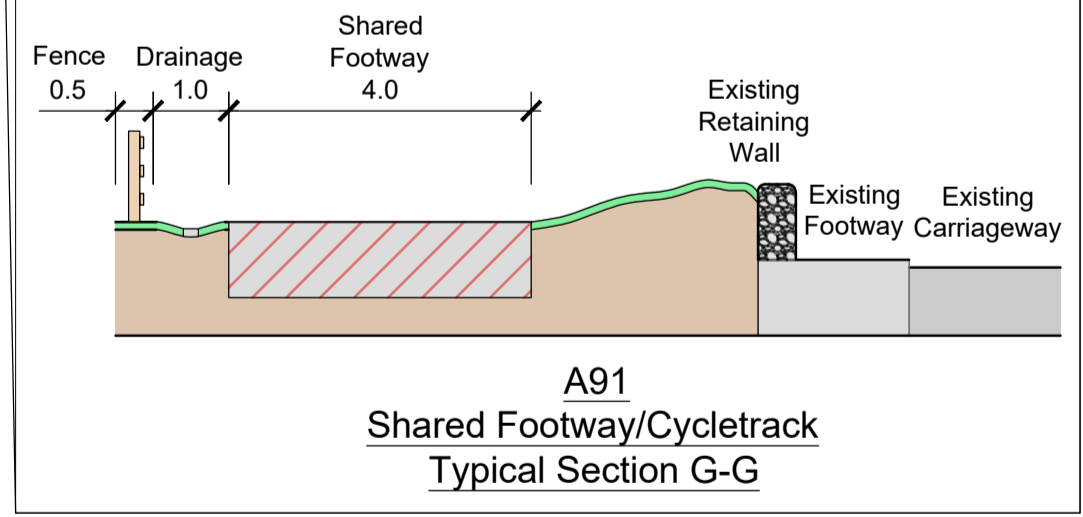
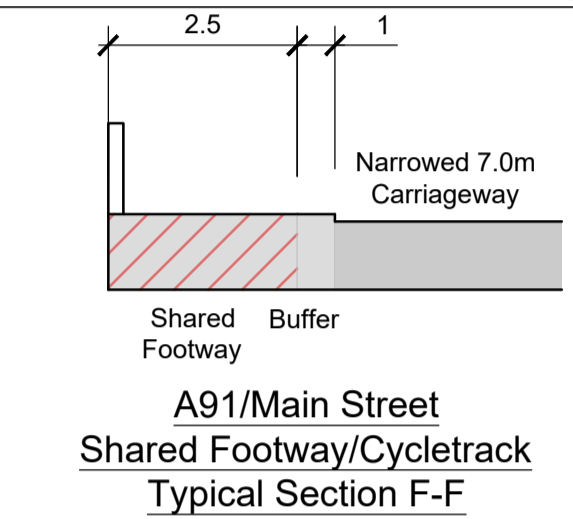
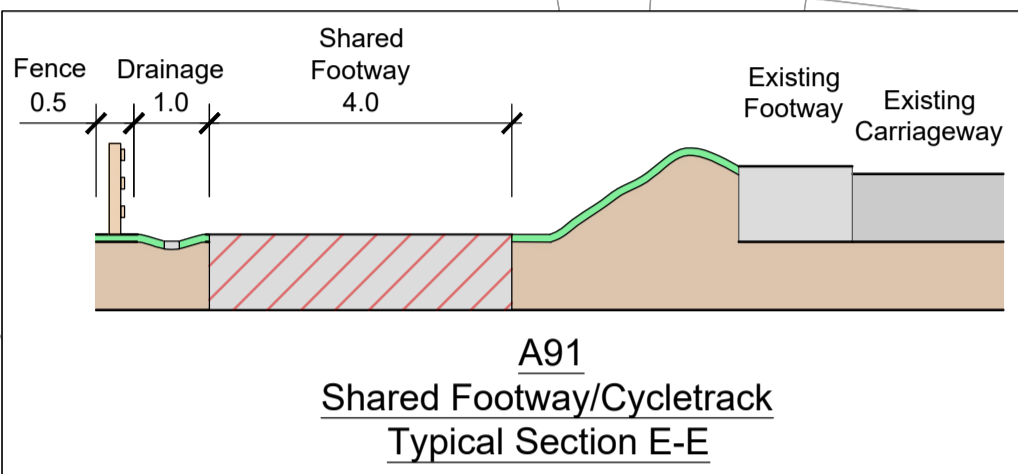
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Drawing Title
Cupar to Guardbridge Dairsie Proposed Layout Sheet 5 of 9

