

SEStran

SEStran Strategic Network Kinghorn to Kirkcaldy Active Travel Route Feasibility Study

Summary Report

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1. Introduction

Arup has been appointed by SEStran to undertake a feasibility study and concept design proposals for the Kinghorn to Kirkcaldy 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 for the SEStran Strategic Network ([SEStran-Strategic-Network-Final-Publication.pdf](#)) which, alongside consultation with Fife Council, identified this route as one of the priority links identified in Phase 2 of the network to be progressed to feasibility stage. The indicative area covered by this study is shown in **Figure 1-1** below.

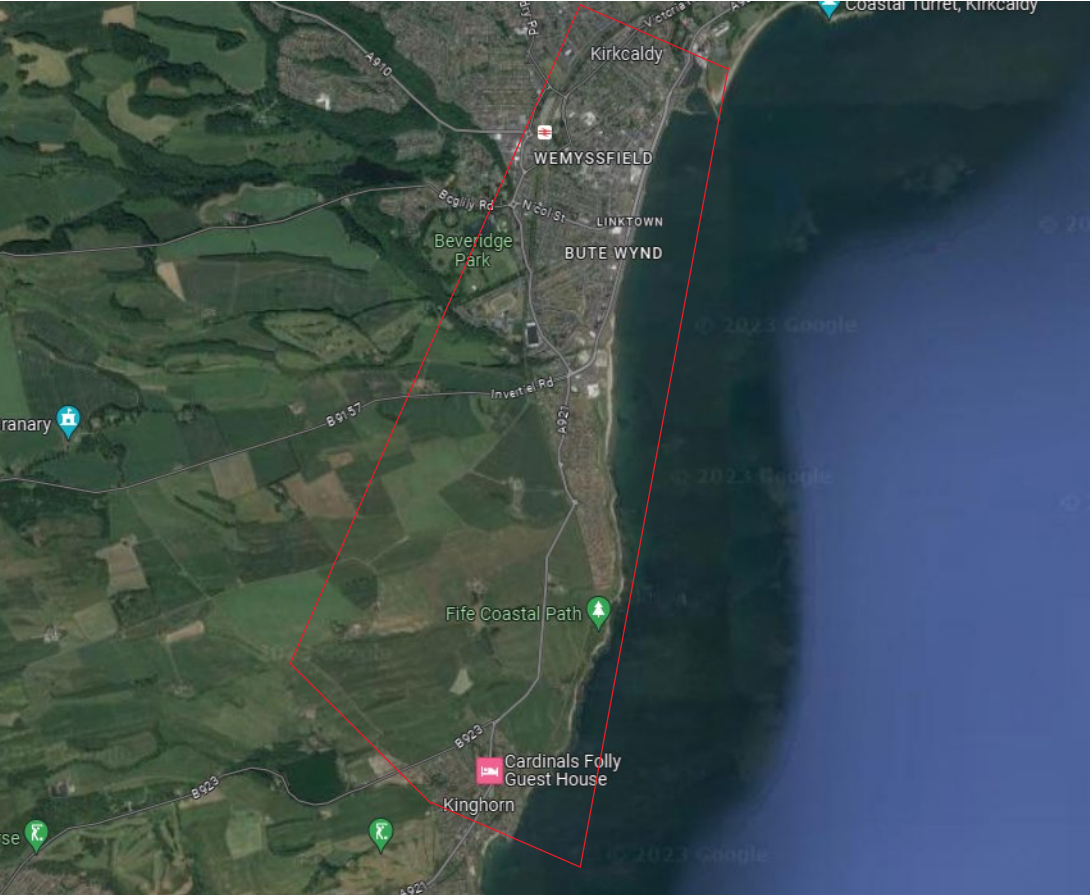


Figure 1-1: Outline of approximate study boundary (Source: Google Maps)

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 and 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). The full extent of the network is illustrated in **Figure 1-2**.

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.

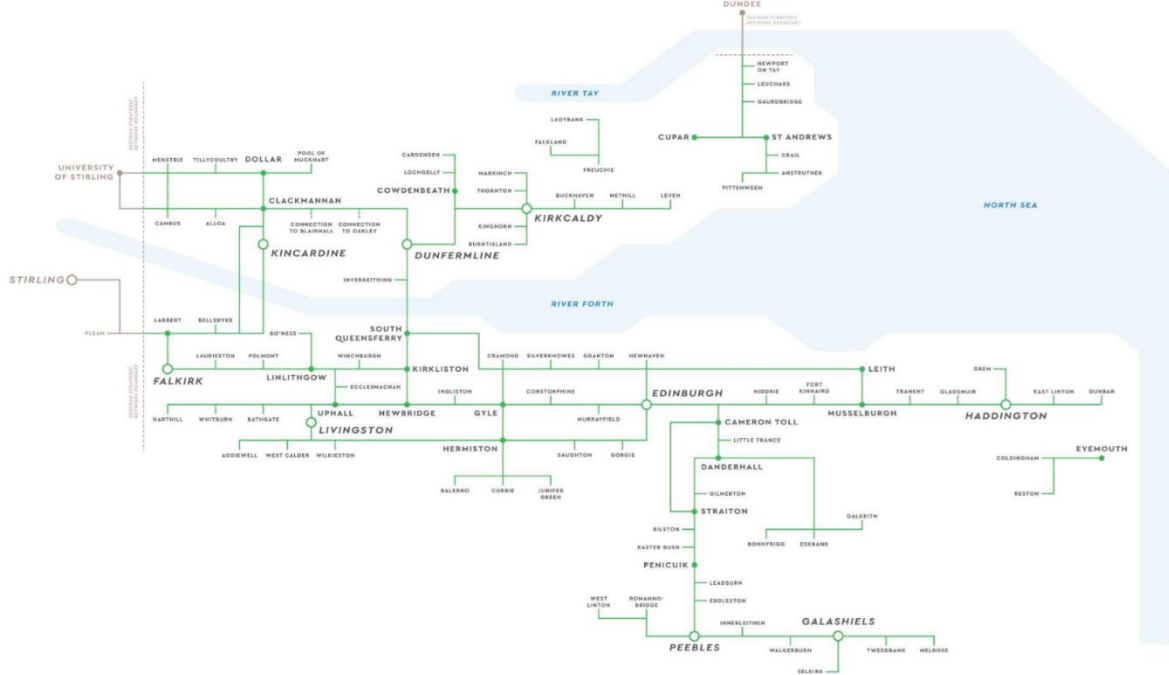


Figure 1-2: SEStran Strategic Network

1.2 Aims and Objectives

The purpose of the commission is to inform and support the future development of improved active travel facilities within South-East Scotland, connecting Kinghorn and Kirkcaldy via a high-quality route and linking into the wider active travel network. The Strategic Network overall aims to connect people to important places by active modes, and strives for each route to be high quality:

"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 facilities to support active travel. The outputs of the study will consist of:

- A targeted desktop review of baseline data and existing information sources.
- Engagement with partners, stakeholders, and wider community groups through a range of methods including meetings, workshops, online surveys and conversations.
- Proposals for the Kinghorn to Kirkcaldy corridor including a route optioneering 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 issues, and that 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

In order to develop a comprehensive understanding of the Kinghorn to Kirkcaldy study area, a targeted baseline data review was undertaken. This included data and information gathered from online open-source data and provided by Fife Council.

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

2.1 Key Origins / Destinations

The proposed route will connect the coastal settlements of Kinghorn and Kirkcaldy, as well as linking up to existing active travel infrastructure such as the Burntisland to Kinghorn shared footway/cycleway.

The proposed route will improve links between public transport and active travel across the study area through connecting with both Kinghorn and Kirkcaldy train stations, which connect with the ‘Fife Circle’ railway line as well as providing onward connections to destinations such as Edinburgh and Dundee.

Figure 2-1 highlights the important destinations and amenities within the study area, such as:

- Schools and other education hubs.
- Key employment centres and retail sites.
- Public transport hubs such as Kinghorn train station and Kirkcaldy bus & train stations.
- Hospitals.

Kinghorn features a limited number of these key facilities and destinations, and is partially reliant on Kirkcaldy for many essential services, such as a range of town centre shops and supermarkets, leisure facilities and attractions, Balwearie High School and Victoria Hospital. As a result, there is a large amount of movement between the two settlements (see **Section 2.4.1**).

The proposed route links residents of Kinghorn to the southern side of Kirkcaldy, with potential additional links to Kirkcaldy Town Centre and wider transport connections such as the bus station and train station. Connectivity to Kinghorn Railway Station would encourage active travel to public transport facilities as an alternative to private car journeys. Active travel connectivity from Kinghorn to Kirkcaldy is also important to provide access to Kirkcaldy Railway Station, which is a regionally significant station with frequent rail services. Furthermore, by providing a connection to the recently developed Burntisland to Kinghorn shared-use facility, a new longer distance active travel link between Burntisland and Kirkcaldy could challenge the dominance of private car journeys along this corridor demonstrated in **Section 2.2** and **Section 2.3**.

Kirkcaldy is the second most populous settlement in Fife, and the eleventh in Scotland. As such, the town centre is highlighted as a key employment destination which attracts workers from across Fife and the wider catchment. Victoria Hospital can also be seen highlighted in **Figure 2-2** is also a major employer, whilst Fife College and the University of Dundee both have campuses adjacent to Kirkcaldy train station.

Figure 2-2 shows there are a significant number of schools and other education facilities in Kirkcaldy. These facilities represent an opportunity to influence travel behaviours of young people who have not yet reached driving age. Balwearie High School in particular, in the south of Kirkcaldy, should be a target to provide an active travel link to the route. The catchment for Balwearie High School includes Kinghorn and Burntisland therefore there is an opportunity to connect the catchment area through a safe active travel route. School catchments are further explored in **Section 2.2**.

Kirkcaldy’s bus and train stations are located within the town centre.. It is important that a link between the Esplanade and the bus and train stations is addressed to encourage the use of multi modal active travel and public transport journeys. Published in June 2023, ScotRail’s *Sustainable Travel to Stations* document provides guidance on best practice for integrating active travel at public transport hubs and should be used as a key resource in the planning of a future link.



Figure 2-1: Map of key destinations across Kinghorn and the southern extent of the study area

© Basemap source: OS



Figure 2-2: Map of key destinations in Kirkcaldy

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2.2 School Catchments

Figure 2-3 shows the school catchments for the study corridor and wider area surrounding Kinghorn and Kirkcaldy. Both Kinghorn and Burntisland primary schools are located in the Balwearie High School catchment to the South of Kirkcaldy. This emphasises the need for a high-quality active travel route that would connect these communities and connect existing active travel infrastructure. This would encourage active travel uptake in young people in the area before they reach driving age.

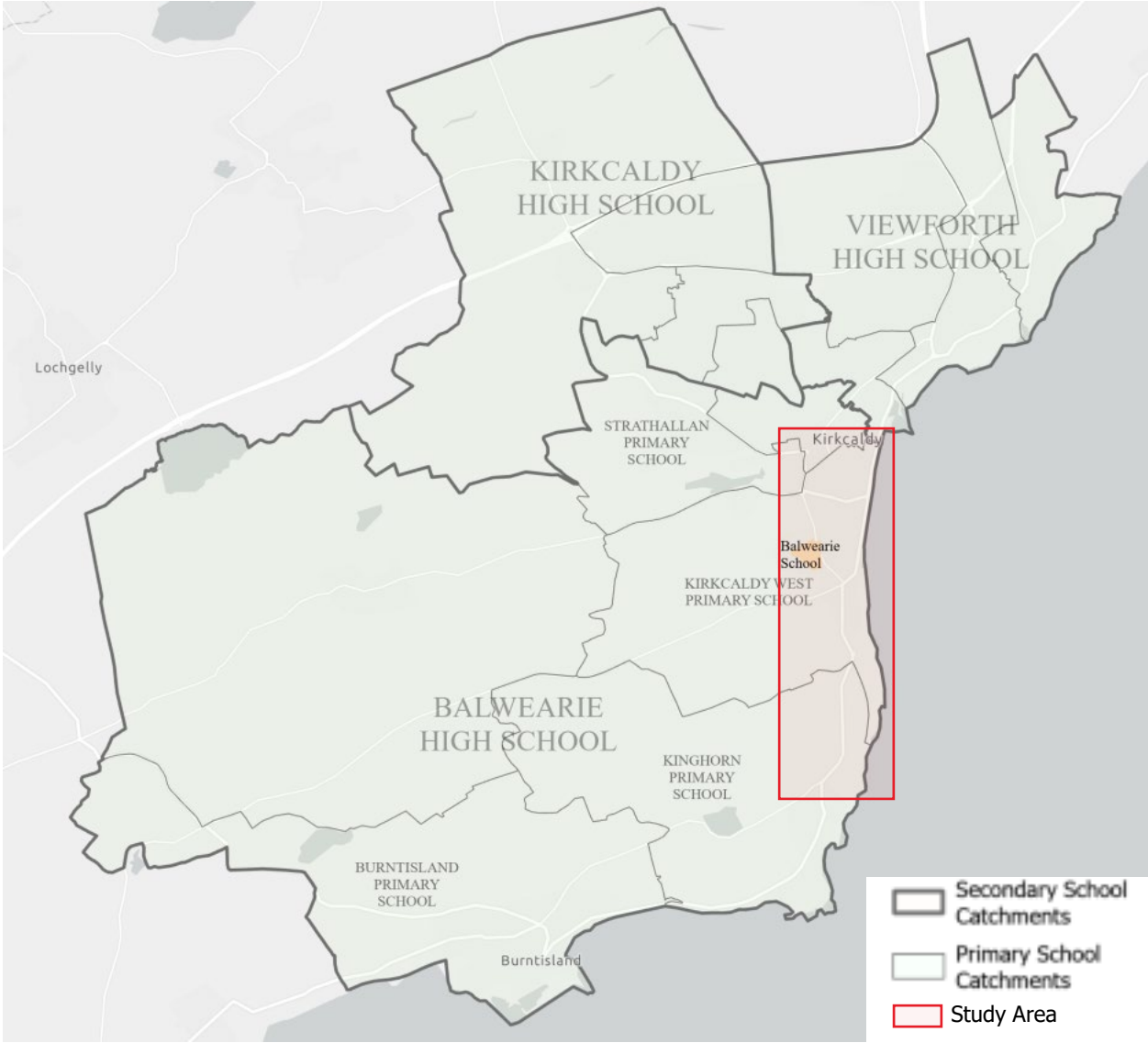


Figure 2-3: School Catchments for study corridor and surrounding area (non-denominational schools only)

© Basemap source: ESRI

2.3 Mode Share

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

Table 1: Method of Travel to Work or Study (Source: Census Scotland 2011, method of travel to work or study)

	Kinghorn	Kirkcaldy and Dysart
Work or study mainly at or from home	10.6%	9.3%
Underground, metro, light rail or tram	0.0%	0.0%
Train	8.2%	2.7%
Bus, minibus or coach	14.2%	9.4%
Taxi or minicab	0.3%	0.6%
Driving a car or van	46.0%	46.8%
Passenger in a car or van	5.0%	10.6%
Motorcycle, scooter or moped	0.2%	0.2%
Bicycle	0.5%	0.6%
On foot	14.4%	19.1%
Other	0.6%	0.8%

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 high private vehicle mode share. In both locations, a notable proportion of individuals (10.6% in Kinghorn and 9.3% in Kirkcaldy) 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 Kirkcaldy town centre, transport hubs and schools. Short car journeys undertaken throughout the study area, that could be carried out by walking, wheeling and cycling, are also evidenced in **Figure 2-9** and **Figure 2-10**.

2.3.1 Private Vehicle Availability

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

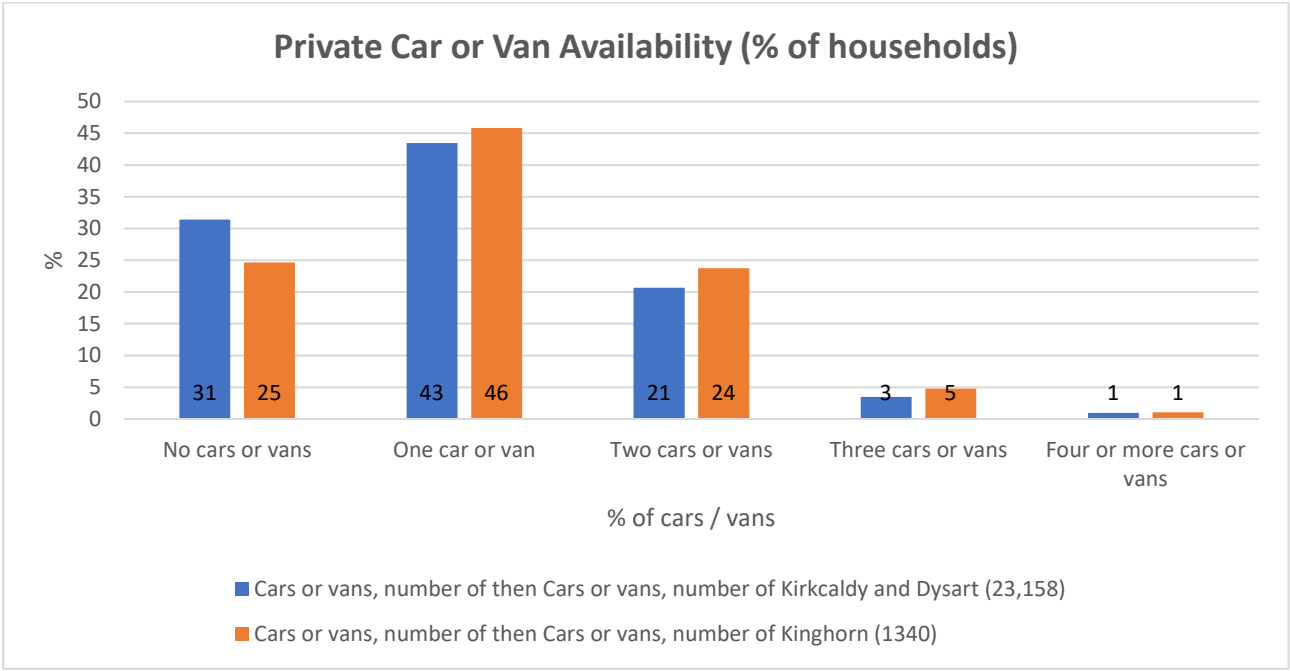


Figure 2-4: Census Scotland 2011- Car or Van Availability

These results show that 31% of households in Kirkcaldy have no access to a private car, which emphasises the importance of the availability of alternative modes of transport such as walking, wheeling and cycling.

In Kinghorn, whilst this figure is slightly lower at 25%, this still represents a significant proportion of the population who rely on the availability of alternative modes of transport. This is especially relevant in Kinghorn, where a high percentage of residents travel outside of Kinghorn to reach their employment destinations (see **Figure 2-9**).

There is a relatively high percentage of households with access to two cars or vans in both Kinghorn (24%) and Kirkcaldy (21%). This suggests that there is a reliance on private vehicle travel in both, and that alternative transport options should be provided to encourage modal shift. The delivery of an active travel route between the two settlements has the potential to encourage modal shift away from private car towards active and sustainable travel at both locations, especially given the high proportion of short journeys that occur.

2.4 Movement

2.4.1 Census Datashine Commute

To understand movement across the Kinghorn to Kirkcaldy study area, the *Census Datashine Commute* mapping tool was used to summarise movement across key settlements along the route by all transport modes. **Figure 2-5** and **Figure 2-6** reveal the volumes and direction of travel for those travelling both into and from Kinghorn and Kirkcaldy across all modes of transport. **Figure 2-5** shows that residents of Kinghorn generally do not appear to work in

Kinghorn. Kirkcaldy is the most popular destination for Kinghorn residents in relation to employment, which highlights the importance of providing active travel connections between the two settlements.

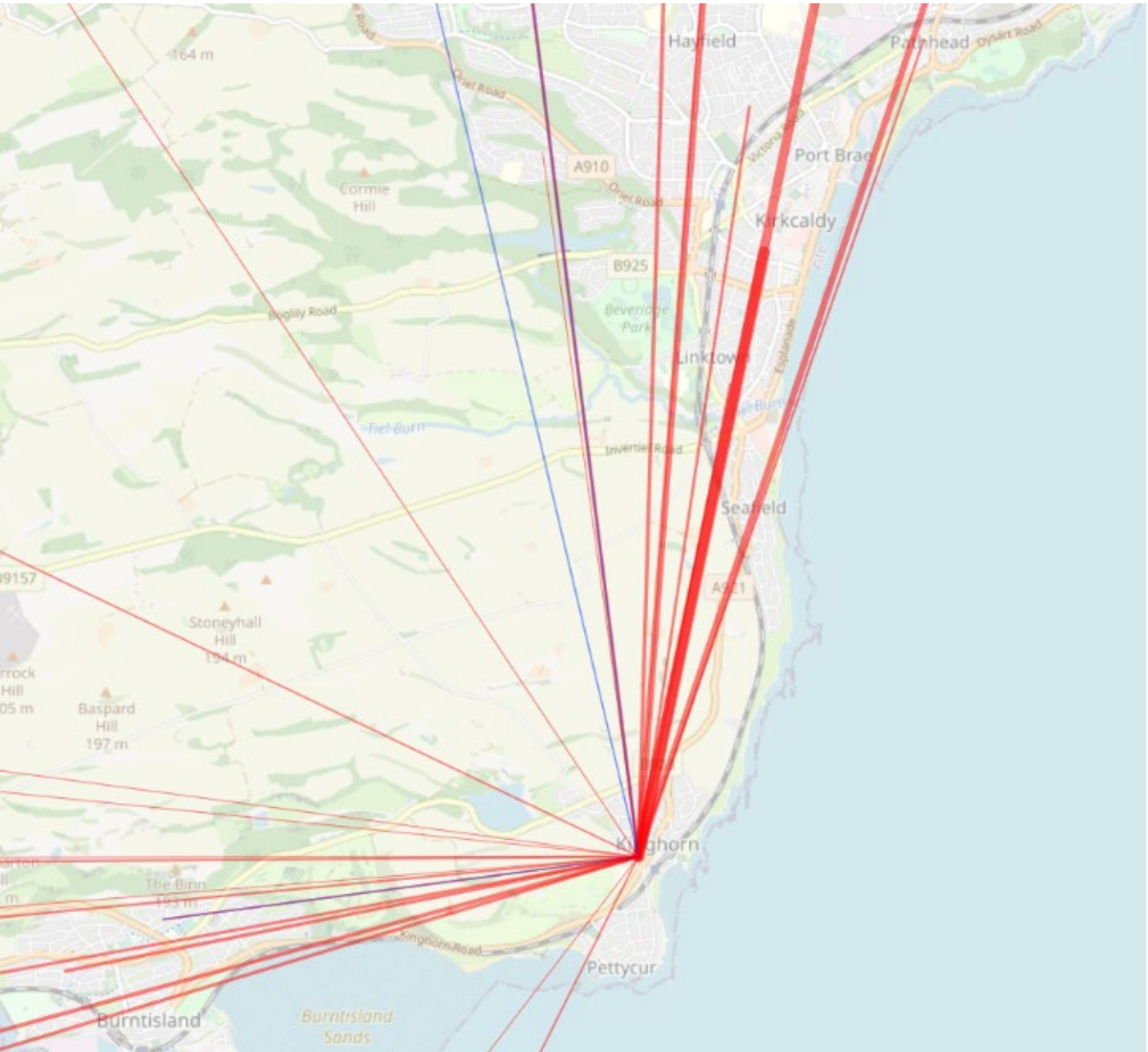


Figure 2-5: Census Scotland Datashine Commute 2011- graphical representation of travel volumes and direction from Kinghorn for all modes

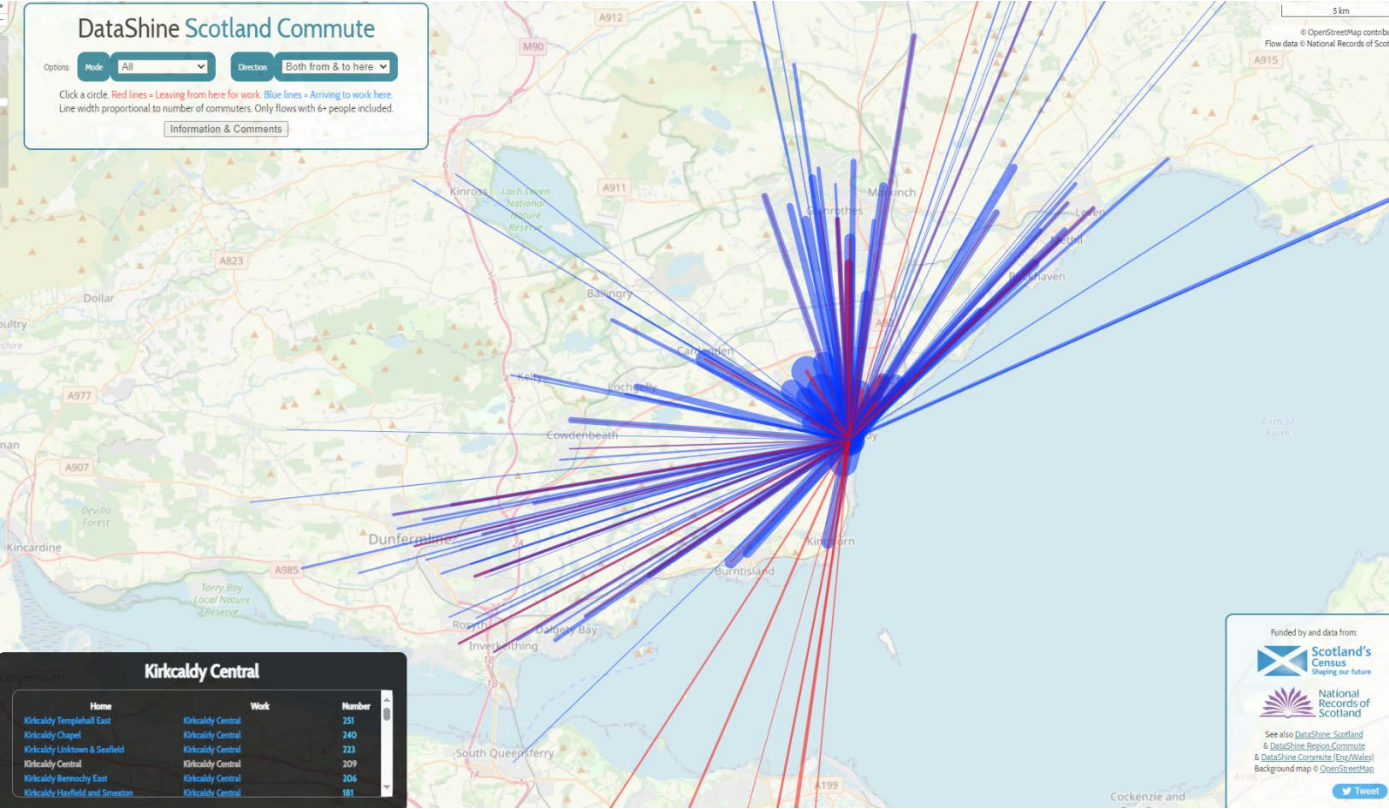


Figure 2-6: Census Scotland Datashine Commute 2011- graphical representation of travel volumes and direction from Kirkcaldy for all modes

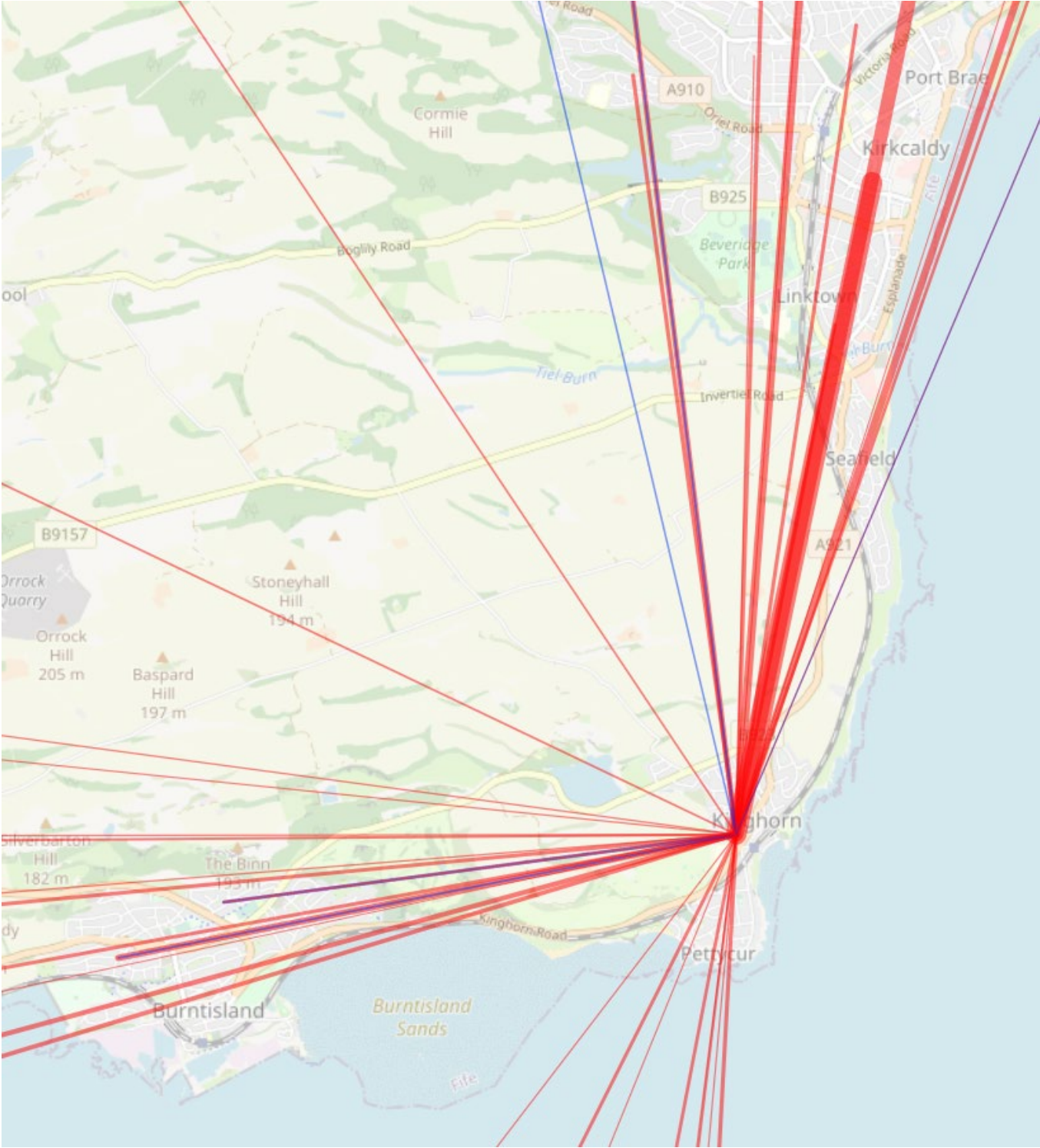


Figure 2-7: Census Scotland Datashine Commute 2011- graphical representation of travel volumes and direction from Kinghorn for car driving only

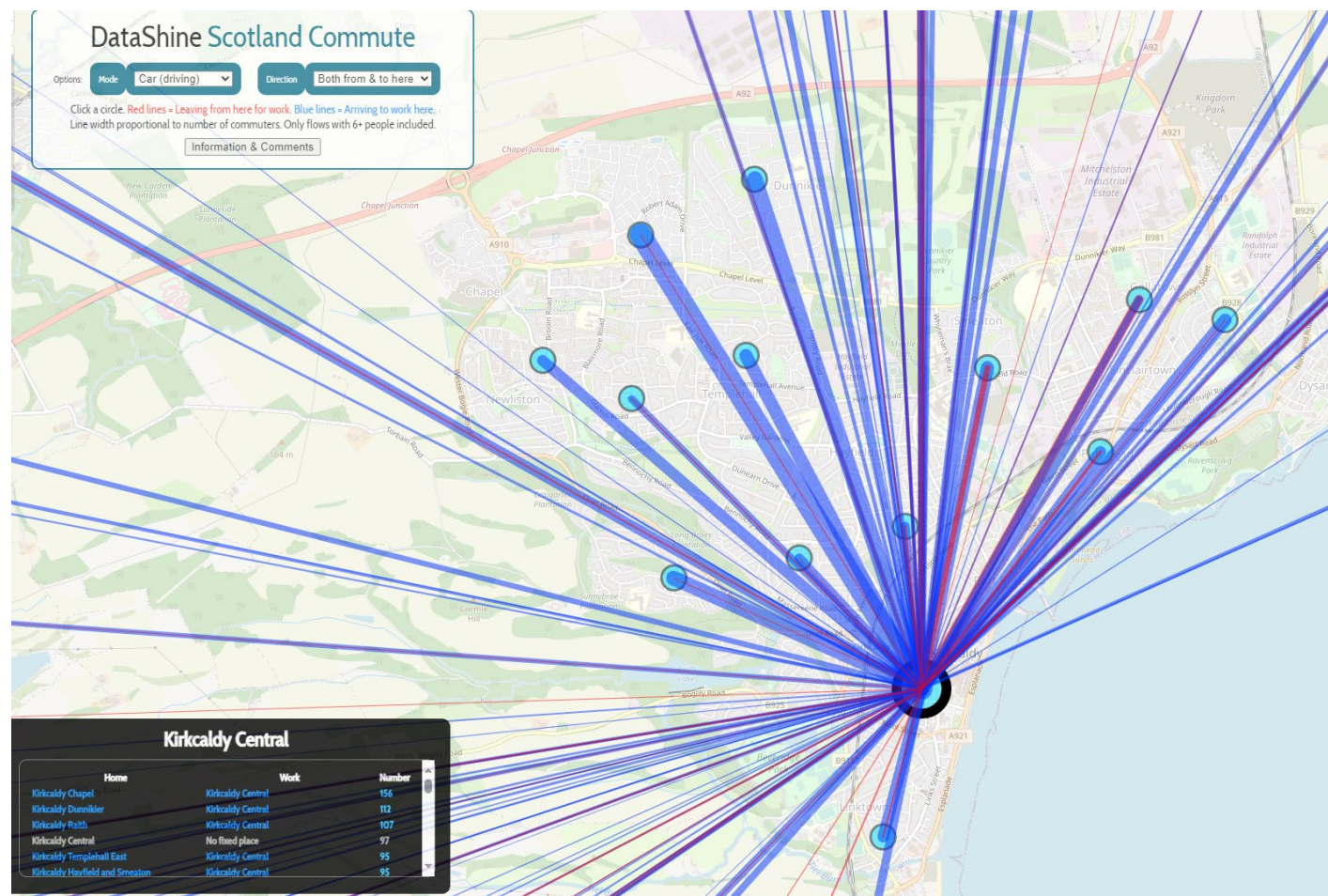


Figure 2-8: Census Scotland Datasine Commute 2011- graphical representation of travel volumes and direction from Kirkcaldy for car driving only

Figure 2-7 and **Figure 2-8** represent the same information as above, however only for car travel. The private car travel patterns for Kinghorn and Kirkcaldy appear very similar for all modes of travel, which emphasises the private car dominance for travel within the study area. **Figure 2-8** shows that, as well as longer distance trips, there are a high proportion of short trips being taken within Kirkcaldy by car, that could be done by active modes. Improving active travel connections within the area would help encourage a modal shift away from private car between Kinghorn and Kirkcaldy.

2.4.2 Distance of Travel to Work or Study by Mode

Census 2011 *distance of travel to work by mode of travel* data was also analysed for key settlements along the proposed route, to understand the distances local residents travel across different modes, in particular public transport and private car. The key headlines were as follows:

- There is a high percentage of private vehicle journeys less than 5km in Kirkcaldy (35%) which is considerably higher than in Kinghorn (20%). These are journeys that could be undertaken via walking, wheeling and/or cycling.

- Private vehicle journeys between 5km and 10km are also both high in Kirkcaldy (78%) and Kinghorn (75%). Although these trips would likely be too far to walk or wheel for regular everyday journeys, they could be undertaken by other active modes, in particular cycling, if high quality infrastructure was available.

