Halcrow Group Limited

Kirkwall Active Travel Audit

Final Summary Document

January 2009

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Contents Amendment Record

This report has been issued and amended as follows:

Issue	Revision	Description	Date	Approved by
1	-	Draft		CK/JP

Contents

1 Introduction

1.1 Background

1.1.1 Halcrow Group Ltd was commissioned by HITRANS, the Highlands and Islands Regional Transport Partnership to:

- develop a methodology to audit existing active travel infrastructure
- provide baseline information on existing infrastructure provision for active travel
- recommend priorities for future investment

1.1.2 The overall aim is to assess where best to apply available funding in order to increase the potential for active travel and ideally to see an increase in the numbers of people choosing to walk or cycle.

1.1.3 In particular, the key purpose of the audits is to identify:

"A practical network of high quality routes suitable for cycling within each settlement that provides convenient and safe access to all major destinations"

And

"A network of routes for pedestrians focused upon railway stations, bus stations, major employment areas, local shopping areas, leisure/recreation centres, hospitals and main trip generators"

1.1.4 This document summarises the main findings of the methodology as applied to Kirkwall. A full technical annex report containing background information on the audits and prioritisation methodology is also available.

1.2 Smarter Choices, Smarter Places

1.2.1 Kirkwall was one of seven Scottish towns to be awarded government funding under the 'Smarter Choices, Smarter Places' (SCSP) initiative. Through SCSP the Scottish Government aims to fulfil a number of policy objectives such as reduced CO_2 and other airborne pollutants, reduce congestion, increase physical activity and combat social exclusion by improving sustainable transport.

1.2.2 The Orkney Island Council (OIC) submitted a successful SCSP bid for 13 projects which include: Quoybanks area traffic calming, promotional strategy including personalised travel planning, GP referral scheme, cycle training, improvements to the bus service to Kirkwall Airport, bike racks for buses, signing strategy and a programme to help school children with learning difficulties to use public transport.

1.2.3 The bid contained a caveat to enable schemes to be 'modified to ensure the most suitable scheme is implemented' following recommendations from this study.

2 Active Travel Methodology

2.1 What is the methodology?

2.1.1 Halcrow has developed a methodology to assess existing and proposed active travel infrastructure. This methodology is based on the following key parameters:

- a desktop study including demographics, travel to work patterns, public transport information and traffic and accident data
- analysis of main trip generators/attractors
- consultation with the Local Authority and other interested parties
- on site audits
- application of a 'prioritisation filter'

2.1.2 The prioritisation filter is an analysis tool to identify those corridors where there is the greatest potential for modal shift. The filter encompasses information from the desktop study such as demographic data, trip generators and attractors, planning proposals and the results of stakeholder consultation. The filter also assesses the 'implementability' of a route compared to its potential usage.

2.1.3 On site audits for walking are carried out utilising the Transport Research Laboratory (TRL) Pedestrian Environment Review System (PERS) whilst an Institution of Highways and Transportation (IHT) cycle audit is undertaken. Both systems audit the condition of existing facilities for pedestrians and cyclists to identify where proposed measures can be effectively targeted.

2.1.4 The outputs from the application of the methodology are:

- An Active Travel Prioritised Action Plan
- A Walking Master Plan
- A Cycling Master Plan

2.1.5 The prioritised action plan includes budget cost estimates and also strategic master plans for walking and cycling. Core networks for pedestrians and cyclists are identified that provide direct, convenient, safe, attractive and coherent links between journey origins and journey attractors.

2.1.6 Consultation plays an integral role in the identification of routes for walking and cycling and also helps to pinpoint, at a very local level, the barriers to active travel. In Kirkwall the following individuals and organisations were consulted:

- The Orkney Islands Council: Access Officer, Environmental Officer, Roads Department, Maintenance, Planning Department, Forward Planning, School Travel Officer, School Transport/School Crossing Patrol Officer, Schools Investment Programme, Active Schools Co-ordinator, GIS Officer, Community Wardens, Transportation Department including public transport, Orkney Twinning Project, harbours
- Orkney Disability Forum
- Dial a Bus
- Northern Constabulary (Kirkwall Police Station)
- Cycle Orkney – local bike shop
- Orkney Ferries
- Orkney Collage

3 Walking and Cycling in Kirkwall

3.1 Overview of current conditions for active travel

3.1.1 The total population of Orkney is just under 20,000 people with 6000 living in the Capital – Kirkwall, with just over two thirds of people living there in full time employment or education. Below in Table 3-1 is a comparison of the mode of transport used to access work or study in Kirkwall, Orkney and the whole of Scotland based on night-time population data from 2001 Census data. The sorting of data in this way provides an indication of the modal split at peak times when the majority of people are travelling to work or study.

Table 3-1: Comparison of mode of transport for journeys to work and study

Mode of transport	Kirkwall	Orkney	Scotland
% taking bus	2.4	14.5	16.5
% car and passenger	47	55	53
% on motorbike	0.5	0.5	0.4
% cycling	4	2.6	1.3
% walking	43	24	23

3.1.2 Compared to the whole of Scotland, Kirkwall has very high levels of walking to work or study and levels of cycling are over three times the national average. People in Orkney are more likely to drive to work or study than people on the Scottish mainland, but this is probably due to the rural and disperse nature of the archipelago. Bus trips in the town are much lower than Orkney as a whole.

3.1.3 For the two thirds of residents in Kirkwall who travel to work or study, Table 3-2 and 3-3 below shows the average distance travelled compared to modal split.

Table 3-2: Average distance of journey to work in Kirkwall

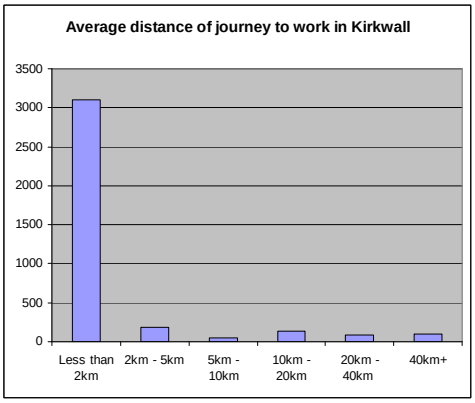
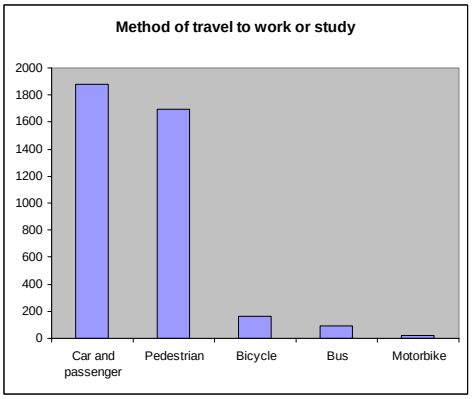


Table 3-3: Modal split for journeys to work in Kirkwall



3.1.4 Nearly 80% (78.5%) of residents in Kirkwall travel less than 2km to get to work or study, however, nearly half of these journeys appear to be by car. There are high levels of walking, but given the very local nature of journeys in the town, there is significant potential to transfer a proportion of these journeys to more sustainable modes.

3.1.5 Pedestrians are well catered for in the town. There are no signalised crossings, but there are a number of well placed zebra crossings on desire lines at the harbour, library and near to schools. In the town centre and out to the west, the land is flat, but the town does rise steeply out to the east and west where residential areas have expanded. Walking is relatively pleasant in the town as the volume of traffic is not excessive and also allows pedestrians to cross without the need for formal crossing points. The majority of footways are between 1.5 and 2.0m wide which is only just about wide enough for two people to walk side by side. The town centre is a series of attractive narrow streets with a shared surface. The area is part pedestrianised between 11am and 3pm but initial observations suggest it is abused regularly, particularly during the evening by young drivers.

3.1.6 A number of off road cycle tracks have been built in the town that are built to a very high standard, but are difficult to use due in places due to the presence of chicanes which appear to have been installed to slow cyclists down. Orkney College, Papdale Primary, Glaitness Primary and Kirkwall Grammar School are well served by cycle tracks. There is virtually no cycle parking in the town centre – some stands are in one of the main car parks in the town, (but are inaccessible when cars are in the parking bays) and there are some by the Strynd. There is good quality cycle parking at the Kirkwall Travel Centre which appear to be used regularly.

3.1.7 Orkney is on the National Cycle Network with the route running through the town centre. There is no signing of the route within the town and no specific cycle facilities so the only way to find it is my ensuring users have a map showing the route.

3.1.8 The existing traffic free walking and cycling routes are shown overleaf in Figure 3-1.

3.2 Traffic Flow and Accident Data

3.2.1 In the Orkney Councils' Road Safety Plan 2006-2008 it is reported that the Council has achieved two of the National Targets for Road Safety for reducing the number of people and children killed or seriously injured. However, it has no been able to reduce the number of slight casualties, although the current level is 10% below the national rate.

Accident data needs to be plotted on GIS

3.2.2 A report released in 2006 by Transport Scotland[1] shows that the increase in vehicle traffic on roads in Orkney has increased by 16.5% between 1993 and 2002 which was the seventh highest in the whole of Scotland. The average increase over all 32 local authorities was 14.4%.