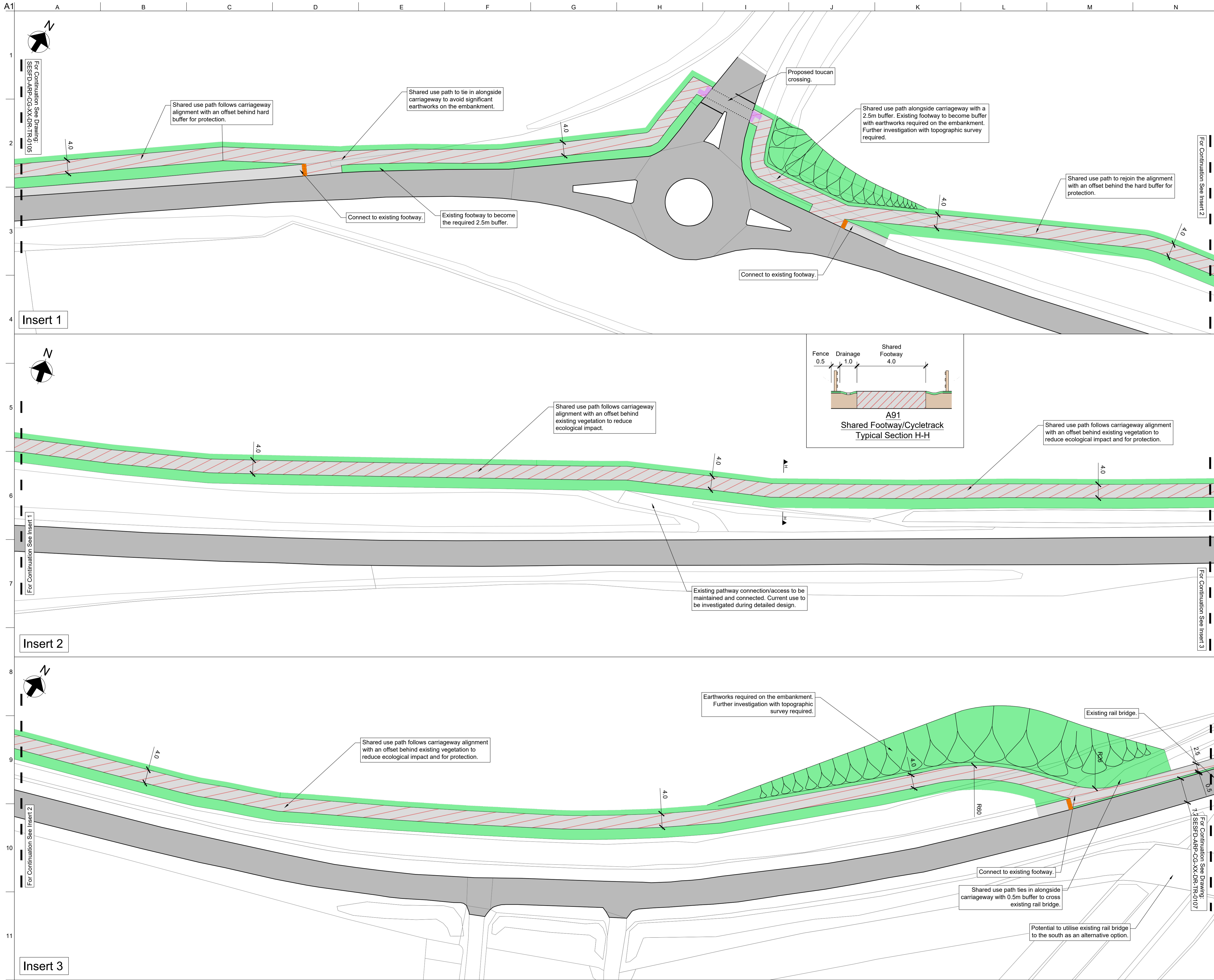
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Role
Consultancy