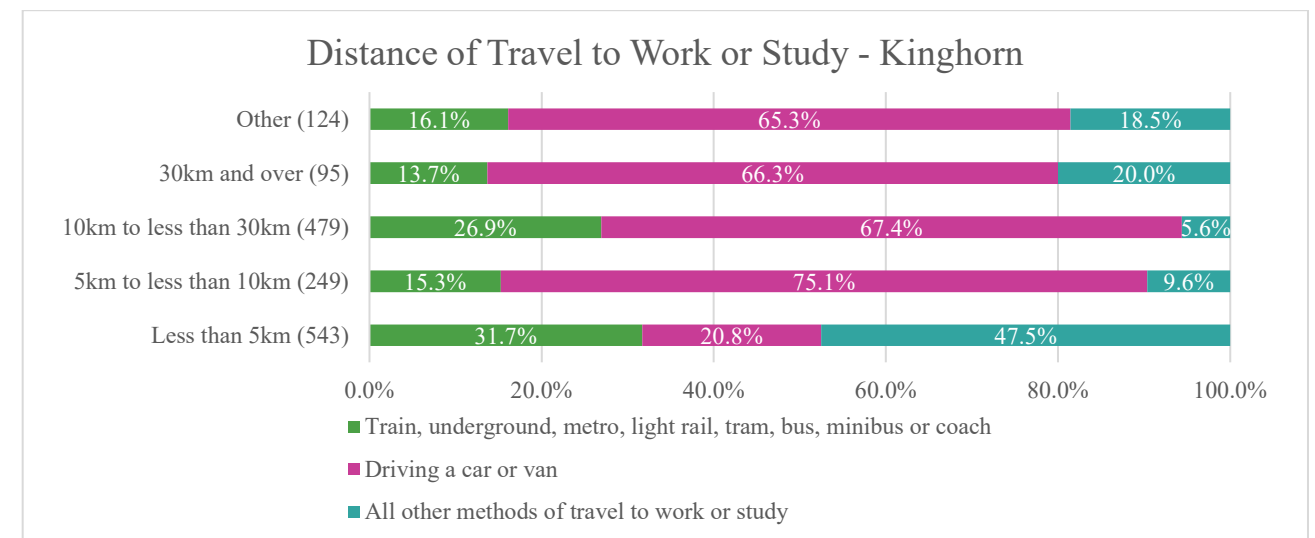


Figure 2-9: Census Scotland 2011- Distance of Travel to Work by Mode – Kinghorn

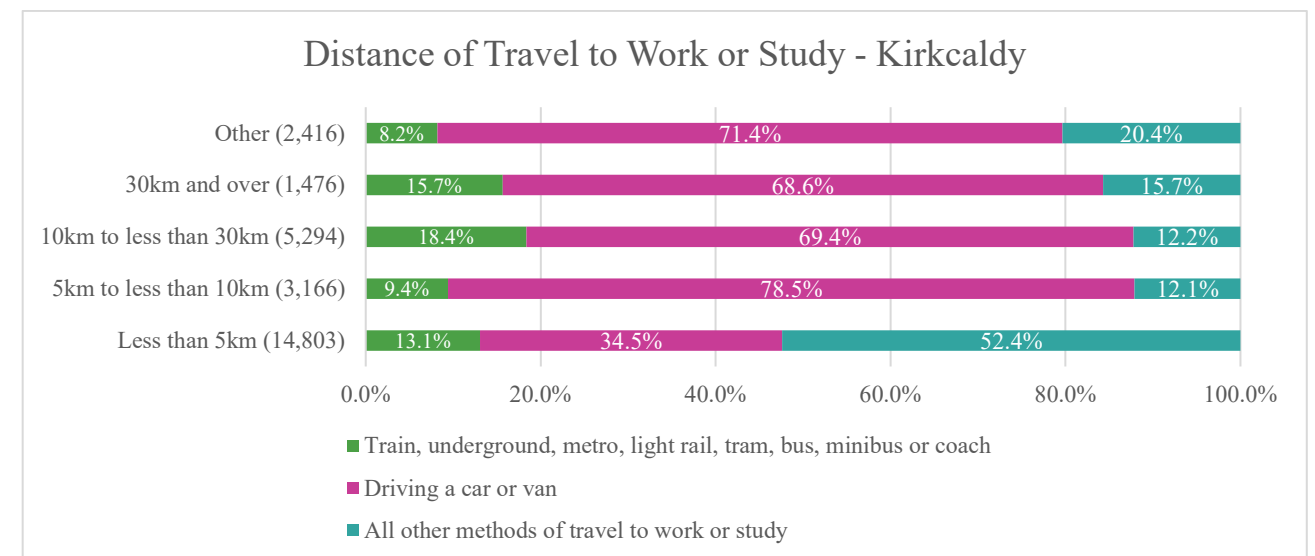


Figure 2-10: Census Scotland 2011- Distance of Travel to Work by Mode – Kirkcaldy

2.5 Land Ownership

Fife Council's *Land Titles and Assets* webmap tool provides a high-level summary of where Fife Council land is located adjacent to the proposed route. The key area of council-owned land is the Esplanade and western side of the A921 (**Figure 2-11**) approaching the B9157/ Bridge Street junction. However, the majority of land adjacent to the route is out-with Fife Council's ownership, particularly the rural section between Kinghorn and Kirkcaldy (**Figure 2-12**). These locations are likely to require land purchase in order to ensure that there is sufficient widths available to deliver the proposed route in line with *Cycling by Design* guidance. See **Chapter 5** and **Chapter 6** for more details.

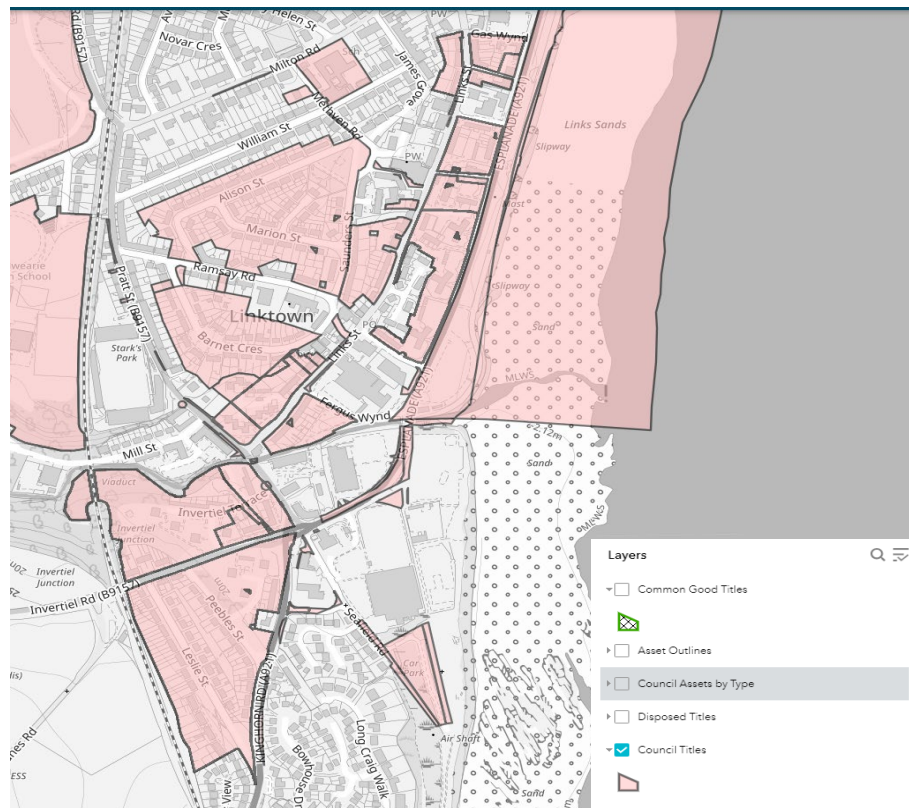


Figure 2-11: Fife Council land ownership for Kirkcaldy (Source: Fife Council)

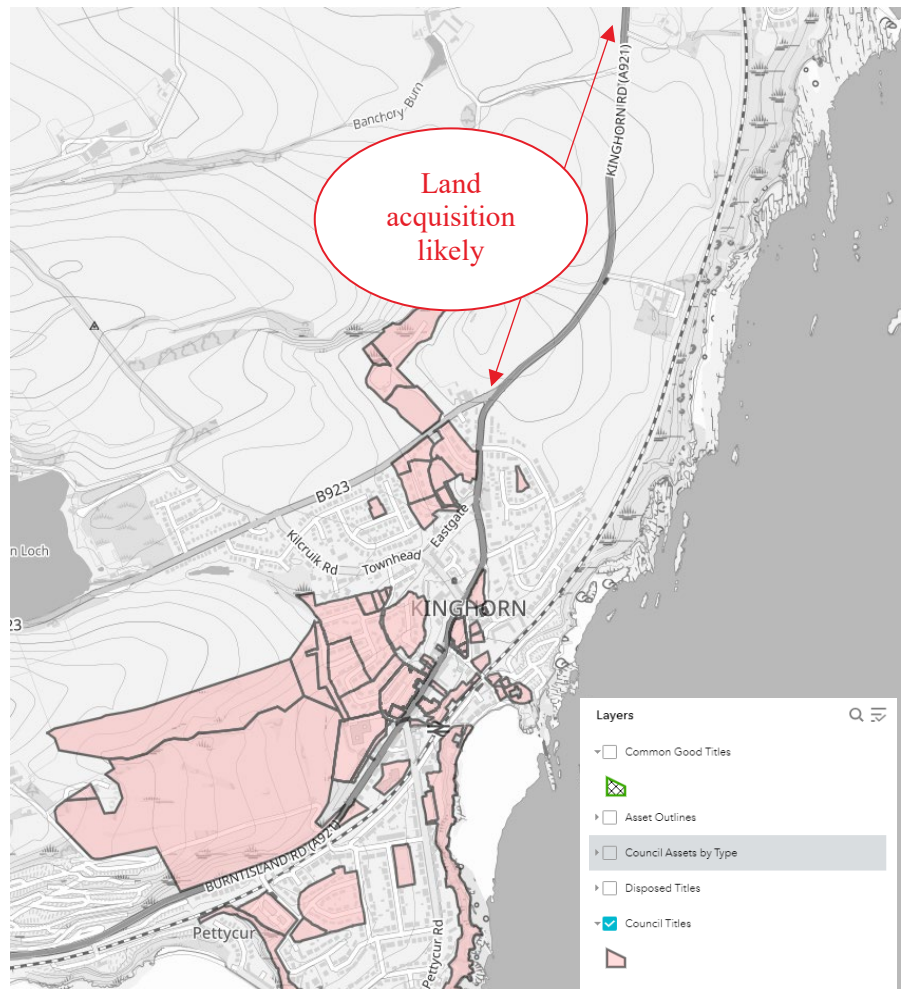


Figure 2-12: Fife Council land ownership for Kinghorn and rural section of study area (Source: Fife Council)

2.6 Road Adoption

Figure 2-13 and Figure 2-14 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 is Linton Court, which is circled in Figure 2-14. This road makes 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 2-13: Fife Council road adoption for northern extent of the study area.

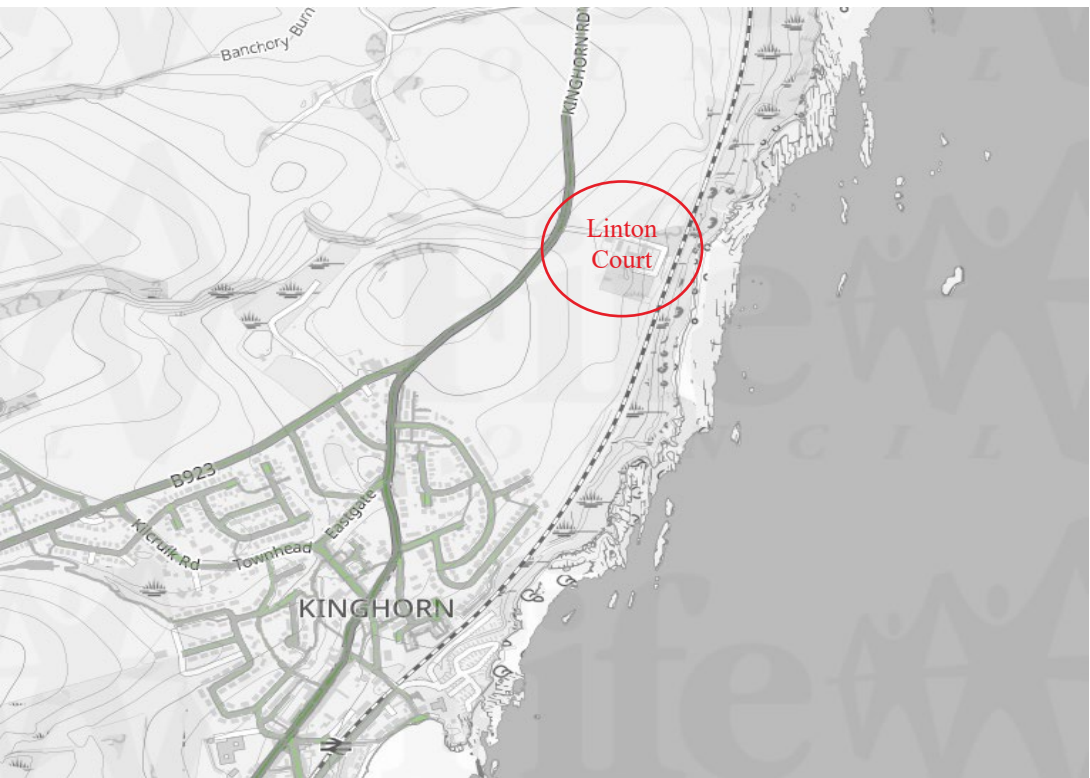


Figure 2-14: Fife Council road adoption for southern extent of the study area.

2.7 Traffic Movement

Department for Transport (DfT) *Road Traffic Statistics* data was used to obtain estimated traffic volumes along the Kinghorn to Kirkcaldy corridor. The location of the traffic count point was situated on the rural section of the A921 between Kinghorn and Kirkcaldy (**Figure 2-15**), and **Table 2** shows an extract of the data from the previous two years estimates (2021 and 2022). The 2022 data showed an estimated Average Annual Daily Flow (AADF) of 7,790 motor vehicles and 18 pedal cyclists, which shows that the A921 is a well-used distributor road in the area. It is important to know approximate traffic and cycle volumes for applying *Cycling by Design* best practice in **Chapter 5**.

Table 2: AADF for traffic count location on the rural section of the A921 between Kinghorn and Kirkcaldy (Source: DfT Road Traffic Statistics)

Year	Count method	Pedal cycles	Two wheeled motor vehicles	Cars and taxis	Buses and coaches	Light goods vehicles	Heavy goods vehicles	All motor vehicles
2022	Estimated using previous year's AADF on this link	18	52	5813	85	1620	220	7790
2021	Estimated using previous year's AADF on this link	18	47	5416	79	1455	214	7211

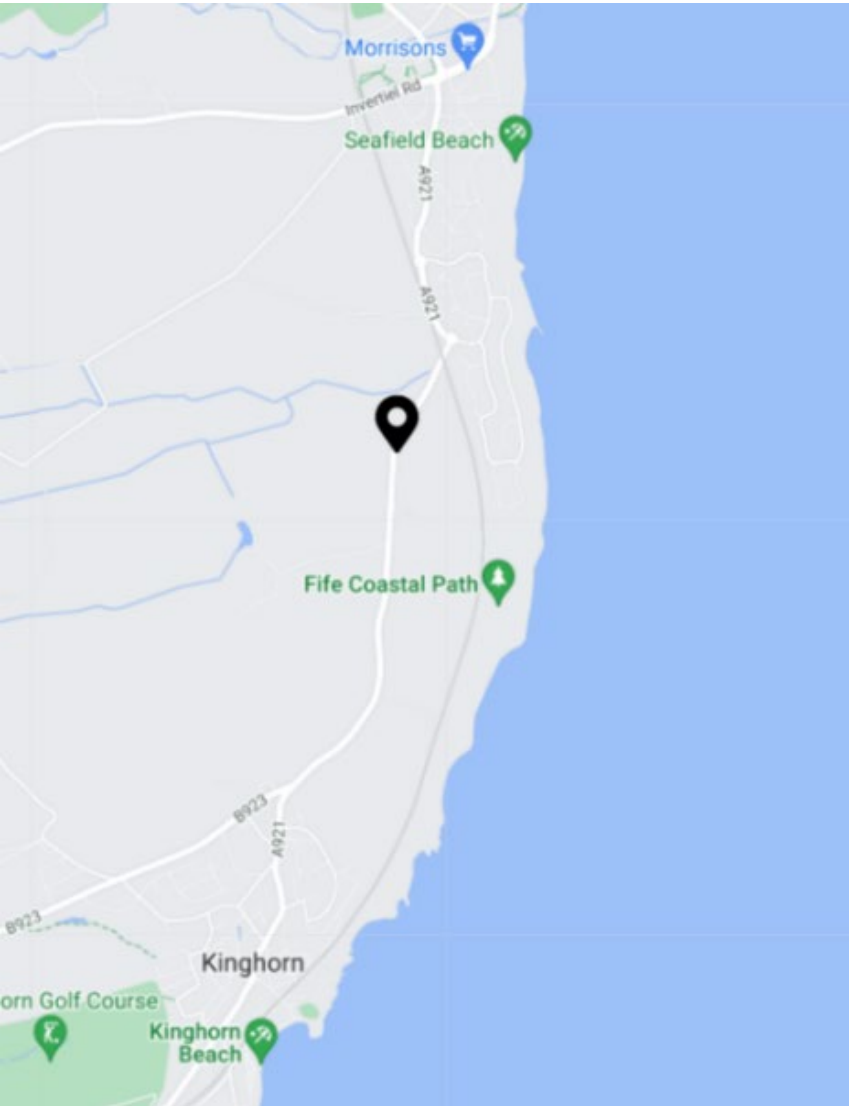


Figure 2-15: Location of DfT traffic count point (Source: DfT)

2.8 Collision Data

Pedestrian and cycle collision statistics across the study area were collected using available *DfT STATS19* data. In the 2017-2020 period that the dataset covers, only three collisions occurred on the A921 (**Figure 2-16**), with both involving pedestrians attempting to cross the road at night. Two are described as ‘slight’ collisions involving an individual attempting to cross a) the rural section of the A921; and b) Seafield Road, both away from a crossing point. The other involved a serious incident at the Esplanade in Kirkcaldy just beyond Morrisons.

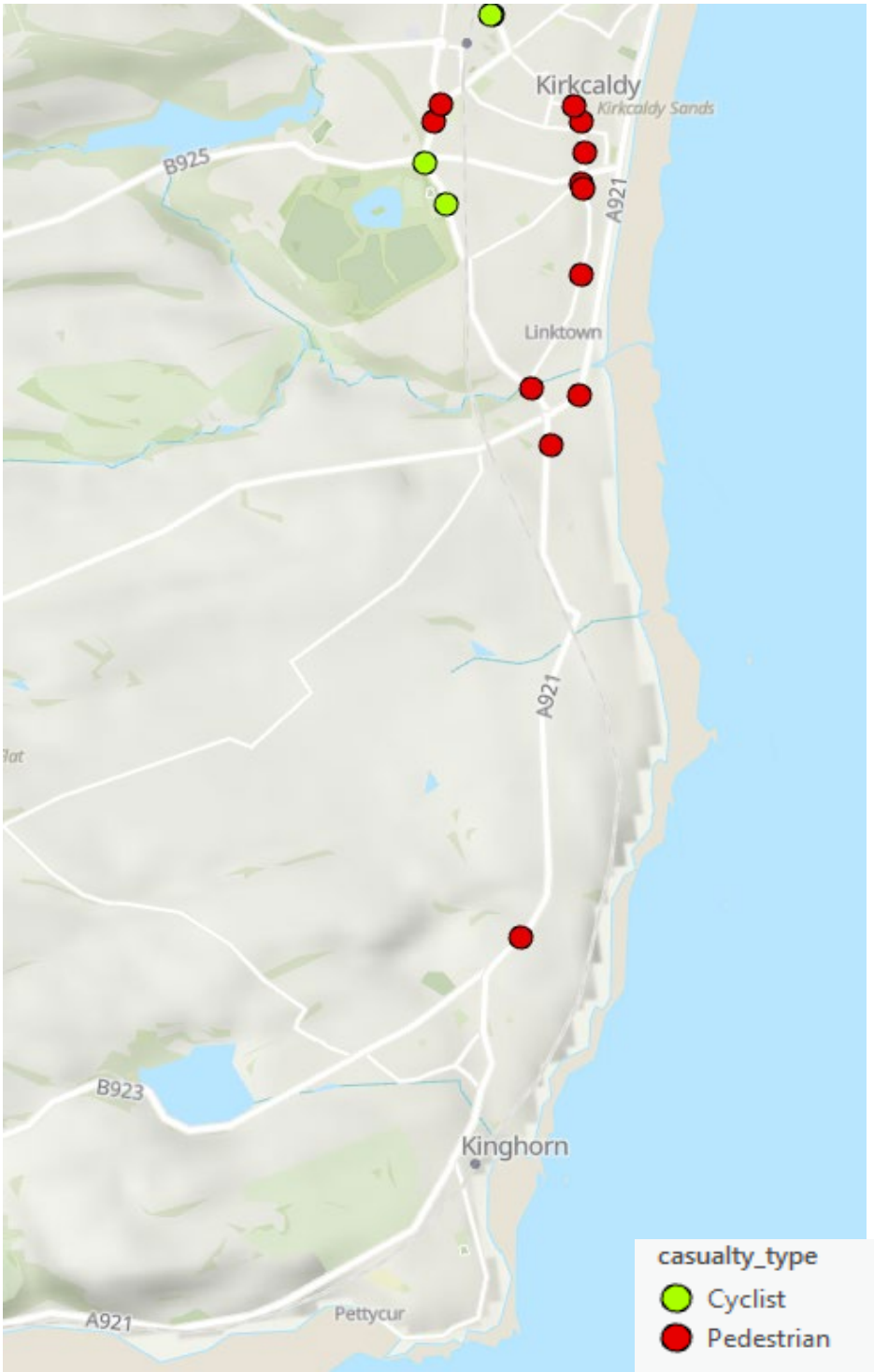


Figure 2-16: Pedestrian and cyclist accident data for 2017-2020 for the study area

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2.9 Sustrans Network Planning Tool

The Sustrans Network Planning Tool (NPT) has been used to assess the cycle friendliness of the existing active travel network surrounding this location. 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 of 0 (very low quality) to 100 (very high quality). As can be seen from **Figure 2-17**, the A921, which is the main route between Kinghorn and Kirkcaldy, currently achieves a low cycle friendliness score of between 20-40. Also available is data for the number of cyclists per day, using the Census 2011 baseline data. It shows that just 22 cyclists currently use the A921 between Kinghorn and Kirkcaldy per day. Both of these figures demonstrate the need for high quality active travel infrastructure along this corridor.

The NPT also shows a future projection of cycling uptake on each route segment if cycling infrastructure and culture was similar to the Netherlands, known the ‘GoDutch Scenario’. In this case, the tool estimates that high quality active travel facilities along the A921 between Kinghorn and Kirkcaldy would bring around 962 daily cycling trips, which outlines the potential of the proposed route and the high number of short trips undertaken in the study area.

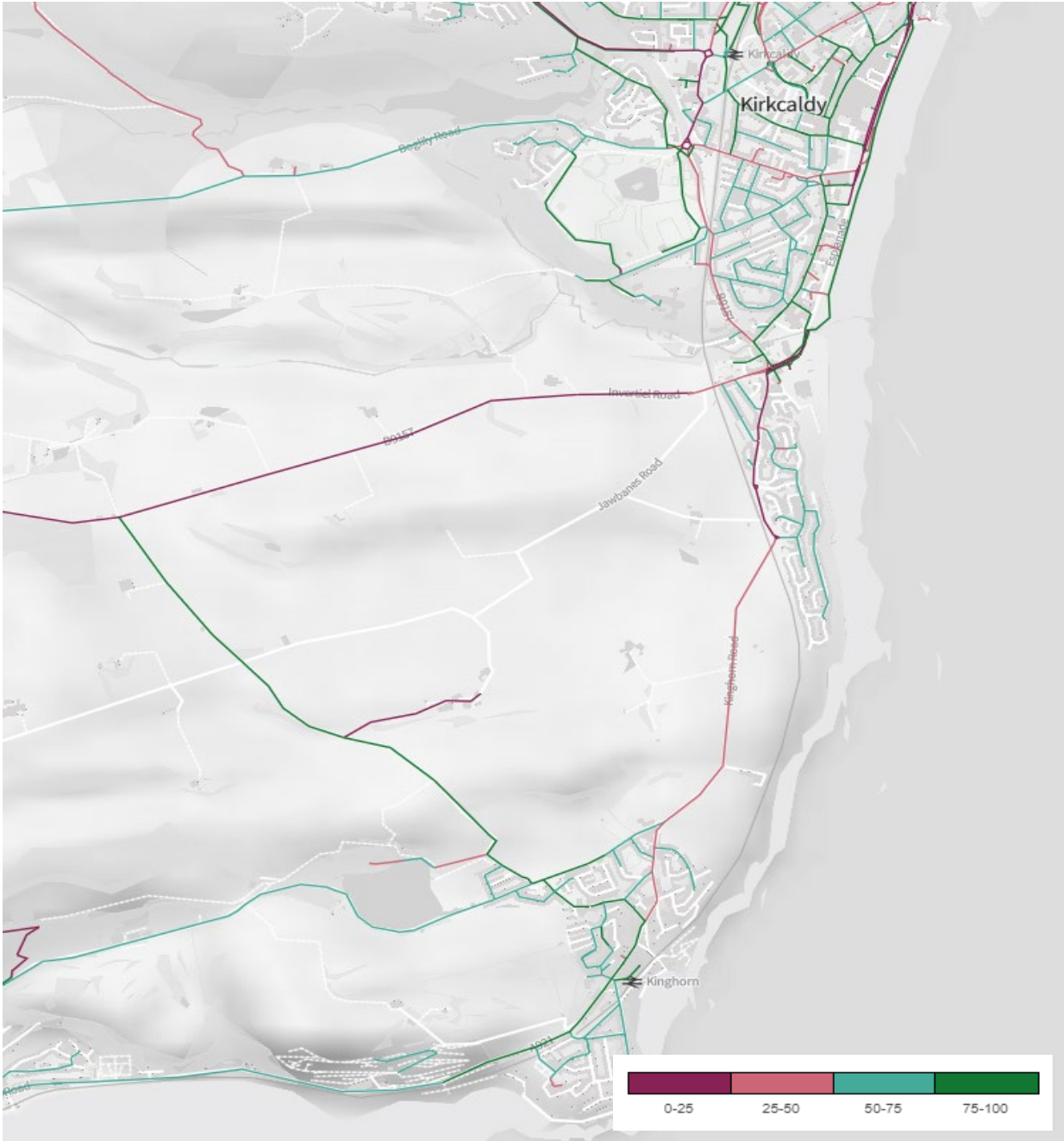


Figure 2-17: Sustrans Network Planning Tool cycle friendliness- Kinghorn to Kirkcaldy

3. Site Audit and Review

3.1 Introduction

Through liaison with Fife Council at the project inception stage, three high-level route options emerged between Kinghorn and Kirkcaldy, which would be reviewed during the site audit. The options are as follows:

1. Fife Coastal Path
2. National Cycle Network (NCN) Route 76
3. A921

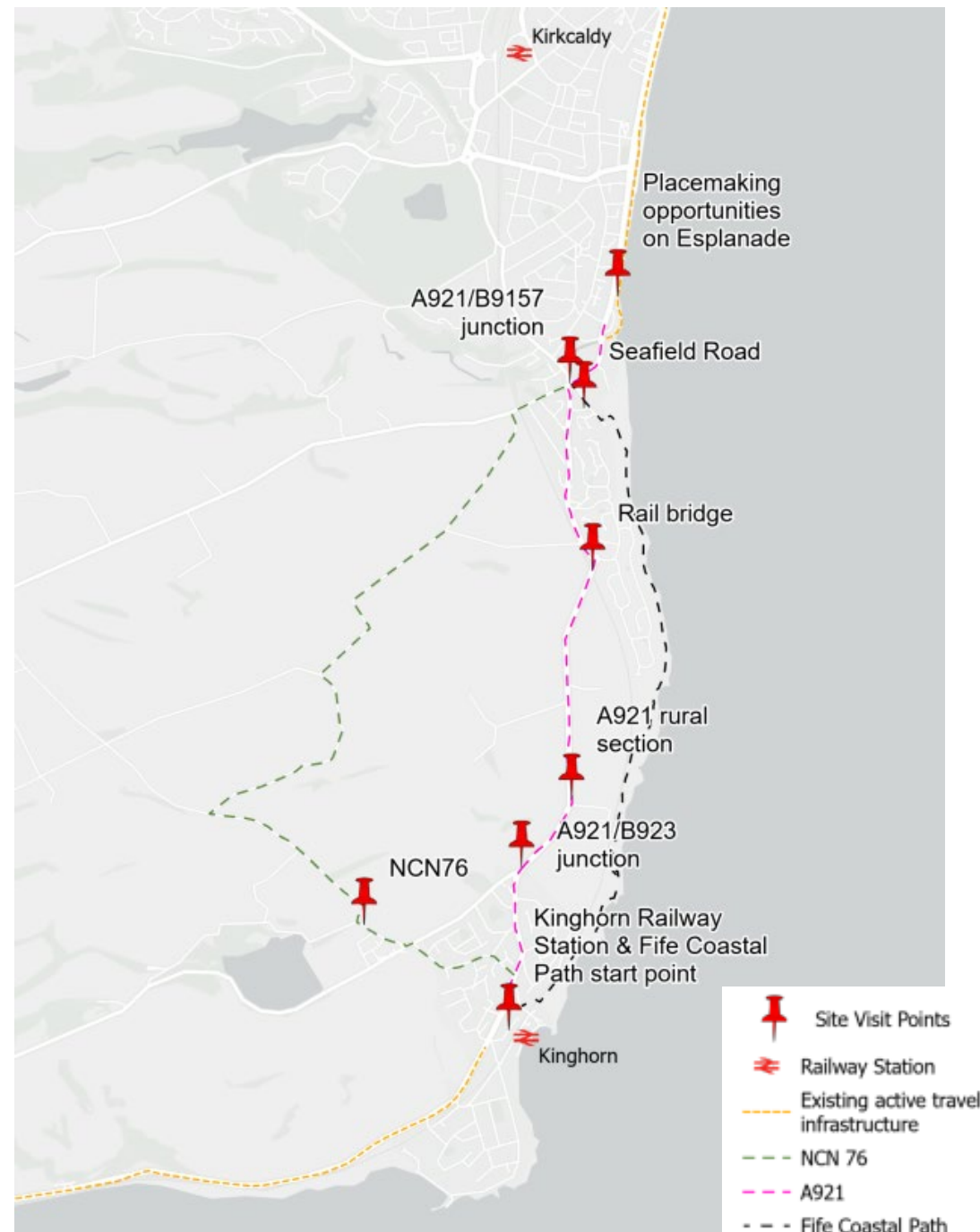


Figure 3-1: Key locations on route

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A site visit was undertaken by the project team in Autumn 2023 to better understand the key issues across the study area, including key land uses, existing active travel provision along the corridor and the main barriers and opportunities. Key locations on the route can be seen in **Figure 3-1**.

3.2 Fife Coastal Path

The Fife Coastal Path is within close proximity to Kinghorn train station and was the first location reviewed during the site visit. It was immediately evident that the coastal path would present challenges in terms of delivering a high-quality active travel route. A series of steps currently connect the path to Kinghorn railway station and village centre (**Figure 3-2**). These steps in their current form would be challenging for cyclists and/or for the mobility impaired, therefore presenting a clear barrier to movement. Images taken from *Google Streetview* show that there are many more staircases that feature along the route (**Figure 3-3**). In addition, the path is currently very narrow (mostly between 1-2m) and with limited forward visibility at points, and would require significant engineering and design works to widen and deliver a high-quality active travel route.



Figure 3-2: Steps down to the coastal path

The railway line restricts the amount of entry points to the coastal path for most of this stretch, which limits the local population's ability to access the route. This physical barrier would also make site access and construction extremely difficult.

In summary, although the Fife Coastal Path has benefits as a scenic and recreational route, the above-mentioned issues such as barriers to movement and physical constraints limit the coastal path's viability as a high-quality active travel route.



Figure 3-3: The Fife Coastal Path and adjacent railway line (Source: Google Streetview)

3.3 National Cycle Network Route 76

The second location explored during the site visit was the existing NCN Route 76. This consists of a narrow singletrack road, Redpath Brae (becoming Jawbanes Road), heading north-west out of Kinghorn (pictured in **Figure 3-4**), which provides access to the west of Kirkcaldy. There was also a significant elevation difference identified at this location, which was considered a major barrier to less experienced active travel users and the mobility impaired.

Furthermore, the singletrack carriageway is very narrow (largely below 5m) with various vehicle passing places, meaning vehicles would be required to pass active travel users at close proximity. Active travel users would also be required to travel on-road, which has significant safety implications due to the 60mph speed limit. Therefore, to deliver a high-quality active travel route, significant third-party land purchase would be required. Furthermore, the lack of directness of this existing route between Kinghorn and Kirkcaldy was also noted.

Based on the above, the NCN Route 76 was deemed an unsuitable option for a high-quality active travel route, primarily due to carriageway width, safety concerns and lack of directness.



Figure 3-4: Redpath Brae leaving Kinghorn

3.4 A921

The A921 was considered, at this stage, to be the most feasible location to deliver high quality active travel improvements. Therefore, this was reviewed in greater detail throughout the site visit.

During the site visit, the A921 was split into four distinct sections:

- Section 1: Kinghorn and rural
- Section 2: Kirkcaldy Rail Bridge
- Section 3: Kirkcaldy south
- Section 4: Kirkcaldy Esplanade and A921/B9157 junction

3.4.1 Section 1: Kinghorn and rural

Within Kinghorn, the high street, railway station and primary school were identified as the key destinations. However, links to the north of Kinghorn should also be considered, towards the new residential developments on the B923 and to Kinghorn Loch. Identified issues within the centre of Kinghorn included on-street parking and potential conflicts with other modes such as buses. The A921/B923 junction to the north of Kinghorn was also identified as a complex priority junction which is likely to require redesign to improve safety for all users. Currently this requires two separate crossings, although the splitter island does not feature a footway which makes crossing a challenge, as can be seen in **Figure 3-5**.



Figure 3-5: Junction to the north of Kinghorn where B923 joins A921. (Source: Google Earth)

The speed limit is currently 50mph when leaving Kinghorn until the rail bridge entering Kirkcaldy to the south. The carriageway and footway are currently narrow (approx. 6-6.5m and 1.5-1.8m), therefore any future interventions are likely to require land acquisition. As highlighted in **Section 2.5**, DfT estimated traffic data suggests that approximately 8,000 motor vehicles use the A921 per day.

A footway is present throughout the full rural stretch of the route, of approximately 1-1.5m width. However, the footway is only present along one side of the carriageway and crosses the A921 on two occasions; running along the west side of the carriageway (see **Figure 3-6**), with a small section on the east side of the carriageway between two farm access roads. There are slight inclines at sections on the route however gradients largely remain within Cycling by Design's recommended range, therefore it is not considered to be a major deterrent for active travel users.



Figure 3-6: Road crossing after bus stop (Source: Google Earth)

There are bus stops on the rural section of route which need to be considered, one of which is pictured in **Figure 3-6**. The first crossing point is situated adjacent to this bus stop, where visibility is generally sufficient despite the

curvature of the road. It was observed that visibility may be slightly poorer travelling southbound due to the terrain. The second crossing point (**Figure 3-7**) features good visibility in both directions.



Figure 3-7: Second crossing point on the rural section of the A921 where the footway crosses back to the west side of the carriageway (Source: Google Earth)

Due to the current speed limit of 50mph, crossing the carriageway would require toucan crossings to meet *Cycling by Design* standards. It may therefore be advantageous to keep the route to one side of the carriageway, creating a safer and more direct route for all.

3.4.2 Section 2: Kirkcaldy rail bridge



Figure 3-8: Rail bridge entering Kirkcaldy (Source: Google Earth)

There is currently a rail bridge when entering Kirkcaldy to the south on the A921, where there are physical constraints (see **Figure 3-8**). There is currently limited space to widen the footway into the carriageway here unless the carriageway width is taken below Fife Council's desirable minimum of 6.5m. The roundabout immediately after the railway bridge (approx. 40m away) will need to be considered in order to avoid causing traffic congestion from the railway bridge to the roundabout.

Immediately after the rail bridge, there is an existing footway link passing through a wide grass verge. This avoids the roundabout and improvements to this link would provide a 'quick win' without any significant improvements to the roundabout being required. This is pictured in **Figure 3-9**.



Figure 3-9: A921 existing footway (Source: Google Earth)

3.4.3 Kirkcaldy South

After bypassing the rail bridge and roundabout, the A921 continues north. From this point, speed limit is 30mph and carriageway width increases to approximately 8m. There is a footway on both sides of the carriageway. Land use on this section of the route is primarily residential, with no other key origins and/or destinations identified.

During the site visit, it was observed that the east side of the carriageway featured a wider footway, and a significant grass verge (**Figure 3-10**). However, a further crossing of East Vows Walk is required at the second roundabout if using the east side of the carriageway.



Figure 3-10: Grass verge on east side of the carriageway (Source: Google Earth)

Utilising the west side of the carriageway would mitigate the need for a formal crossing point from the roundabout to cross the road, however the railway line runs parallel, which may create limitations in terms of physical constraints.

3.4.4 B9157/ Bridge St junction and Esplanade

This section connects to the town centre and therefore many employment destinations, whilst also providing connections to Kirkcaldy's transport hubs (discussed further in **Section 3.5**). On-street parking is currently present on the west side of the carriageway between Leslie Street and Peebles Street.