[1] Term Commission for the Evaluation and Review of Local Authority Road Traffic Reduction Targets, Transport Scotland, 2006, Figure 1.7

N

0 250m 500m 1km

Kirkwall Potential Active Travel Plan Network (Indicative)

Figure 3.1: Walking and cycling routes

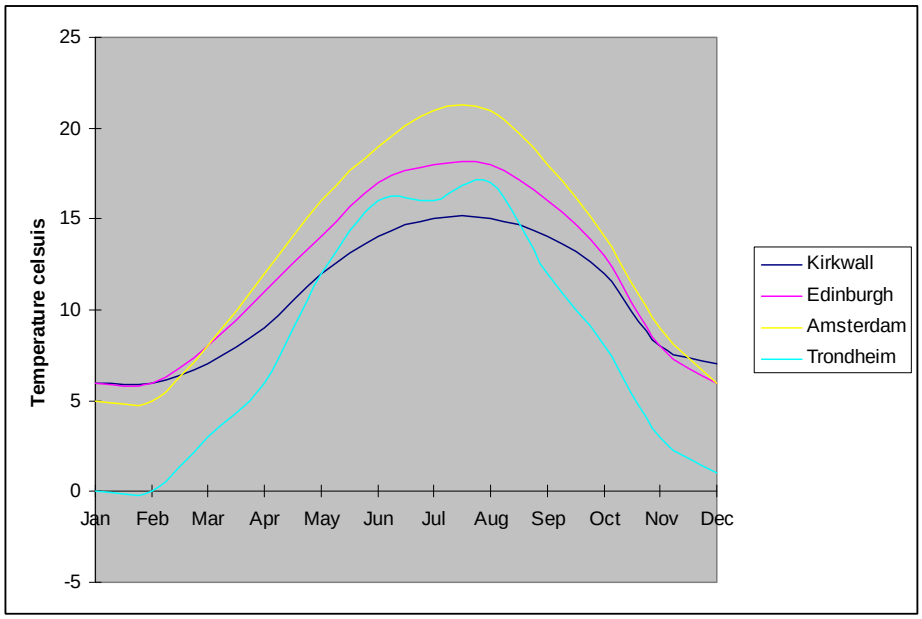
Key:

- Traffic free walking and cycling route
- National Cycle Network, Route 1 (on road, not signed in town)
- Signed advisory cycle route

NOTE: Potential routes shown are indicative and are subject to change as a result of consultation, feasibility and design.

3.2.3 The harsh weather in Orkney appears to be a considerable deterrent to cycling in Kirkwall, although during the study many consultees reported that many more people had been cycling in the summer months as the weather was so good. A weather comparison has been carried out to compare Kirkwall conditions to Edinburgh, Amsterdam and Trondheim in Norway. These three cities were chosen as they all have policies in place to encourage cycling. In Edinburgh, 19% of peak hour traffic on Lothian Road in May 2008 was bicycle traffic and even in November it was 14%[2]. Lothian Road is one of the main arteries into the city centre for bicycle traffic. Amsterdam has been re-designing its city streets in favour of cycling and public transport since the 1970s and cycling now accounts for 27% of all traffic[3]. Trondheim in Norway has 8% of all journeys by bike[4], despite being a very hilly town. Norway is of specific interest as it has much in common with Kirkwall and their histories are entwined. There are still close ties between the two countries and Kirkwall is twinned with the municipality of Hordaland. Figures 3-2 through 3-7 below show comparisons between average maximum day temperature, average minimum night temperature, average hours of daylight per day, average number of days with rain, monthly rainfall and average wind speed.

Figure 3-2: Average maximum day temperature (°c)



[2] SPOKES, Lothian Cycle Campaign, Bulletin 101, September 2008

[3] Cycling in the Netherlands, Ministerie van Verkeer en Waterstaat, 2007

[4] Cycling, a Smart Way of Moving, second edition, January 2006, Hans van Vliet, Shimano Europe, Nunspeet, the Netherlands

Figure 3-3: Average minimum night temperature (°c)

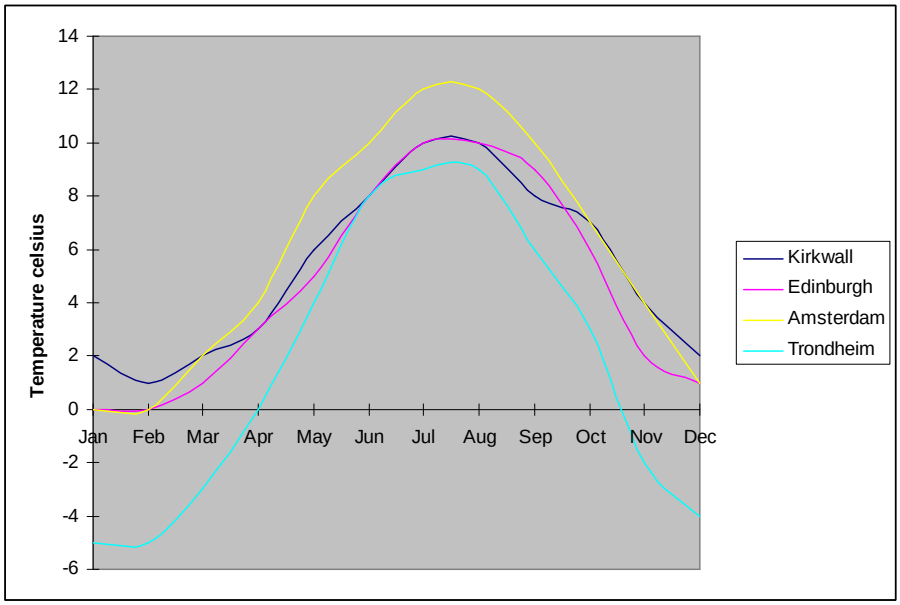


Figure 3-4: Average hours of daylight per day

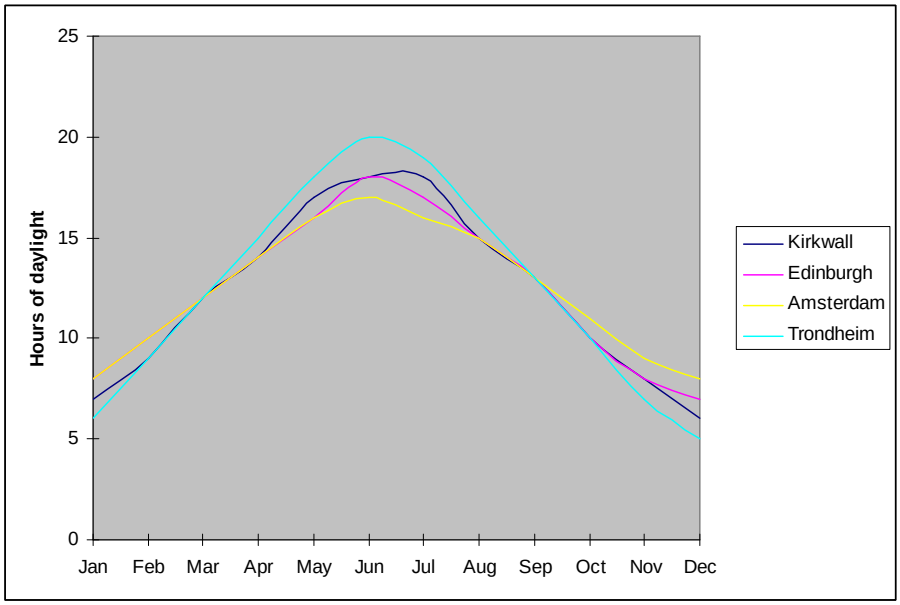


Figure: 3-5 Average number of days with rain

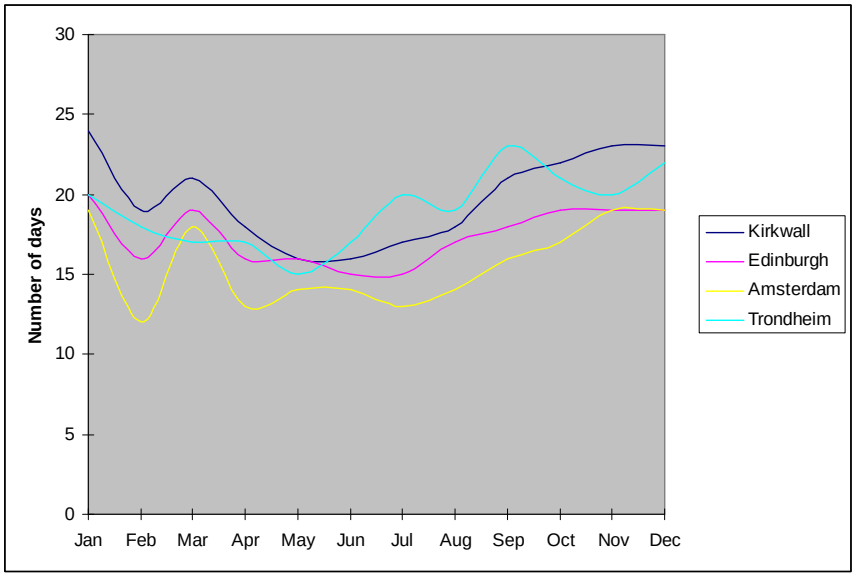


Figure: 3-6 Average monthly rainfall (mm)

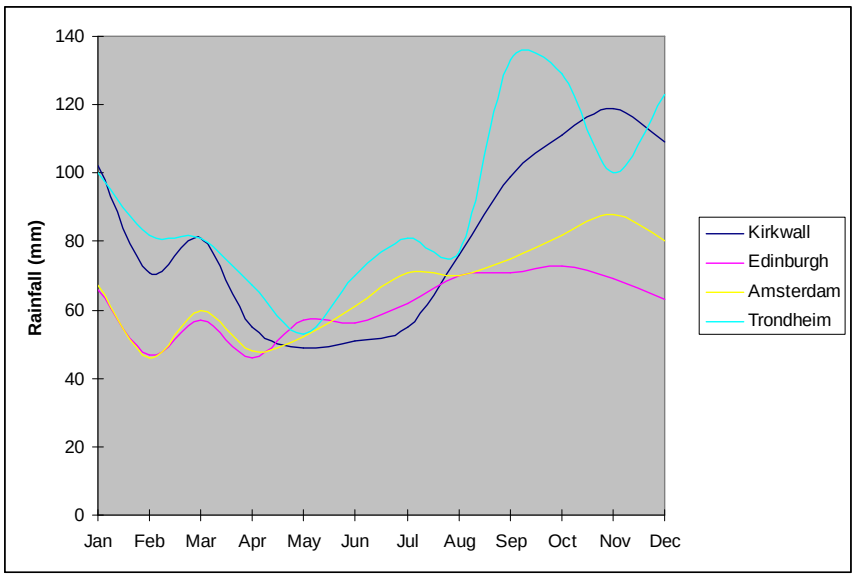
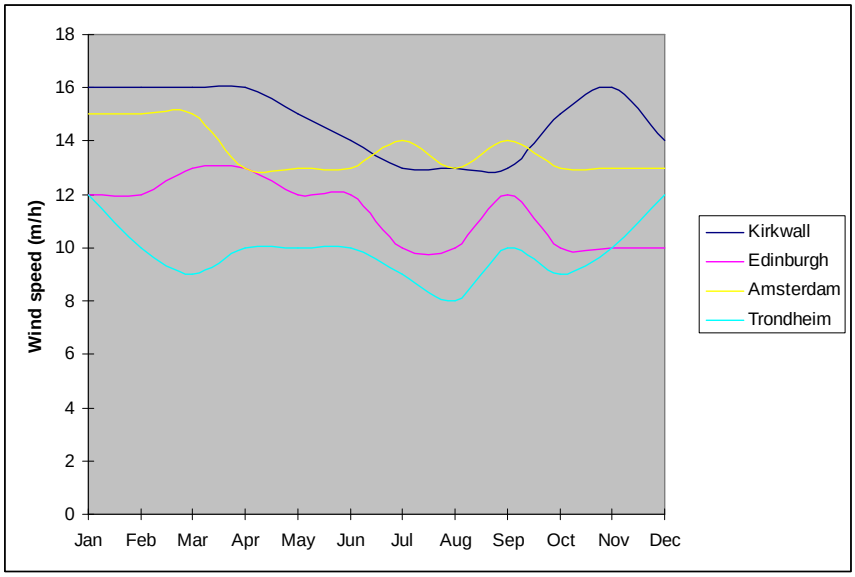


Figure 3-7: Average wind speed (m/h)



3.2.4 Although Kirkwall does have some weather extremes, Trondheim has higher levels of rainfall, lower temperatures during the night and during the day whilst Amsterdam is windier during the summer. Kirkwall has the most days of rain (although is surpassed by Trondheim in the summer) but the rainfall is not particularly heavy. Kirkwall is the windiest town for most of the year and this is a fact that will be verified by Orcadians.