Suitability
Information

Arup Job No
297148-00

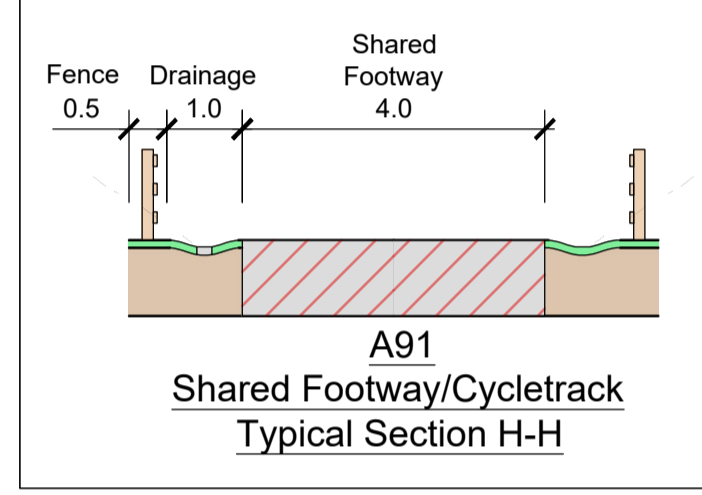
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- Footway
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 - Cycletrack
 - Landscaping and Other Vegetation
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Drawing Title
**Cupar to Guardbridge
 A91
 Proposed Layout
 Sheet 6 of 9**

Scale at A1
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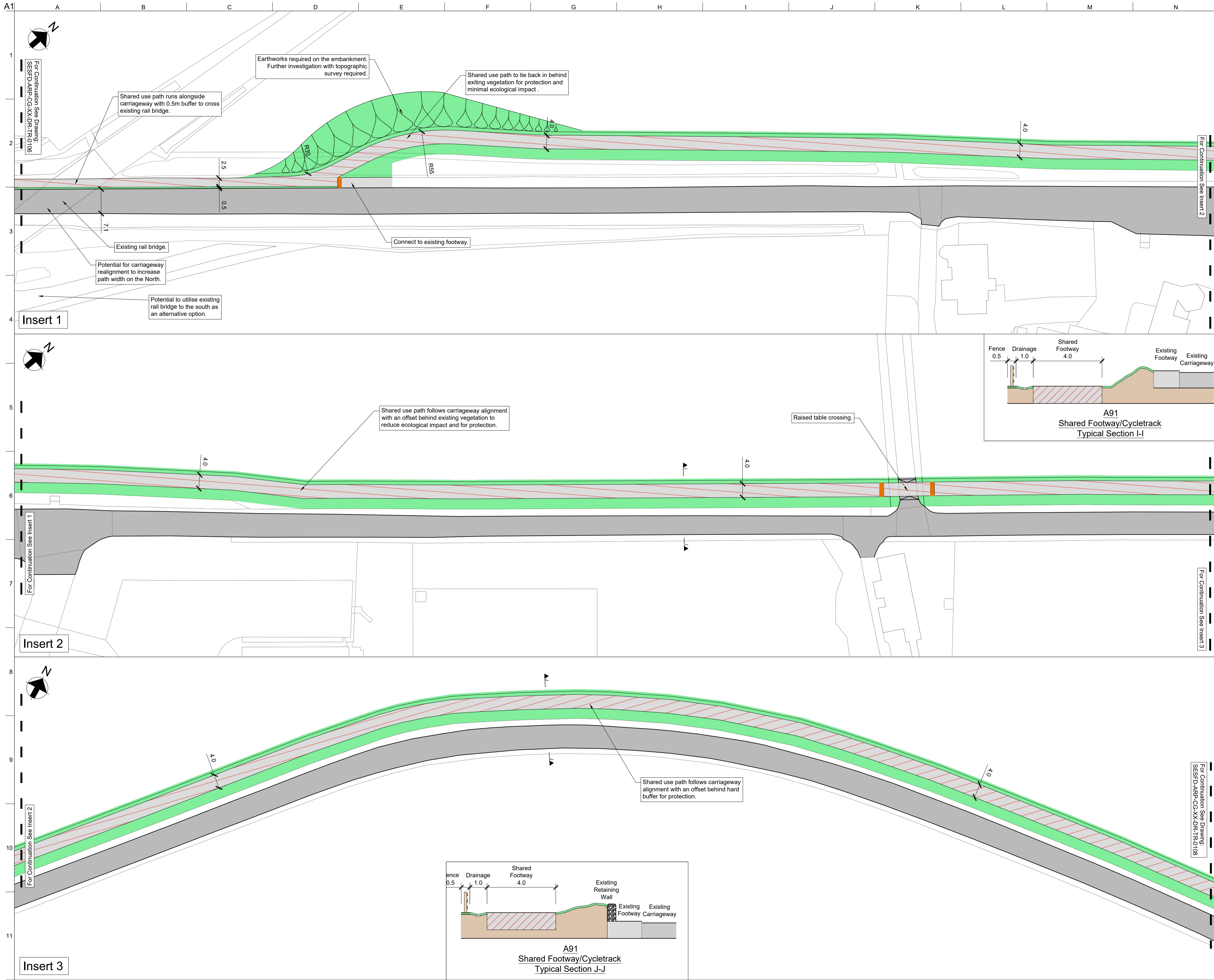
Role
 Consultancy