Similarly to the previous section, the carriageway remains wide (varying from approx. 8-9.5m) for the remaining stretch of the A921 before the A921/B9157 junction. The road features central hatchings in many places, and also has sections of on-street parking and grass verging. This likely means a variety of options are possible for implementing a high-quality active travel route through reallocating existing carriageway space.



Figure 3-11: Satellite image of the A921/B9157 junction (Source: Google Earth)

Towards the end of this section, there is a complex junction as the A921 meets the B9157 (as pictured in **Figure 3-11**). Utilising the east of the carriageway, potentially using the grass verge if required, would prevent the need to cross this junction. The existing footway is wide (approx. 3.8m) and appears to already be a shared-use facility as toucan crossings are present (**Figure 3-12**), however there is minimal signage to indicate this to users.



Figure 3-12: Existing Toucan crossing at Morrisons car park

Using the west side of the carriageway to cross this junction required crossing on four separate occasions and was therefore deemed unattractive due to the lack of coherence, directness and general inconvenience that this would cause to active travel users.

Seafield Road was also explored, which would bypass the B9157/ A921 junction altogether, and would rejoin the A921 just before the Morrisons car park exit. Other than providing access to Seafield beach and a small residential area, there is no through road and therefore traffic levels are low. The road currently features a speed limit of 20mph.

Continuing from the above section, the route joins the Esplanade (see **Figure 3-14**) - an existing high-quality active travel and public realm corridor that is traffic free. From site observations the area may benefit from maintenance and other minor improvements, particularly to mitigate the impacts of storms or high-tide events.

3.5 Kirkcaldy town centre and public transport connections

Kirkcaldy centre features many footways that have been upgraded to shared footway/cycleways, such as Hunter Place pictured in **Figure 3-13**. In addition, there is an existing shared-use active travel link between the bus and train stations. Minor improvements should be considered that provide wayfinding and connect the town centre to the Esplanade for active travel users.

Figure 3-15 illustrates where a potential active travel link could be provided to connect this existing infrastructure, which would enable greater opportunities for multi-modal active travel and public transport journeys.



Figure 3-13: Shared-use link between Kirkcaldy bus and train stations (Hunter Place) (Source: Google Earth)

Furthermore, during the site visit the Esplanade was identified as a site where there were opportunities for placemaking, utilising the scenic coastal location. This would help establish any future active travel route as a sustainable transport facility, but also as an attractive recreation and leisure destination where people are able to spend time and enjoy the space.



Figure 3-14: Aerial view along the Esplanade (Source: Google Maps)

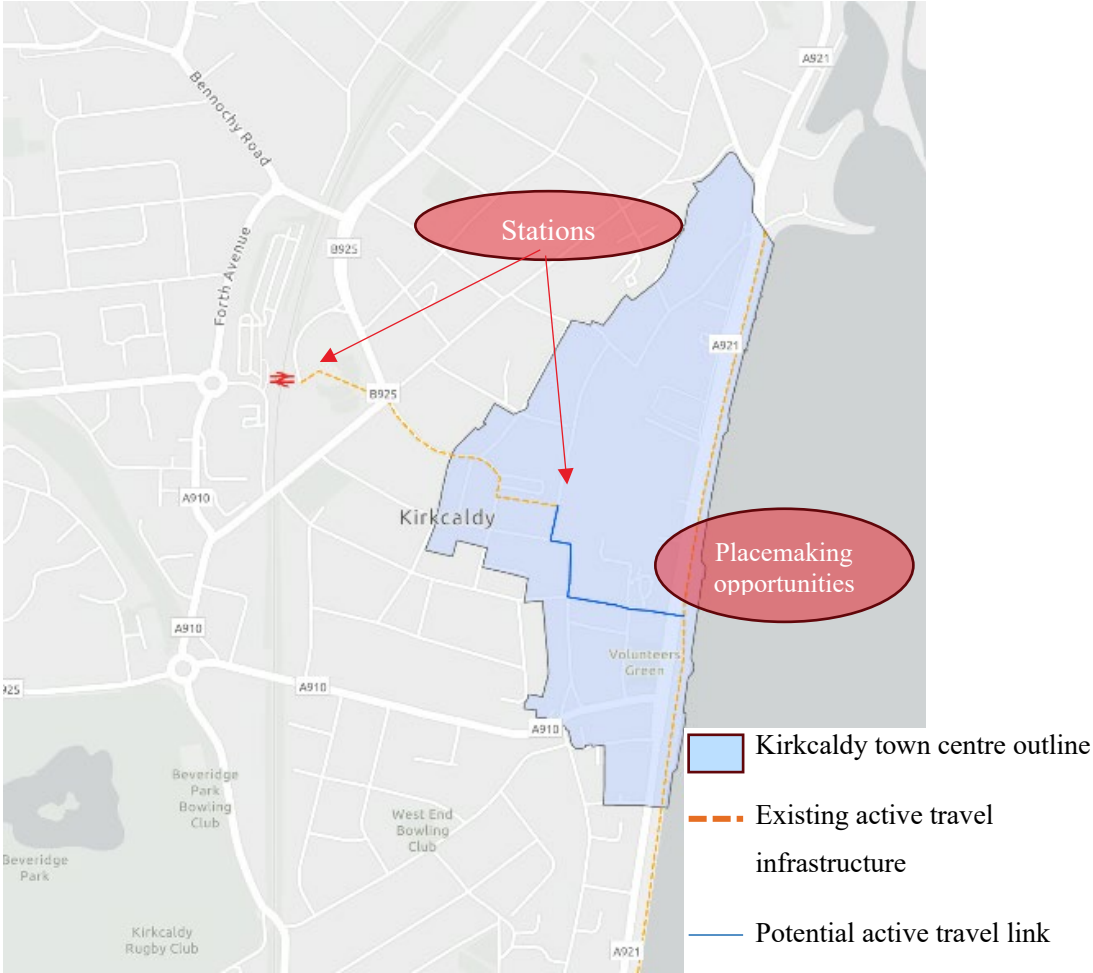


Figure 3-15: Illustration of a potential link between the Esplanade and Kirkcaldy's transport hubs

© Basemap source: ESRI

4. Stakeholder Engagement

4.1 Introduction

To identify local aspirations and concerns, initial ‘high level’ engagement with stakeholder commenced and should be expanded in the future, as the project advances. The project has strived to develop plans 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.

More details around the approach to engagement and the engagement findings can be found in the Kinghorn to Kirkcaldy 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 Kinghorn to Kirkcaldy feasibility study.

Fife Council’s active and sustainable transport officers have directly fed into 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, expertise, and priorities.

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.
- A shared footway/ cycleway would be preferable where the railway line crosses the A921 when entering Kirkcaldy from the south. Other options discussed include signals for traffic to filter in either direction separately allowing carriageway space to be utilised, which may have a negative impact on traffic in the local area.
- The A921 is a key local distributor road therefore road narrowing to the south of Kirkcaldy would not be preferred. There may also be some complexities related to drainage and public utilities.

Collaboration with Fife Council has been crucial in the development of the route and the concept design proposals. This provided a comprehensive understanding of 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 community members to access and view information digitally.

The Fife VER included the following information:

- Background information on the SEStran Strategic Network.

- Reasoning behind the Kinghorn to Kirkcaldy 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 Greener Kirkcaldy through their website, and local news outlets such as ‘Fife Today’ and the local radio station Kingdom FM.

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 202 responses related to the Kinghorn to Kirkcaldy route. 93% of respondents felt that an active travel route between Kinghorn and Kirkcaldy would be beneficial to the local area, which demonstrates strong local backing for the route among participants. A gender split of 51:49 (Male to Female) was achieved, and the 55-64 age group was the most common age group that responded to the survey. **Figure 4-2** depicts the age distribution of respondents further, where it can be seen that overall that 73% of respondents were aged 45 or over.

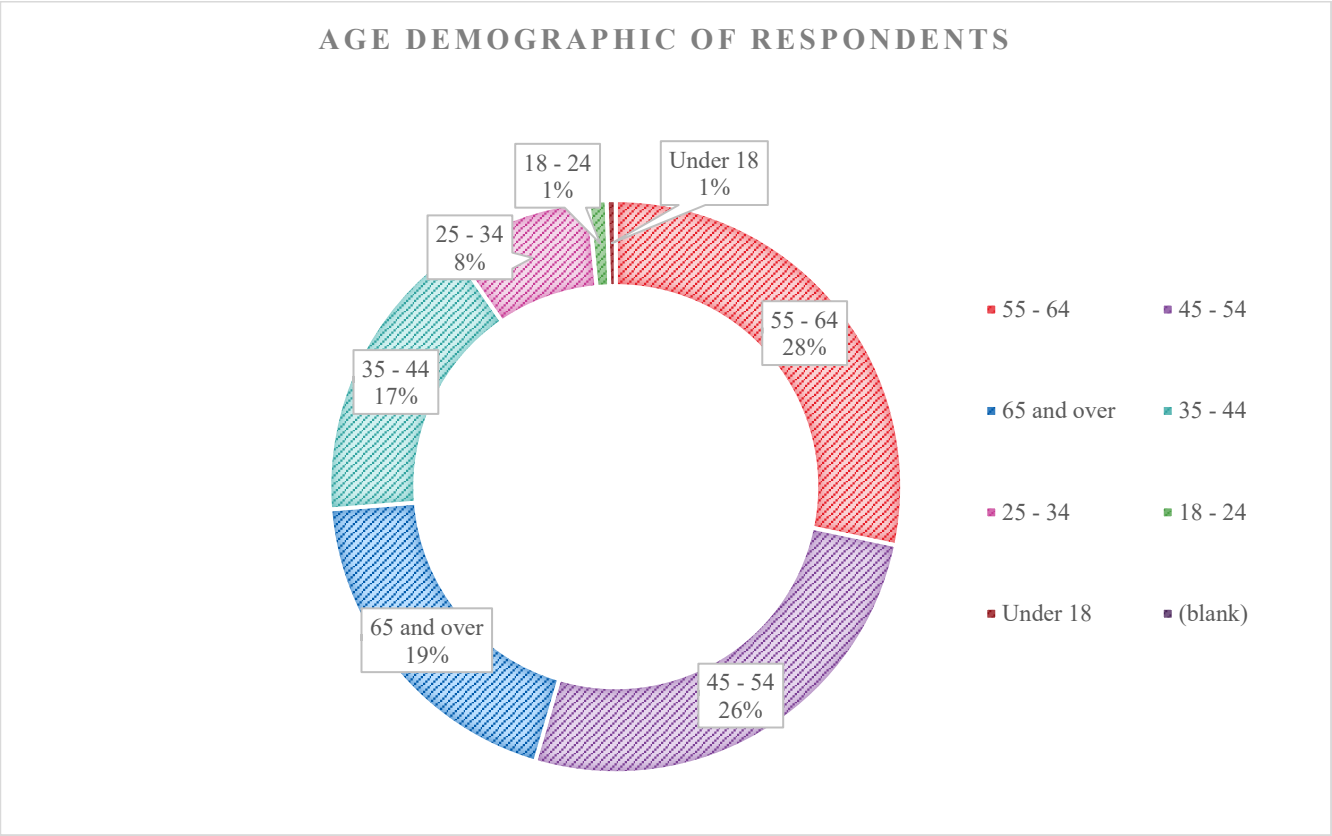


Figure 4-2: Age demographics of respondents

Key Facilities and Destinations

Respondents to the Kinghorn to Kirkcaldy route VER mentioned a wide range of key facilities and services that are important to their day-to-day activities. A recurring theme was that both Kinghorn and Burntisland, as smaller villages, are reliant on many of the services in Kirkcaldy. Examples given were community services (such as banks, post offices and libraries), supermarkets, particularly the Morrisons in Kirkcaldy, and other retail sites. Balwearie High School was regularly mentioned, which is the closest secondary school for residents of Kinghorn and Burntisland, therefore is an important focus point.

Responses were grouped into 12 recurring themes that were frequently cited as key destinations. **Figure 4-3** outlines the 12 themes for key facilities and destinations emerging from responses, and the share of respondents who discuss them. Respondents' primary responses were shops and retail (45%). This emphasises the importance of providing an active travel connection from the proposed route along Kirkcaldy Esplanade to the retail and commercial hubs in the town centre. This link would also improve transport links to the nearby bus and railway stations, which were both regularly cited destinations. Sports, leisure and outdoor spaces also received multiple responses, with destinations cited in both Kirkcaldy and Kinghorn.

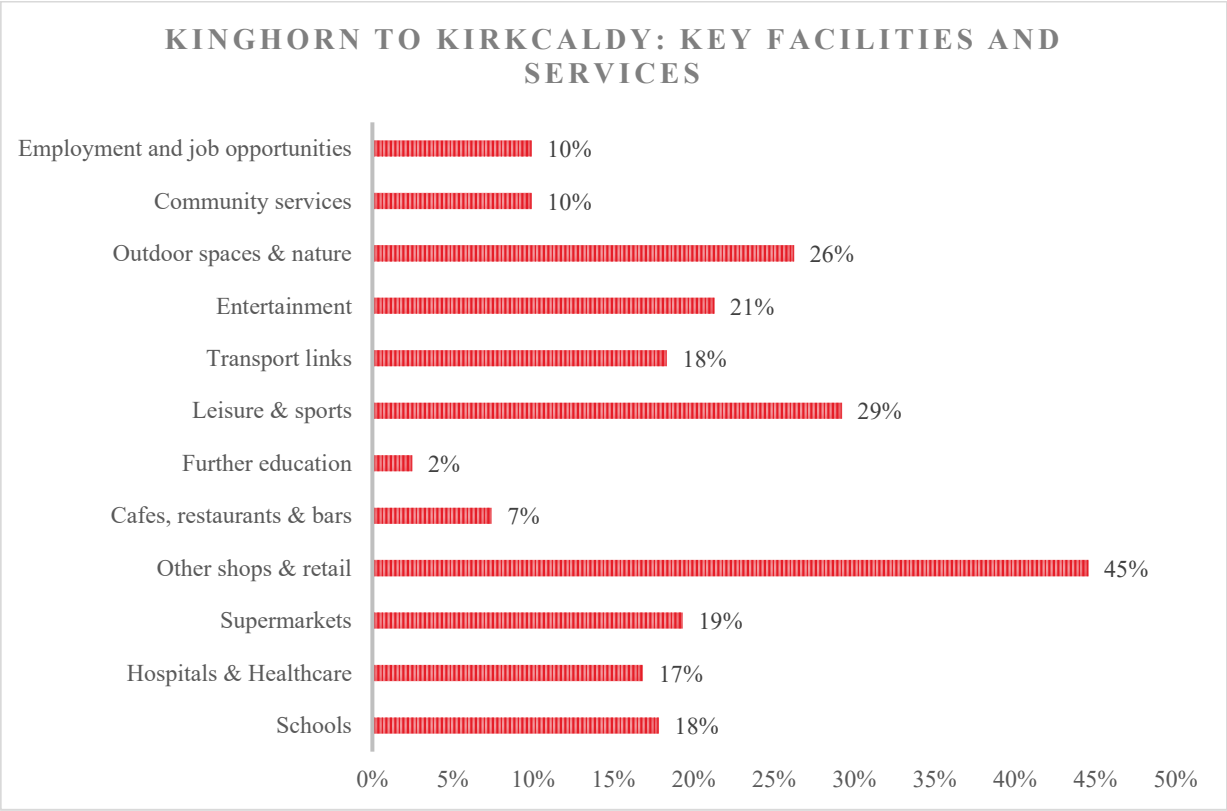


Figure 4-3: Thematic analysis of key facilities and services for the Kinghorn to Kirkcaldy route

Barriers to Walking Wheeling and Cycling

From an initial analysis of the responses, the majority of local residents feel that there is no suitable option for active travel between Kinghorn and Kirkcaldy. A breakdown of key themes discussed by respondents, and their frequency, can be seen in **Figure 4-4**. The most frequently discussed topics typically were around the A921, which is the main road between Kinghorn to Kirkcaldy.

The narrow carriageway (36%) as well as the volume and speed of traffic (46%) were some of the most common barriers cited by locals. This leads to an environment where active travel users feel uncomfortable, with *'long queues of traffic building up behind cyclists'*, or drivers attempting to overtake *'dangerously on the blind corners'*. Furthermore, 37% also discussed the inadequacy of the existing footway along the A921, which switches sides of the 50mph road on two occasions presenting an unsafe environment for those walking and wheeling.

Hills and steep gradients were mentioned in 25% of responses, which were in relation to both the A921, and the NCN76, which locals feel is *'too steep for most people'*, or you *'need to be a pro'* to utilise these facilities.

In responses referring to the Fife Coastal Path, the width, frequency of steps, and the muddy, unsurfaced nature of the path were the most frequently cited barriers. Approximately 30% of respondents mentioned that they felt the coastal path was unsuitable as a high-quality active travel route. It is clearly valued as a leisure and tourist route, however many feel it is not accessible for all user types.

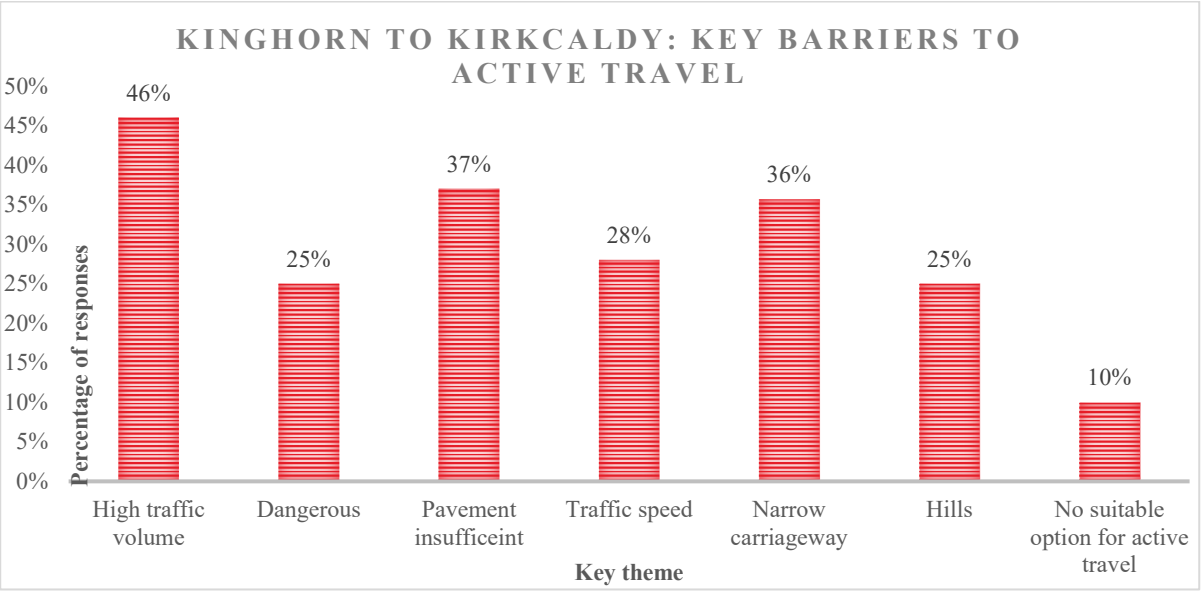


Figure 4-4: Thematic analysis of the barriers to active travel between Kinghorn and Kirkcaldy

Active Travel Opportunities

In the analysis of response data in relation to active travel opportunities (**Figure 4-5**), a number of themes emerged. Respondents most frequently discussed the need for a high-quality active travel route, that is segregated from traffic, direct and avoids crossing the carriageway like the current footway. This is seen as a key enabler of active travel in the local area. Further responses discussed the need for lighting and regular maintenance, which would enable the route to be used year-round, and for the path to be of appropriate width to accommodate all user groups.

The existing shared-use facility delivered in 2021 between Burntisland and Kinghorn was regularly mentioned in responses to this question and appears to be very popular. Many respondents outlined that they would be pleased to see an similar type of facility between Kinghorn and Kirkcaldy.

Responders agreed that they did not want to see the coastal path replaced with black-top surfacing, both in terms of the potential cost that would be involved, the value of the path in its current form as a natural trail for recreation and the likely local environmental and biodiversity impacts.

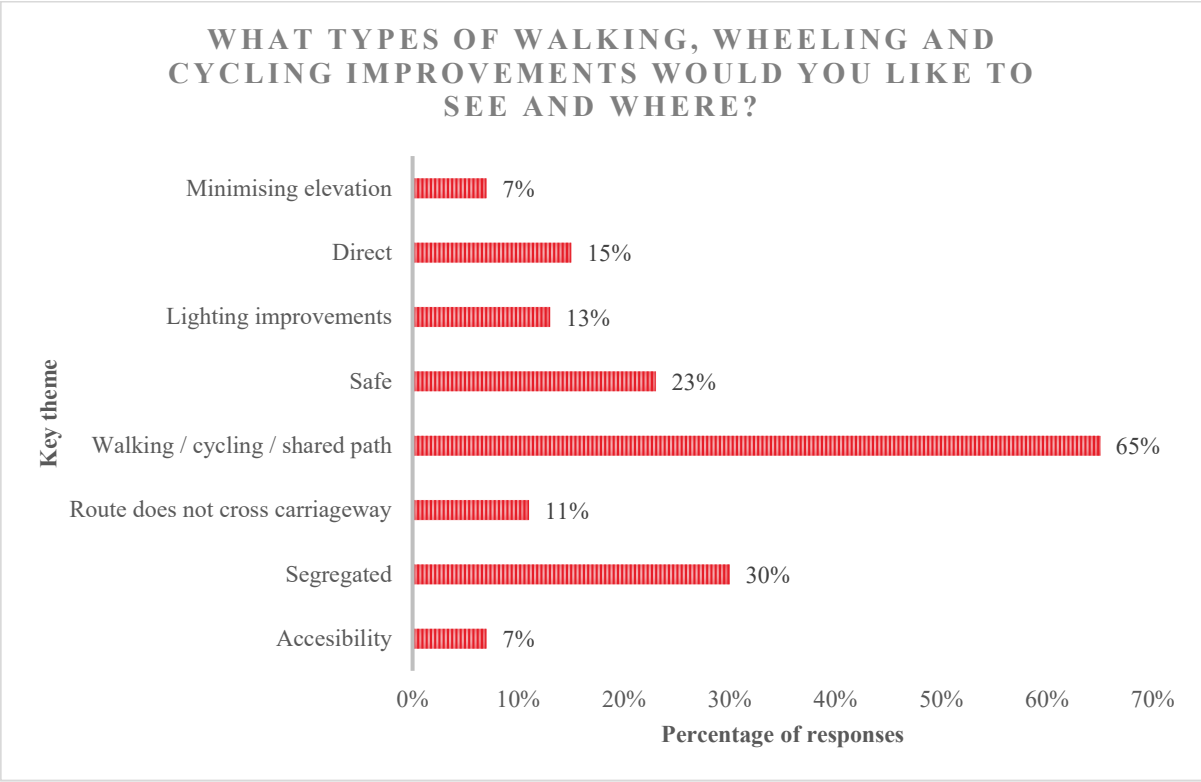


Figure 4-5: Thematic analysis of the active travel opportunities for the Kinghorn to Kirkcaldy route

Summary

Overall responses to the VER in relation to improving active travel facilities between Kinghorn and Kirkcaldy were very positive. This provided high-quality local knowledge and input that will aid the project significantly moving forward.

4.4 Community Workshop

Key stakeholders in the Kinghorn to Kirkcaldy area, which were identified in collaboration with Fife Council, were invited to attend a community workshop on Tuesday 9th of January 2024 at Greener Kirkcaldy’s community building to discuss the proposed Kinghorn to Kirkcaldy 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:

- Greener Kirkcaldy
- Royal Burgh of Burntisland Community Council
- Burntisland Harbour Access Trust
- Craigencalt Rural Community Trust
- Kinghorn Community Land Association
- Local Residents

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



Figure 4-6: Kinghorn to Kirkcaldy community workshop

Members of the group who lived in either Burntisland or Kinghorn outlined the importance of connections to everyday facilities in Kirkcaldy. It was clear that group felt an active travel route between Kinghorn and Kirkcaldy would make a major difference to the local communities of Kinghorn and Burntisland, as well as benefiting residents along the route corridor through the south of Kirkcaldy. Three themes emerged from the Community Workshop, which are summarised in **Figure 4-7**.

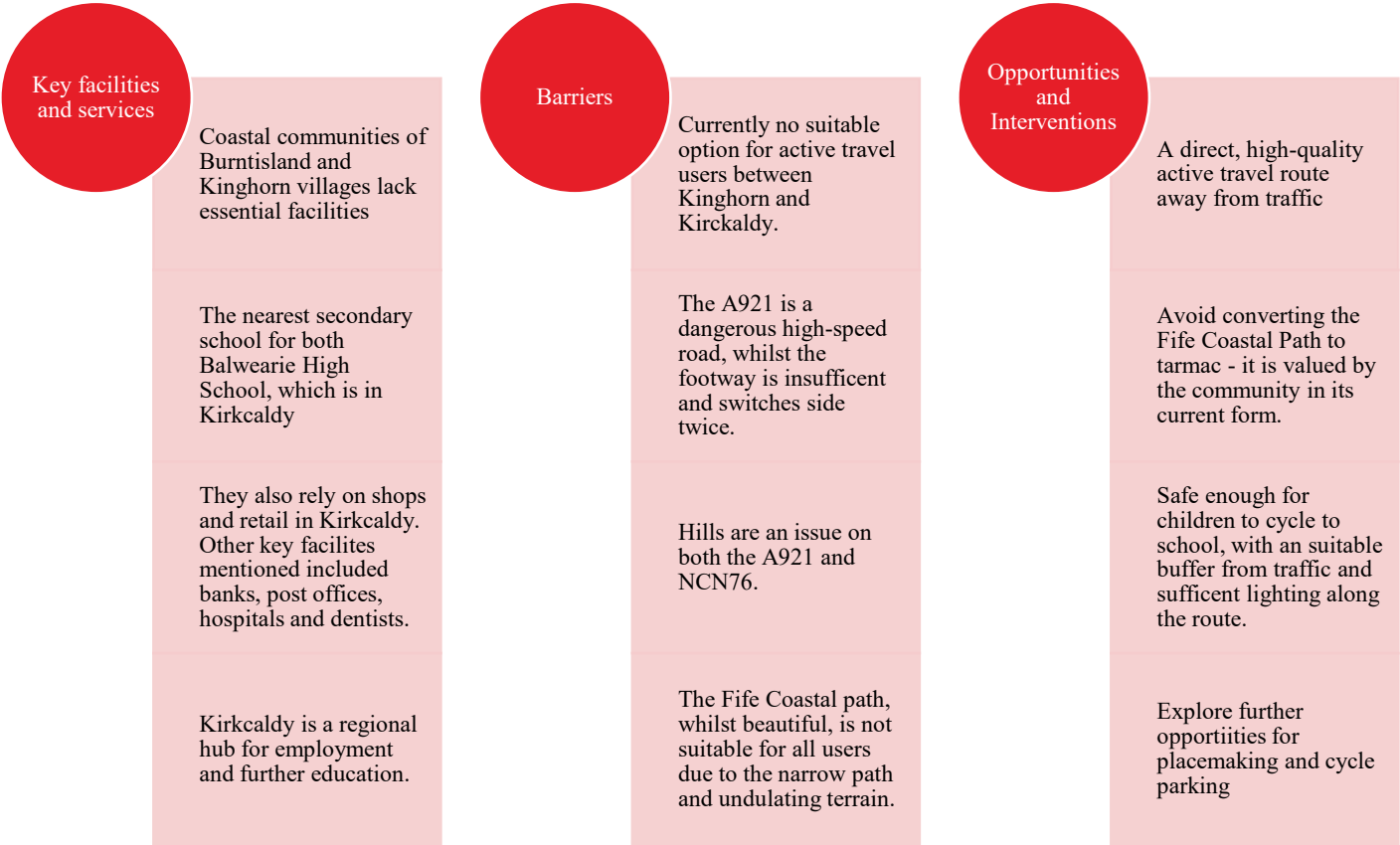


Figure 4-7: Summary of key themes from the Community Workshop

The workshop provided a clear summary of the active travel issues along the A921, including traffic speeds, gradients and physical constraints including narrow footways and carriageway space. Potential solutions that could be delivered were also discussed including separation between active travel users and vehicle traffic parallel to the A921, cycle parking opportunities and lighting solutions along the route.

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:

- Royal Burgh of Burntisland Community Council
- Paths for All
- Fife Coast and Countryside Trust
- Fife College- Active and Sustainable Travel Coordinator

The key findings from these activities were as follows:

- Some of the key facilities within the study area include Fife College Kirkcaldy Campus, the Fife Coastal Path, Kirkcaldy town centre and public transport facilities such as Kinghorn and Kirkcaldy train stations and Kirkcaldy bus station.
- There are many Fife College staff and students who travel from the Burntisland and Kinghorn area who travel to the Kirkcaldy campus, many of whom already cycle.
- Connections between public transport and active travel are currently poor in the local area. For example, employment areas are often isolated and people are therefore more likely to drive.
- Discussions with the Fife Coast and Countryside Trust indicated that land parallel to the Fife Coastal Path connecting Craigfoot Place and Seafield Road, that may form part of the proposed route, may still belong to the developer post-housing development. This would however require confirmation from the Fife Council Estates Team.
- The significant movement already between Burntisland, Kinghorn and Kirkcaldy indicates the potential of this route.

4.6 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 locations where the purchase of third-party land would be required to progress the route proposals.

The Title Deeds collected for the Kinghorn to Kirkcaldy route have been primarily located adjacent to the A921 between Kinghorn and the south of Kirkcaldy. This is the key location within the study area that is considered to require potential future 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 Kinghorn and Kirkcaldy aims to deliver strategic active travel infrastructure along the Kinghorn to Kirkcaldy corridor, in line with the objectives of the SEStran Strategic Network and *Cycling by Design* 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, it was concluded that the NCN and Fife Coastal Path (routes shown in **Figure 3-1**) were going to be unsuitable for a high-quality active travel route. This is due to significant physical constraints and deliverability issues discussed in **Chapter 3** which would achieve a low Level of Service within *Cycling by Design*. Therefore the route options identification exercise largely focuses around the A921, with some deviations in Section 1 & 3. Options have been identified and assessed for each of the sections outlined in **Chapter 3** (and also below in **Figure 5-1**) 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 *Cycling by Design* level of service indicators (see **Section 5.2**). The identified options are explained throughout this chapter, with the full route options appraisal exercise provided within **Appendix E**.

Concept design proposals have been developed for the preferred route option between Kinghorn and Kirkcaldy. 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 FC officers 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, firstly the route was split into four sections outlined in **Section 3.4** and in **Figure 5-1**.

The route options appraisal exercise has been informed by *Cycling by Design* 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 *Cycling by Design* (see **Figure 5-2**) 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 descriptions, positives, negatives and the rational for the scoring of each option against each criteria, can be found in **Appendix D**.

5.2.2 Section 1: Kinghorn and rural

Section 1 comprises the rural portion of the route after leaving the east side of Kinghorn. The route start point is the junction where the B923 joins the A921 (**Figure 3-5**), to the northeast of Kinghorn. The crossing facilities at this junction may require redesign, which was discussed further in **Section 3.4.1**.

Carriageway space is limited across this rural stretch, estimated to be approximately 6-6.5m wide, with a footway width of 1.5-1.8m. This existing footway is present for the full length of the route however it does cross the carriageway twice, with minimal crossing facilities (dropped kerbs only) and no lighting present.

The carriageway width is estimated to be around 6m is already the minimum possible width within Fife Council’s regulations, and with limited footway space – it is likely land will need to be purchased to ensure there is sufficient space for a high-quality active travel route.

Table 4: Options appraisal- Section 1

Section 1- Kinghorn and rural section		Overall score
Option 1.1	Addition of active travel infrastructure along the west side of the A921. Due to the topography, this may need to be significantly offset from the road in places to maintain suitable gradients throughout.	19
Option 1.2	Footway widening and upgrading existing crossing points, which is likely to be a shared-use path. This would be predominantly following the west side of the carriageway, crossing to the east side for a short section between two farm access roads.	16
Option 1.3	Route follows the west side of A921 before routing down Linton Court, with a bridge constructed to cross the railway. The route would then follow the Fife Coastal Path to Kirkcaldy.	13
Option 1.4	Route follows west side of A921 before routing down Linton Court and then following west side of the railway line to the rail bridge.	19

As can be seen in **Table 4**, Option 1.1 and 1.4 score evenly. Whilst both of these are seen as high-quality options, further information is required before a judgement on the preferred option can be made. As such, both options will be progressed to the concept design stage, and once information around a) Linton Court; and b) the topographic data for both options is available, an informed decision can be made on the preferred option. Both options would require significant land acquisition, and the direction may vary from the route depicted in **Figure 5-2** due to the topography.

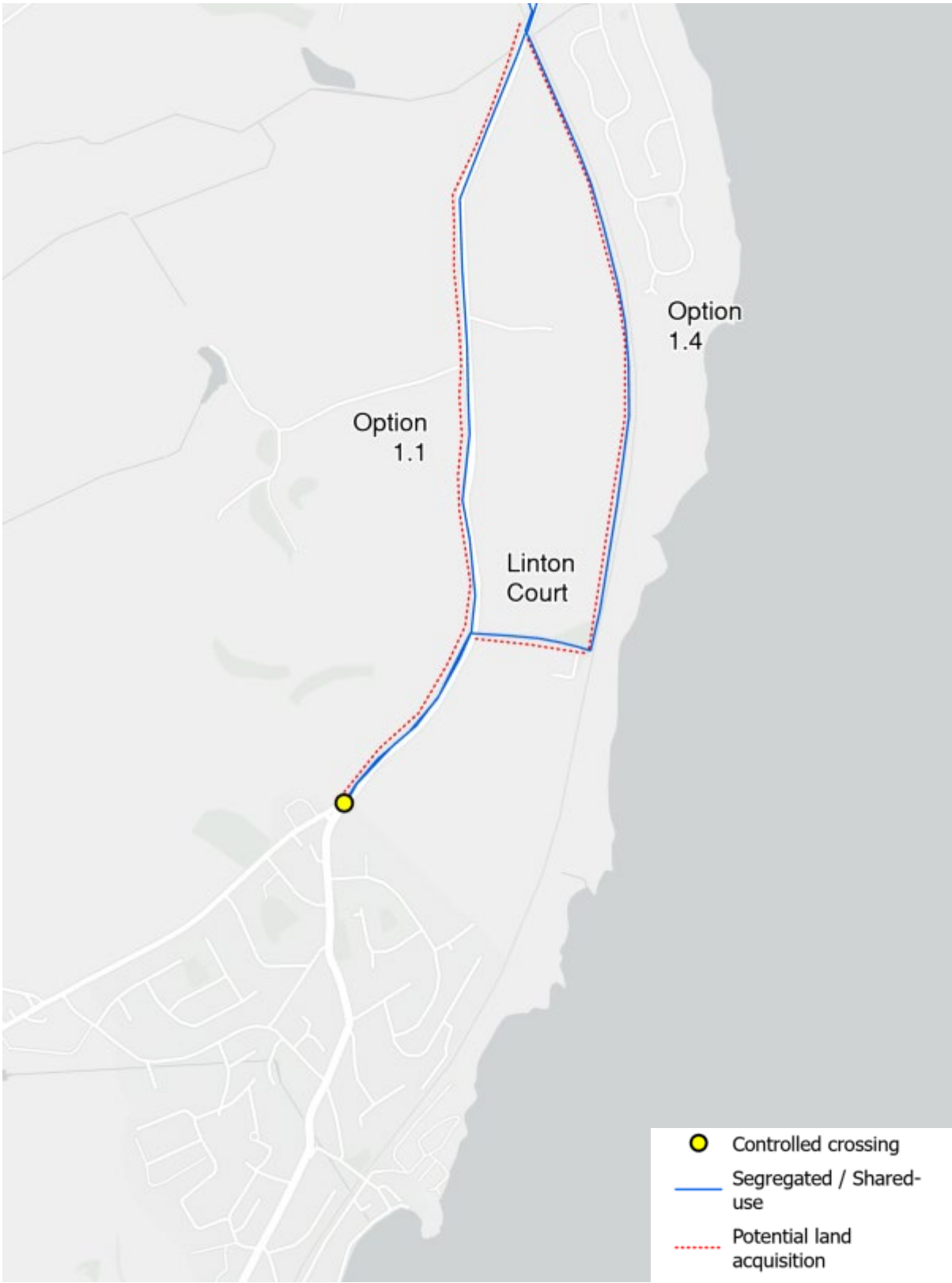


Figure 5-2: Options 1.1 and 1.4, which are both to be progressed to concept design to identify the preferred option.

© Basemap source: ESRI

5.2.3 Section 2: Kirkcaldy Rail Bridge

Section 2 of the route consists of a narrow rail bridge (**Figure 3-8**) upon entering Kirkcaldy – which is one of the key points for this route to address. There is currently a footway on the western side of the bridge, estimated to be 1-1.5m wide based on Ordinance Survey (OS) base mapping. OS data shows that the carriageway measures 8m wide under the bridge, so although no outward expansion is possible, there is room to narrow the carriageway.