3.3 Orkney Island Council Policy Documents

3.3.1 As part of the study, a number of key Orkney Island Council (OIC) documents that have the potential to impact on active travel have been reviewed. In October 2008 the draft Kirkwall Urban Design Framework (KUDDf) was published for consultation. The framework was commissioned by OIC in December 2007. The KUDDf is thorough and lengthy and for the purposes of this study, only the recommendations that relate to walking and cycling have been presented here. Overall, the document is a positive reflection of current transport policies and promotes walking and cycling as the preferred modes for local journeys.

3.3.2 Transport is one of the main themes in the 'Vision Statement for Kirkwall':

- The transport network will be effective and efficient and will support economic vitality, community wellbeing and the environment
- The transport network will be developed to support development with emphasis on public transport connections and access and active travel
- There will be increased opportunities for active travel including walking and cycling around the town which will improve health, reduce traffic levels and isolated traffic congestion
- There will be a reduction in traffic levels in the historic core of the town, more emphasis on pedestrian priority and improving the environmental quality of the town.

The document sets out the following 'key aspirational routes' that when combined with existing footways would improve links to key trip attractors and generators and recreational routes outside the town centre. The routes are:

- A – around Kirkwall Bay from Hatston Pier to Craggiefield via the harbour, Peedie Sea and entrance to Bridge Street/historic spine
- B - Papdale corridor radial route
- C- Muddisdale/Peedie Sea radial route
- D – Scapa radial route
- E – Town edge orbital route

3.3.3 The KUDDf sets out 'Development Zones' a number of which have recommendations to improve walking and cycling routes such as around the High School and Papdale Primary, the area around the harbour, Peedie Sea, the Pickaquoy Centre and Hatston Industrial Estate. Furthermore the Character Area Design Guidance sets out how any developments with regards to industrial use, new housing, the harbour, the historic spine (Bridge Street, Albert Street, Broad Street and Victoria Street) should cater for pedestrians and cyclists.

3.3.4 The OIC Roads Development guide has also been reviewed as part of this study. In general the guide is well informed and makes adequate provision for walking and cycling. Suggested amendments to improve the guide with regards to walking and cycling are detailed in Chapter 5 and Appendix 2.

3.3.5 The Orkney Local Plan was adopted 1 December 2004 and has several references to active modes in Chapter 9 – Transport and Chapter 8 – Sport Recreation. Chapter 9 has a comprehensive section on 'Footways and Cycleways' that covers: urban footpaths and cycleways, major new developments, standards, developer contributions and construction consent. It appears that some recommendations have yet to be implemented, such as monitoring and 'a continual review of pedestrian flows and desire lines'. However, an 'Active Travel Forum' for Orkney has now been established that fulfills the recommendation for a cycle forum.

3.3.6 Chapter 8 recommends the development of leisure cycle routes for residents and tourists with specific mention of routes linking Kirkwall, Stromness and St Margaret's Hope.

3.4 Current Issues

3.4.1 The audit process in Kirkwall identified a number of key issues that act as a disincentive for active travel:

1) Incoherent cycle routes

- Lack of continuity between new off road cycle tracks and existing road network

2) Pedestrianised town centre

- Abuse by motorists reduces the attractiveness of the area and impedes pedestrians, especially when cruise ships are moored

3) Car Parking

- Residents are used to parking where they want, when they want
- Plentiful car parking in the town centre and other trip generators/attractors

4) Designing for pedestrians and cyclists

- Consideration for the movement of pedestrians and cyclists is not apparent in traffic management schemes
- One way systems are a deterrent to cycling
- Orkney Roads Development Guide is car orientated

5) National Cycle Network, Route 1

- Impossible to follow route through Kirkwall as there is no signing

6) Cycle parking

- Virtually no cycle parking in the town centre
- Poor quality staff cycle parking at key sites such as Balfour Hospital and Orkney College
- Cycle parking standards not implemented at planning stage

7) Weather

- The very windy weather in the winter is a deterrent to walking and cycling and is used as an excuse by some for driving during the summer

8) Promotion

- Promotion of walking and cycling is restricted to schools
- Missed opportunities with regards to taking advantage of significant tourist flows in the summer
- No walking or cycling maps

3.5 SWOT (Strengths, Weaknesses, Opportunities and Threats) Analysis of Active Travel in Kirkwall

Strengths	Weaknesses
High quality off road cycle tracks Existing pedestrian network and highly permeable town centre due to vennels Officers are open-minded and positive about walking and cycling Funding opportunities through 'Smarter Choices, Smarter Places' co-ordination Low traffic volumes Low levels of crime Promotion of walking and cycling in schools High level of cleanliness and maintenance in town High level Member support for increased walking and cycling	Narrow footways Culture of driving Plentiful car parking Implementation of cycle parking standards in planning applications Extremely windy weather in winter months Application of 'Cycling by Design' in all traffic management schemes Residential areas built on hillside to the east and south of the town No continuity between active travel infrastructure
Opportunities	**Threats**
Build on partnering with Norway to show cycling can work in cold climates Promotion of walking and cycling in the warmer months Kirkwall Urban Design Framework reinforces potential for increased walking and cycling Proposals for a new Kirkwall Grammar School have the opportunity to build in sustainable travel from the outset Kirkwall is a key tourist destination with a compact town centre, ideal for walking Enhance partnership working with NHS and other organisations through the 'Smarter Choices, Smarter Places' programme OIC Roads Development Guide could be updated to improve active travel infrastructure	Lack of political will to instigate change Wetter and more unpredictable weather as a result of climate change Car growth Lack of support from local businesses

4 Proposed Kirkwall Active Travel Network

4.1 Introduction

4.1.1 The active travel audit identified walking and cycling routes that link residential areas to the main trip generators and attractors to form a strategic network for the town. The main trip generators/attractors for Kirkwall are:

- The Pickaquoy Centre (Sports centre and cinema)
- Balfour Hospital
- Hatston Industrial Estate
- Hatston Pier
- Supermarkets on Pickaquoy Road
- Historic core: Bridge Street/Albert Street/Broad Street/Victoria Street
- St Magnus Cathedral
- Council officers on School Street
- Kirkwall Library
- Kirkwall Travel Centre
- Kirkwall Grammar School and swimming Pool
- Primary schools: Papdale and Glaitness
- Orkney College

4.1.2 A set of long term objectives for encouraging walking and cycling have been developed:

Objective 1: Incorporate the needs of pedestrians and cyclists into all traffic management schemes

Objective 2: Build on existing Orcadian sporting traditions and create new mass participation events for walking and cycling

Objective 3: Implement measures to aid pedestrians and cyclists on key corridors

Objective 4: Promote sustainable travel all year – especially bus services in the winter when walking and cycling are less attractive

Objective 5: Ensure existing and proposed traffic free facilities are 'connected' to a wider network to diminish their isolation

Objective 6: Restore pedestrian priority in town centre

Objective 7: Reduce vehicle permeability

4.1.3 For motorists in Kirkwall, driving is an attractive option as parking is freely available and the existing restrictions on motorists, namely the historic town core, are rarely observed. This culture and determination to drive is captured in the following text from a newspaper article taken from The Orcadian on Thursday 23rd October 2008 reporting on a consultation meeting with residents in Stromness with regards to regeneration proposals at the harbour, '***They will take their car as close to the shop as they can' the man said. 'You can always hear people say you can't take the car close to the centre of the town.' One female Stromness resident pointed out that she regularly attempts to find a parking space near the centre of the town. However, she said that if she cannot find one, she would either return home or drive through to Kirkwall to do her shopping***.'

4.1.4 OIC officers are aware of this mindset and as part of the 'Smarter Choices, Smarter Places' project, a study will be undertaken to examine 'Car Culture' in Kirkwall. The outcomes of the study may have a significant impact of the recommendations in this report.

4.2 Active Travel Network

4.2.1 The following routes have been identified as providing the most direct and coherent network of routes to the destinations listed above. The routes for pedestrians and cyclists will eventually provide a holistic network for Kirkwall that will enable people to make journeys to all parts of the town. The routes are:

- Coastal Route
- East to West Route
- Radial Route 1 and spurs
- Radial Route 2 and spur
- College Route
- School Links
- Local Links
- Town Centre Links

4.2.2 A full description of the routes with suggested recommendations are included in the full technical annex. Detailed plans of the routes are also contained in Appendix 1 of this report.

4.2.3 The Action Plan in the following section identifies the key priorities in the development of the aforementioned routes along with 'softer' initiatives to encourage active travel in Kirkwall.

4.2.4 The most controversial of the objectives is to reduce vehicle permeability in the town. This should be considered to be a long term aspiration and is based on European style traffic management practices in places such as Groningen in Holland where the town is split into four sectors served by a ring road. Buses and cyclists are able to cross from sector to sector, but private vehicles may only access different sectors via the ring road. Figure 4-1 below shows how this could work in Kirkwall. This layout would give cyclists and bus user's distinct advantages over those using a car and would make cycling and walking quicker than driving. However, changes like this would need strong political support and are likely to be unpopular with the general public.