Suitability
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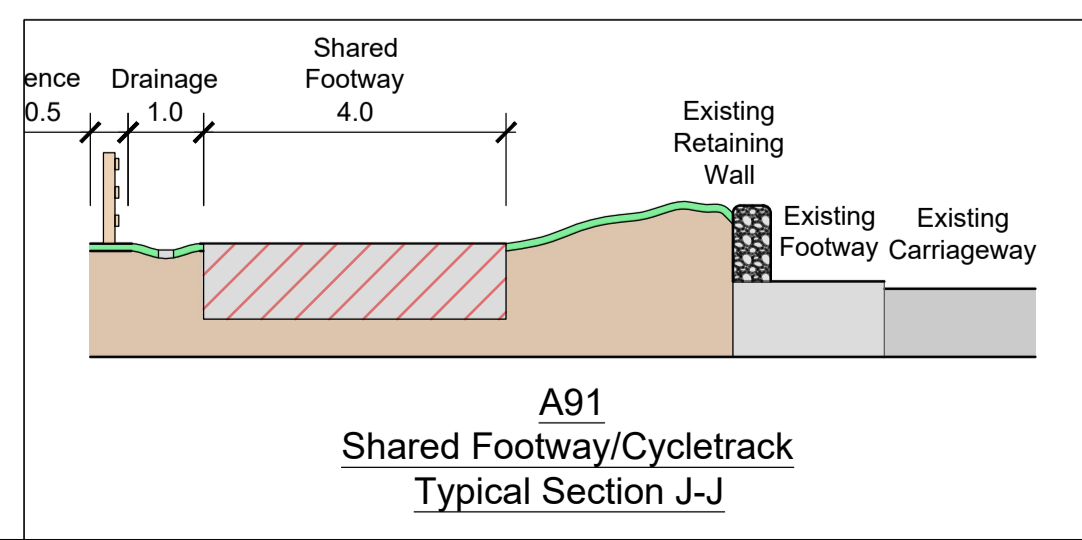
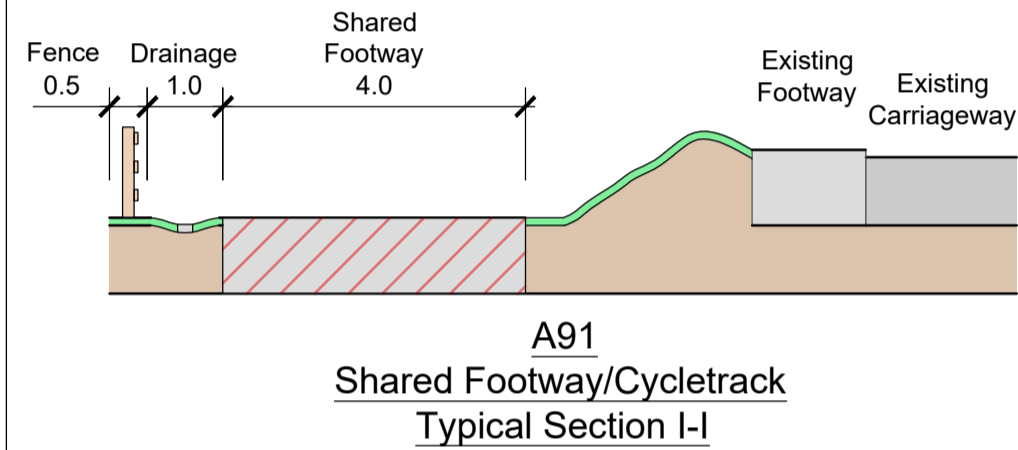
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- Legend**
- Footway
 - Shared Footway/Cycletrack
 - Cycletrack
 - Landscaping and Other Vegetation
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P01	18/03/24	EAL	JS	MB
For Information				
Rev	Date	By	Chkd	Appd

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Client
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Project Title
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Drawing Title
**Cupar to Guardbridge
A91
Proposed Layout
Sheet 7 of 9**