Table 5: Options appraisal- Section 2

Section 2- Kirkcaldy Rail Bridge		Overall score
Option 2.1	Shared use facility along the west of the carriageway, which is accommodated through narrowing the carriageway, which reflects Fife Council’s absolute minimum carriageway widths.	18
Option 2.2	Maintain current footway width, with minor improvements to correct visibility and sightlines. This width would be below Cycling by Design absolute minimum for shared facilities.	14
Option 2.3	Shared-use facility implemented through a build out under the railway bridge which would allow increased space (and a buffer from traffic) for active travel users. This would reduce the carriageway width to one lane, therefore traffic would be signal controlled to regulate access.	20
Option 2.4	Avoid the railway bridge pinch point by routing through Tyrie farm for approximately 150m adjacent to the railway line before rejoining the A921.	18

Option 2.3 has been identified as the preferred option in Section 2, due to compliance with Cycling by Design guidance and benefits to active travel users in terms of increased width and buffer from vehicle traffic. The agreed option for progression should be determined in collaboration with Fife Council active travel, transport planning and roads network teams. Progression of Option 2.3 will be dependent on findings from topographic data collection, and an assessment of lane removal and signalisation on the local road network through traffic modelling. Technical drawings of these options can be seen in **Appendix F**.

Option 2.2 scored lower since the existing footway width is less than *Cycling by Design* absolute minimum recommended width. Both options 2.1 and 2.3 repurpose the existing carriageway to provide more space for active travel users, therefore scoring highly for most *Cycling by Design* principles. Option 2.4 is seen as providing a similarly high level of service as options 2.1 and 2.3, however is considered less deliverable and cost effective.



Figure 5-3: Option 2.3, the preferred option for section 2.

© Basemap source: ESRI

5.2.4 Section 3: Kirkcaldy South

Section 3 continues beyond the rail bridge, heading north towards Kirkcaldy town centre. Options 3.1 and 3.2 follow the A921, whilst Option 3.3 deviates away from the main road. The A921 carriageway is wide here, at approximately 8m, which initially appears to present a high level of flexibility and potential to reallocate some of the existing carriageway.

Early discussions with Fife Council Roads Team highlighted a significant number of public utilities along this road. This has been accounted for in the scoring of both Option 3.1 and Option 3.2. A high-level assessment of public utilities found that along the A921 there are existing low-pressure mains or services operating up to 75 millibar gauge for a short section of the A921 under the west side of the footway that follow around into River View Street under the east side footway. Low pressure gas mains also run under the A921 from the end of Leslie Street under the existing carriageway. These mains switch to the east side of the carriageway at around Peebles Street and continue north until they tie in at the footway of the junction. From Leslie Street there is also a stretch of low-pressure mains that runs under the west side of the existing footway until they splay off along Peebles Street. Unknown utilities are telecommunications, water and waste, which should be explored further during future design stages. More details on the approach to utility searches can be found in **Section 5.5**.

Table 6: Options appraisal- Section 3

Section 3 - Kirkcaldy South		Overall score
Option 3.1	High quality active travel infrastructure along the west side of the carriageway. This option is the more direct of the road options as there are no crossings, however runs adjacent to the railway which may limit space.	19
Option 3.2	High quality active travel infrastructure along the east side of the carriageway, with a toucan crossing north of the roundabout at the rail bridge, and a further crossing adjacent to East Vows Walk. This option runs adjacent to a wide grass verge (Figure 3-10), which could be used if carriageway space is not available.	21
Option 3.3	Mixed traffic street along East Vows Walk / Craigfoot Place, followed by resurfacing of an existing informal footpath connecting Craigfoot Place with Seafield Road. The route would then connect to Seafield Road to join Option 4.3 in Section 4.	22

Options 3.2 and 3.3 emerged as the highest scoring options in Section 3. Whilst both options were seen as providing an equally high level of service to active travel users, Option 3.3 is deemed more cost-effective. Both options are viable but require further information on key factors influencing their delivery, such as utilities and land ownership, before a preferred option can be selected. The utilities running beneath the A921 mean that it is unknown whether significant carriageway works will be possible in this location, whilst the land ownership of the informal footpath (**Figure 5-4**) is also unknown at this time. Both options will be progressed to the concept design stage and once further information becomes available, a decision will be made on the preferred option.

Option 3.3 makes for scenic coastal views and conversion of existing quiet residential streets to mixed traffic streets, which presents both a cost-effective and direct option that is away from the main road. However, following discussions with Fife Council, they indicated a preference to also show a strategic option parallel to the A921. It was therefore agreed that both Option 3.2 and Option 3.3 would be progressed to the concept design proposals, whilst noting the complexities associated with each option.



Figure 5-4: Informal footpath connecting Craigfoot Place and Seafield Road



Figure 5-5: Options 3.2 and 3.3, which are both to be progressed to concept design

© Basemap source: ESRI

5.2.5 Section 4: Kirkcaldy Esplanade and A921/B9157 junction

Section 4 is the final section of the proposed route, which links to the existing Esplanade shared-use facility.

Options 4.1 and 4.2 continue along the A921 and feature residential dwellings on both sides. Both of these options join to the eastern side of the carriageway before the A921/B9157 junction (see **Figure 3-11**) before connecting shortly after to the Esplanade. Toucan crossings are already in place at the junction. From here all options continue on the right-hand side of the carriageway until the route connects to the Esplanade, which runs along the coast to Kirkcaldy town centre.

Option 4.3 avoids interaction with this junction, utilising Seafield Road to run parallel with the Morrisons car park. This option then rejoins the A921 for a short section before connecting with the Esplanade.

Table 7: Options appraisal- Section 4

Section 4 - Kirkcaldy Esplanade and A921/B9157 junction		Overall score
Option 4.1	High quality active travel infrastructure along the western side of the carriageway. The junction where the A921 connects with Peebles Street will require crossing improvements. Existing on-street parking is noted here between Peebles Street and Leslie Street.	17
Option 4.2	High quality active travel infrastructure along the eastern side of the carriageway. This option may not require removal of on-street parking, however may be more restrictive due to the close proximity of gardens and driveways to the existing footway and carriageway.	19
Option 4.3	Mixed traffic street along Seafield Road. This option then re-joins the A921 adjacent to Morrisons using an existing active travel modal filter, therefore avoiding the A921/B9157 junction.	21

Option 4.3 emerged as the preferred option for Section 4, primarily due to being routed away from the busy junction, whilst also representing a deliverable, and cost-effective option. The exact make-up of this option will depend on the preferred option in Section 3 – with both variations being displayed in **Figure 5-6**. Both Option 4.1 and 4.2 scored lower due to routing next to the complex B9157/ A921 junction being considered to be less attractive.

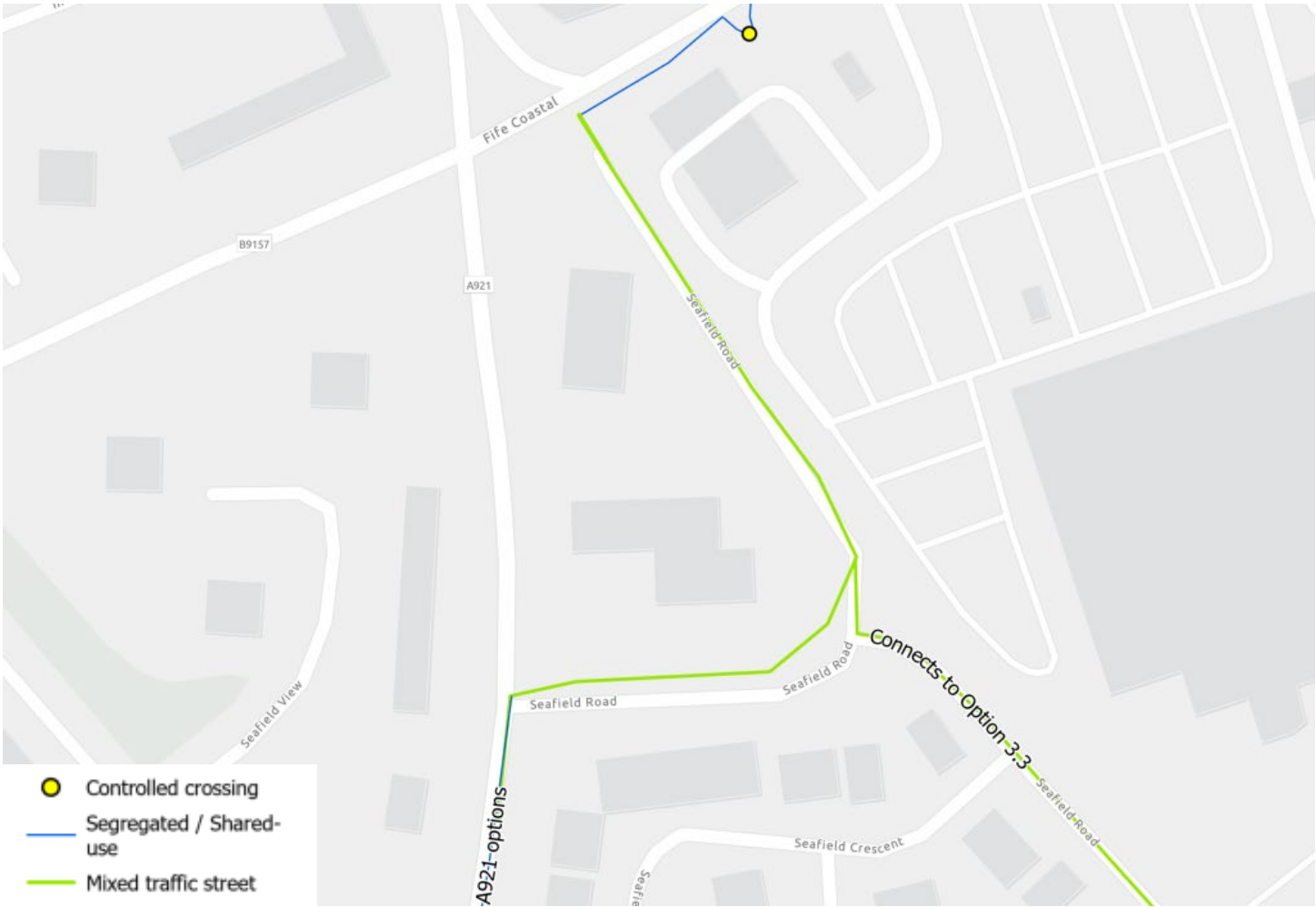


Figure 5-6: Option 4.3, the preferred option for Section 4, and displaying connections from both options presented in Section 3. © Basemap source: ESRI

5.3 Preferred Route

A summary of the preferred route options, crossing points, and areas where land acquisition may potentially be required can be seen in **Figure 5-7**. As has been outlined, due to a variety of unknown factors at this stage Sections 1 and 3 each have two options being progressed to the concept design stage, with a preferred option to be determined in future design stages.

Between Kinghorn and the south of Kirkcaldy, the route will either follow the west side of the A921 throughout the rural stretch, or route by the west side of the railway. Both options are direct, coherent and minimise crossing of the high-speed road. At the rail bridge, **Option 2.3** has been preferred due to compliance with CbD and benefits for active travel in terms of increased width and buffer from traffic. **Option 3.3** was the highest scoring option for section 3, since it presents both a cost-effective and direct option that is away from the main road, however faces uncertainty regarding land ownership. **Option 3.2** achieves an equally high CbD level of service, but also has uncertainty regarding deliverability due to the utilities under the A921. Both options will be progressed to the concept design stage, with a preferred option to be decided in future design stages. These options would then connect with a mixed traffic street at Seafield Road (**Option 4.3**), which was preferred as this allowed the route to bypass the busy junction where the A921 meets the B9157. The route would join the Esplanade from here where it would continue along for the length of Kirkcaldy’s centre.

A potential future link has also been identified to connect Kirkcaldy’s transport hubs to the proposed route via Charlotte Street. This could consist of minor improvements such as signage and wayfinding.

Overall, this preferred route is believed to offer the highest level of service to active travel users based on Cycling by Design’s six design principles, whilst also considering additional factors such as cost and deliverability.

The concept design proposals for the preferred route can be found in **Appendix F**.

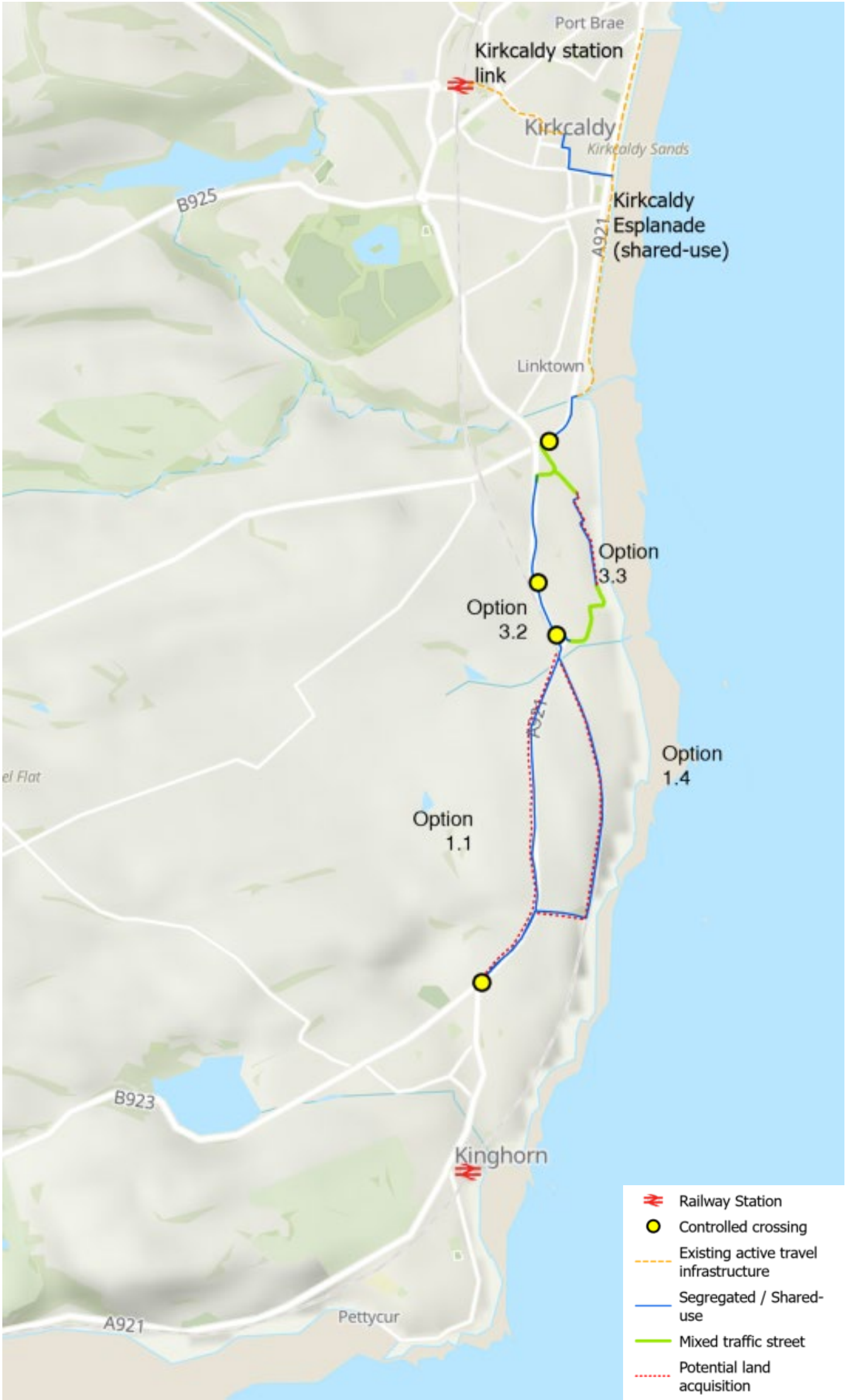


Figure 5-7: Preferred options for full route corridor, displaying sub-options in sections 1 and 3

© Basemap source: OS

5.4 Lighting

Lighting on remote cycle tracks is recommended in Cycling by Design (CbD) to provide a high level of service along a route. CbD references 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.

It is recommended that designers work with ecologists to identify the level of mitigation required where lighting is being provided, this is something that should be considered in future technical design stages. 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 design stages.

5.6 Budget cost estimate

High level, order of magnitude cost estimates for the active travel route between Kinghorn and Kirkcaldy shown in **Table 8** 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).
- Mixed traffic street- improvements required to deliver a mixed traffic street, including minor resurfacing, signage, lining and road markings (typical cost range: £150,000-£200,000 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 improvements for the full route have been included (typical cost range £6,000 - £12,000 per km).

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

As there are a number of sections where there are various options to be considered and taken forward to the next stage which will involve conversations with landowners, topographic and utility survey collection. The budget order of magnitude costs associated with each can be seen outlined in **Table 8**.

Table 8: Order of Magnitude Costs for Kirkcaldy to Kinghorn Route Options

	Min Cost	Max Cost
Section 1 Option 1.1: Shared-use facility on A921	£1,250,000	£2,480,000
Section 1 Option 1.4: Shared-use facility parallel to railway line	£1,290,000	£2,600,000
Section 2: Kirkcaldy Rail Bridge on A921	£148,000	£287,000
Section 3 Option 3.2: Shared-use path on A921	£235,000	£390,000
Section 3 Option B 3.3: Mixed traffic street through residential and shared use on coast	£255,000	£580,000
Section 4: Seafield Road / A921 to connect with Kirkcaldy Esplanade	£480,000	£855,000
Signage Improvements along full route	£40,000	£75,000

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

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 vision for the Kinghorn to Kirkcaldy 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 a VER to inform stakeholders and gather feedback on the key issues in the local area.

The preferred route for the Kinghorn to Kirkcaldy 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 between Kinghorn and Kirkcaldy, whilst also linking residential areas to the south of Kirkcaldy and key destinations such as the Kirkcaldy Esplanade.
- Connecting numerous trip generators, shared services between Kinghorn and Kirkcaldy, and facilitating onward connections to the already existing Burntisland to Kinghorn route, and public transport hubs such as Kinghorn and Kirkcaldy Railway Stations and Kirkcaldy Bus Station.
- 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 at specific locations. This is due to physical constraints along the A921 between Kinghorn and the south of Kirkcaldy, with limited scope to utilise the existing local adopted road network. Therefore, 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.
- A topographic survey of the corridor is undertaken to inform the design process.
- The land ownership information collected through the land registry search undertaken should be used to begin discussions with landowners about land purchasing procedures.

- 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.

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 Kinghorn and Kirkcaldy and areas further afield by active and sustainable modes of travel.

Appendix A

Desktop Review Scrapbook

SEStran Strategic Network – Kinghorn to Kirkcaldy Feasibility Study

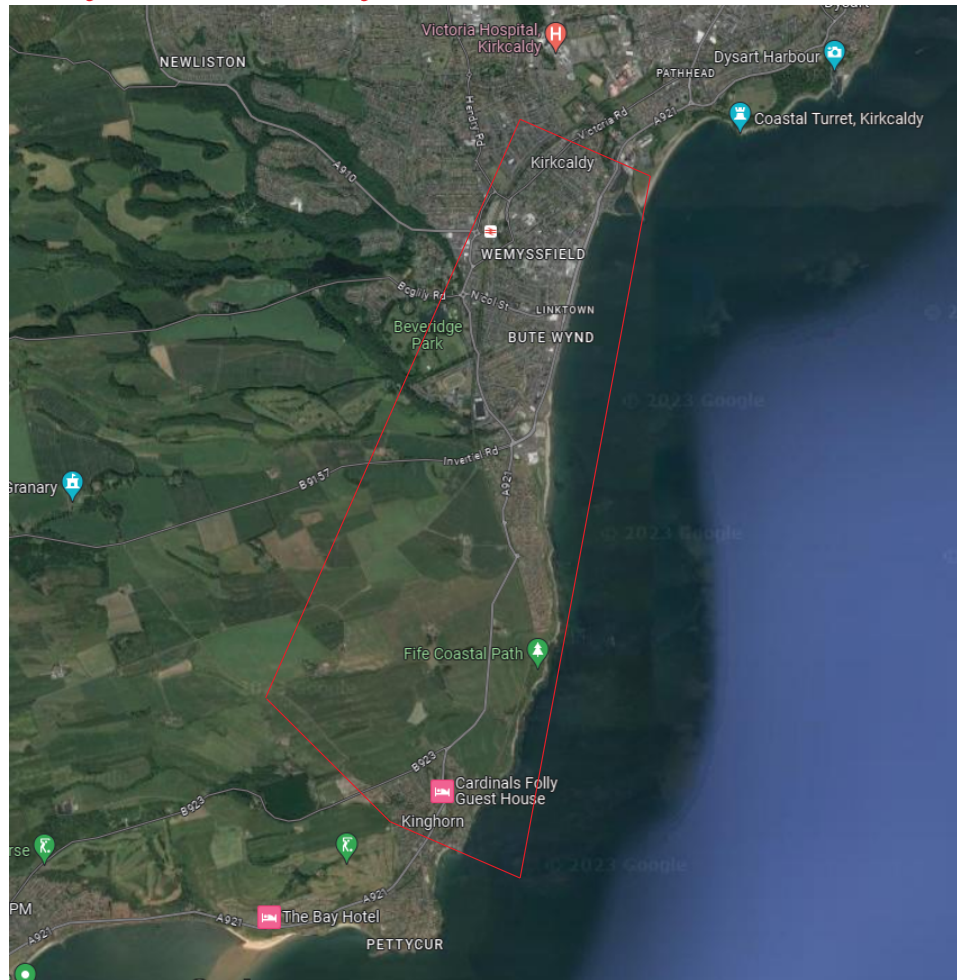
Desktop Scrapbook



Introduction

Study Boundary

ARUP



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

The study boundary will run approximately along the corridor pictured.

Initial Observations

Aerial images

ARUP



Initial Observations

A921 Kirkcaldy Road, Kinghorn to Kirkcaldy (south)

ARUP



Kinghorn centre:

- First half of the Burntisland – Kirkcaldy route is already built in the form of a shared-use path running to the south of Kinghorn.
- Kinghorn centre has several complexities including on-street parking, crossing interactions and bus stops.
- Kinghorn train station is identified as a key facility.

Kinghorn to Kirkcaldy (south):

- 50mph speed limit is noted from the north of Kinghorn to the south of Kirkcaldy.
- This section is approximately 2.5 miles.
- Narrow footway (approx. 1m) is present for the full rural section of route. However, this footway crosses the major road on two occasions.
- To mitigate need for crossings, the west side of road is considered to be more suitable, although would require land purchase.
- Limited space has been noted. Private land is located close to carriageway on both sides.
- This is an existing bus route. The positioning of bus stops will have to be considered as part of any future design.
- There is considered to be a slight incline at this location.

Initial Observations

A921: Railway bridge & Roundabouts

ARUP



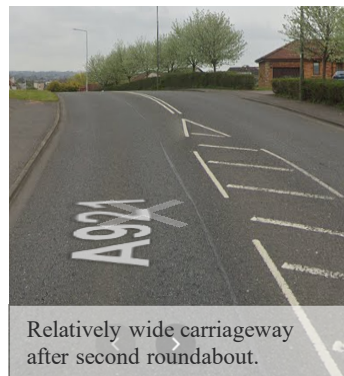
Rail bridge coming into Kirkcaldy



Two roundabouts coming into Kirkcaldy



Roundabout immediately after NR bridge.



Relatively wide carriageway after second roundabout.



Wide footways

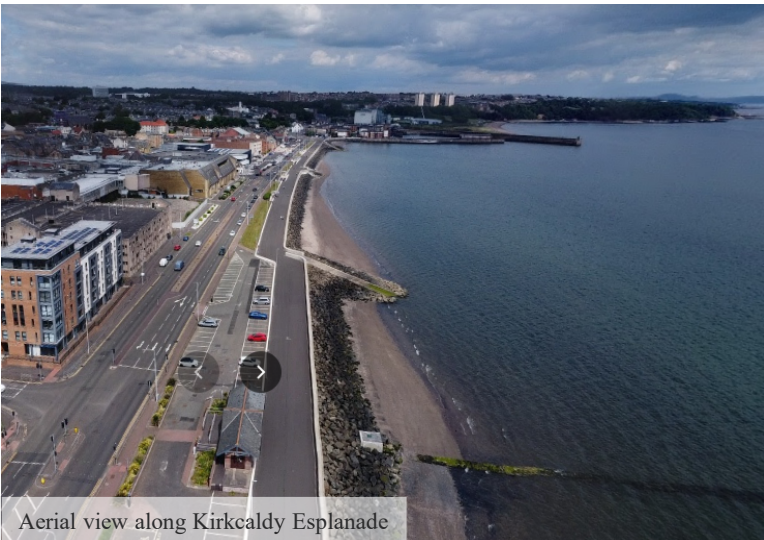
- To the south of Kirkcaldy, the A921 passes under a rail bridge. Network Rail will need to be consulted on any proposed changes to the rail bridge.
- The roundabout immediately after the rail bridge will need to be considered – it may not be possible to narrow the carriageway here.
- There are two roundabouts located to the south of Kirkcaldy that should be considered:
 - The first roundabout (A921/ East Vows Walk (south)), features a footway that bypasses the roundabout and follows the A921. There may be the potential to upgrade this footway as part of these proposals.
 - Between both roundabouts, the east side of carriageway may offer more space for high quality infrastructure. The west side runs parallel to the railway line which may present challenges.
 - After the second roundabout (A921/ East Vows Walk (north)), the carriageway is relatively wide, featuring central hatchings and/or on-street parking spaces. There are also wide footways on both sides. There should be sufficient space to implement high quality active travel infrastructure.

Initial Observations

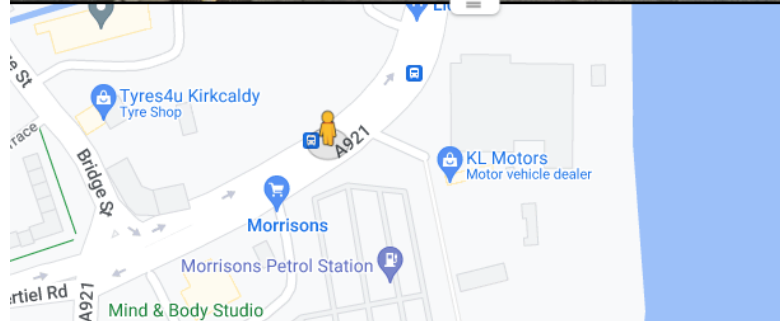
A921: Kirkcaldy centre

ARUP

Complex junction as A921 meets B9157



Aerial view along Kirkcaldy Esplanade



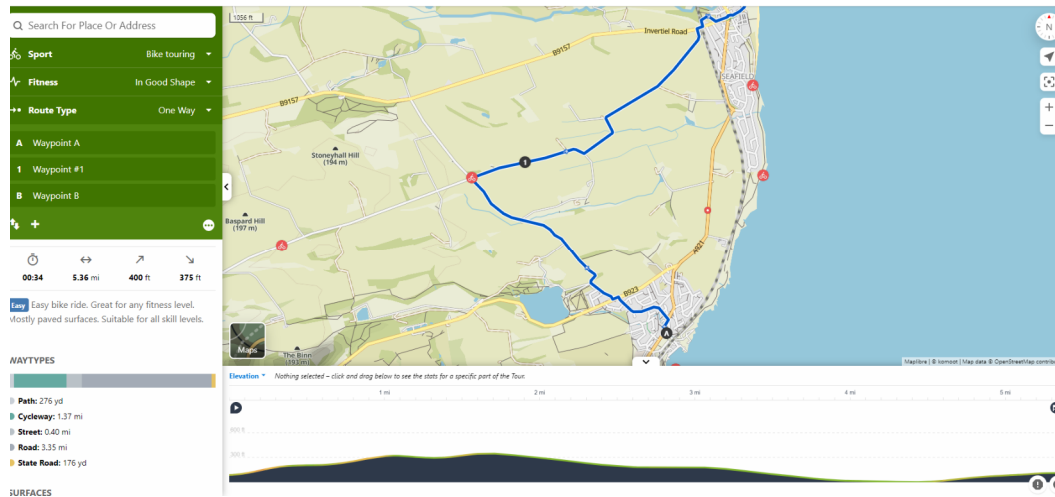
Route joins up with existing (newly built) shared-use path, which connects to Kirkcaldy Esplanade.

- A complex junction to negotiate where A921 meets B9157 (turning right as pictured).
- Talking the route along the east side would negate the need to cross this junction.
- Shortly after the junction, the route connects with a newly-built shared-use path and then onto the Esplanade.
- The Esplanade features an existing traffic free active travel corridor that runs parallel to the coastline.

Initial Observations

National Cycle Network Route 76

ARUP



NCN 76 route with elevation profile visualized beneath.



Narrow singletrack section towards Kinghorn.



Limited active travel/ vehicle passing places.

- The length of this section within the study area is almost entirely singletrack road. There are not many passing places.
- Going inland from Kinghorn, there is a relatively steep incline of around 100m, with gradients up to 7-8%. This may be off-putting to some potential users and is not in line with *Cycling by Design* standards.
- NCN Route 76 is both less direct and visible than a route along the A921.

Initial Observations

Fife Coastal Path

ARUP

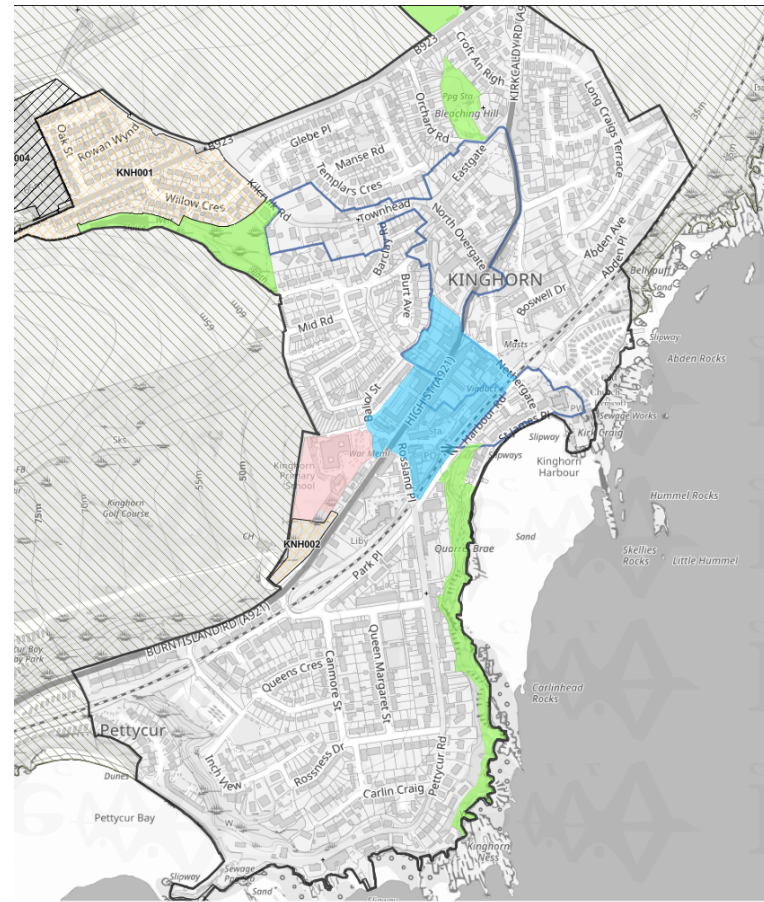
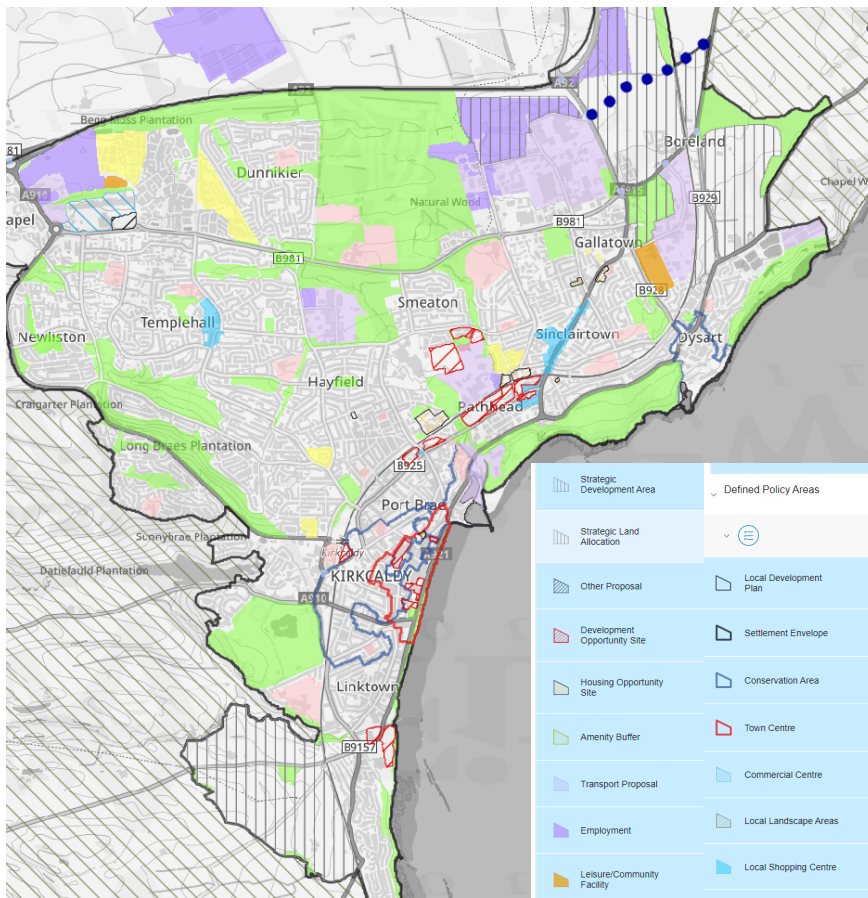


Section of the coastal path running alongside railway.

- The Fife Coastal Path is off-road and narrow in most places – with it being used mainly for recreational purposes by locals.
- Delivery of a high-quality active travel route on the coastal path is likely to require significant and costly works.
- Steps, gates and uneven surfaces would not be comfortable and attractive for all types of users.
- The coastal path is also not as visible as taking the route along a major road such as the A921.

Fife Local Development Plan (2017)

ARUP

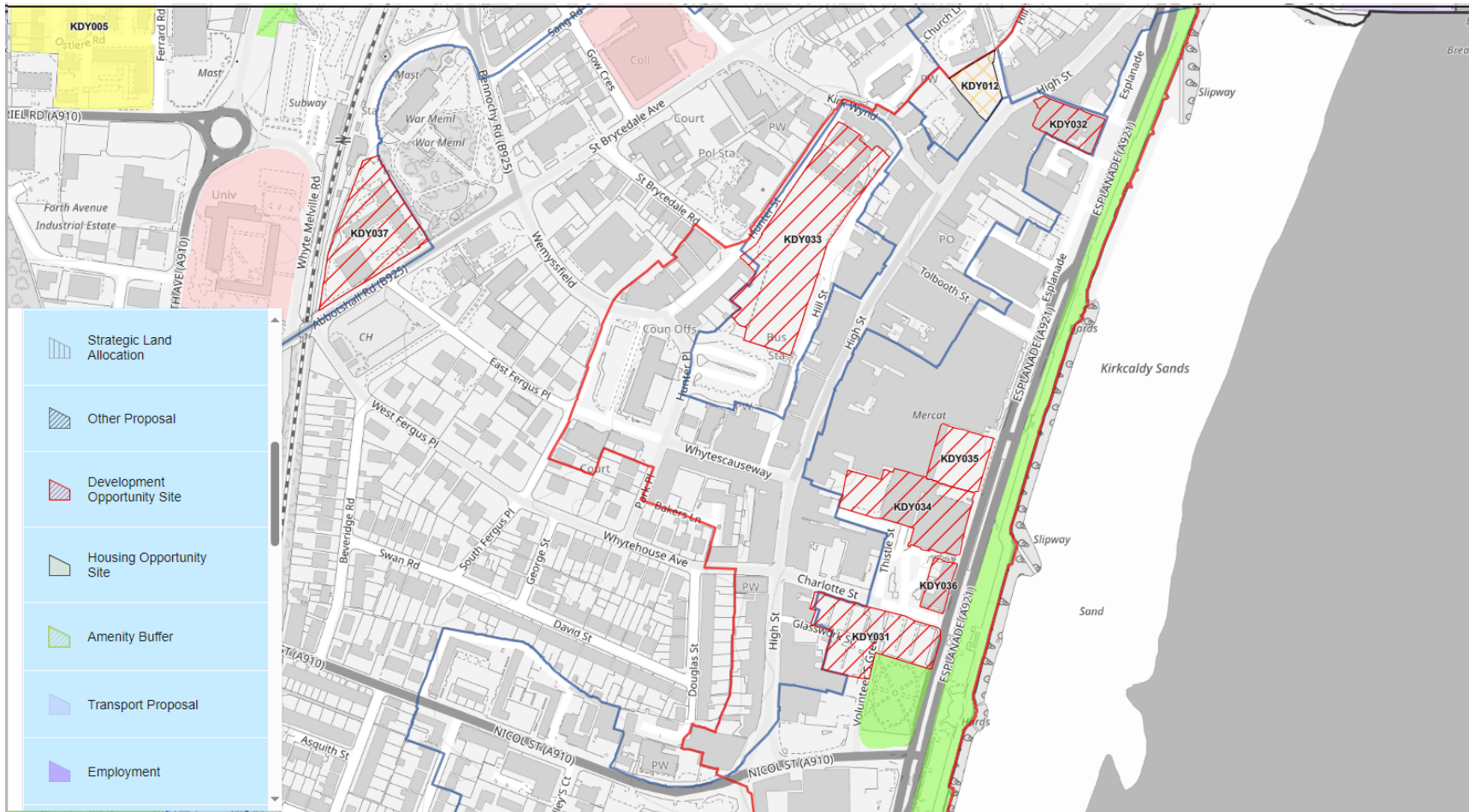


- Kirkcaldy town centre is outlined in red.
- Small development opportunities are located throughout Kirkcaldy.
- A housing opportunity is allocated within the LDP to the north-west of Kinghorn.