4.2.5 Without demand management measures in the town, it is highly unlikely that there will be significant modal shift to sustainable modes. The driver of modal shift may come in the form of increased fuel prices or through targets to reduced carbon dioxide emissions related to global warming.

4.2.6 As part of the audit and consultation process a number of recreational routes were suggested:

- A cycle route from Kirkwall to Finstown
- Walking and cycling routes to Scapa

4.2.7 Although outwith the scope of this study, these are routes that could be implemented to encourage tourism and be part of a wider recreational network, identified within the Core Paths consultation.

4.2.8 The proposed Active Travel Network is shown overlaid on the Kirkwall Local Plan on the following pages in Figure 4-2.

N

0 250m 500m 1km

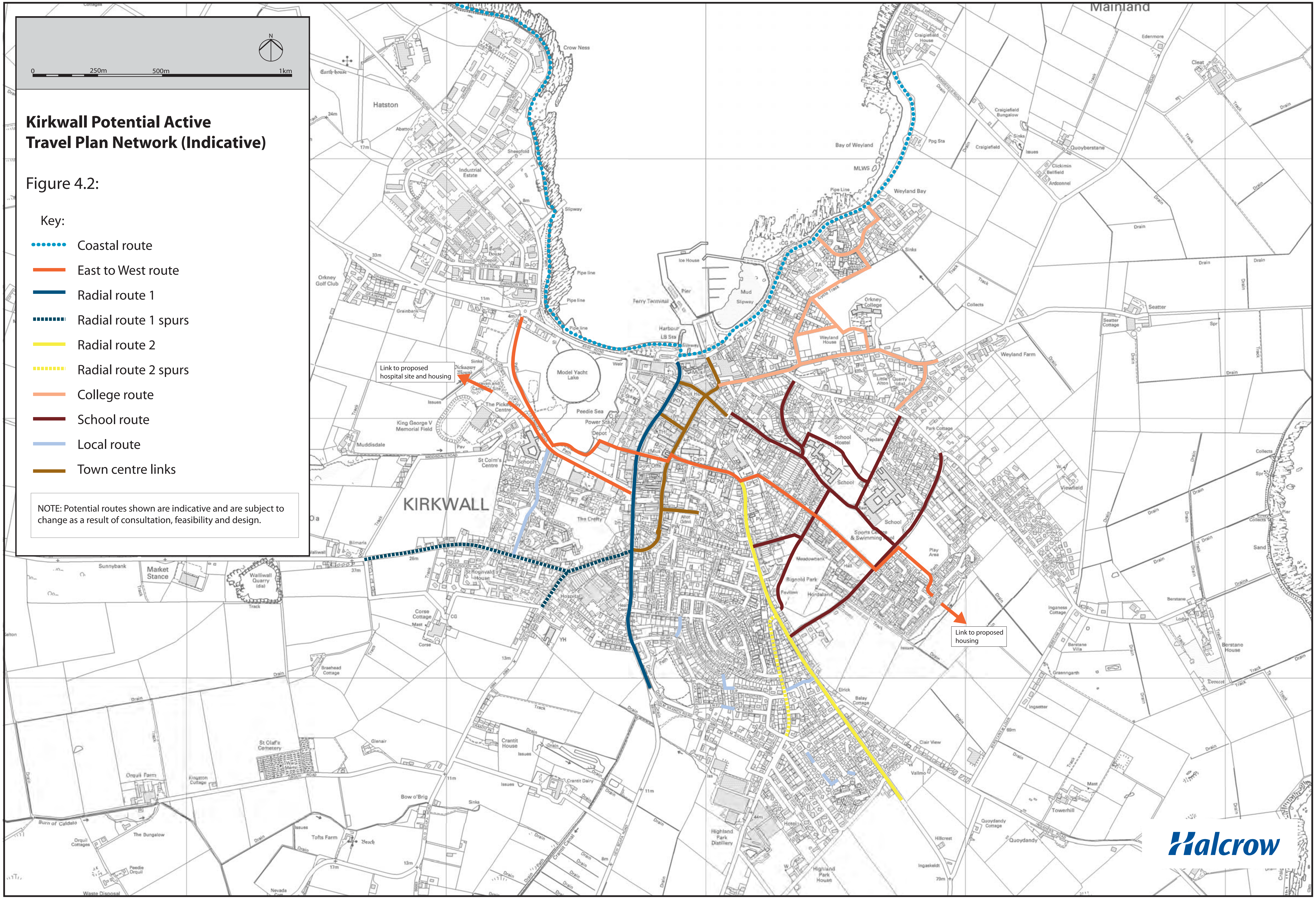
Kirkwall Potential Active Travel Plan Network (Indicative)

Figure 4.1: Demand management proposals

Key:

- Existing road/track to be upgraded
- New road
- Sector 1
- Sector 2
- Sector 3
- Road closure with access for buses and cyclists

NOTE: Potential routes shown are indicative and are subject to change as a result of consultation, feasibility and design.



5 Prioritised Action Plan

5.1 The Solutions

5.1.1 This prioritised Active Travel Plan sets out the key measures needed to encourage walking and cycling in Kirkwall. As well as incorporating parts of the strategic walking and cycling network for the town, it also includes promotion and similar 'soft' measures which form part of a package of works which are used successfully in those town and cities where there has been an increase in sustainable modes.

5.1.2 The following measures are the key priorities for encouraging active travel in Kirkwall:

Priority 1: Radial Route 1 and spur

Priority 2: East to West route

Priority 3: Radial Route 2 and spur

Priority 4: Sign National Cycle Network

Priority 5: Provide pedestrian priority in town centre

Priority 6: Promotion Package

Priority 7: Improve Local Links

Priority 8: Accessibility planning for proposed new high school

Priority 9: Policy Implementation

Priority 10: 20mph Zones

5.1.3 Each of these individual priorities are summarised below and form part of the wider Kirkwall Active Travel Network outlined in chapter 4.

5.2 Priority 1 Recommendation: Radial Route 1 and spurs

5.2.1 The roads which form Radial Route 1 and its spur are a vital route for pedestrians and cyclists as they provide access to key destinations in Kirkwall: hospital, travel centre, library, post office and also link into routes to the town centre and supermarkets. The route is also part of the strategic road network (A963) so any changes to the road must take into account the needs of all road users.

5.2.2 Although traffic levels in Kirkwall are relatively low, this is the main route to and from the ferry terminal and industrial estate and there is no alternative route. In the long term, a bypass would remove through traffic from this route and improve it significantly for vulnerable road users, but in the short term traffic management measures should be introduced to make the route safer and more attractive for pedestrians and cyclists.

5.2.3 There are proposals to improve the junction of Pickaquoy Road and Junction Road and the recommendations in Priority 2 and 9 should be taken into consideration into the design so as to ensure that the focus of improvements is not solely for motorists, but the needs of pedestrians and cyclists are also incorporated.

5.2.4 The spurs of this route on Glaitness Road and Old Scapa Road are also of significance for two reasons: Glaitness Road forms part of a Safer Routes to School Scheme and has recently been improved with the provision of a zebra crossing, whilst Old Scapa Road (and Radial Route 1) are part of the National Cycle Network.

5.2.5 The main issue for pedestrians is the lack of dropped kerbs along the route and in places where they have been provided, they do not serve desire lines. There is a zebra crossing outside the library which is well used, and although there is a zebra crossing on one arm of the junction of Castle Street and Junction Road which links to the travel centre, crossing the other arms of the junction is difficult for pedestrians. There is also a section of footway near to Burnmouth Road that is very narrow and has the potential to be be widened although this will lead to the reduction of car parking spaces.

5.2.6 The following is the hierarchy of solutions in current design guidance for cycle routes:

- Reduce traffic volume
- Reduce traffic speed
- Improve junctions
- Reallocate road space
- Provide off road facility

5.2.7 In applying this hierarchy of solutions to Junction Road it is reasonable to assume that there will not be a significant reduction in traffic volume without a bypass, however, there are ways to reduce the speed of traffic and improve the junctions for vulnerable road users.

5.2.8 The recommendations are summarised overleaf and presented in Figure 5-1.

Table 5-1: Priority 1 Recommendations Summary Table – Radial Route 1 and spurs	
Description	
• Develop traffic management proposals to reduce speed and improve junctions on Junction Road, Old Scapa Road and Glaitness Road • Ensure recommendations in Priority 2 and 9 are taken into account for junction improvement at Junction Road/Pickaquoy Road • Provide dropped crossings, with tactile paving on corridor that reflect pedestrian desire lines • Widen footway adjacent to car parking opposite Burnmouth Road	
Issues for consideration	
• Vertical traffic calming needs to be designed to take account of emergency vehicles, buses and HGVs (i.e., speed cushions) or use horizontal traffic calming such as chicanes and priority give ways. • Provision of dropped kerbs on pedestrian desire lines requires amendments to current OIC Roads Development Guide	
Recommended Intervention	**Indicative Cost (including and subject to design)**
Implement traffic management scheme to reduce traffic speeds and improve junctions on Junction Road/Old Scapa Road/Glaitness Road	£150,000
Provide dropped crossings and tactile paving at all junctions and widen footway at Burnmouth Road	£70,000

N

0 250m 500m 1km

Kirkwall Potential Active Travel Plan Network (Indicative)

Figure 5.1: Priority 1 Recommendation

Key:

- Provide through link from cycle track to Gunn's Close (see priority 2 & 9)
- Improve safety for pedestrians and cyclists at junctions
- Install dropped crossings and tactile paving and reduce traffic speed along these corridors

NOTE: Potential routes shown are indicative and are subject to change as a result of consultation, feasibility and design.

Halcrow

5.3 Priority 2 Recommendations: East to West Route

5.3.1 An east to west route for pedestrians and cyclists will enable those people living around The Meadows to access the town centre, supermarkets and the Pickaquoy Centre and eventually, the proposed new hospital. Conversely, the route will also enable pupils from the proposed new housing on the west side of Kirkwall to walk and cycle to the High School.

5.3.2 Part of the infrastructure on this proposed route is already in place and has been built to a high standard as well as being well maintained. Figure 5-2 overleaf shows the proposed and existing routes. Essentially, this recommendation involves the 'joining up' of existing routes so they form a coherent network for pedestrians and cyclists.