Scale at A1
1:500

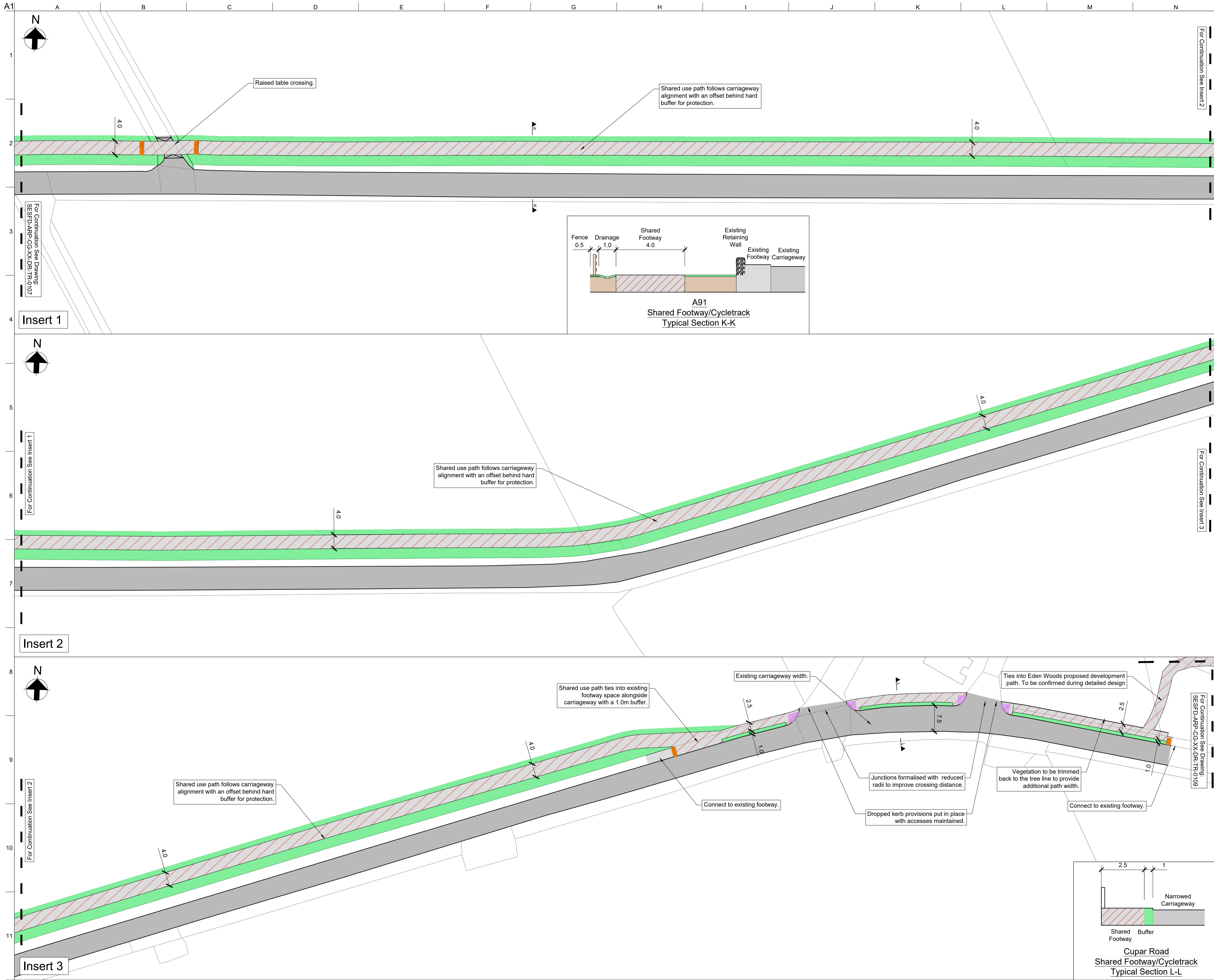
Role
Consultancy

Suitability
Information

Arup Job No
297148-00

Rev
P01

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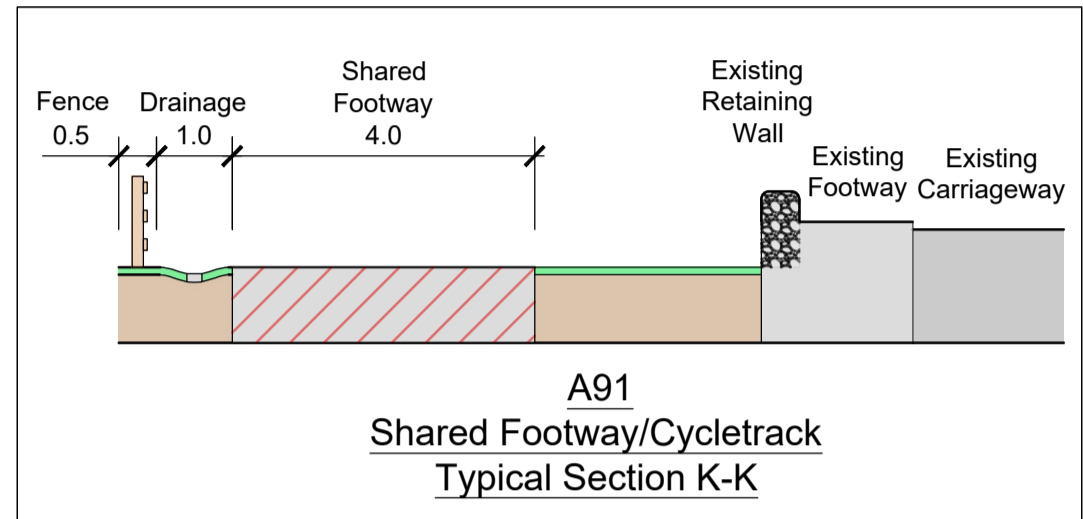


Legend

- Footway
- Shared Footway/Cycletrack
- Cycletrack
- Landscaping and Other Vegetation
- Blister Tactile Paving
- Ladder & Tramline Tactile Paving

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For Continuation See Drawing: SESFD-ARP-CG-XX-DR-TR-0107

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For Continuation See Insert 2

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Client
SEStran

Project Title
SEStran Strategic Network

Drawing Title
**Cupar to Guardbridge
A91 to Cupar Road
Proposed Layout
Sheet 8 of 9**