Policy

Fife Local Development Plan (2017): Kirkcaldy centre

ARUP

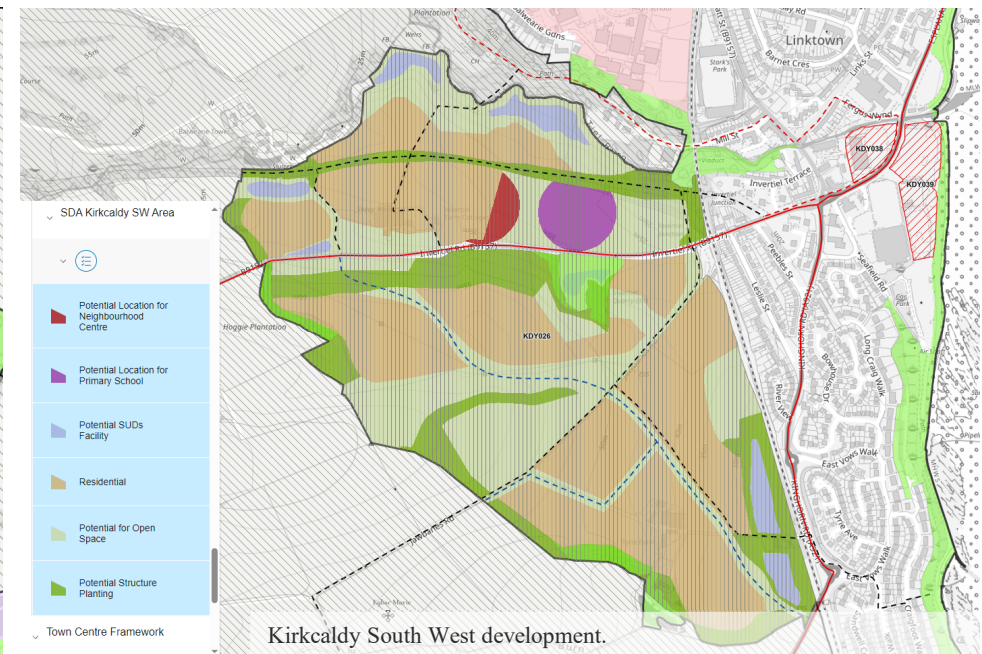
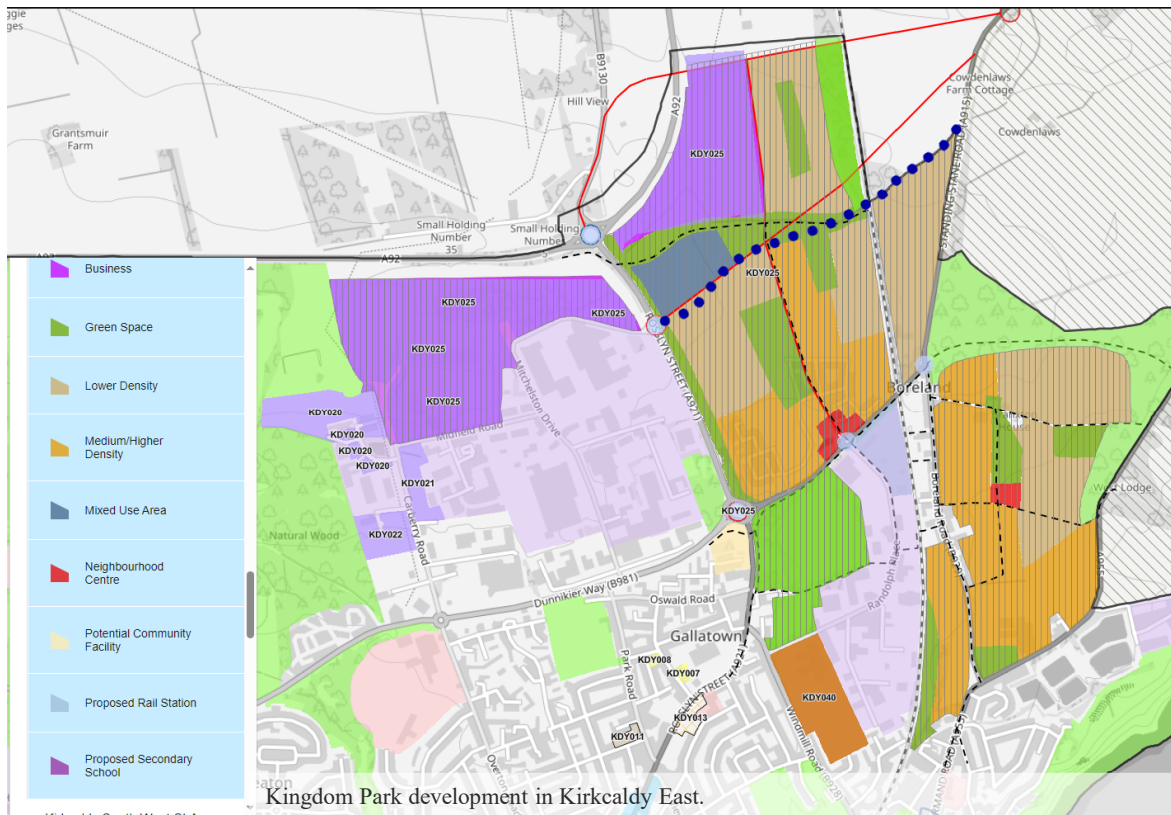


There are multiple small development opportunity sites that can be seen pictured shaded in red within Kirkcaldy centre.

Policy

Fife Local Development Plan (2017): key developments

ARUP



Two large developments around Kirkcaldy to consider:

- Kirkcaldy East: Kingdom Park, approx. 1000 housing units to be provided by 2028. The site will also feature a retail park.
- Kirkcaldy South West: The Initial application was back in 2010, and the site appears to still be inactive.

Baseline Data

ARUP

Census Scotland 2011- Method of Travel to Work

	Work or study 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
Kinghorn	10.56%	0.0%	8.16%	14.17%	0.3%	46.04%	5.04%	0.24%	0.54%	14.35%	0.6%
Kirkcaldy and Dysart	9.29%	0.02%	2.7%	9.41%	0.59%	46.81%	10.55%	0.19%	0.58%	19.09%	0.75%

Key headlines:

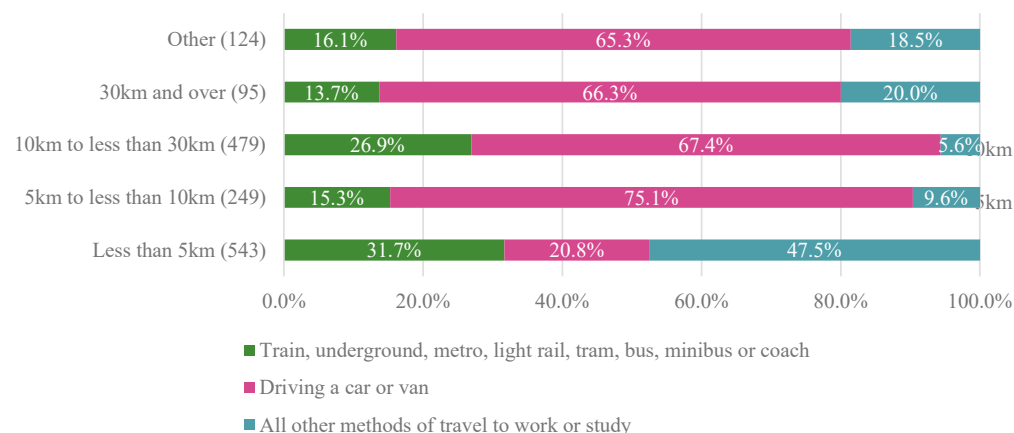
- Walking trips account for 14.4% of all work or study related journeys in Kinghorn and 19.2% in Kirkcaldy.
- Cycling mode share is very low in both settlements, at around 0.5%.
- There is a significantly higher rail mode share in Kinghorn (8.2%) than Kirkcaldy (2.7%). This is potentially due to the proximity of Kinghorn Railway Station in Kinghorn, alongside the proximity of employment destinations in Kirkcaldy town centre meaning that many Kirkcaldy residents do not need to travel by rail.
- Private vehicle mode share (driving and passenger) is higher in Kirkcaldy (57%) than Kinghorn (51%).
- The delivery of an active travel route between Kinghorn and Kirkcaldy has the potential to encourage modal shift away from private car– both for short trips, and longer trips which could be done as multi-modal trips (ie cycling to train stations).

Baseline Data

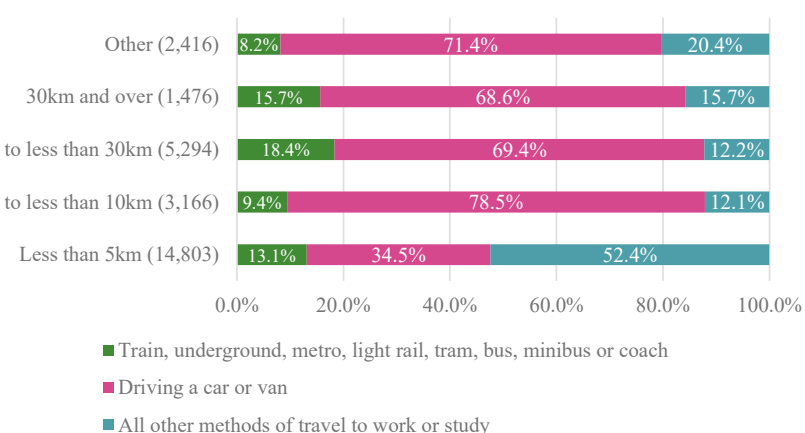
ARUP

Census Scotland 2011- Distance of Travel to Work by Mode

Distance of Travel to Work or Study - Kinghorn



Distance of Travel to Work or Study - Kirkcaldy



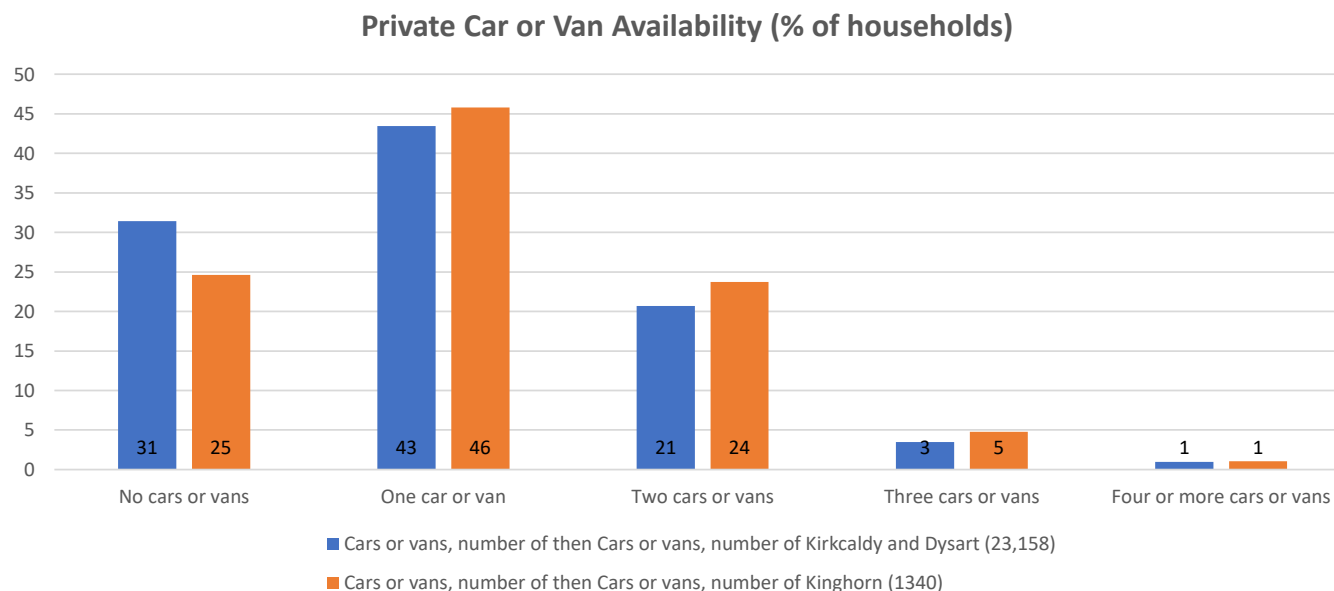
Key headlines:

- There is a high percentage of private vehicle journeys less than 5km in Kirkcaldy (35%) which is considerably higher than in Kinghorn (20%). These are journeys that could be undertaken via walking and/or cycling.
- Private vehicle journeys between 5km and 10km are both high in Kirkcaldy (78%) and Kinghorn (75%). These trips could also be undertaken by active modes, in particular cycling if high quality infrastructure was available.
- Public transport journeys in Kinghorn are greater than use of private vehicles for journeys of less than 5km (32%). This is likely due to residents utilising bus and train reach employment hubs in Kirkcaldy. This figure is much lower for Kirkcaldy, where only 13% use public transport for short journeys.
- There is private vehicle usage of 66-67% for both settlements at each distance, and public transport usage is around 15%. 27% of people in Kinghorn utilise public transport for 10-30km journeys however private vehicle trips for these distances remain high at 67%.
- A high-quality active travel route between Kinghorn and Kirkcaldy would help encourage more active travel particularly in these shorter journeys outlined above.

Baseline Data

Census Scotland 2011- Car or Van Availability

ARUP



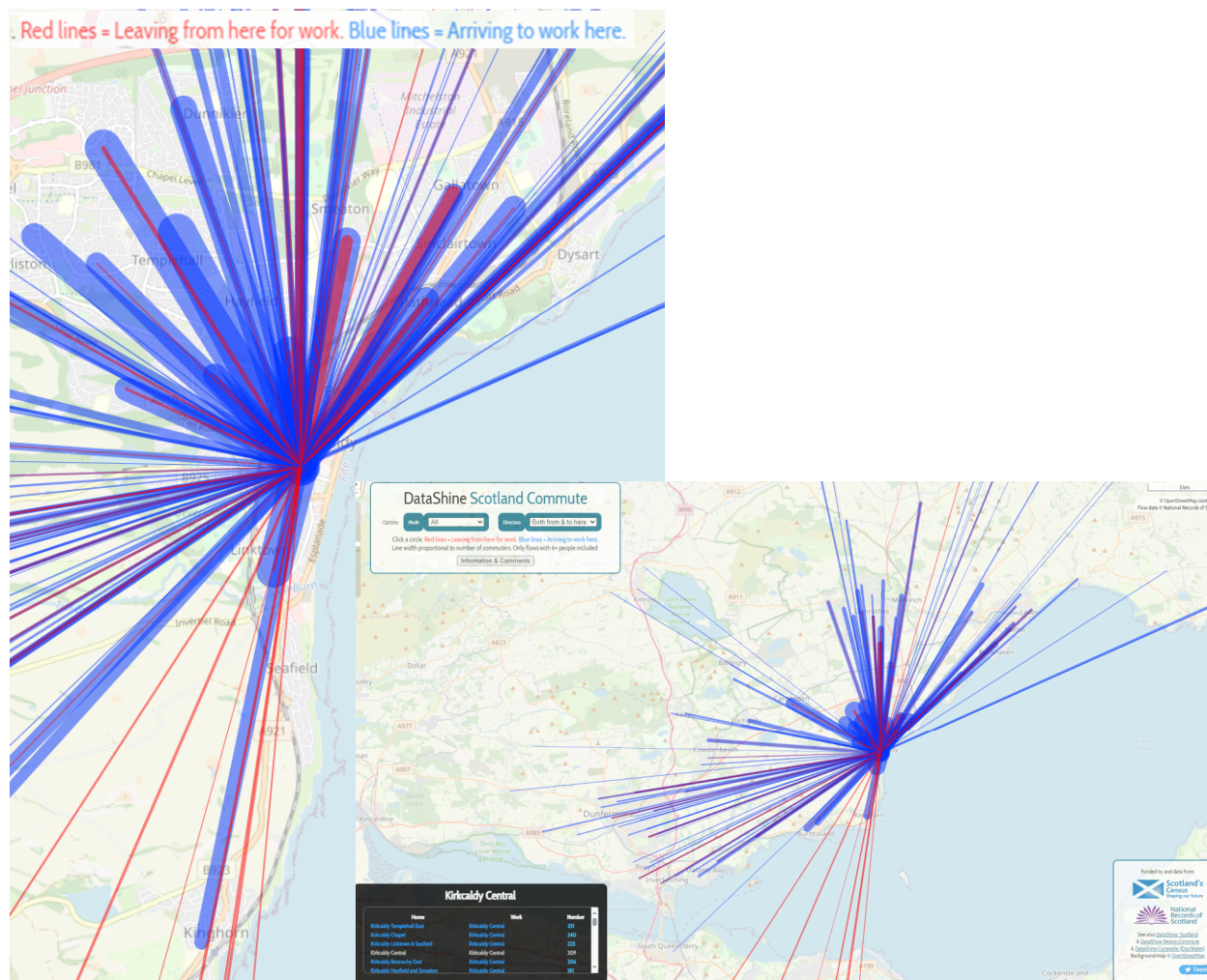
Key headlines:

- 32% of households in Kirkcaldy have no access to a private car, which emphasises the importance of the availability of alternative modes of transport such as walking, wheeling and cycling.
- 24% of households in Kinghorn have no access to a private car, despite the proximity of Kinghorn Railway Station. Car ownership is potentially higher in Kinghorn due to the higher percentage of residents who live further from their work. A high-quality active travel route that connects people to important destinations and transport hubs may help overcome the need to own a car for many residents.
- There is a relatively high percentage of households with access to two cars or vans in Kinghorn (23%) and Kirkcaldy (21%). This suggests that there is a reliance of private vehicle travel in both, and that alternative transport options should be provided to encourage more sustainable travel.
- The delivery of an active travel route between the Kinghorn and Kirkcaldy has the potential to encourage modal shift away from private car towards active and sustainable travel at both locations, especially given the high proportion of short journeys that occur.

Baseline Data

ARUP

Census Scotland Datashine Commute 2011- Kirkcaldy (all modes)



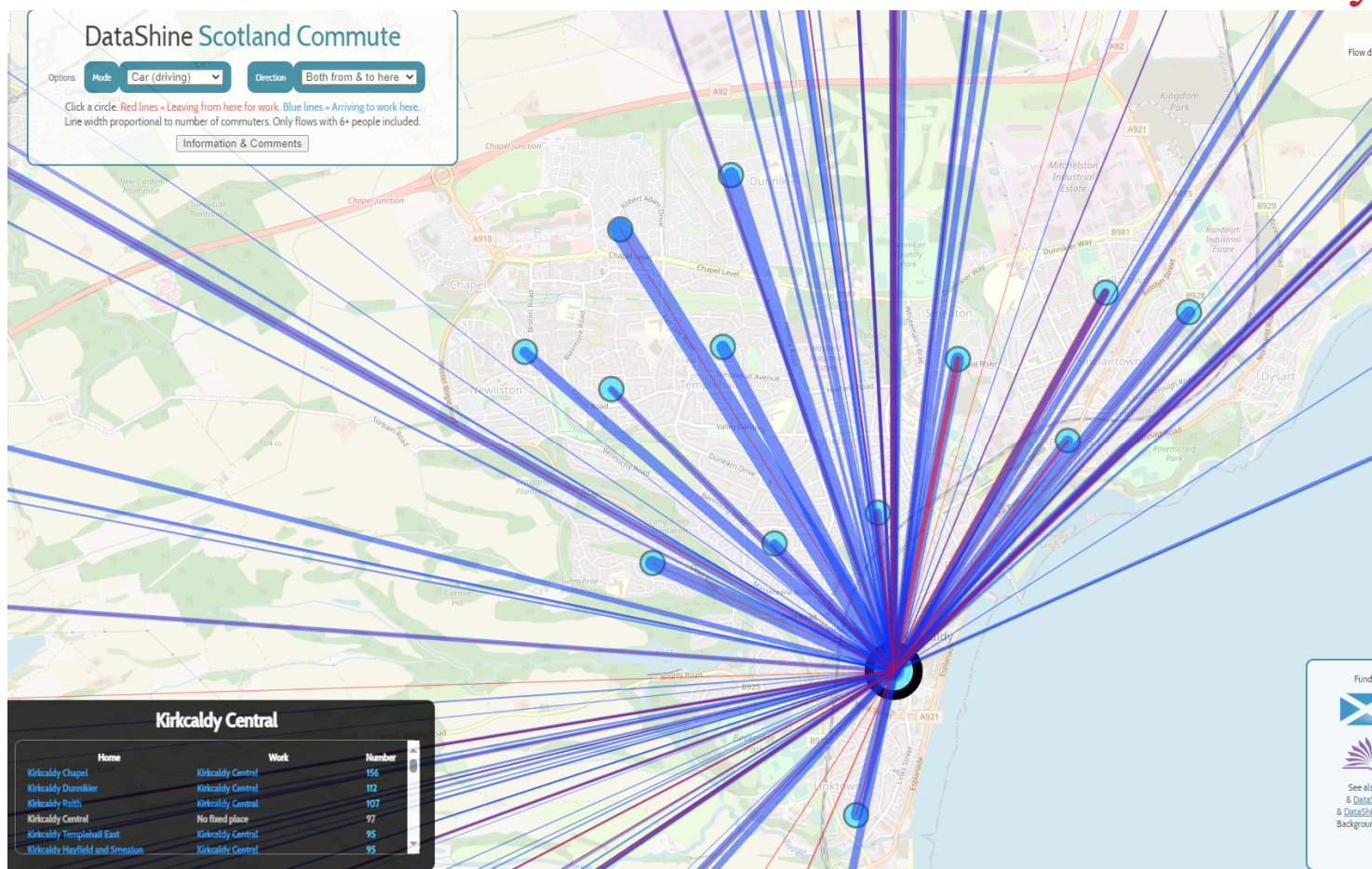
Kirkcaldy appears to be a significant employment destination, with the majority of people arriving to Kirkcaldy for employment from other locations (as shown in the blue lines).

Many of these are movements within Kirkcaldy but there are also a large number of incoming workers from other settlements such as Kinghorn, Cardenden and Glenrothes. This catchment extends across the whole of Fife, highlighting Kirkcaldy's regional status within Fife.

Baseline Data

Census Scotland Datashine Commute 2011- Kirkcaldy (car driving)

ARUP



Datashine shows that there is a significant amount of private vehicle movement between Kirkcaldy and Kinghorn. There are many journeys to Kirkcaldy centre made from other neighbourhoods within Kirkcaldy, as well as neighbouring settlements such as Dysart. Kirkcaldy is also a regional hub for employment, with journeys undertaken across Fife from areas such as Dunfermline, Glenrothes or Anstruther.

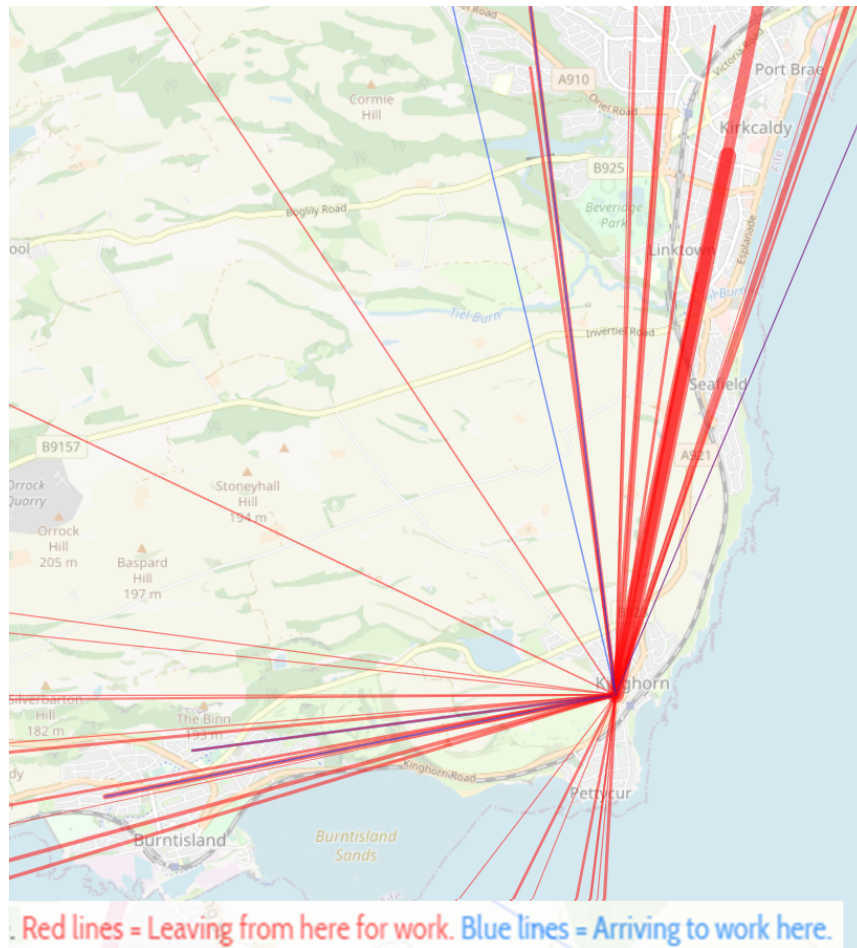
The most common destinations for residents of Kirkcaldy (other than Kirkcaldy itself) were Glenrothes and Dunfermline. These distances are likely too far to undertake by active travel, however a high-quality active travel route that connects residents to Kirkcaldy railway station would allow these destinations to be better accessed through multi-modal journeys.

Red lines = Leaving from here for work. Blue lines = Arriving to work here.

Baseline Data

Census Scotland Datashine Commute 2011- Kinghorn (all modes)

ARUP



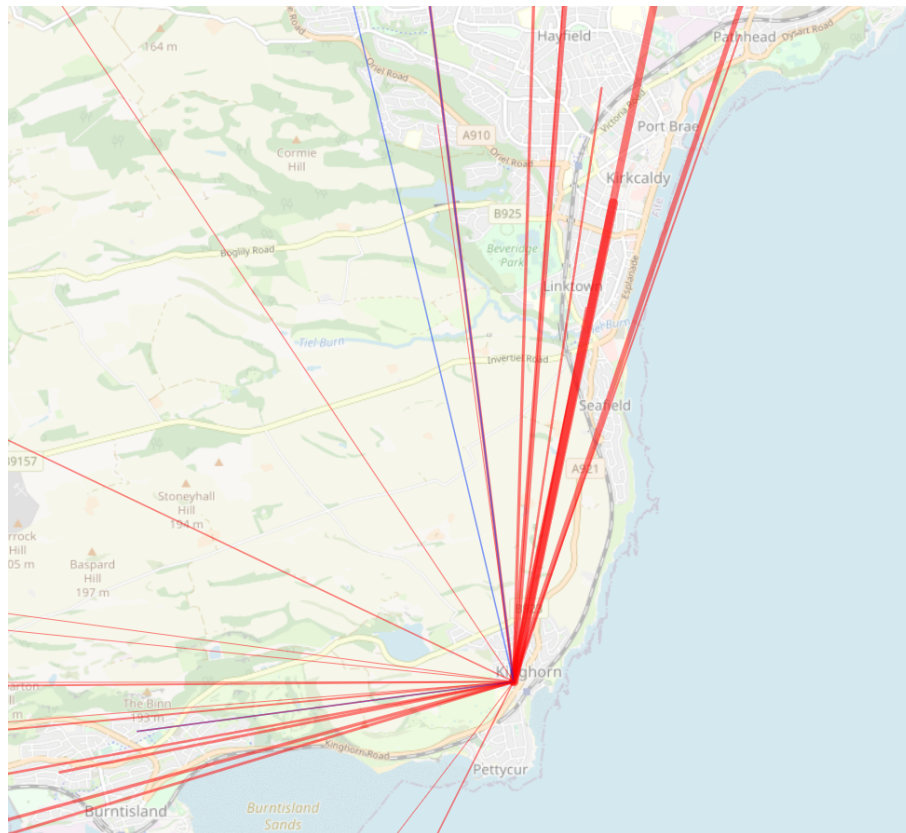
Kinghorn tends to be an origin for employment trips, which suggests it is a primarily residential location.

There is a significant amount of movement between Kinghorn and Kirkcaldy. Other destinations Kinghorn residents travel to for employment include Glenrothes and Burntisland, alongside regional destinations such as Dunfermline, Rosyth and onto Edinburgh. This emphasises the importance of active travel connections to bus facilities and Kinghorn railway station.

Baseline Data

ARUP

Census Scotland Datashine Commute 2011- Kinghorn (car driving)



The car driving Datashine for Kinghorn looks very similar to the map of all modes, indicating that trips by car represent the majority of trips from Kinghorn.

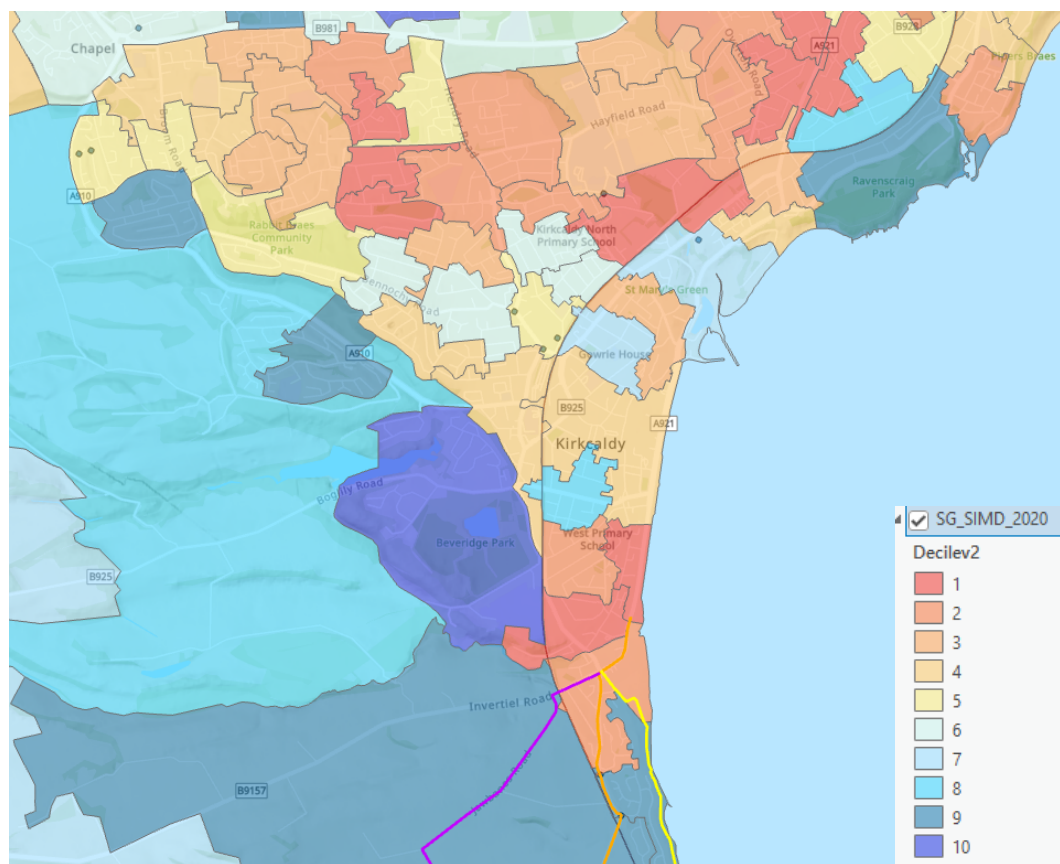
Kirkcaldy is the most popular destination for drivers leaving Kinghorn. Due to the short nature of this journey, a high quality active travel route could help encourage modal shift away from private vehicles to active modes.

Red lines = Leaving from here for work. Blue lines = Arriving to work here.

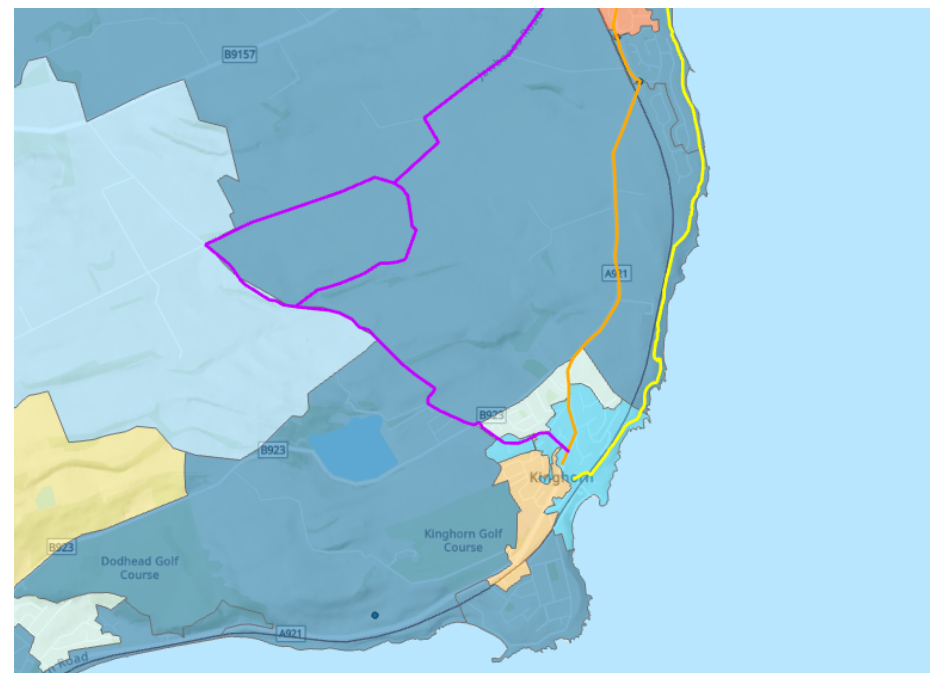
Baseline Data

Scottish Index of Multiple Deprivation 2020

ARUP



- SIMD 2020 show Kirkcaldy features relatively high amounts of deprivation (shown in red), with some more affluent neighbourhoods towards the west and north (blue).
- Kinghorn is more affluent in comparison however still features mixed scores around its centre.
- Deprived communities have the potential to benefit from better active travel facilities through improving access for these communities to important destinations, and also from a social/ leisure perspective.