5.3.3 The existing route from the filling station on Ayre Road, around the Peedie Sea to the Bowling Alley is due to be upgraded as part of the 'Smarter Choices, Smarter Places' proposal and is the first section of this route. It is recommended that the designs for this upgrade should also include a link to the existing coastal route. The second part of this route is the existing cycle track behind the supermarkets which also feeds into Glaitness Primary School. This is an excellent facility which is also due to be extended to serve the Pickaquoy Centre. The main issues on this section are the presence of access barriers and the width of access ramps into the supermarkets. The ramps should be widened to build out conflict between cyclists and pedestrians and with regards to the access barriers, it is desirable and responsible to reduce the speed of cyclists on the approaches to junctions, however, this is possible without forcing cyclists (and for that matter, pedestrians with prams) into difficult manoeuvres that require them to dismount at times. The existing barriers also exclude people on mobility scooters, people on tandems or those wishing to cycle with children on a 'tag-a-long'.

5.3.4 The cycle track comes to an abrupt end at The Crafty and as part of the junction improvement at Pickaquoy Road/Junction Road, the proposals should ensure that the cycle track is extended across the road to Gunn's Close. The existing boundary wall of the car park at Gunn's Close should be moved (which will mean the loss of soft landscaping) so that a direct route between the town centre and the existing cycle track is provided.

5.3.5 The cycle route that currently ends at the Bowling Alley should be continued along West Tankerness Lane and Tankerness Lane to Palace Road. A road closure should be considered at the junction of Palace Road and Tankerness Lane as the opening here is very narrow and there is no footway. By closing the road to through traffic it not only provides a convenient shortcut for cyclists, but will also improve pedestrian safety at the junction.

5.3.6 Palace Road is fairly steep but has adequate footway provision although the dropped crossings could be improved upon. There are existing proposals to relocate the existing bus stop and on street parking in the vicinity of Coplands Lane. It is recommended that the proposals should incorporate an advisory cycle lane on the uphill side of the road and also improve connectivity for pedestrians at Coplands Lane.

5.3.7 The junction of School Place and Palace Road is very difficult for pedestrians due to its width and the existing visirail. This junction should be 'tightened' and redesigned to make it easier for pedestrians to cross on desire lines, and the visirail rationalised only to places where it is absolutely necessary.

5.3.8 Thoms Street is the last section of the route and provides access to the High School. It is a relatively straight road with a fairly steep gradient and would benefit from an advisory cycle lane in the uphill direction. Once at The Meadows, a new section of cycle track should be installed to connect to the existing cycle track to Muir Drive. The access barriers on The Meadows should also be redesigned to ensure cyclists slow down, but are not made to make their progress awkward and uncomfortable. However, any improvements around The Meadows may not be appropriate until the layout of the new school has been agreed.

5.3.9 The recommendations are summarised overleaf and presented in Figure 5-2.

Table 5-2: Priority 2 Recommendations Summary Table – East to West Route

Description

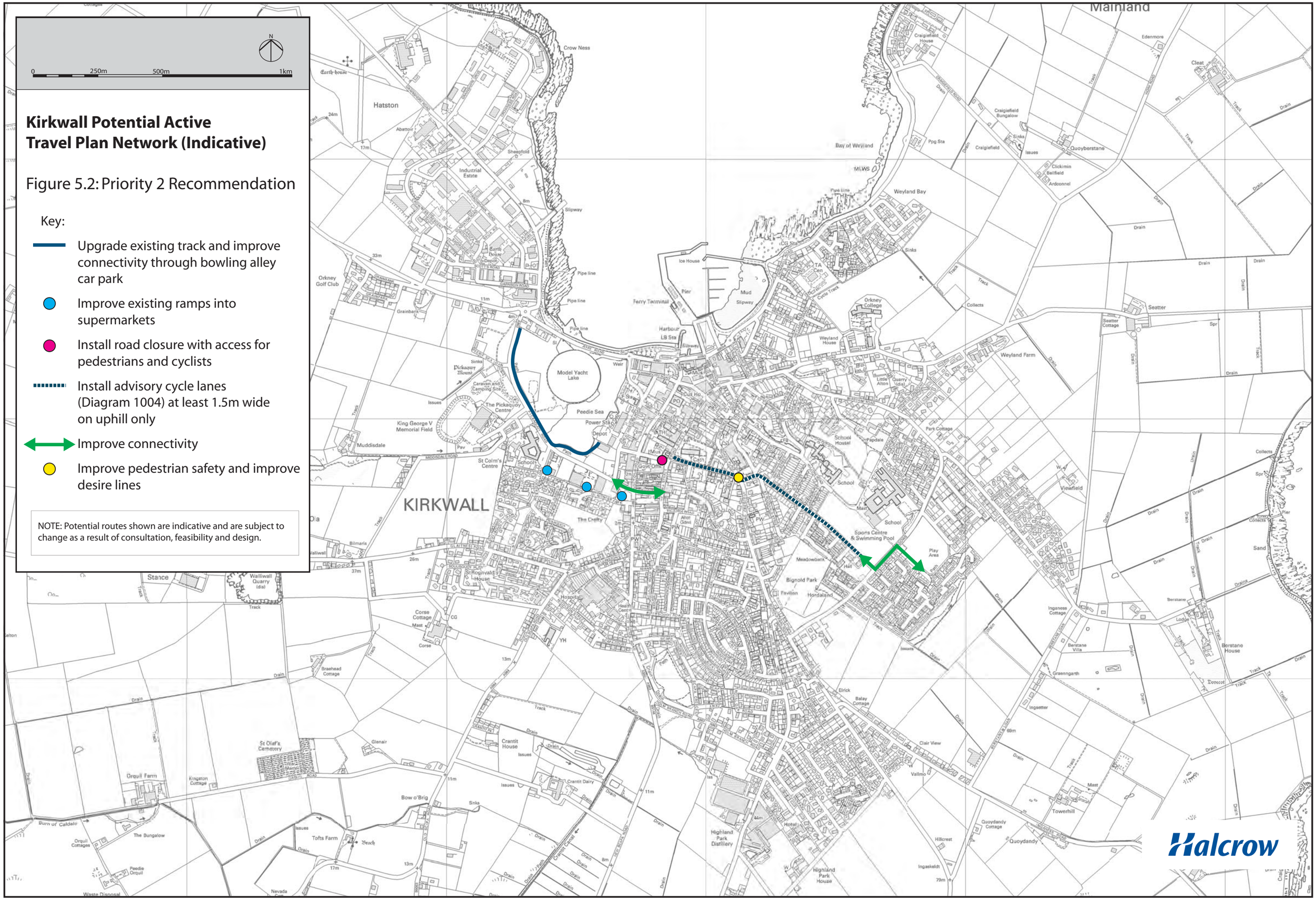
- Upgrade existing route around Pickaquoy Road and provide link to existing coastal route
- Improve access ramps into supermarkets from existing cycle track
- Extend existing route serving supermarkets into Pickaquoy Centre and include extension of route to Gunn's Close as part of proposals to improve the junction at Pickaquoy Road and Junction Road
- Extend existing route from Bowling Alley to Palace Road incorporating a potential road closure at Palace Road/Tankerness Lane
- Provide advisory cycle lanes in an uphill direction on Palace Road and Thoms Street
- Include provision for better pedestrian connectivity between Palace Road and Coplands Road in proposals for work on Palace Road
- Improve the junction of School Place and Palace Road for pedestrians
- Provide connectivity for cyclists between Thoms Street and existing cycle track to Muir Drive
- Provide flush dropped crossings on entire route with appropriate tactile paving and improve manoeuvrability at existing access barriers

Issues for consideration

- Boundary wall at Gunn's Close will need to be relocated to widen the vennel
- Works around The Meadows must take into account proposals for access to new school
- Thoms Street may also benefit from speed reduction measures as it forms part of a 'Safer Route to School' link
- Improvements to ramps at supermarkets will require agreement from landowners

Recommended Intervention	Indicative Cost (including and subject to design)
Upgrade existing Pickaquoy Road route, including link to Coastal route, and extension of existing cycle track to the Pickaquoy Centre	Allow approx £110,000 per kilometre

Connectivity from existing cycle track to Gunn's Close	Delivered as part of existing junction improvement proposals
West Tankerness Lane/Tankerness Lane route	Allow £8000 for signing, TRO and road closure
Palace Road advisory cycle lanes and connectivity to Coplands Lane	Delivered as part of existing proposals
School Road/Palace Road junction pedestrian improvements	Approx £15,000
Thoms Street advisory cycle lanes	Approx £3,000
Connectivity between Thoms Street and cycle track to Muir Drive	Approx £8,000
Provide flush dropped crossings and improve access barriers on existing cycle tracks	Approx £20,000



5.4 Priority 3 Recommendation: Radial Route 2 and Spur

5.4.1 Radial Route 2 (Dundas Crescent and Bignold Park Road) form part of the National Cycle Network as well as being a direct route to the town centre from the residential areas on the south-east part of the town. The provision for pedestrians is very good with adequate width pavements (although there are isolated problems with cars parking on the pavement) and excellent maintenance. The main problem is the steepness of the road which levels out somewhat near to The Meadows.

5.4.2 Two junctions should be improved for pedestrians on this route: Dundas Crescent/George Street and Bignold Park Road/Holm Road. Both of these junctions form important links for people from the Quoybanks area of the town going towards the High School, swimming pool and Primary School. It may be appropriate to provide a raised table with width reductions at both of these junctions . The junction of Clay Loan/Dundas Crescent is also difficult for pedestrians due to the volume of traffic using this junction.

5.4.3 Pedestrian access on the entire route needs to be improved through the installation of flush dropped kerbs with tactile paving.