Scale at A1
1:500

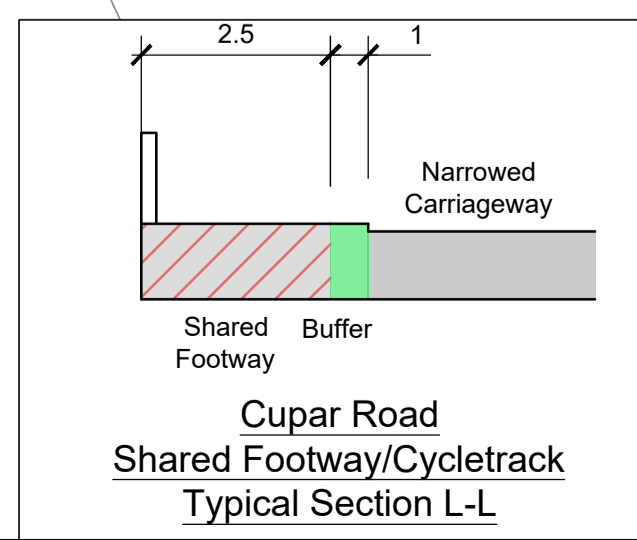
Role
Consultancy

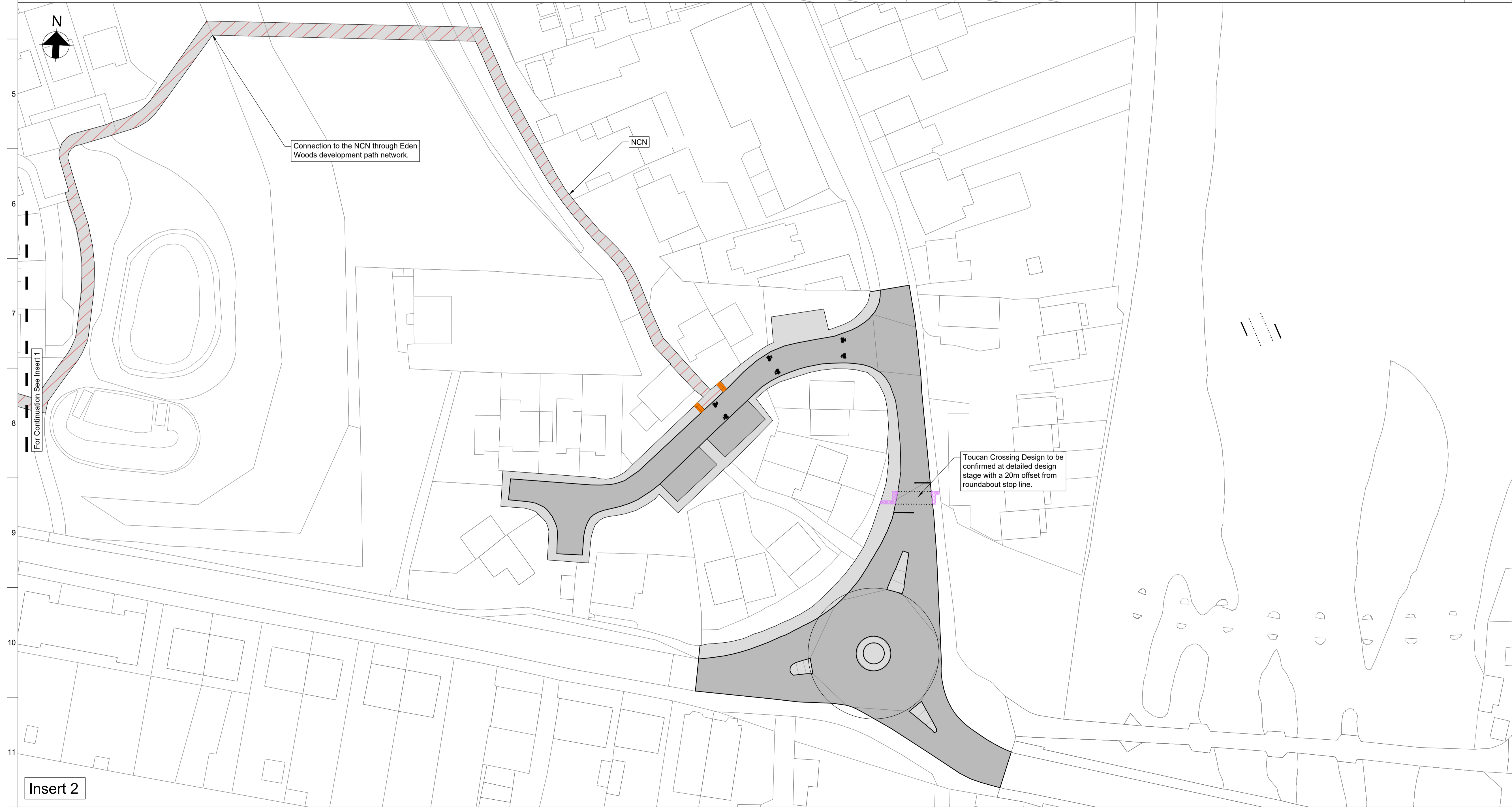
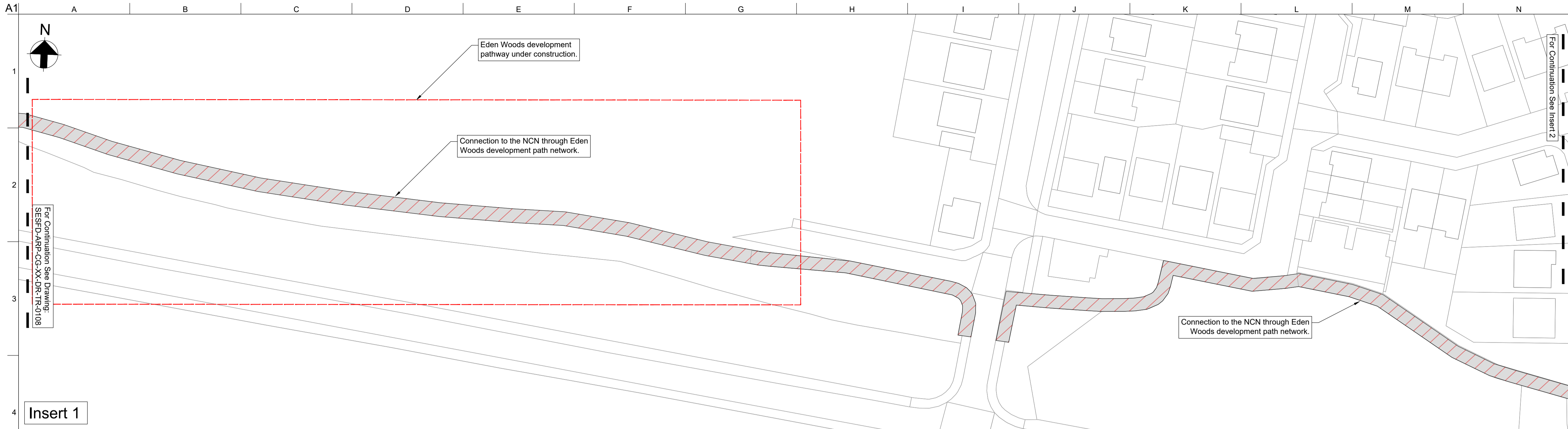
Suitability
Information