Baseline Data

Road Adoption and Land Ownership Plans

ARUP

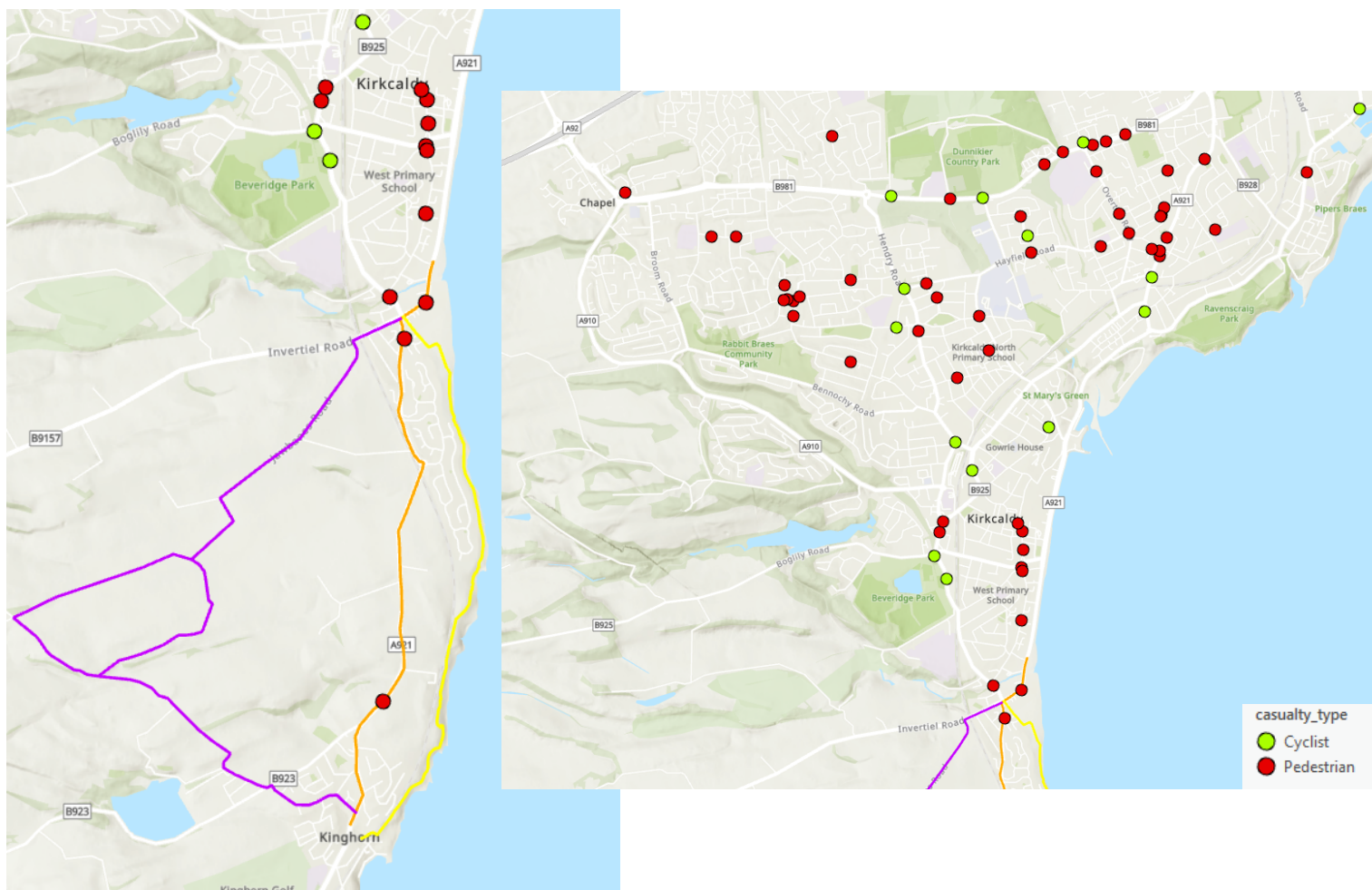


Road adoption plans have been extracted from Fife Council's webmap tool. Maps above show that key locations throughout the local road network have been adopted by the council.

Baseline Data

Collision Data (2017-2020)

ARUP



Key Headlines:

- There are a greater number of pedestrian incidents than cyclist incidents.
- There are a total of nine incidents recorded along the eastern/ coastal side of Kirkcaldy across these four years, all involving pedestrians (none involving cyclists). Most of these collisions were pedestrians attempting to cross the road, around half of them where no crossing facilities were present.
- There have been many more incidents in Kirkcaldy although most of these are away from the town centre.

Local Transport Projects

Burntisland to Kinghorn shared-use path

ARUP



The Burntisland to Kinghorn active travel route was completed in 2021. A continuation of active travel facilities from Kinghorn to Kirkcaldy would have the potential to create a longer distance active travel corridor.

Fife Transport Projects

Bus Partnership Fund- Fife Bus Partnership

ARUP



“The project aims to make the bus experience better in Fife, by making bus travel quicker and more reliable, and improving transport connections to jobs and other important destinations. This will help to reduce carbon emissions associated with transport to help address climate change by encouraging a change from car to bus. It will also encourage new people in our communities to consider using sustainable transport.” Fife Bus Partnership

Principal objectives:

- Reduced delays along bus routes meaning buses arrive on time.
- Improve access to bus by improving connections between bus services and other rail and active travel networks.
- Increase bus attractiveness by reducing journey times to key destinations.

The following routes are being investigated by the BPF:

- Glenrothes to Leven
- Cupar to **Kirkcaldy**
- St Andrews to **Kirkcaldy**
- Kincardine to Cowdenbeath
- Dunfermline to Ferrytoll

Appendix B

Engagement Log

Kinghorn to Kirkcaldy Active Travel Workshop
Tuesday 9th January 2024, Greener Kirkcaldy, Kirkcaldy (6pm-8pm)
Number of Attendees: 13

	Key facilities, Services and Trip Attractions	Barriers to walking, wheeling and cycling	Opportunities to improve walking, cycling and wheeling infrastructure
Responses	<p>Kinghorn doesn't have all the key facilities that people need for example, the closest high schools, hospitals, banks, many job opportunities, and college are all in Kirkcaldy.</p> <p>Other key destinations highlighted include:</p> <ul style="list-style-type: none"> - Seafeld Morrisons (the closest major supermakrket) - Kinghorn Loch - Pettycur Beach (Kinghorn) - Parks and Greenspace in Kirkcaldy 	<ul style="list-style-type: none"> •High traffic speeds •Lack of segregated infrastructure •Terrain •Dangerous to cycle •Spray off fast moving traffic was mentioned •Lack of access ramp at train station for bikes was mentioned •Seal colony at seafield discussed to keep in mind <p>There is no current suitable route: It was discussed all three of our existing route options, and why none of them are ideal:</p> <ul style="list-style-type: none"> •The group agreed that cycling on the A921 currently is a no-go. Many reasons are cited for this: it is hilly, narrow, with multiple blind corners. Some have even cycled on the pavement to get away from the traffic, however this is also too narrow and pavement swaps side of road multiple times. 50mph on top of all this makes the road too dangerous to cycle. •The hills on this route are not seen as 'too hard' by the group, if appropriate separation from traffic was provided. •Coastal path, whilst beautiful, is far from ideal. Many said they are not fit enough to deal with the inclines, and there are too many steps. Furthermore, the group agrees that with it being muddy, unlit and narrow makes this option far from ideal. •Majority of the attendees feel that it would be a shame for the coastal path black-topped and that this would take away from its natural feel. •One participant said she would usually take the NCN route – mentioned issues with landowner not liking people on the road. The hilliness and steep gradients in this option are described as major deterrents, particularly to non-cyclists who may not feel able enough to tackle this. •A further point that came up about the NCN was that it can be equally as dangerous as the A921. Although traffic volume is much lower, the road is still national speed limit, and cars often don't expect to encounter cyclists. 	<ul style="list-style-type: none"> •A high-quality active travel link would be a “game changer”. •One member suggests there is an option to use the fields to the left of the railway from Kinghorn to Tyrie Farm, then use final stretch of coastal path before joining up to the Esplanade. •People feel the parallel to the railway line option is flatter which is preferre •Participants also felt it is more pleasant being away from the road. •It was explained to the group that this idea is something that would be subject to land / topo surveys and land acquisition. <p>Smaller scale improvements were also discussed:</p> <ul style="list-style-type: none"> •Improve active travel connections to Kinghorn Primary School •Cycle parking – particularly supermarkets could benefit but people seem to think they are uninterested in this. •Clear marking and a simple design (Leith walk was discussed as an example what people don't want) •Horse riding around Kinghorn to be considered

Group	Date	Key facilities, Services and Trip Attractions	Barriers to walking, wheeling and cycling	Opportunities to improve walking, cycling and wheeling infrastructure
<p>Paths lead at Burntisland Community Council.</p> <p><i>*these notes were taken from a follow up email after the community engagement workshop</i></p>	13-Jan		<p>The wall is retaining in several places e.g. south west of the junction with Grange Farm lane Fields both sides of this lane are prone to waterfogging and flooding - on the north east side this forms a pool in the field but on the south west side the water pours out of or over the wall.</p> <p>These issues at Grange Farm lane make a full west side route challenging. Actually using this lane as part of the route would be attractive but this seems to have two issues: 1. permission from local homes that use the lane for access (including the farm), and 2. gradients up to its south end near the mast and old Craignacalt or the bungalow.</p> <p>An east side route seems therefore more attractive but there are issues here too: 1. reaching the railway bridge at the edge of Kirkcaldy, the pavement is on the west side and 2. access lanes to Linton Court and Seafield old farmhouse need crossed. This would be quite easy at Linton Court but not at Seafield House.</p> <p>Linton Court</p> <p>These homes are in the old Kirkcaldy Poor House (subsequently Abden Home care home). There is a level strip across the land between the gardens and the railway. This is largely derelict with some signs of horticulture at the north end. Whether local residents would agree to having their privacy impinged by a cycle way I'm not sure. It would however be possibly to cross the access lane at a point where the levels are easiest.</p> <p>Seafield House/Vicar's Grange</p> <p>There is a ruinous farm south east of Seafield House called Vicar's Grange. It has a green access lane from the A921. The farmer cuts across this between the settlements for field access. However, the old lane actually leads right up to the railway which runs in a cutting here and there used to be a railway bridge! I appreciate it might be costly and Network Rail might not give permission, but reinstating a bridge here would be a great way to link up with the Fife Coastal Path near Seafield! This would avoid the issues at the current railway bridge on the A921. Taking Craigfoot Walk to the north end there's a track that leads to the picnic area behind Morrisons supermarket. This ideally accesses Kirkcaldy prom.</p> <p>I doubt Seafield House owners would give permission to cut across their land and access driveway near to the A921.</p>	
Paths For All	26-Jan	N/A	N/A	<p>Fife Feasibility Study.</p> <p>Paths for All welcomes the opportunity to respond to this consultation. We do not have the local knowledge to comment on the detail of the proposals but would like to make some general points. We will limit these to aspects that have direct relevance to the work and objectives of Paths for All.</p> <p>We very much welcome the intention to provide increased opportunities for walking wheeling and cycling and links to public transport. Most trips by public transport include an element of walking or wheeling.</p> <p>The proposed Fife active travel routes are key parts of the proposed SEStran strategic network, and we welcome these proposals.</p> <p>It appears that the key trip origins and destinations across these locations are covered as part of these proposals.</p> <p>We do not have the local knowledge to be specific about any active travel facilities that should be included at locations.</p> <p>We do feel that high-quality walking, cycling and wheeling routes from Kinghorn to Kirkcaldy and from Cupar to Guardbridge would be beneficial to the area.</p>

1:1 Meetings

Group	Meeting Date/Time	Key facilities, Services and Trip Attractions	Barriers to walking, wheeling and cycling	Opportunities to improve walking, cycling and wheeling infrastructure	General Comments
Fife Council- Roads Network Team	11th January 2024, 3-4pm	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. •Kirkcaldy railway bridge- shared-use would be preferable at this location if this can be achieved. Other options discussed such as one lane with signals and build out may have a negative impact on traffic in the local area. •A921- this is a key local distributor road therefore road narrowing would not be preferred. There may also be some complexities related to drainage and public utilities.
Fife College Active and Sustainable Travel Coordinator	26th January 2024, 10-11am	<ul style="list-style-type: none"> •Fife College Kirkcaldy Campus •Public transport facilities such as Kinghorn and Kirkcaldy train stations and Kirkcaldy bus station •Fife Coastal Path •Kirkcaldy town centre •Burntisland and Kinghorn- many college staff and students travel from this location to Kirkcaldy. Many already cycle 	<ul style="list-style-type: none"> •Signage- currently poor in the area. Fife college currently working with Greener Kirkcaldy to improve this •Fife Coastal Path- currently too muddy for many people to cycle •Poor connections with public transport- challenge for employment areas that are isolated as many people are more likely to drive if not connected by public transport •Weather is often a major barrier and facilities should be provided to address this 	<ul style="list-style-type: none"> •People are more likely to cycle to Kirkcaldy campus than other Fife College campuses •People often already cycle from Burntisland and Kinghorn to Kirkcaldy, which shows the potential of this route •Opportunity to improve signage and have dedicated signage for specific routes. This could be through the use of colour coded signage and QR codes •There could be an opportunity for lockers and storage points along the route. Other ideas suggested included drying cabinets and maintenance pumps 	Happy to share findings from Fife College working groups in relation to travel. This is likely to take place in March.
Fife Coast and Countryside Trust	2nd February 2024, 10:30-11am	<ul style="list-style-type: none"> •Fife Coastal Path •Kinghorn Caravan Park •Seafield Beach 	<ul style="list-style-type: none"> •There are multiple issues on the Fife Coastal Path such as uneven terrain, steps and landslips, in particular at the Kinghorn side. The path does get slightly wider at the Seafield / Kirkcaldy side. •The path is good for walking and leisure cycling, some people currently cycle. However may not be suitable to delivery of a high quality facility and access for all. •Many people currently access Seafield beach via motorbikes, which may be more prevalent if the route uses the existing informal path that runs parallel to the coastal path. 	<ul style="list-style-type: none"> •A fence is currently being removed at Seafield beach to improve access for all at this location. •Taking the route via the informal path parallel to Seafield beach sounds like a positive idea. 	Fife Coast and Countryside Trust to check the land ownership of the informal path that runs parallel to the coastal path at seafield beach. They have been maintaining the area for around 20 years so colleagues are likely to have this information.

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		
search term	school	hospital	dentist	GP	healthcare	SUM	supermarket s	Morrison	SUM
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.

Kinghorn to Kirkcaldy

1.a. Do you feel that a high-quality walking, cycling and wheeling route from Kinghorn to Kirkcaldy would be beneficial to the local area?'

93% of respondents to the initial question, felt that an active travel route between Kinghorn and Kirkcaldy would be beneficial to the local area. This shows that the project has an excellent backing within the local community.

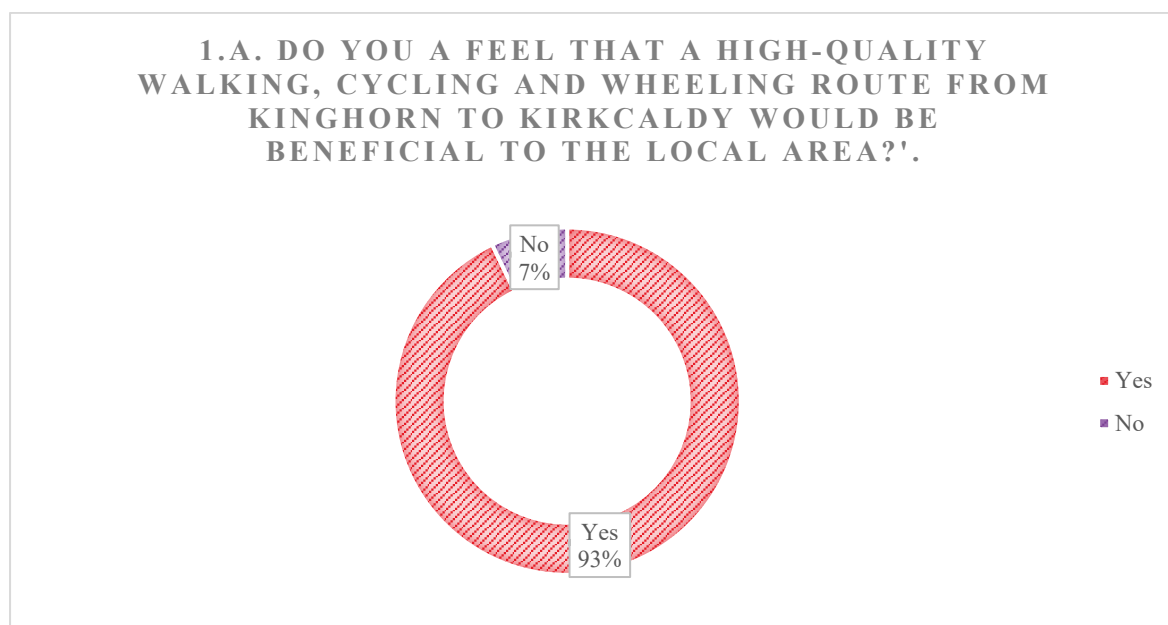


Figure 1: Would a high-quality active travel route from Kinghorn to Kirkcaldy would be beneficial to the local area?

Of the 7% who answered no, 43% of these responses mentioned how they felt the coastal path already existed as an adequate active travel option.

Key facilities & destinations

1.c. What are the key facilities and services within the Kinghorn and Kirkcaldy area?

Respondents to the Kinghorn to Kirkcaldy route VER provided a wide range of key facilities and service that are important to their day-to-day activities. A recurring theme was that **both Kinghorn and Burntisland**, as smaller villages, **are reliant on many of the services in Kirkcaldy**. Examples given were community services (such as banks, post offices and libraries), supermarkets, particularly the Morrisons in Kirkcaldy, and other retail sites. Balwearie High School was regularly mentioned, which although in Kirkcaldy, is the closest high school for residents of Kinghorn and Burntisland. Most of the key destinations cited were in Kirkcaldy. Residents of Kirkcaldy also travel to Kinghorn for some of its outdoor activities, such as its beaches, the Ecology Centre and Kinghorn Loch.

Figure 2 outlines the 12 themes for key facilities and destinations emerging from responses, and the share of respondents who discuss them.

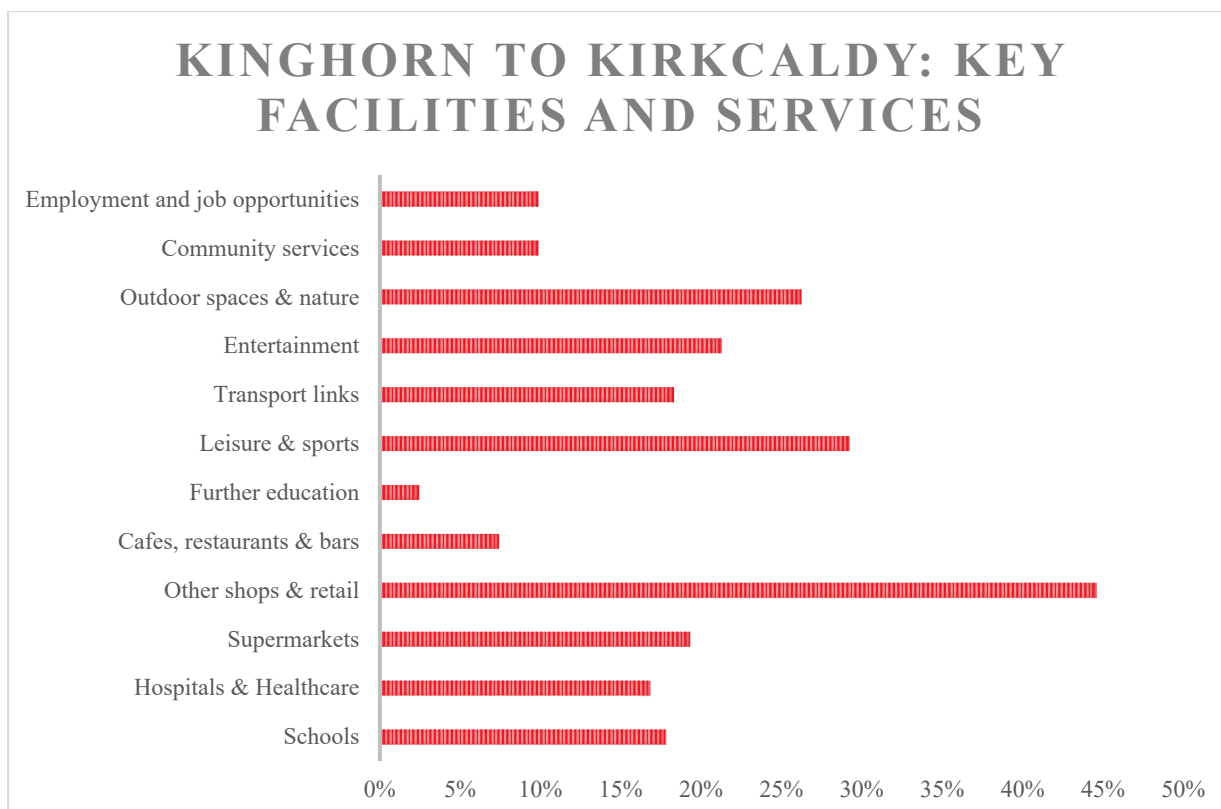


Figure 2: Thematic analysis of key facilities and services for the Kinghorn to Kirkcaldy route

Respondents' primary responses related to key facilities and services were shops and retail, which was mentioned by 45%. This emphasises the importance of providing a link from the route along Kirkcaldy Esplanade to the retail and commercial hubs in the town centre. This link would also improve transport links to the nearby bus and railway stations, which were both regularly cited destinations. Sports, leisure and outdoor spaces also received regular mentioning, with destinations cited in both Kirkcaldy and Kinghorn.

Barriers to walking wheeling and cycling

1.e. What are the current barriers for walking, wheeling or cycling between Kinghorn and Kirkcaldy?

From initial analysis of the responses, it is clear that the majority of locals feel that none of the three existing options present an adequate environment for active travel users.

Through a thematic analysis, a breakdown of key themes discussed by respondents, and their frequency, can be seen in **Figure 3**. The most frequently discussed topics typically were around the main road between Kinghorn to Kirkcaldy, the A921.

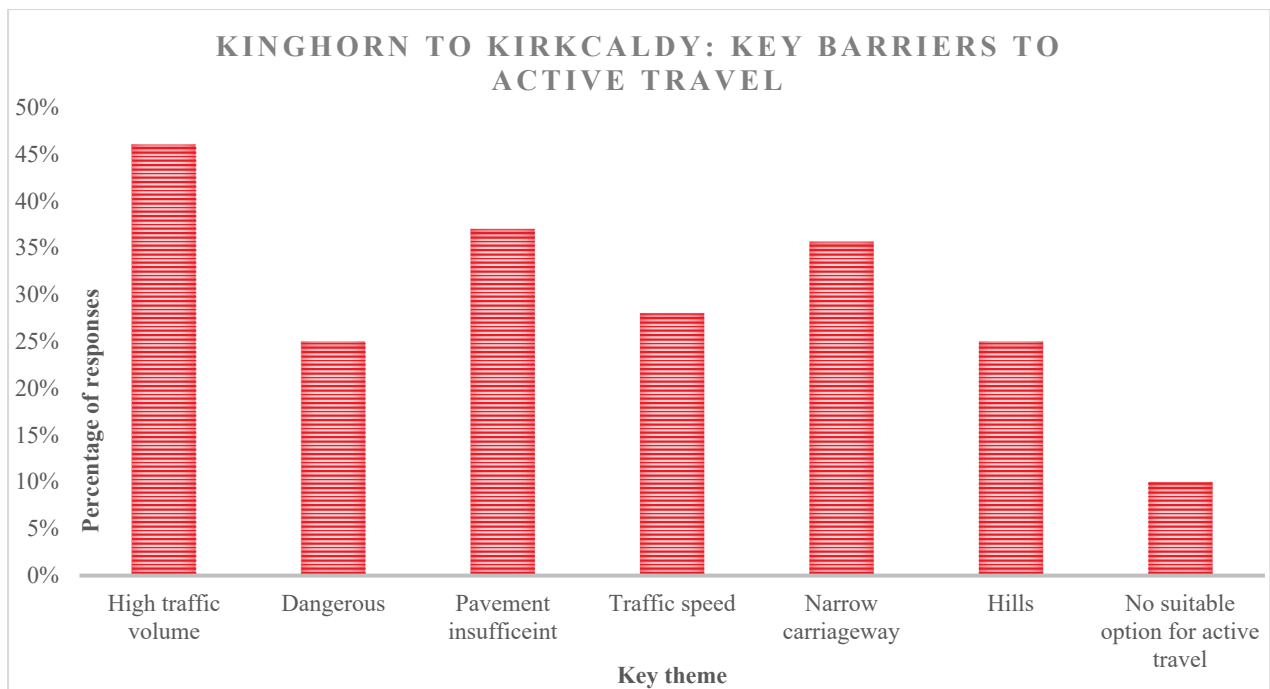


Figure 3: Thematic analysis of the primary barriers to active travel for the Kinghorn to Kirkcaldy route

The **very narrow carriageway**, as well as the **volume and speed of traffic** were some of the most common barriers cited by locals. This leads to an environment where active travel users feel uncomfortable, with traffic queueing back behind them, or drivers attempting to overtake dangerously on blind corners / summits. Furthermore, 37% also discussed the inadequacy of the existing footway along the A921, which crosses the 50mph road twice, presenting an unsafe environment for those walking and wheeling.

Overall **hilliness and steep gradients** was mentioned in 25% of responses, which is deemed to put off less frequent cycles and also cause queueing on busier stretches of road. This is referred to both about the A921, and also the NCN76, which locals feel is “too steep for most people”, or you “need to be a pro” to ride it.

In responses referring to the coastal path, the **width, frequency of steps, and the muddy, unsurfaced nature of the path** were the most frequently cited barriers. Approximately 30% of respondents mentioned that they felt the coastal path was unsuitable as a high-quality active travel route. It is clearly valued as a leisure and tourist route, however many feel it is not accessible for all user types.

Lack of lighting was cited in 7% of responses as a barrier to active travel – particularly for children coming home from school in the dark in winter months.

Active travel opportunities

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

From the thematic analysis of response data (**Figure 4**), the following themes were discussed most frequently for what types of active travel improvements people wanted to see.

- **A high-quality active travel route.** There is a clear desire for segregation from traffic. A key point here that was regularly cited, was the desire for a route that does not cross the carriageway. If any crossings were on the route, priority for active travel users at junctions was seen as beneficial.

- **Directness.** 15% of respondents state that they want a route that is direct, fast or continuous. In most cases, respondents feel that routing alongside the A921 is the best way to achieve this.
- **Lighting.** It is clear that lighting is a key priority for locals, who want a route that can be used year-round and at night. School children are often highlighted as a key reason why lighting is essential.
- **Accessibility and inclusion.** Accommodating wheelchairs and other users with restricted mobility and many responders mention how they hope any path is wide enough to accommodate multiple user groups.

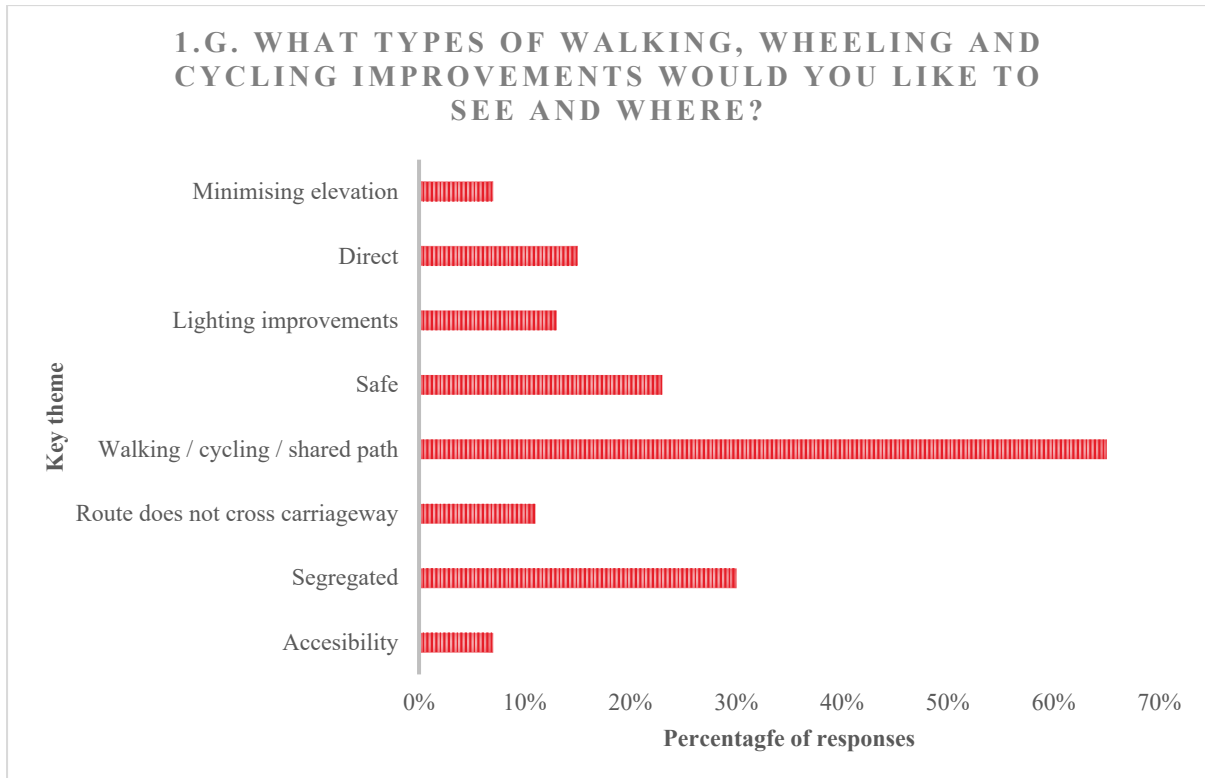


Figure 4: Thematic analysis of the active travel opportunities for the Kinghorn to Kirkcaldy route

The new shared-use facility between Burntisland and Kinghorn was regularly mentioned in responses to this question, and appears to be very popular. Many respondents outline that they would be pleased to see an extension of this style of shared path onwards to Kirkcaldy.

Additional responses include:

- Speed limit reduction,
- Minimising or avoiding hills on the route,
- Improving signage,
- Stopping points with views,
- A route that is well maintained through winter.

Responders were in agreement that **they did not want to see the coastal path converted to tarmac**, both understanding the cost that would be involved but more so outlining the value it brings at present as a natural trail for recreation.







Appendix D

Route Options Appraisal

SEStran Fife Feasibility Studies

Kinghorn to Kirkcaldy- 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	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.

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

Cycling by Design provides six core principles that contribute to the overall quality of cycling and active travel infrastructure. These can be seen pictured (see right), and outline the criteria 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 in addition to the CbD principles, which were:

- Cost effectiveness
- Deliverability

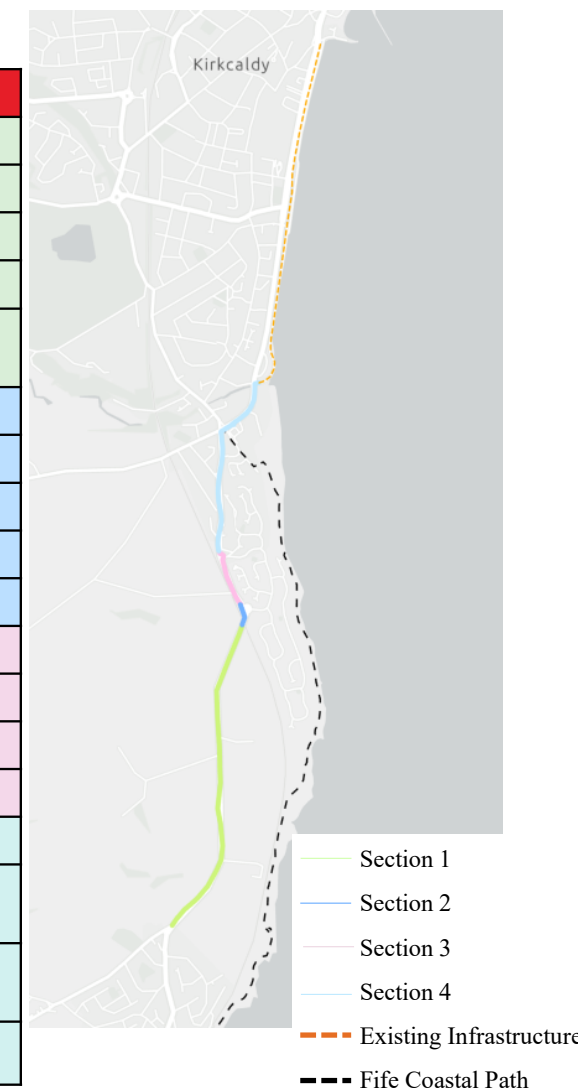
These additional criteria were agreed with Fife Council and SEStran.

Therefore, will be a total of eight factors that options will be scored upon, and a maximum possible score of 24.

It is considered that a preferred option should have a high LoS all of CbD's principles if possible.

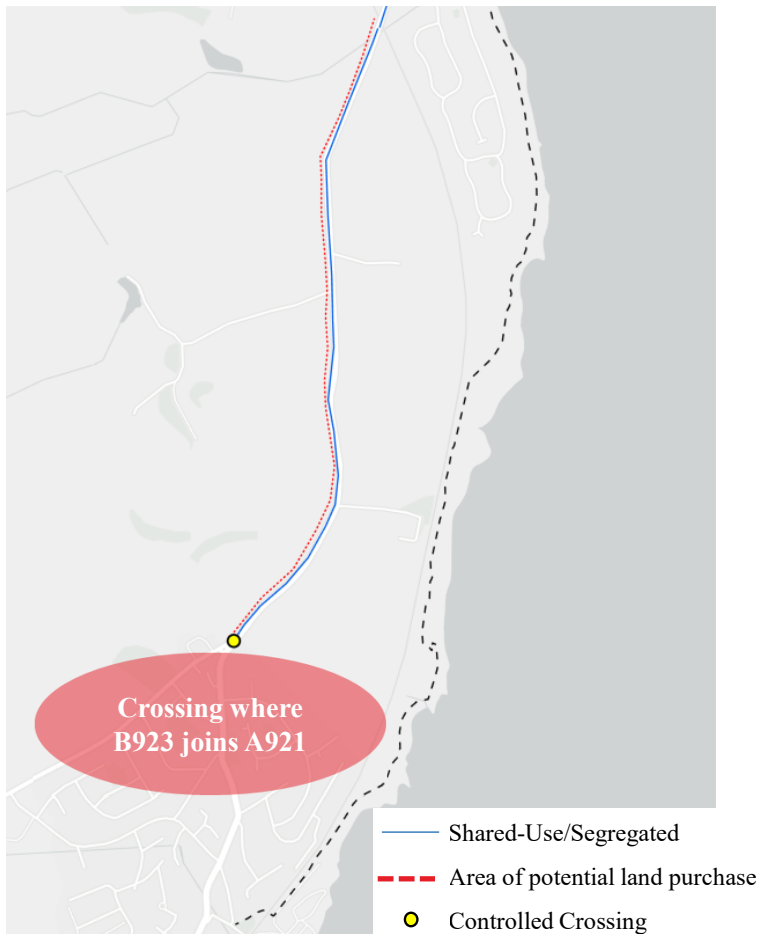
Route Options (A921)

Route Option	Description
<i>Section 1- Kinghorn</i>	
Option 1.1	High quality active travel facility along the west side of carriageway.
Option 1.2	Shared-use facility widening existing footways and maintaining and upgrading existing crossing points.
Option 1.3	Combination of high-quality active travel facility along the A921 and Fife Coastal Path, with a bridge to cross the railway line.
Option 1.4	High quality active travel facility along the west side of A921 before routing down Linton Court and then following west side of the railway line to the rail bridge.
<i>Section 2- Kirkcaldy Rail Bridge</i>	
Option 2.1	Shared use facility along the west of the carriageway, which is accommodated through narrowing the carriageway to 6.5m.
Option 2.2	Maintain current footway width, with minor improvements to correct visibility and sightlines.
Option 2.3	Build out into carriageway space and implement signal controls to manage traffic.
Option 2.4	Avoid rail bridge altogether by routing through Tyrie farm for approx. 150m adjacent to the railway.
<i>Section 3- Kirkcaldy (south)</i>	
Option 3.1	Segregated cycletrack / shared-use facility along the west side of the carriageway.
Option 3.2	Segregated cycletrack / shared-use facility along the east side of the carriageway.
Option 3.3	Mixed traffic street connecting to an existing informal footpath, which is to be resurfaced.
<i>Section 4- Kirkcaldy Esplanade</i>	
Option 4.1	Segregated cycletrack / shared-use facility along the west side of the carriageway, use existing toucan crossing at A921/ B9157 junction then shared-use facilities along the south-east of the carriageway.
Option 4.2	Segregated cycletrack / shared-use facility along the east side of the carriageway then utilise existing grass verge at the A921/ B9517 junction then shared-use facilities along the south-east of the carriageway.
Option 4.3	Mixed traffic street along Seafield Road avoiding complex junction altogether, rejoining the A921 route at Morrisons.



Section 1: Kinghorn and rural

Option 1.1 – Route along the West side of carriageway



Summary: High quality active travel infrastructure along the west side of carriageway. Due to the topography, this may need to be significantly offset from the road in places to maintain suitable gradients throughout.

Positives:

- This option brings complete separation from the carriageway.
- No crossing points are required along the rural section of the route.
- This is a direct route.

Observations:

- The 50mph speed limit means that a 2m buffer is required from traffic, based on Cycling by Design (CbD) guidance.
- Physical constraints mean that land purchase will be required (see map). Land purchase may also increase depending on gradients at certain locations, which is an unknown at this stage.
- The rural section of the route currently lacks any lighting.

Section 1: Kinghorn and rural

Option 1.2 – Maximise existing infrastructure / space and upgrade existing crossing points



Summary: Footway widening and upgrading existing crossing points. This would be predominantly following the west side of the carriageway, crossing to the east side for a short section between two access roads.