5.4.4 The recommendations are summarised overleaf and presented in Figure 5-3.

Table 5-3: Priority 3 Recommendations Summary Table – Radial Route 2 and spur

Description

- Install advisory cycle lane in uphill direction on Dundas Crescent and Bignold Park Road
- Improve the junctions of Dundas Crescent/George Street, Bignold Park Road/Holm Road and Dundas Crescent/Clay Loan by providing raised tables and reducing the width
- Install dropped crossings and tactile paving on the entire route

Issues for consideration

- Improvements at junctions should be designed to tie into wider proposals on George Street, a proposed new route across Bignold Park and The Meadows
- Provision of dropped kerbs on pedestrian desire lines requires amendments to current OIC Roads Development Guide
- Pedestrian refuge at the start of Dundas Crescent may need to be removed as it currently acts as a pinch point for cyclists and may not work with an advisory cycle lane

Recommended Intervention	Indicative Cost (including and subject to design)
Advisory cycle lanes in uphill direction	Approx £5000
Junction improvements at three junctions	Approx £70,000
Provide flush dropped crossings and tactile paving	Approx £25,000

0 250m 500m 1km

N

Kirkwall Potential Active Travel Plan Network (Indicative)

Figure 5.3: Priority 3 Recommendation

Key:

- Install advisory cycle lanes (Diagram 1004) at least 1.5m wide on uphill only
- Improve safety at junctions for pedestrians and cyclists
- Install dropped kerbs and tactile paving along entire route

NOTE: Potential routes shown are indicative and are subject to change as a result of consultation, feasibility and design.

5.5 Priority 4 Recommendation: Sign National Cycle Network

5.5.1 Orkney is a delightful place to cycle due to its scenery, plethora of Neolithic attractions, the relatively low traffic flows and the presence of National Cycle Network Route 1 (NCN) and the North Sea Cycle Route (which is the longest official cycle route in the world)

5.5.2 The benefits of cycle tourism to communities in Scotland are wide ranging: cycling is a sustainable form of travel with no pollution, cyclists buy local produce and they usually spend more on food and drink than tourists travelling by car due to increased calorific needs[5]. A study by the Highland Cycle Forum estimated that the economic benefits of cycle tourism in the Highlands was £40 million a year and a report for the development agency in the North East of England (One NorthEast) noted that the National Cycle Network attracted 302,000 cycle trips in 2006 resulting in users contributing £9.6 million of direct expenditure to the North East economy[6].

5.5.3 All of the NCN in Orkney is on existing roads and is way marked by signs. In Kirkwall itself the signing for NCN stops on the outskirts on the town and users are essentially left to find their own way. This arrangement is suitable for those people who are coming into Kirkwall during daylight hours and have a street plan of the town, but for those people using the Sustrans maps they are likely to have difficulty finding their way as the scale is not sufficient to be able to read street names. Also, for anyone coming into Orkney after dark, they are also likely to find themselves lost and will have to rely on destination signage designed for motorists which does not lend itself to local cycle journeys.

5.5.4 Signing is a relatively inexpensive way to promote cycling and is invaluable to tourists who have never been to the town before. It may also be possible to change the existing route to take advantage of proposals in this report. The current route uses King Street, Queen Street and School Places – these are relatively narrow roads and are used as a route from the harbour. It may be more appropriate to sign cyclists along Tankerness Lane and Palace Road, particularly if a road closure is in place (see paragraph 5.3.5.

5.5.5 The recommendations are summarised overleaf and presented in Figure 5-4.

Table 5-4: Priority 4 Recommendations Summary Table – Sign National Cycle Network

Description	
• Install signs to mark route of the National Cycle Network (and North Sea Cycle Route)	
Issues for consideration	
• There may be an opportunity to change the route to take advantage of proposals on Tankerness Lane and Palace Road	
Recommended Intervention	**Indicative Cost**
Install signing	Approx £2000

[5] The UK Tourist: Statistics 1999, English Tourism Council, Northern Ireland Tourist Board, Scottish Tourist Board, Wales Tourist Board (2000)

[6] The Economic Impact of Cycle Tourism in North East of England, Executive Summary, April 2007, Sustrans

N

0 250m 500m 1km

Kirkwall Potential Active Travel Plan Network (Indicative)

Figure 5.4: Priority 4 Recommendation

Key:

- Erect signing to demarcate existing National Cycle Network Route
- Potential alteration to route pending road closure

NOTE: Potential routes shown are indicative and are subject to change as a result of consultation, feasibility and design.

5.6 Priority 5 Recommendation: Pedestrian Priority in Town Centre

5.6.1 Kirkwall was first established as a Norse settlement and the layout of streets grew organically over the next 700 years. The result is a mixture of medieval and Victorian street layouts that are characterised by narrow lanes and vennels. The Kirkwall Urban Design Framework (KUDDf) has identified an historic town core consisting mainly of Bridge Street, Albert Street, Broad Street and Victoria Street. These streets are so narrow that there are no footways (apart from Broad Street) and essentially they work as a 'shared space'. Pedestrianisation has been introduced on Albert Street from 10am to 3pm but from observations, it appears to be largely ignored. During the evening this spine route is part of a circuit appears to be used by predominantly young, male motorists.

5.6.2 Pedestrianisation is sometimes regarded by some businesses very negatively, however it usually has very positive effects. Research conducted by Transport for London into five cities that had implemented pedestrianisation schemes showed that it had produced measurable benefits in terms of the local economy and that in several cases "retail demand and retail competitiveness had improved considerably," and The 'Town Centres Survey 2003-4' by Accent Marketing and Research showed that in eleven town centres, customers coming in on foot spent more per week (£91) than those coming by car (£64).

5.6.3 Appendix 3 shows a list of towns and cities in Europe that have pedestrianised town centres including places that traditionally have very cold and snowy winters. The list is not exhaustive but attempts to show that all across Europe from large towns to small villages it is acceptable to restrict vehicular traffic and provide pedestrian priority. What is noticeable about the areas that are pedestrianised is that they are predominantly in the 'old' parts of the town and cities where because of space constraints it is undesirable to have cars.

5.6.4 In Stornoway in the Western Isles the main shopping streets are pedestrianised and like Kirkwall businesses are dependant on deliveries from ferries. In Stornoway the majority of businesses can be served by rear entrances, however, if deliveries are necessary during the hours of pedestrianisation (10:30 am to 6:00pm) businesses must apply in advance to a permit committee made up of Councillors and Officers who decide if their request is justifiable. The system is flexible and if boats are running very late exemptions are made.

5.6.5 There is also support from the Stornoway Access Panel for pedestrianisation as accessible parking spaces have been provided on the periphery of the area that allows easy access to shops.

5.6.6 Pedestrianisation of Bridge Street, Albert Street and Victoria Street would also make the area more attractive and safer for the thousands of visitors to Kirkwall who arrive via the cruise ships. The population can swell by as much as 3000 people when a ship visits and traders can also take advantage of pedestrianisation by creating pavement cafes and outdoor displays and markets.

5.6.7 The recommendations are summarised overleaf and presented in Figure 5-5.

Table 5-5: Priority 5 Recommendations Summary Table – Pedestrian Priority in Town Centre

Description	
• Pedestrianise Bridge Street, Albert Street and Victoria Street • Ensure adequate provision of accessible parking spaces on periphery of pedestrianised area • Allow two way cycling in pedestrianised areas	
Issues for consideration	
• Physical measures such as the installation of automatic rising bollards may be necessary to enforce pedestrianisation • Premises for 'shopmobility' could be provided within the pedestrianised area • Full consultation required with Orkney Disability Forum	
Recommended Intervention	**Indicative Cost**
Traffic management study, Consultation and TRO for Pedestrianisation	Officer time
Signing for pedestrianised area	£1000

N

0 250m 500m 1km

Kirkwall Potential Active Travel Plan Network (Indicative)

Figure 5.5: Priority 5 Recommendation

Key:

- Pedestrianise between 10am-4pm
- Allow two-way cycling outwith these hours
- Consider enforcement using rising bollards

NOTE: Potential routes shown are indicative and are subject to change as a result of consultation, feasibility and design.

5.7 Priority 6 Recommendation: Promotion Package

5.7.1 Encouraging more people to walk and cycle is not just about infrastructure. In fact, it is possible to create modal shift solely through promotion as has been shown through individualised travel marketing projects in England. With 78% of all journeys to work in Kirkwall 2km or less, there is huge scope to reduce the amount of car journeys and a range of promotional activities should be developed.

5.7.2 Kirkwall has a long history of outdoor activities, the most famous of which is the mass football game 'Kirkwall Ba'' played by the 'uppies and downies' on Christmas day and new years day. The Orkney Triathlon Club based in Kirkwall is one of the oldest in Scotland and there are clubs for badminton, rugby, sailing, archery, athletics, fencing, football, golf, hockey, squash, table tennis, tennis, sub aqua, swimming, kayaking and weightlifting – an impressive list for a population of 20,000 people.

Figure 6: Cyclists in procession on Palace Road, 1900 (Reproduced with kind permission of Gordon Wright)

5.7.3 It is recommended that Orkney Council should work with partners in the NHS to develop a range of activities that promote walking and cycling in the spring and summer months. One of these could be based on the 'London Freewheel' which is a mass participation bike ride for all ages on closed roads. Families are far more likely to cycle on roads without traffic and promotion could be focused on schools and colleges and support any work being undertaken in relation to travel plans and cycle training. The first London Freewheel in 2007 attracted 50,000 participants, 20,000 over the target audience and in the 2008 event another 50,000 people took part. The cost of organising road closures was paid for by business sponsorship. Similar mass participation rides take place all over the country, however very few of them involve the closing of roads. Sponsored walks are also popular ways to encourage people to try and enjoy walking. The Edinburgh Moonwalk which raises money for research into breast cancer attracted 12,000 women.

5.7.4 The promotion of walking should also be carried out through improved signing. Not only with signs help visitors to the town, but they can also be used to help residents discover routes that they did not know existed. On the island of Sark where there are no cars, destinations on signs are shown in minutes rather than distance. Many people perceive walking to be much slower than it actually is so if people realise how quickly they can cover ground on foot they may be more inclined to walk.

5.7.5 Maps are also an ideal way to promote walking and cycling and there are creative ways to use them. A 'calorie map' could be promoted by GPs and health workers that show how many calories can be burned by walking a set route. Again, maps also help promote routes and facilities to residents who are not always aware of what is on their doorstep. A map showing isochrones of walking and cycling times is also a valuable visual interpretation of showing how a compact town like Kirkwall can be covered relatively quickly on foot or on bike.

5.7.6 These are just a small number of promotional activities that can be developed by the Council and through partnership working with the NHS, schools, colleges and local businesses a range of activities suitable for Orkneys should be developed.

5.7.7 It has to be acknowledged that promoting walking and cycling in the winter months will be very difficult as the weather is a major disincentive. During this time promotional activity should be focused on bus travel. Kirkwall has a unique hail and ride bus service in the town that is under used. Due to the nature of hail and ride there are limited numbers of bus stops in the town so many people do not know they live on a bus route. In order to encourage greater use of bus travel in the winter initiatives to raise the profile of bus routes should take place such as colour branding of routes on lamp columns and personalised travel plans for each household.