Arup Job No
297148-00

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SESFD-ARP-CG-XX-DR-TR-0108

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P01





- Legend**
- Footway
 - Shared Footway/Cycletrack
 - Cycletrack
 - Landscaping and Other Vegetation
 - Blister Tactile Paving
 - Ladder & Trampoline Tactile Paving

- Notes**
1. OS base mapping received from Fife Council on 13-10-2023.
 2. All dimensions in metres unless specified otherwise.

- Design & Safety Risks**
1. Potential for unknown utilities, depths & positions to be further investigated during detailed design. With care taken during any excavation adjacent to existing utilities.
 2. Works adjacent to live carriageway will require traffic management.
 3. Inherent inaccuracies of using OS mapping. Topographical survey required for detailed design.
 4. The land ownership and current Fife Council road adoption should be investigated further during detailed design.
 5. Works around rail infrastructure should be co-ordinated with Network Rail.

P01	18/03/24	EAL	JS	MB
For Information				
Rev	Date	By	Chkd	Appd

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Client
SEStran

Project Title
SEStran Strategic Network

Drawing Title
**Cupar to Guardbridge
 Guardbridge Roundabout
 Proposed Layout
 Sheet 9 of 9**

Scale at A1
 1:500

Role
 Consultancy

Suitability
 Information

Arup Job No
297148-00

Rev
P01

Name
SESF-D-ARP-CG-XX-DR-TR-0109

Haugh Park, Cupar



Appendix G

Budget Cost Estimates

Cupar to Guardbridge- High Level Cost Estimates

Source: Department for Transport (2017)- Typical Costs of Cycling Interventions. <https://assets.publishing.service.gov.uk/media/5ba4c09ded915d2e2ea46815/typical-costings-for-ambitious-cycling-schemes.pdf>

Section	Type	Description	Unit cost min	Unit cost max	Extent (km or item)	Total cost min	Total cost max	Range
Section 1- Cupar	Shared-Use	Through Haugh Park and the route will then follow the A91, with a shared-use path on the west side of the carriageway.	£460,000	£880,000	1.1	£607,200	£1,161,600	£610,000 - £1,200,000
	Crossing	Piscottie Road. The current traffic lights will be required to be upgraded to a toucan crossing.	£5,000	£50,000	1	£6,000	£60,000	£6,000 - £60,000
Section 2: Cupar East - Dairsie	Shared-Use	Shared-use active travel path along the west side of the A91 between Cupar east and Dairsie	£460,000	£880,000	3.5	£1,932,000	£3,696,000	£2,000,000 - £3,700,000
	Crossing	Toucan Crossing at new road / roundabout junction	£5,000	£50,000	1	£6,000	£60,000	£6,000 - £60,000
Section 3: Dairsie - Clayton	Surface improvements	Informal footpath upgradesthrough Dairsie	£140,000	£190,000	0.5	£84,000	£114,000	£85,000 - £115,000
	Shared-Use	Shared-use active travel path along the west side of the A91 between Dairsie and Clayton.	£460,000	£880,000	2	£1,104,000	£2,112,000	£1,110,000 - £2,115,000
Section 4: Clayton - Guardbridge	Shared-Use	Shared-use active travel path along the west side of the A91 between Clayton and Guardbridge	£460,000	£880,000	1.8	£993,600	£1,900,800	£1,000,000 - £2,000,000
	Crossing	New toucan crossing linking to the St Andrews shared use path	£5,000	£50,000	1	£6,000	£60,000	£6,000 - £60,000
Signage Improvements		Signage improvements throughout whole route	£6,000	£12,000	9	£64,800	£129,600	£65,000 - £130,000

Total costs £4,803,600 £9,294,000

Total cost (with 44% Optimism Bias) £6,917,184.00 £13,383,360.00

**Optimism Bias uplift in line with Scottish Transport Appraisal Guidance*