Positives:

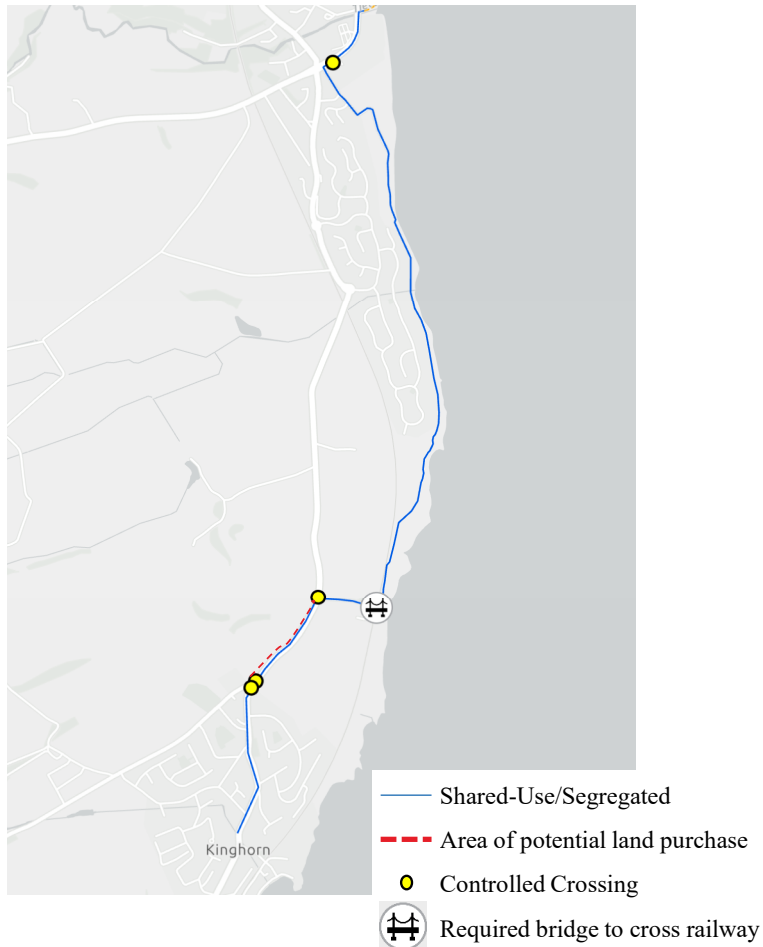
- Shared-use facility is considered appropriate at this location due to the rural nature of the route and number of estimated active travel users.
- The Sustrans Network Planning Tool findings indicates that a shared-use facility would be acceptable when referring to CbD guidance.
- Less land purchase may be required than options 1.1 and 1.3 by utilising the existing footway space to a greater extent.

Observations:

- Shared-use facilities may lead to conflicts between pedestrians, cyclists, wheelchair users etc.
- Multiple crossing points mean that the route is less direct and coherent for users.
- Controlled crossings on a 50mph road may not prove to be considered acceptable by Fife Council Roads Team.
- Where crossings are required, there must also be appropriate lighting and visibility. Lighting is currently not in place on this section of the route.
- If the speed limit remains at 50mph, a 2m buffer from the carriageway will be required.

Section 1: Kinghorn and rural

Option 1.3 – A921 / Coastal path combination



Summary: This option utilises the A921 for the initial section leaving Kinghorn, before crossing the railway line via an active travel bridge onto the Fife Coastal Path. The map image provides a vision for this option, and the exact details of this option would be considered during the concept design stage if this identified as the preferred option.

Positives:

- Avoids traffic for large sections of the route.
- Potential to upgrade an existing active travel route and combine utility and leisure journeys.

Observations:

- This option is off-road and may lead to replacing current areas of green space along the Fife Coastal Path with black-top.
- Accessibility for all users may be very difficult, therefore a significant amount of engineering and design works is likely to be required to achieve a high level of service, particularly along the coastal path.
- Delivery of an active travel bridge over the railway line is likely to bring high costs.
- Provision of lighting along the coastal path will create light pollution along the coastal path.
- This option will also require significant land purchase.
- Consultation/ buy-in will be required with the Fife Coast & Countryside Trust.

Section 1: Kinghorn and rural

Option 1.4 – Linton Court and west of the railway line



Summary: This option utilises the A921 for the initial section leaving Kinghorn, before utilising Linton Court. The route would then follow the west side of the railway line until it rejoins the road at the rail bridge.

Positives:

- Avoids traffic for large sections of the route.
- During the community workshop, locals felt that this option would avoid the hills along the main road and therefore provide a higher quality option for active travel users.
- Perceived flatter topography also cited as a positive by locals (should be investigated further when topographic data is collected).

Observations:

- This option is considered to be less visible than an option alongside the road.
- Physical constraints / topography are still an unknown at this point.
- Linton Court is not shown as adopted by Fife Council within Fife Council's road adoption webmap. This should be investigated further at the next stage of works.



Section 1

Option Appraisal Summary

Design Principle	Option 1.1	Option 1.2	Option 1.3	Option 1.4
Cycling by Design				
Safety	3	3	3	3
Coherence	3	2	1	3
Directness	3	2	2	3
Comfort	2	2	2	2
Attractiveness	3	2	2	3
Adaptability	2	2	1	2
General				
Cost effectiveness	1	1	1	1
Deliverability	2	2	1	2
Overall score	19	16	13	19

As can be seen from the adjacent table, **Option 1.1 and 1.4 score evenly at 19**. Whilst both of these are seen as high-quality options, further information is required before a decision on the preferred option can be made. As such, **both options will be progressed to the concept design stage**, and once information around a) Linton Court; and b) the topographic data for both options is available, an informed decision can be made on the preferred option. Both options would require significant land acquisition, and the direction may vary from the route depicted due to the topography.

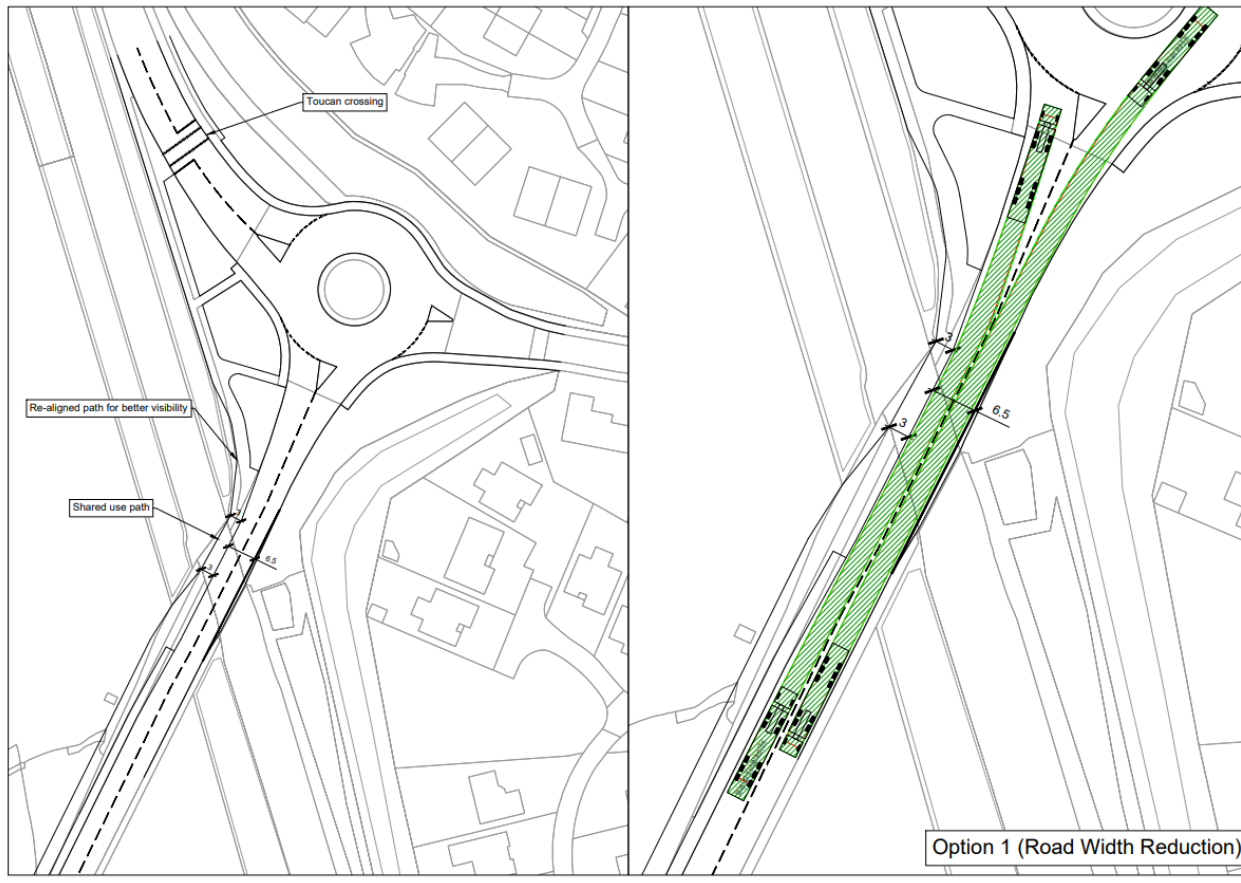
Although Option 1.2 may make better use of the existing footway space, land purchase is still required and therefore it does not outweigh the improved directness of Option 1.1.

The elevation gain (with some sections containing gradients outside of CbD's recommended range) leaving Kinghorn is responsible for the lowered comfort scores on all routes, even when fully segregated from traffic. Since all options require land acquisition, all options are scored low for cost effectiveness.

Option 1.3 is seen as more challenging than any of the other options, firstly due to the required railway crossing which vastly limits its deliverability. Furthermore, the physical constraints associated with the coastal path (steps and steep gradients) limits coherence, whilst there are also major negatives associated with constructing an active travel route through an existing natural area.

Section 2: Kirkcaldy rail bridge

Option 2.1 - Shared-use facility + upgrading existing crossing points



Summary: Shared use facility along the west side of the carriageway. Option 2.1 sees the route continue where the current footway is, expanding into the carriageway to achieve a suitable width of 3m. This would lead to a reduction in carriageway space to 6.5m.

Positives:

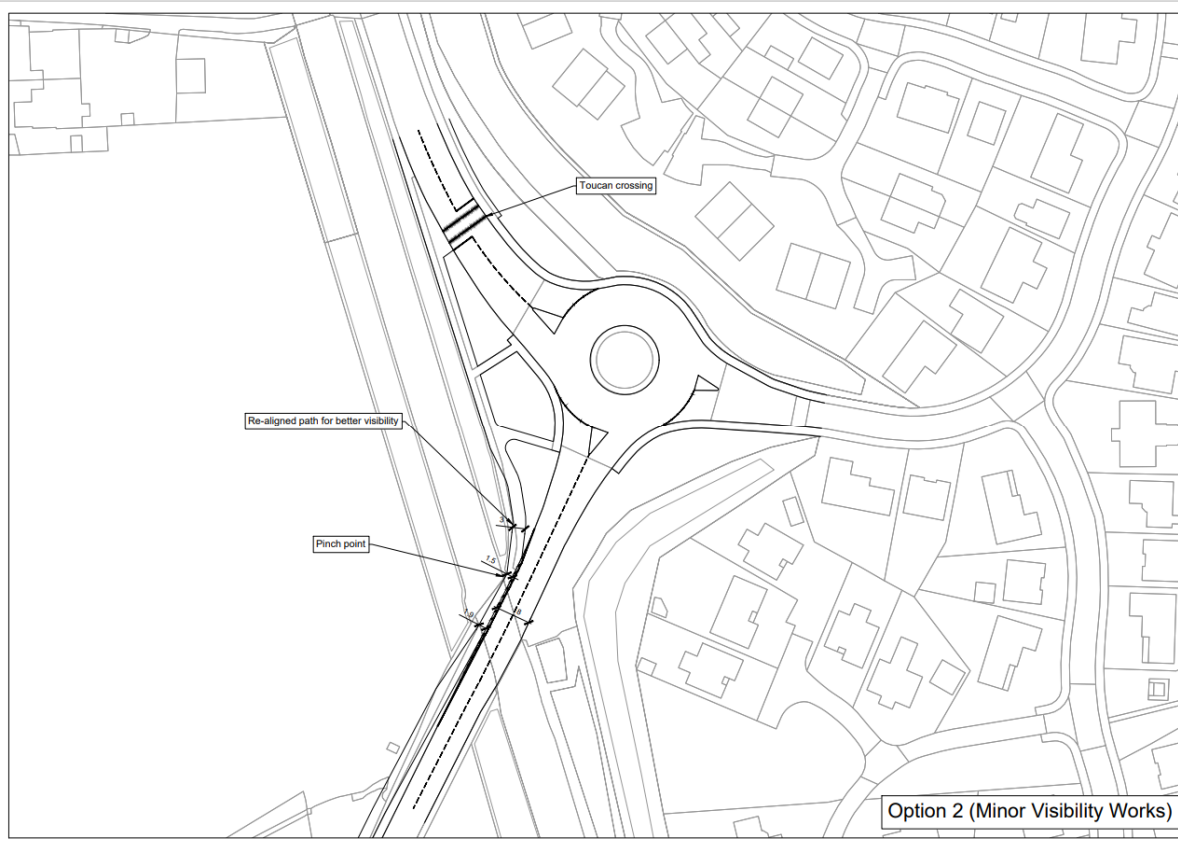
- This option achieves complete separation from traffic.
- This provides sufficient space for cycles coming in both directions.
- Narrowing the carriageway provides priority for active travel users, whilst still meeting Fife Council's absolute minimum carriageway width.
- Vehicle tracking (see left) shows that HGVs and buses can pass with ease.

Observations:

- This active travel is not considered to be compliant with CbD standards.
- Whilst this meets Fife Council's absolute minimum standards, the roads network team have a desired minimum width of 6.75m, particularly on distributor roads, to minimise impacts of roadworks and maintenance.

Section 2: Kirkcaldy rail bridge

Option 2.2 – Maintain existing footway with minor realignment works



Summary: Option 2.2 sees the route continue where the current footway is. Minor realignment works are proposed in this option to improve visibility, therefore this option is seen as the ‘do-minimum’ scenario, with no carriageway narrowing and minimal improvement works.

Positives:

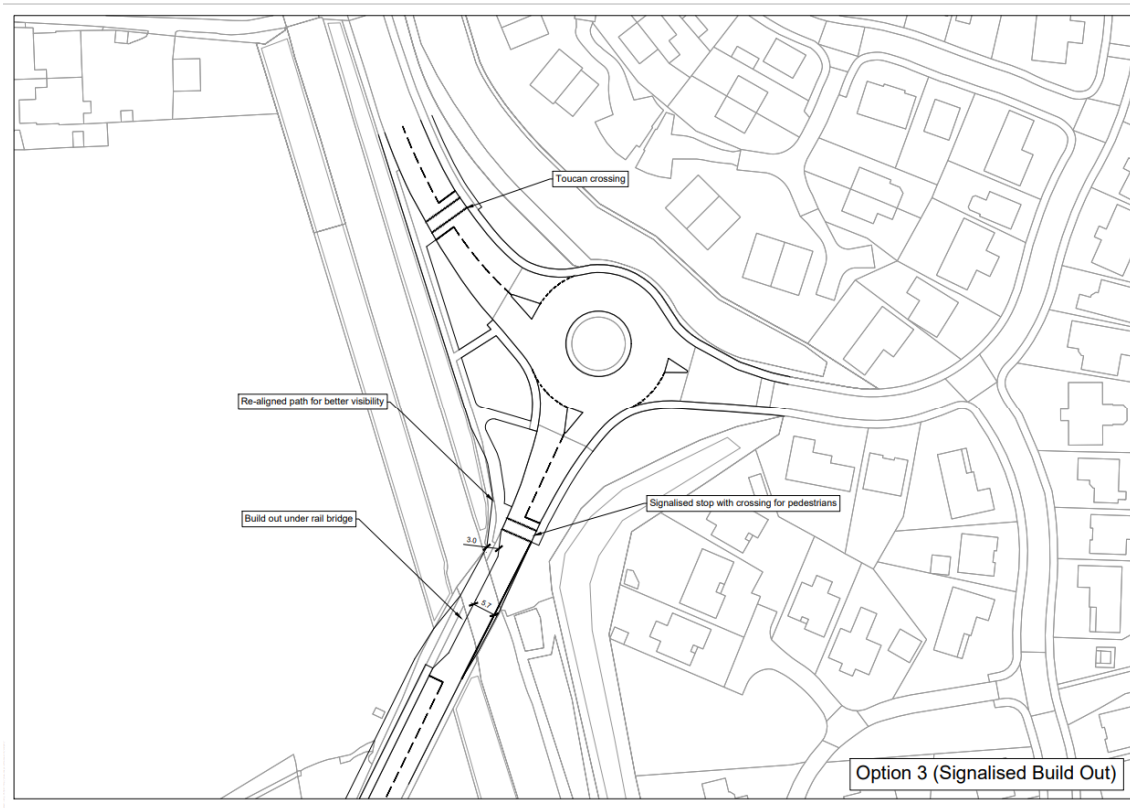
- Minimal work is required in relation to existing infrastructure, therefore is considered as a lower cost option.
- This option satisfies Fife Council’s desirable and absolute minimum width requirements.

Observations:

- Narrow active travel facilities leads to more potential for conflicts between pedestrians, cyclists, wheelchair users etc.
- Does not provide priority for active travel users.
- Below minimum CbD acceptable width for shared-use facilities therefore would deliver a medium-low level of service.
- There would also be a pinch point as the path continues after the railway bridge heading north.

Section 2: Kirkcaldy rail bridge

Option 2.3 – Cycletrack build out with signal controls



Summary: This option reduces carriageway to one-way traffic to accommodate delivery of a high-quality active travel facility. This option would be implemented through a build out under the rail bridge which would allow increased space for active travel users. Signal control will be implemented for road users.

Positives:

- Option 2.3 is a more ambitious option which prioritises active travel users and provides increase space for walking, wheeling and cycling.
- Signal controls would create a safer, more attractive environment for active travel users since adjacent traffic flow will only be in one direction.
- There would be complete separation from traffic.
- Provides sufficient space for active travel users in both directions.

Observations:

- There is the potential for impact of traffic flows and congestion. Signal controls could lead to traffic queues into the roundabout, or queues prior to the rail bridge extending into the 50mph section of road. Traffic modelling will be required to understand this impact further.
- Consultation/ buy-in will be required from the Fife Council Roads Team.

Section 2: Kirkcaldy rail bridge

Option 2.4 – Cycletrack adjacent to the railway track



Summary: Delivery of an active travel link along the west side of railway through existing farmland. The route would then join the A921 from an adjacent farm access road.

Another ambitious option is to route away from the bridge altogether, acquiring land from the Adjacent Tyrie Farm to create a cycle link. This would rejoin the carriageway after approximately 150m via the farm access road.

Positives:

- This option would remove the need to navigate the railway bridge.
- This option would be traffic free, completely away from the road.

Observations:

- This option is likely to be a high cost to avoid such as small section (approx. 10m) of narrow railway bridge.
- Land purchase will be required (see left).

Section 2

Option Appraisal Summary

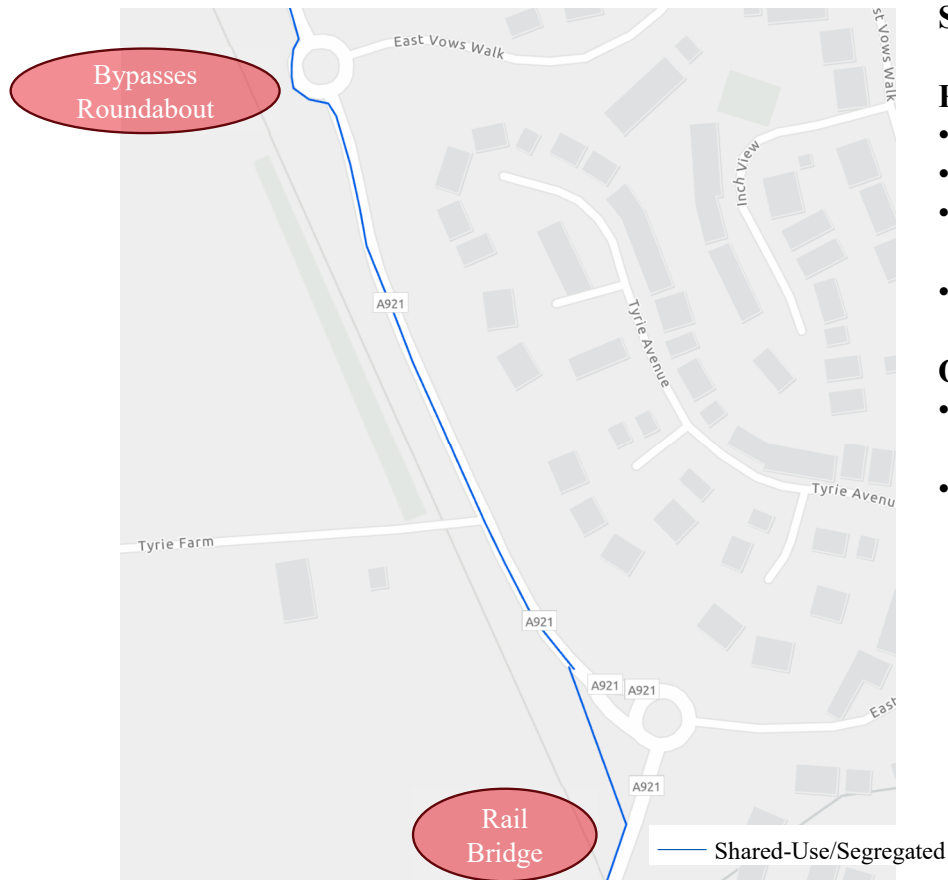
Design Principle	Option 2.1	Option 2.2	Option 2.3	Option 2.4
Cycling by Design				
Safety	2	1	3	3
Coherence	3	2	3	2
Directness	3	2	3	3
Comfort	3	1	3	3
Attractiveness	2	1	3	3
Adaptability	1	1	1	2
General				
Cost effectiveness	2	3	2	1
Deliverability	2	3	2	1
Overall score	18	14	20	18

Option 2.3 has been identified as the preferred option for Section 2. Option 2.2 scored lower since the footway width is less than CbD minimum recommended. Both options 2.1 and 2.3 repurpose the existing carriageway to provide more space for active travel users, therefore scoring highly for most CbD principles. Option 2.4 is seen as providing a similarly high level of service as options 2.1 and 2.3, however is considered less deliverable and cost effective.

Option 2.3 is preferred over Option 2.1 since it provides **a safer and more attractive option for active travel users**, as a result of the build-out and signal controls. Progression of this option would be subject to traffic modelling and consultation/ buy-in with the Fife Council roads team.

Section 3: Kirkcaldy (south)

Option 3.1 – Route along the West side of the carriageway



Summary: High quality active travel infrastructure along the west side of the carriageway.

Positives:

- More direct as there would be no roundabout crossings required.
- Potential to utilise existing footway and verge space to the north of the railway bridge.
- There may be potential to utilise existing carriageway space due to the width of the carriageway.
- 30mph speed limit means that only a minimal buffer of 0.5m is required.

Observations:

- Potential physical constraints associated with the railway line means there is limited space to expand outward.
- If utilising carriageway space, discussions with Fife Council roads team will be required.



Section 3: Kirkcaldy (south)

Option 3.2 – Route along the east side of the carriageway



Summary: High quality active travel infrastructure along the east side of the carriageway with toucan crossings at the A921 (north of the roundabout) and East Vows Walk.

Positives:

- Avoids potential physical constraints associated with the railway line.
- Large grass verge that could be utilised.
- 30mph speed limit means only a minimal buffer of 0.5m is required.
- CbD suggests repurposing existing carriageway space should be prioritised over utilising verge space, which is likely to be possible at this location.

Negatives:

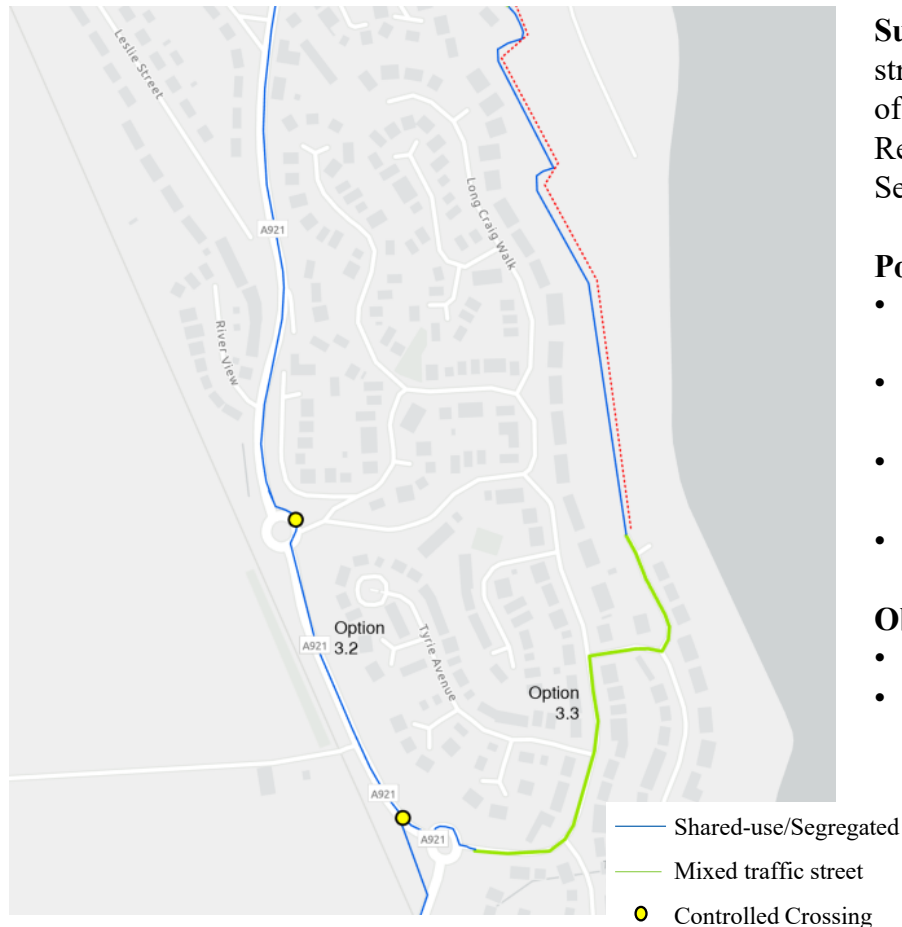
- Multiple crossings are required therefore this option will be less direct.
- Potential adverse drainage effects or biodiversity reduction if the grass verge (see below) is utilised.
- If utilising carriageway space, discussions with Fife Council roads team will be required.



Large grass verge along east side of the carriageway

Section 3: Kirkcaldy (south)

Option 3.3 – Existing footway resurfacing + mixed traffic streets



Summary: The proposed route would follow East Vows Walk / Craigfoot Place as a mixed traffic street. An existing informal footpath (separate to the coastal path) is present connecting the end of Craigfoot Place with Seafield Road, which provides both a traffic free and direct link. Resurfacing works are proposed here to achieve CbD standard. The route would then connect to Seafield Road to join Option 4.3 in Section 4.

Positives:

- Connects the route with the coast, which is considered as desirable due to the results from the engagement
- This option would not impede with the existing coastal path, which would prove unpopular with locals.
- The traffic-free section of this option would provide a safe and attractive experience for active travel users.
- This is likely a more cost-effective option than the options proposed adjacent to the A921.

Observations:

- This option is less visible than an option alongside the road.
- May be difficult to light the section near the coast due to potential biodiversity impacts.

Section 3

Option Appraisal Summary

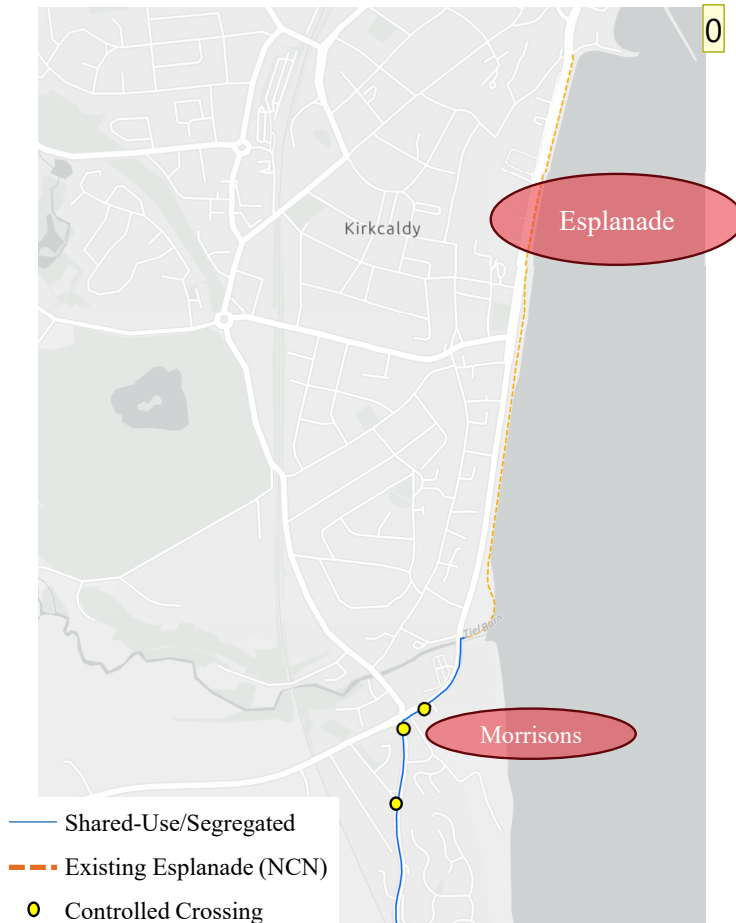
Design Principle	Option 3.1	Option 3.2	Option 3.3
Cycling by Design			
Safety	2	3	3
Coherence	3	3	3
Directness	3	3	3
Comfort	2	3	3
Attractiveness	3	3	3
Adaptability	2	2	2
General			
Cost effectiveness	2	2	3
Deliverability	2	2	2
Overall score	19	21	22

Options 3.2 and 3.3 emerged as the highest scoring options in Section 3. Whilst both Options 3.2 and 3.3 were seen as providing an equally high level of service to active travel users, Option 3.3 is deemed more cost-effective.

Both options 3.2 and 3.3 are considered viable but require further information on key factors influencing their delivery, such as utilities and land ownership, before a preferred option can be selected. The utilities running beneath the A921 mean it is unknown whether significant carriageway works will be possible in this location. **Both options 3.2 and 3.3 will be progressed to the concept design stage** and once further information becomes available, a decision will be made on the preferred option.

Section 4: Kirkcaldy Esplanade

Option 4.1 – Route along the west side of the carriageway



Summary: High quality active travel route along the west side of the carriageway. Option 4.1 would likely be combined with Option 3.1.

Positives:

- Wide carriageway and surrounding space (eg verge space, central hatchings etc) should allow for flexibility in development of the route.
- 30mph speed limit means only a minimal buffer of 0.5m is required.

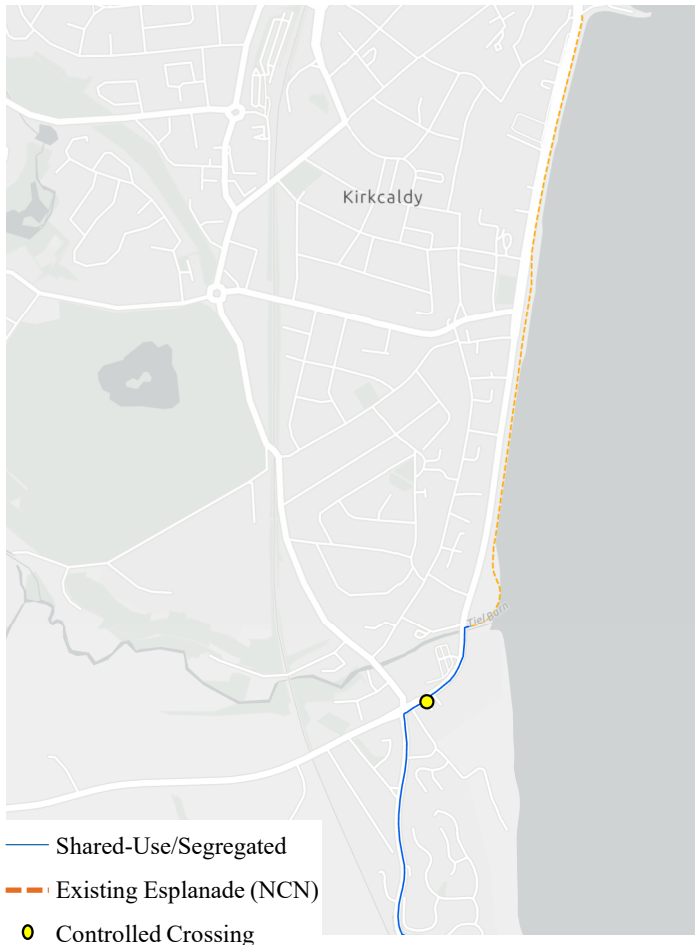
Negatives:

- This option requires multiple crossing points adjacent to the A921/ B9157 junction.
- If on-street parking removal is required, this may not prove popular with stakeholders and the public and may contradict Fife Council parking guidance. Discussions with Fife Council roads team would be required in this case.



Section 4: Kirkcaldy roundabouts to Morrisons

Option 4.2 – Route along the east side of the carriageway



Summary: Route to continue along the east side of the carriageway. Option 4.2 would likely be combined with option 3.2.

Positives:

- Wide carriageway and surrounding space (eg central hatching, verge etc) should allow for flexibility in development of the route.
- 30mph speed limit means only a minimal buffer of 0.5m is required.
- This option limits the need for multiple crossing facilities adjacent to the A921/ B9157 junction.

Negatives:

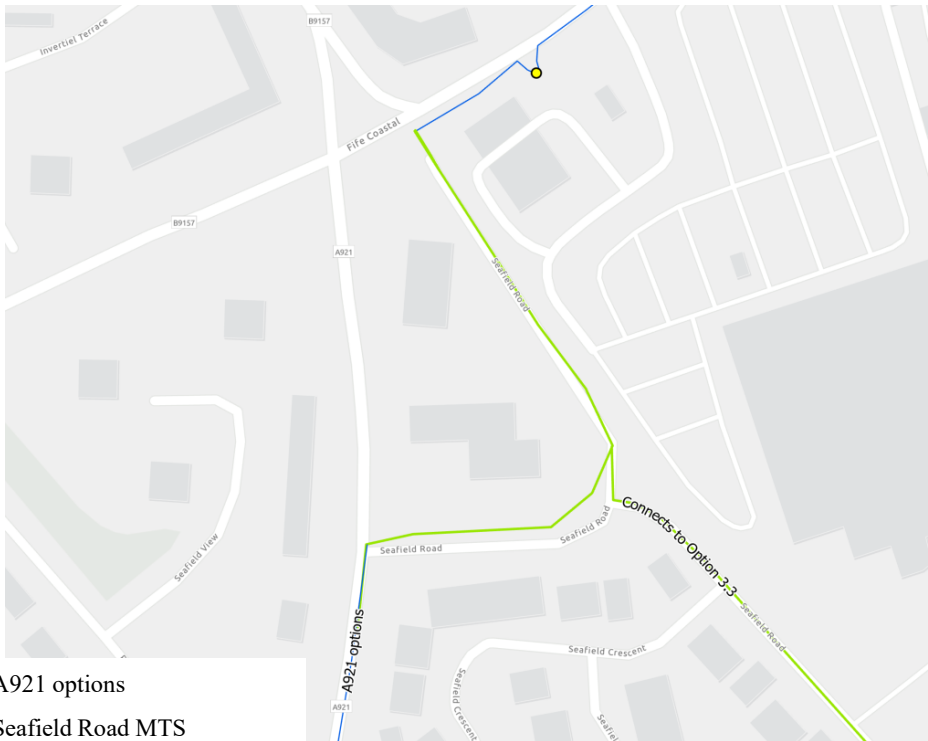
- Interaction will still be required with the A921/ B9157 junction.
- If required, removal of on-street parking may not prove popular with stakeholders and the public and may contradict Fife Council parking guidance. In this case, engagement with Fife Council roads team would be required.



Options 4.1 and 4.2 both present opportunity for carriageway narrowing

Section 4: Kirkcaldy roundabouts to Morrisons

Option 4.3 – Seafield Road



Summary: This option will continue along A921 then utilise Seafield Road. The route will then re-join the A921 and continue north towards the esplanade. Seafield Road has potential to be a mixed traffic street, with the speed limit currently at 20mph.

Positives:

- This option avoids the complexities of the B9157 and A921 junction.
- Mixed traffic street presents a cost-effective option whilst still providing a high level of service.

Negatives:

- If shared-use was the preferred option, the route may conflict with land owned by Morrisons. Engagement may be required with Fife Council estates team to confirm the land owned by Morrisons.