5.7.8 The recommendations are summarised below in Table 5-6.

Table 5-6: Priority 6 Recommendations Summary Table – Promotion Package

Description	
• Create a multi-agency partnership to develop a spring and summer package of walking and cycling events • Create signing strategy for pedestrians with consideration given to signing in 'time' rather than distance	
Issues for consideration	
• Bus promotion should be considered during the winter months	
Recommended Intervention	**Indicative Cost**
Set up multi-agency partnership	Officer time
Budget for events, maps, etc	Unknown
Signing strategy	Allow £500 per sign/fingerpost including installation

5.8 Priority 7 Recommendation: Improve Local Links

5.8.1 There are a number of traffic free shortcuts in the Quoybanks area that are well used but could be improved for pedestrians and cyclists. The work needed is described in table 5-7, but the majority of improvements involve the resurfacing of existing paths. These existing shortcuts provide advantages for pedestrians and cyclists and should be improved to make them more attractive.

5.8.2 Proposals for traffic calming are currently being developed for the Quoybanks area and as part of this, the existing links in the area should be improved as part of the scheme.

5.8.3 The recommendations are summarised overleaf and presented in Figure 5-7.

Table 5-7: Priority 7 Recommendations Summary Table – Improve Local Links

Description	
• Formalise desire line off Lynn Road • Widen existing cycle track at Rope Walk • Widen and resurface path between Ropewalk and Easdale Loan • Provide ramped access between Royal Oak Road and Kirklands Road as well as surface path • Surface path between Scapa Crescent and Pipersquoy Road and provide lighting • Surface path between Quoybanks Drive and Manse Road and replace access barriers with bollards • Improve access to Victoria Lane by removing visirail	
Issues for consideration	
• Legal status of paths needs to be established • Consultation with residents adjacent to paths should take place	
Recommended Intervention	**Indicative Cost (including and subject to design)**
Allow budget of £40,000 for resurfacing, lighting, new path construction and ramps	

0 250m 500m 1km

N

Kirkwall Potential Active Travel Plan Network (Indicative)

Figure 5.7: Priority 7 Recommendation Improve local links

Key:

- Formalise desire line
- Widen existing cycle track
- Improve existing paths: surface, provide lighting and ramped access where necessary
- Improve connectivity

NOTE: Potential routes shown are indicative and are subject to change as a result of consultation, feasibility and design.

5.9 Priority 8 Recommendation: Accessibility Planning for Proposed New High School

5.9.1 The existing Kirkwall Grammar School which also incorporates a swimming pool and sports centre is due to be rebuilt on the adjacent playing field. At the moment access for pedestrians and cyclists is excellent as the site is served by a number of high quality walking and cycling routes. It is essential that these links are preserved and also improved. Table 5-8 outlines the existing routes and suggested improvements and also a number of new routes.

5.9.2 The Kirkwall Urban Design Framework also sets out a number of priorities for access with regards to the new high school and existing Papdale Primary School:

- Existing pedestrian and cyclist access links should be enhanced and extended where possible. The key strategic link between Kirkwall College and the new Grammar School should be enhanced. Other strategic links should also be enhanced to the town centre via 'The Willows' along existing footpaths and pavements on Willow Road and to the east of the Primary School. These links should be extended towards the south via Papdale Park which would benefit from structure woodland and spatial definition.
- The location of the new playing fields should not act as a barrier to pedestrian and cyclist movement across the area especially if the playing fields require perimeter fencing.
- Pedestrian and cyclist access to the schools from the western and southern parts of the town through Bignold Park and the existing path that runs parallel to Garrioch Street should be improved.
- Safe crossing facilities should be provided on Berstane Road to enhance the cycle and pedestrian 'spine' linking Kirkwall College, the Halls of Residence and the Grammar School.
- Safe, plentiful and secure cycle parking should be provided at new developments to complement the high quality of walking and cycling links to these destinations.

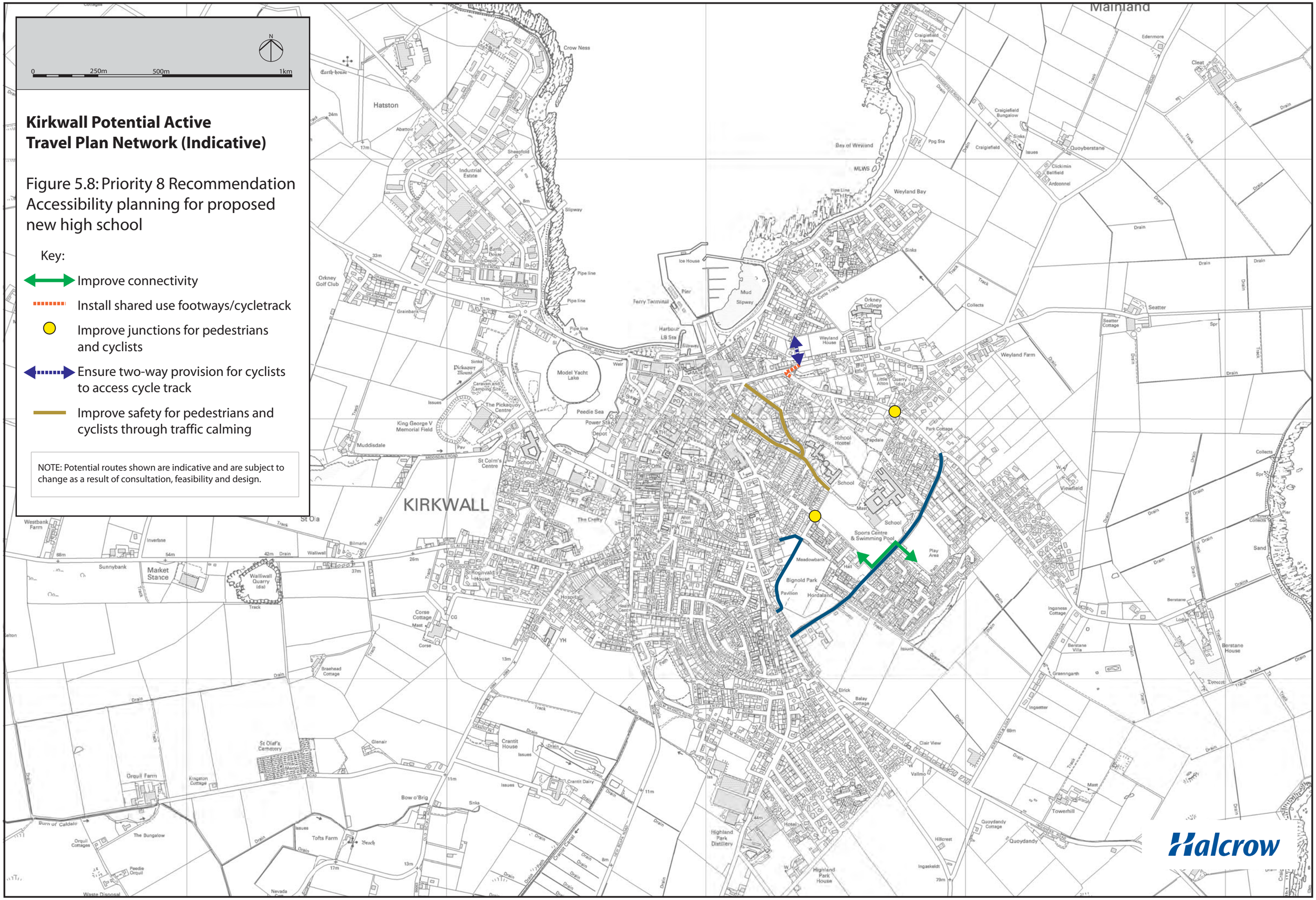
5.9.3 The recommendations are summarised overleaf and presented in Figure 5-8.

Table 5-8: Priority 8 Recommendations Summary Table – Accessibility Planning for Proposed New High School

Description
• Improve crossing point from cycle track to Muir Drive across The Meadows (see also Priority 2)
• Improve cyclist and pedestrian facilities on Thoms Street (see also Priority 2)
• Provide shared use footway/cycle track on The Meadows
• Provide shared use footway/cycle track in Bignold Park from entrance on Bignold Park Road to access track in Meadowbank
• Improve crossing point on Thoms Street linking to existing cycle track adjacent to Garrioch Street
• Improve existing path from George Street to access track in Meadowbank
• Provide improved crossing point on Berstane Road from Annfield Crescent to Papdale Loan

including the removal of access barriers • Improve safety for cyclists and pedestrians on Willowburn Road, Mill Street and Willow Road by providing traffic calming • Ensure Weyland Terrace has two way access for cyclists to link into cycle track • Provide new footway/cycle track from Weyland Terrace to Carters Park Road
Issues for consideration
• Many of the above recommendations could be delivered as part of the new school

Recommended Intervention	**Indicative Cost (including and subject to design)**
Provide shared use footway/cycle track on The Meadows	Approx £110,000 per km of new cycle track
Provide shared use footway/cycle track in Bignold Park from entrance on Bignold Park Road to access track in Meadowbank, including improvements to existing access barriers	Approx £110,000 per km of new cycle track
Improve crossing point on Thoms Street linking to existing cycle track adjacent to Garrioch Street	Cost depends on type of improvement allow £5000 - £15,000
Improve existing path from George Street to access track in Meadowbank	Approx £15,000
Provide improved crossing point on Berstane Road from Annfield Crescent to Papdale Loan including the removal of access barriers	Improvement is scheduled for delivery in 2008/9
Improve safety for cyclists and pedestrians on Willowburn Road, Mill Street and Willow Road by providing traffic calming	Approx £30,000
Ensure Weyland Terrace has two way access for cyclists to link into cycle track	Allow £1500 for revocation to one way order and £6000 for contraflow
Provide new footway/cycle track from Weyland Terrace to Carters Park Road	Allow £10,000



Kirkwall Potential Active Travel Plan Network (Indicative)

Figure 5.8: Priority 8 Recommendation Accessibility planning for proposed new high school

Key:

- Improve connectivity
- Install shared use footways/cycletrack
- Improve junctions for pedestrians and cyclists
- Ensure two-way provision for cyclists to access cycle track
- Improve safety for pedestrians and cyclists through traffic calming

NOTE: Potential routes shown are indicative and are subject to change as a result of consultation, feasibility and design.