Section 4

Option Appraisal Summary

Design Principle	Option 4.1	Option 4.2	Option 4.3
Cycling by Design			
Safety	3	3	3
Coherence	2	3	2
Directness	2	3	3
Comfort	2	2	3
Attractiveness	2	2	3
Adaptability	2	2	2
General			
Cost effectiveness	2	2	3
Deliverability	2	2	2
Overall score	17	19	21

Option 4.3 emerged as the preferred option for Section 4 (the exact form will depend on the preferred option in Section 3), primarily due to avoiding the A921/B9157 junction, whilst also presenting a deliverable and cost-effective option. Both Option 4.1 and 4.2 scored lower due to the lesser attractiveness of routing next to this busy junction, whilst also potentially requiring removal of on-street parking.

Section 4 continued

Esplanade, Kirkcaldy centre links and future opportunities



- Kirkcaldy town centre outline
- Existing infrastructure
- Potential link

The route is envisaged to continue along the Esplanade for the length of Kirkcaldy. Other options within this stretch of Kirkcaldy may be possible, however the Esplanade is a pre-existing, direct corridor which has the potential to provide onward connectivity to the town centre.

Transport connections

- Connections between the Esplanade and Kirkcaldy bus and railway stations could still be further explored. There is an existing shared-use path between the two stations therefore only a short link would be required to connect the bus station to the Esplanade.
- ScotRail's *Sustainable Travel to Stations* publication is a useful resource, whilst funding may be available for quick wins that can encourage an increase in multi-modal journeys.

Maintenance

- It was noted during the site visit that the Esplanade path would benefit from increased maintenance, with a build-up of sand and seaweed observed, likely because of recent high-tide events.
- It is important that infrastructure is maintained to a high standard to develop a high-quality active travel route that is useable all-year-round.

Future Opportunities

- The Esplanade presents a good opportunity for placemaking on the scenic waterfront and this should be further explored.
- The route also presents ample opportunity for future active travel links, such as to the High Street to establish a network of high-quality walking and cycling routes across Kirkcaldy.

Preferred route

Summary of options appraisal

Based on the scoring of options outlined in these slides, the preferred route can be seen.

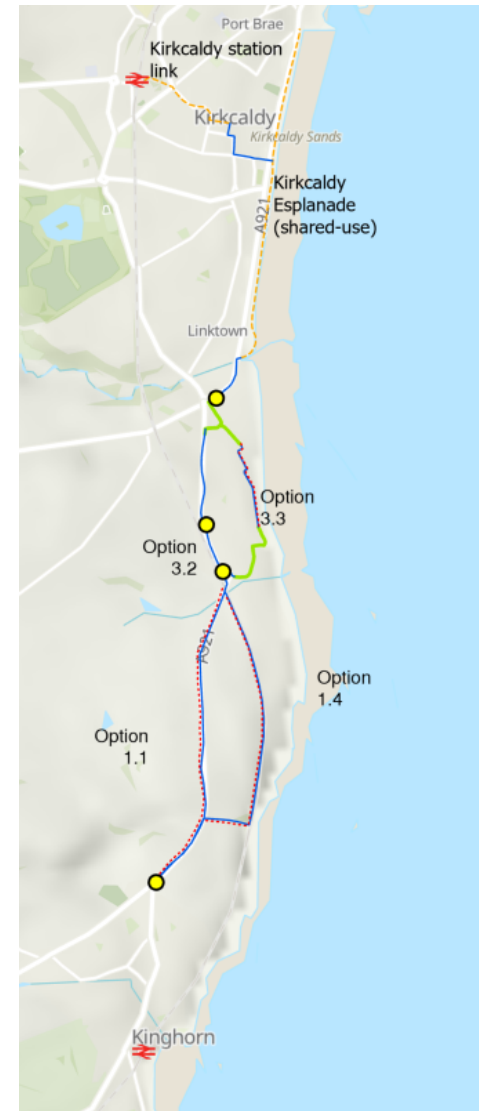
Between Kinghorn and the south of Kirkcaldy, the route will either follow the west side of the A921 throughout the rural stretch, or route by the west side of the railway. Both options are direct, coherent and minimise crossing of the high-speed road.

At the rail bridge, Option 2.3 has been preferred due to compliance with CbD and benefits for active travel in terms of increased width and buffer from traffic.

Option 3.3 was the highest scoring option for section 3, since it presents both a cost-effective and direct option that is away from the main road, however faces uncertainty regarding land ownership. Option 3.2 achieves an equally high CbD level of service, but also has uncertainty regarding deliverability due to the utilities along the A921. Both options will be progressed to the concept design stage, with a preferred option to be decided in future design stages.

These options in section 3 would then connect with a mixed traffic street at Seafield Road (Option 4.3), which was preferred as this allowed the route to bypass the busy junction where the A921 meets the B9157. The route would join the Esplanade from here where it would continue along for the length of Kirkcaldy's centre.

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 considering their practicality and ease of implementation.



Appendix E

Designer Risk Register

Designer Risk Register

ARUP

Register reference

Project SEStran Strategic Network Study (Kinghorn to Kirkcaldy 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
04/01/24	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 the client.		✓		A more comprehensive utility search to be carried out at detailed design stage where appropriate.	KC/ JS	Active
04/01/24	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.	KC/ JS	Active
04/01/24	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. A	KC/ JS	Active

Designer Risk Register

Register reference

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**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 survey to be carried out at a detailed design stage.		
04/01/24	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.	KC/ JS	Active
04/01/24	Multiple sections of the route such as A921 and Kirkcaldy rail bridge	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 use further consultation about appropriateness.	KC/ JS	Active
16/02/24	Craigfoot Place and Seafeld Road	Conflict between active travel users and vehicles.	Mixed traffic streets have been kept to a minimum during the options appraisal and		✓		Traffic surveys and modelling may be required at these locations to inform detailed design.	KC/ JS	Active

Designer Risk Register



Register reference

Project SEStran Strategic Network Study (Kinghorn to Kirkcaldy 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
			have only been proposed in environments where traffic volumes and speeds are estimated to be low. Ensure clear signage to inform motorists of active travel users on the road.						
04/01/24	Multiple sections of the A921, such as the rural section and in Kirkcaldy	Where route must be crossed to provide access to driveways or farm access roads.	Ensure appropriate signage, dropped kerbs and road markings so that all users are aware of these intersections.			✓	Continued communication with Fife Council so that plans for signage are consistent.	KC/ JS	Active
04/01/24	Crossings, junctions and roundabouts	Lack of vehicle numbers to inform design of junctions	Design has been informed by CbD guidance, best practice and an assumption on traffic levels to guide the			✓	Traffic surveys and modelling may be required to inform detailed design.	KC/ JS	Active

Designer Risk Register

Register reference

Project SEStran Strategic Network Study (Kinghorn to Kirkcaldy 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
			design of interventions.						
04/01/24	Multiple (short) sections of the route	Sections of the route where gradients exceed the CbD recommended range of between -3% and 3%.	Possibility that there will be a requirement utilise third party land further to avoid steep stretches. Earthworks may be required to do so.			✓	In the detailed design stage ensure gradients of proposed route is account for and managed appropriately.	KC/ JS	Active
04/01/24	Fife Coastal Path	Conflict between active travel users on the Fife Coastal Path, and safety concerns such as informal paths, steps and steep gradients.	Use of the Fife Coastal Path was avoided at the early option development stage.	✓				KC/ JS	Closed
16/02/24	National Cycle Network Route	Conflicts between active travel users and vehicles on the National Cycle Network Route.	Use of the National Cycle Network Route was avoided at the early option development stage.	✓				KC/ JS	Closed

Designer Risk Register

Register reference

Project SEStran Strategic Network Study (Kinghorn to Kirkcaldy 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
04/01/24	Continuous crossings and raised junctions	Conflict between vehicles and vulnerable users.	Use of clear markings and reduction in vehicle speed.			✓	In detailed design physical delineation for blind people and the design of drainage should be considered.	KC	Active
04/01/24	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.	KC	Active
04/01/24	Full extent of proposal	Crossing improvements.	Ensure that current uneven dropped kerbs are improved.			✓	In the detailed design stage ensure there is consideration for improved crossings.	KC	Active
04/01/24	Full extent of proposal	Accessibility for people with disabilities.	The proposals have 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	KC	Active

Designer Risk Register

Register reference

Project SEStran Strategic Network Study (Kinghorn to Kirkcaldy 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	
							delineation and location of tactile paving.			
16/02/24	A921 (Kirkcaldy Rail Bridge to Seafeld Road)	Physical constraints due to public utilities such as cables and drainage areas being identified.	Provision of an alternative option using Craigfoot Place and existing informal path.			✓	More detailed review of public utilities and drainage will be required at the detailed design stage.	JS	Active	
20/02/24	A921 (exiting Kinghorn)	There is a level change present at this location with sections of inadequate hard buffer.	Proposed fencing on both sides of pathway across areas where hard buffer is insufficient.			✓	This should be addressed at detailed design stage.	EAL	Active	
20/02/24	A921 rail bridge roundabout	Within the residential option at this location, the start/end of the mixed traffic street is within proximity to roundabout.	Provision of appropriate signage to inform drivers and active travel users.			✓	Investigate traffic flow within the area to help inform the solution, i.e. signage or relocation of dropped kerbs.	EAL	Active	

Appendix F

Concept Design Proposals



Do not scale

Notes

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

Design & Safety Risks

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

Legend

- A921 Option
- Railway Option
- A921 Option
- Mixed Traffic Street Option

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

ARUP

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Client
SEStran

Project Title
SEStran Strategic Network

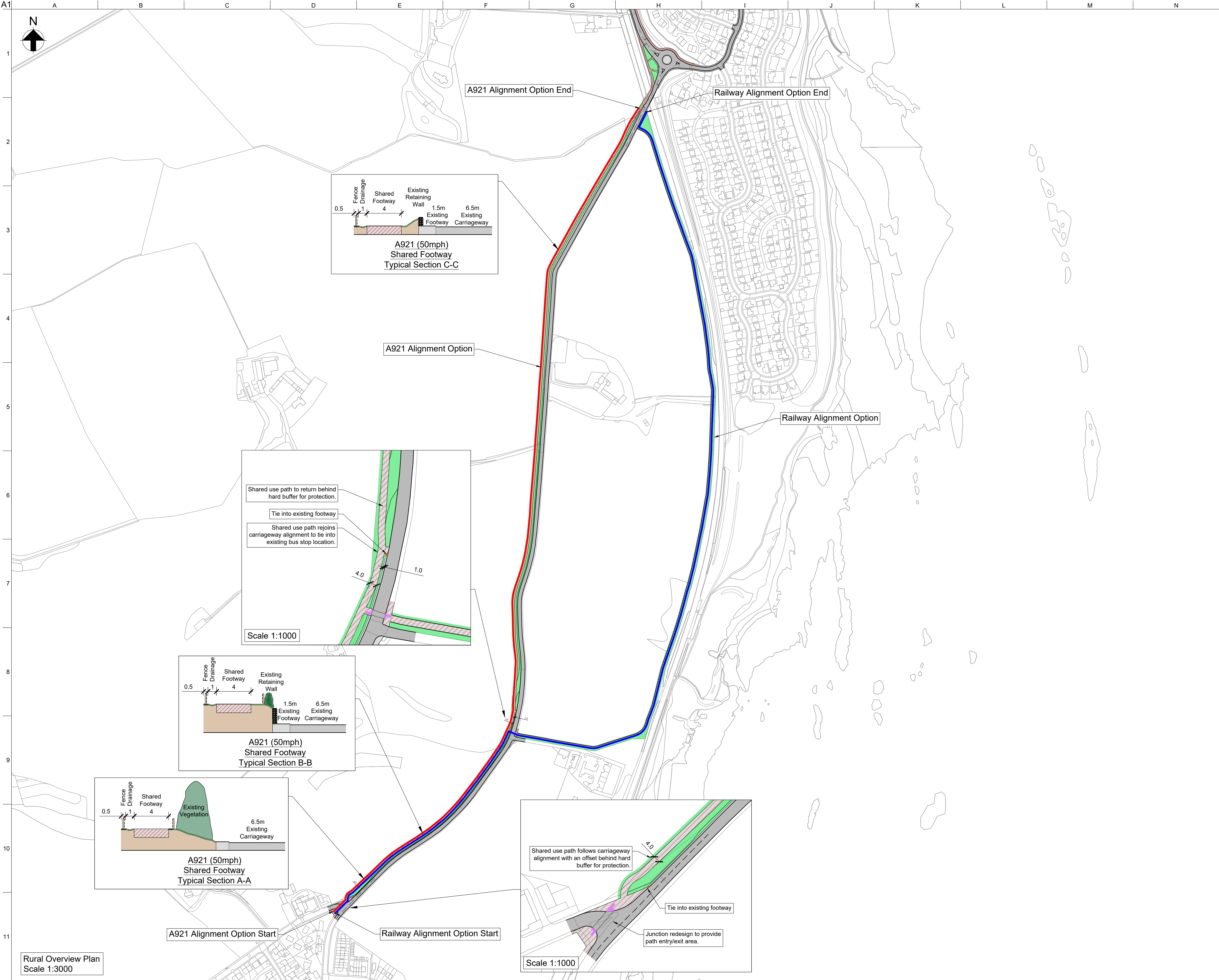
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**Kinghorn to Kirkcaldy
Route Overview Plan**

Scale at A1
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Role
Consultancy

Suitability
Information

Arup Job No 297148-00	Rev P01
Name SESFD-ARP-KK-XX-DR-TR-0001	



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

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

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Project Title
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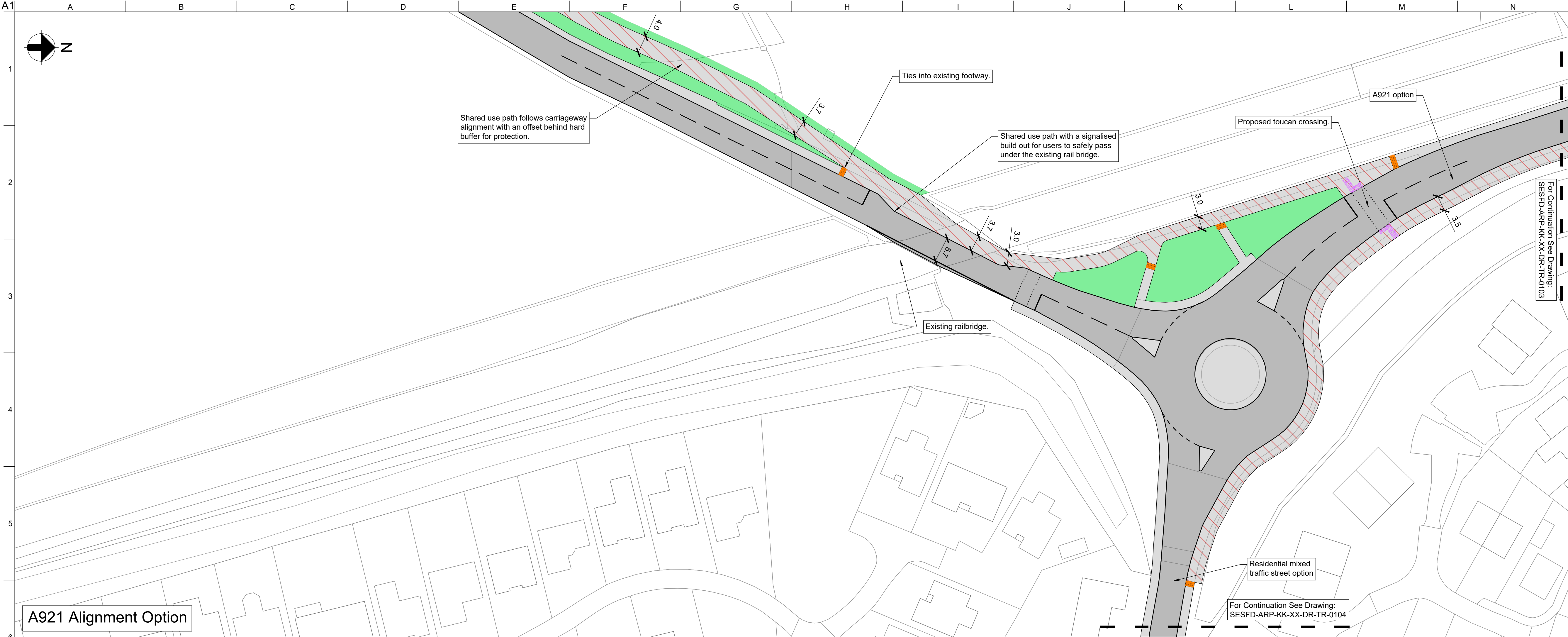
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**Kinghorn to Kirkcaldy
Proposed Layout
Sheet 1 of 5**

Scale at A1	As Shown
Role	Consultancy
Suitability	Information
Arup Job No 297148-00	Rev P01
Name SESFD-ARP-KK-XX-DR-TR-0101	

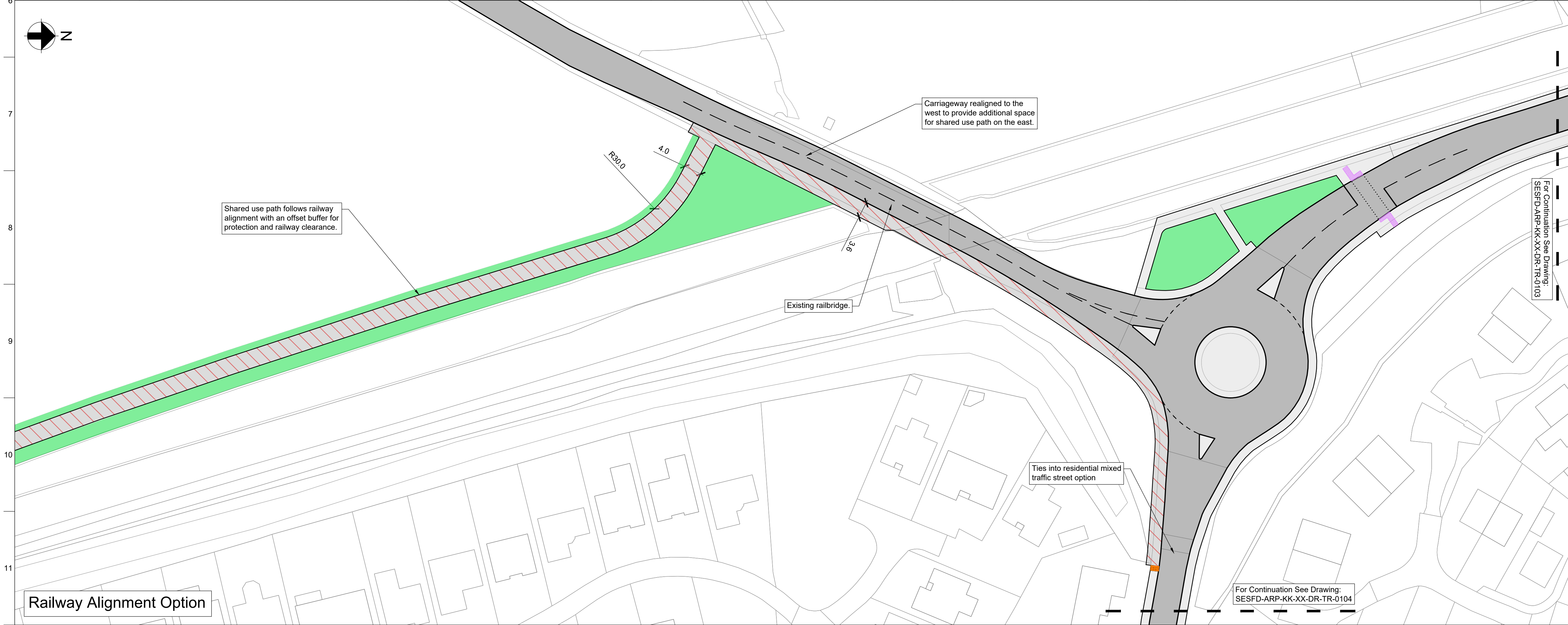
Rural Overview Plan
Scale 1:3000

Do not scale

© Arup



A921 Alignment Option



Railway Alignment Option

Legend

Footway

Shared Footway/Cycletrack

Cycletrack

Landscaping and Other Vegetation

Blister Tactile Paving

Ladder & Tramlane 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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Drawing Title

Kinghorn to Kirkcaldy
Proposed Layout
Sheet 2 of 5

Scale at A1

1:500

Role

Consultancy

Suitability

Information

Arup Job No

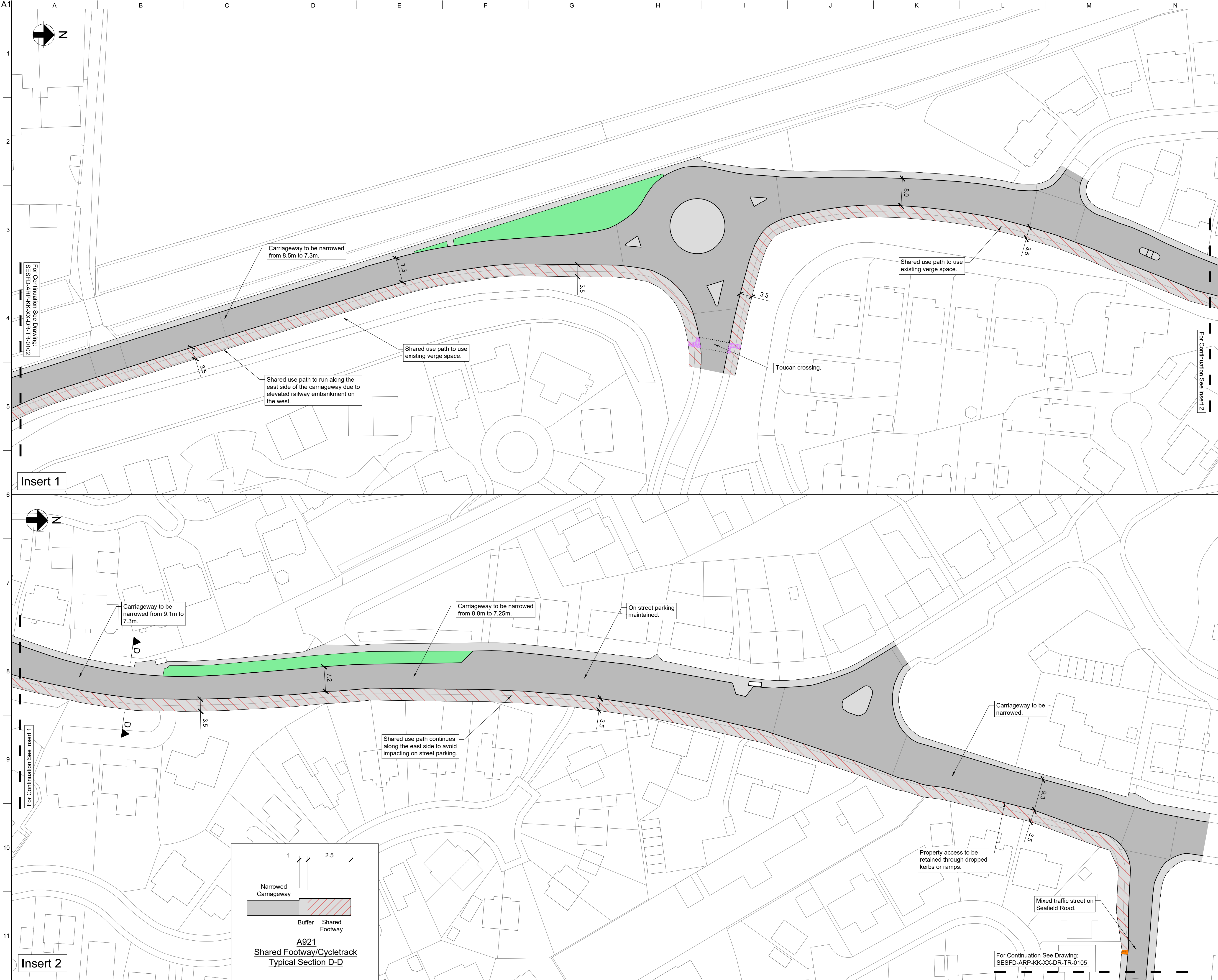
297148-00

Rev

P01

Name

SESFD-ARP-KK-XX-DR-TR-0102



Legend

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

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

- Design & Safety Risks**
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 - The land ownership and current Fife Council road adoption should be investigated further during detailed design.
 - 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

ARUP

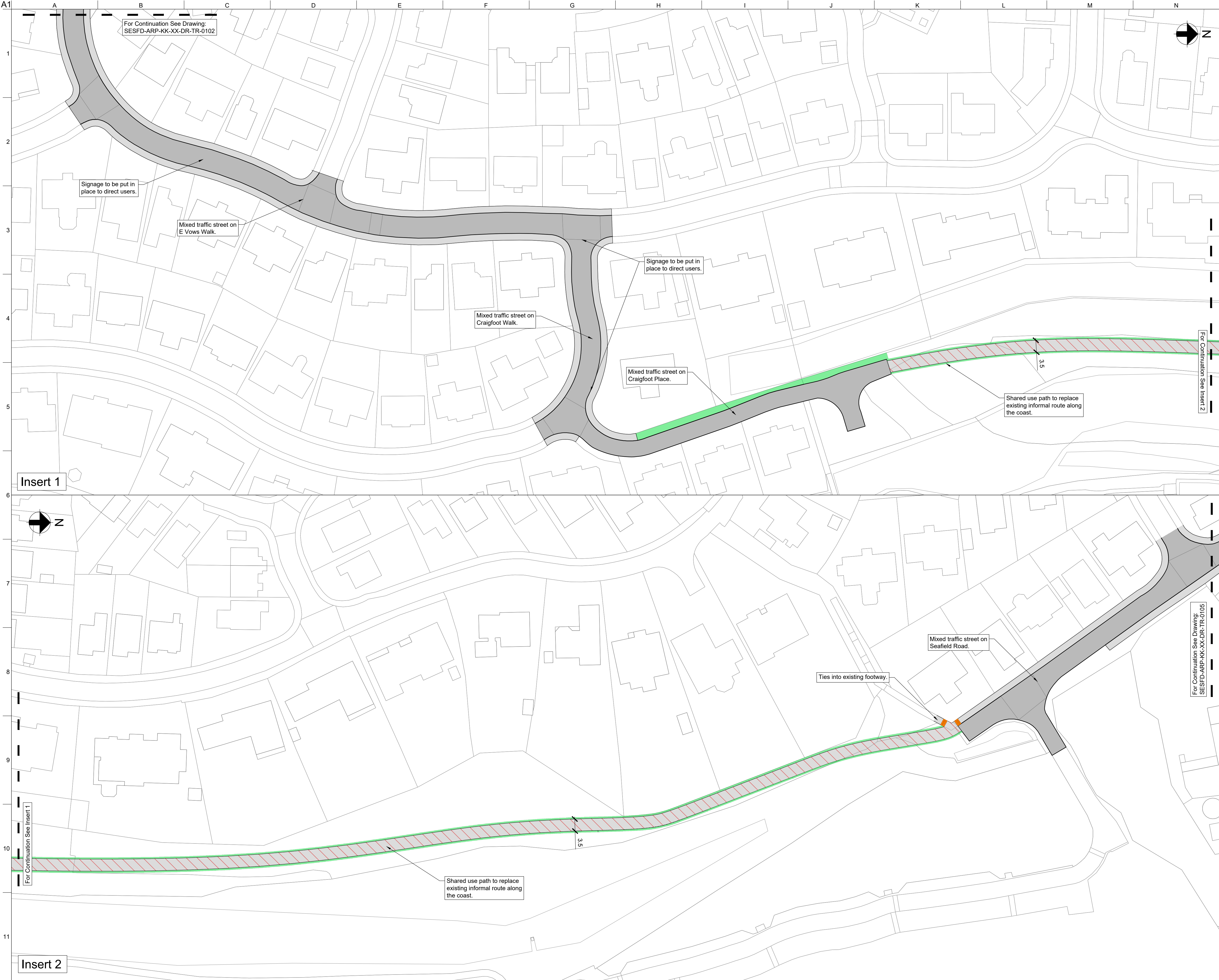
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Drawing Title
Kinghorn to Kirkcaldy
A921 Option
Proposed Layout
Sheet 3 of 5

Scale at A1	1:500
Role	Consultancy
Suitability	Information
Arup Job No	297148-00
Name	SESFD-ARP-KK-XX-DR-TR-0103
Rev	P01



Legend

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

Notes

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

Design & Safety Risks

- Potential for unknown utilities, depths & positions to be further investigated during detailed design. With care taken during any excavation adjacent to existing utilities.
- Works adjacent to live carriageway will require traffic management.
- Inherent inaccuracies of using OS mapping. Topographical survey required for detailed design.
- The land ownership and current Fife Council road adoption should be investigated further during detailed design.
- 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
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Project Title
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Drawing Title
**Kinghorn to Kirkcaldy
Mixed Traffic Street Option
Proposed Layout
Sheet 4 of 5**

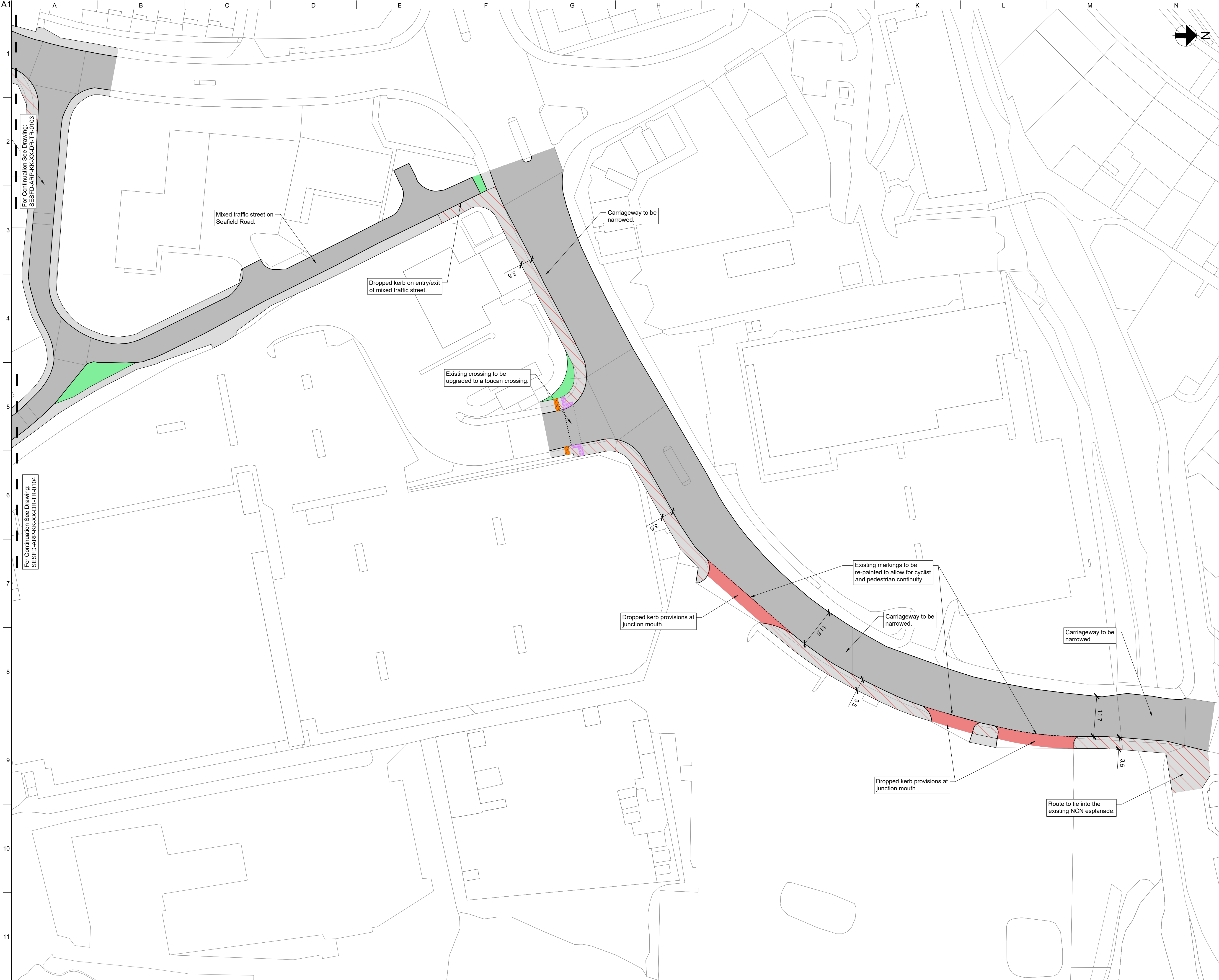
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Role
Consultancy

Suitability
Information

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

Name
SESFD-ARP-KK-XX-DR-TR-0104



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

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

- Design & Safety Risks**
- Potential for unknown utilities, depths & positions to be further investigated during detailed design. With care taken during any excavation adjacent to existing utilities.
 - Works adjacent to live carriageway will require traffic management.
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 - 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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Project Title

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Drawing Title

**Kinghorn to Kirkcaldy
Proposed Layout
Sheet 5 of 5**

Scale at A1

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Role

Consultancy

Suitability

Information

Arup Job No	Rev
297148-00	P01
Name	
SESFD-ARP-KK-XX-DR-TR-0105	

A921 - Kinghorn to Kirkcaldy



ARUP

Appendix G

Budget Cost Estimate

Kinghorn to Kirkcaldy - 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 1.1: Kinghorn and rural west of the A921	Shared-use facility	Addition of a shared-use active travel infrastructure along the west side of the A921.	£460,000	£880,000	1.57	£866,640	£1,657,920	£1,250,000 - £2,480,000
	Crossing	Crossing facilities at junction where B923 meets A921	£5,000	£50,000	1	£6,000	£60,000	
	Total Section 1.1					£1,256,602	£2,473,805	
Section 1.4: Kinghorn and rural parallel to railway	Crossing	Crossing facilities at junction where B923 meets A921	£5,000	£50,000	1	£6,000	£60,000	£1,290,000 - £2,600,000
	Shared-use facility	Addition of a shared-use active travel infrastructure along the west side of the A921 until Linton Court junction.	£460,000	£880,000	0.4	£220,800	£422,400	
	Crossing	Crossing facilities where the route crosses the A921 to join Linton Court	£5,000	£50,000	1	£6,000	£60,000	
	Shared-use facility	Shared-use facility from Linton Court along the west side of the railway until rejoining the A921 at the rail bridge	£460,000	£880,000	1.2	£662,400	£1,267,200	
	Total Section 1.4					£1,289,088	£2,605,824	
Section 2: Kirkcaldy Rail Bridge west side of carriageway	Shared-use facility	Shared use path along the west side of the carriageway, with a build out into existing carriageway space and signal controls to control vehicular traffic	£460,000	£880,000	0.1	£66,240	£126,720	£148,000 - £287,000
	Traffic signals	Shared use path along the west side of the carriageway, with a build out into existing carriageway space and signal controls to control vehicular traffic	£25,000	£50,000	1	£36,000	£72,000	
	Total Section 2					£147,226	£286,157	
Section 3.3: Kirkcaldy South Mixed Traffic Street + Footpath upgrades	Crossing	Toucan Crossing after the rail bridge to cross to east side of the carriageway.	£5,000	£50,000	1	£6,000	£60,000	£235,000 - £390,000
	Mixed Traffic Street	East Vows Walk / Craigfoot Place Mixed Traffic Street	£150,000	£200,000	0.35	£63,000	£84,000	
	Surface improvements	Surface upgrades of existing informal footpath which runs adjacent to Fife Coastal Path	£140,000	£190,000	0.45	£75,600	£102,600	
	Mixed Traffic Street	Connection to Seafeld Road Mixed Traffic Street	£150,000	£200,000	0.1	£18,000	£24,000	
	Total Section 3.3					£234,144	£389,664	
Section 3.2: Kirkcaldy South east side of A921	Shared use facility	Shared use path along the east side of the A921	£460,000	£880,000	0.3	£185,600	£316,800	£255,000 - £580,000
	Toucan Crossing	Toucan Crossing after rail bridge to cross to east side of the carriageway.	£5,000	£50,000	1	£6,000	£60,000	
	Parallel Crossing	Parallel/Zebra Crossing at East Vows Walk	£5,000	£20,000	1	£6,000	£24,000	
	Total Section 3.2					£255,744	£577,152	
Section 4: Kirkcaldy Esplanade Join Seafeld Road from A921	Shared-use facility	Continuation alongside A921 until Seafeld Road, where the route will become a mixed traffic street	£460,000	£880,000	0.45	£248,400	£475,200	£480,000 - £855,000
	Mixed Traffic street	Seafeld Road Mixed Traffic Street	£150,000	£200,000	0.2	£36,000	£48,000	
	Minor improvements to sideroad crossings	Crossing / Junction improvements to existing shared-use section between Morrison's and Esplanade start	£140,000	£190,000	0.3	£50,400	£68,400	
	Total Section 4					£482,112.00	£851,904.00	
	Signage improvements	Signage improvements throughout the route	£6,000	£12,000	3.5	£36,288	£72,576	
								£1,700,000 - £4,500,00

*Optimism Bias uplift in line with Scottish Transport Appraisal Guidance