Halcrow

5.10 Priority 9 Recommendation: Policy Implementation

5.10.1 The Orkney Islands Council Roads Development Guide sets out construction details for roads, footways and car parks as well as cycle parking standards for new developments. The document makes reference to walking and cycling, but there are a number of areas where the guide could be improved to ensure the needs of pedestrians and cyclists are protected:

- Speed limits
- Local Distributor Roads
- Access roads, access loops and cul-de-sacs
- Bus operations
- Junctions
- Cycle tracks and lanes
- Car parking areas
- Cycle parking standards
- Uncontrolled crossing points

5.10.2 Appendix 2 sets out in detail the suggested alterations to the development guide. Once the Guide has been revised, its contents in relation to walking and cycling should be cascaded to officers through training sessions to ensure they are adhered to, especially in relation to cycle parking standards for new developments.

5.10.3 The design principles for cyclists in 'Cycling by Design' should also be promoted at OIC to ensure that the needs of cyclists are considered in general traffic management schemes. A number of one way streets have been implemented that severely hinder accessibility for cyclists and may lead to illegal behaviour.

5.10.4 The recommendations are summarised below in Table 5-9.

Table 5-9: Priority 9 Recommendations Summary Table – Policy Implementation

Description	
• Amend the Orkney Islands Council Roads Development Guide to reflect the needs of pedestrians and cyclists • Ensure the needs of cyclists and pedestrians are considered in all traffic management schemes	
Issues for consideration	
• Amendments will need to be approved by Members	
Recommended Intervention	**Indicative Cost**
Consultation of proposed amendments	Officer time
Adoption of revised Development Guide	Officer time
Internal training sessions to disseminate information in Guide and Cycling by Design	Officer time

5.11 Priority 10 Recommendation: 20 mph zones

5.11.1 A study by the Transport Research Laboratory (TRL) of 20 mph zones across Europe found they reduced child pedestrian accidents by two thirds and cyclist accidents by almost one third. The report also details an example from Horsham in England that when a 20 mph zone was introduced along with pedestrian improvements, public realm work and public art, combined with a bypass to remove through traffic, the scheme led to increased economic activity from increased pedestrian access.[7]

5.11.2 Data from the Department for Transport shows that more than half of all road deaths and serious injuries occur on roads with 30 mph speed limits and in another TRL report[8] the findings showed that in 20 mph zones average speeds were reduced by 9 mph, annual accident frequency fell by 60%, the overall reduction in child accidents was 67% and there was a reduction of 29% of cyclist accidents. The Health Development Agency suggests that child deaths and injuries from road traffic accidents could be reduced by 67% if 20 mph speed limits were introduced on all residential roads.

5.11.3 A number of towns and cities throughout the UK are now promoting the introduction of 20 mph zones:

- Portsmouth – the Council is in the process of developing 20 mph zones in residential areas and is hoping to become the first city in the UK that has a blanket 20 mph zone. 20 mph zone are being introduced first in areas where the 85th %ile is already less than 24 mph or less and traffic calming schemes are currently being developed for all other areas. The Council hope to change the culture of driving in the city so that speeding is seen as dangerous and anti-social.
- Hull – 30% of all roads in Hull are within 20 mph zones and since their introduction the number of road traffic accidents in the zones has fallen by 56%, child pedestrian casualties are down by 74% and the number of death and serious injuries has fallen by 90%.
- North Lanarkshire – the Council has implemented three trial 20 mph zones and if successful the zones will be extended to all suitable streets.
- Aberdeen – the city centre is now a 20 mph zone and the scheme was introduced to improve pedestrian safety
- Moray Council – the two Community Councils of Findochty and Portknockie have voted to introduce 20 mph zones throughout both villages and feasibility studies are now underway.
- Edinburgh – all residential areas bounded by strategic routes have been considered for the implementation of 20 mph zones which has led to the creation of 41 20 mph zones in the city.

[7] UK Commission for Integrated Transport, 2001. Study of European Best Practice in the Delivery of Integrated Transport: Report on Stage 3 - Transferability

[8] TRL Report 215, 'Review of Traffic Calming Schemes in 20mph zones'.

5.11.4 There are already a number of residential areas in Kirkwall that are traffic calmed: Muir Drive, Papdale Road, Watson Drive, Pickaquoy Drive and the Quoybanks area is due to be traffic calmed accompanied by a 20 mph zone. The proposals for a 20 mph zone should be extended to all existing traffic calmed roads in Kirkwall and the Council should aspire to creating as many 20 mph zones as possible in the town.

5.11.5 Design guidance in Traffic Advisory Limit 9/99 speed limits can be introduced where the 85th% ile speed is within 7 mph or 20% of the proposed speed limit, but if the 85th% ile speed is above 24mph traffic calming measures should be installed.

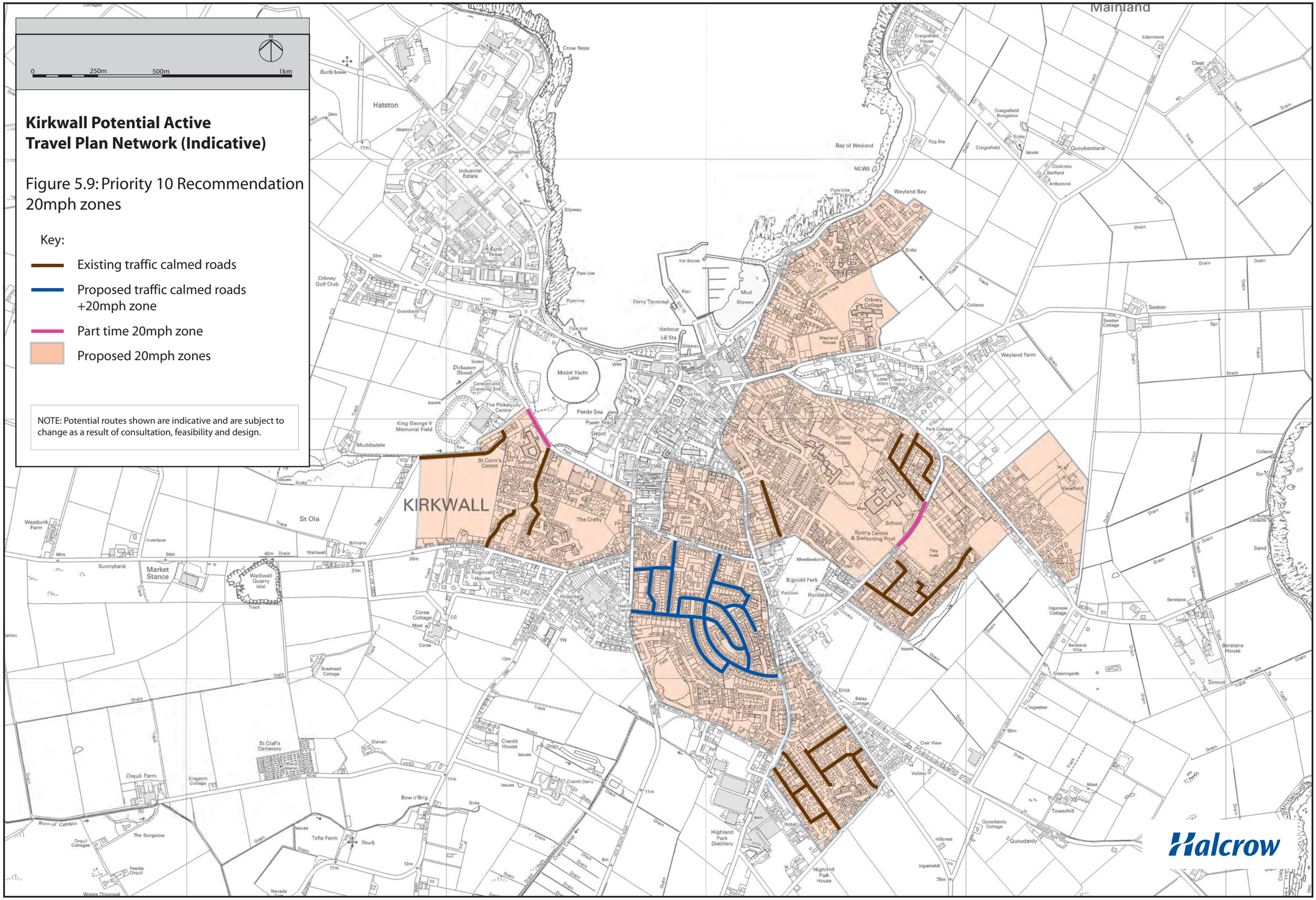
5.11.6 It should also be noted that 20 mph zones and speed limits do not need to be restricted only to residential roads. The Department for Transport funded 10 'Mixed Priority Demonstration Routes.' These routes had a strategic transport function but also had to cater for residents and businesses and had a mix of demands on them such as parking, deliveries, and various road users such as pedestrians, cyclists, buses and motorists. The ten schemes employed various techniques, one of which was traffic calming and 20 mph zones to increase safety and pedestrian activity. The results have been very positive:

- All schemes have had substantial casualty reductions between 24 and 60%
- There have been improvements in noise and air quality
- Pedestrian and cyclist activity has increased
- Improved streetscape has led to a reduction in vacant premises and a more vibrant local economy

5.11.7 The recommendations are summarised overleaf and presented in Figure 5-10.

Table 5-10: Priority 10 Recommendations Summary Table – 20 mph zones

Description	
• Create 20 mph zones in those areas where there is existing traffic calming • Survey residential areas to determine where 20 mph zones can be introduced without traffic calming and identify those areas that would need traffic calming	
Issues for consideration	
• Proposal requires consultation with residents, emergency services, bus operators etc	
Recommended Intervention	**Indicative Cost**
Implement 20 mph zones in areas that are already traffic calmed	Officer time for consultation and TRO and allow £500 per sign
Conduct speed surveys in residential roads without traffic calming to determine measures required	Officer time
Consider blanket 20 mph zone for the whole of Kirkwall based on measures used in mixed priority routes	Officer time



6 Conclusions

6.1.1 There is really no reason for people to give up their cars in Kirkwall, even though most journeys in the town are less than 2km. There are plenty of places to park, there is virtually no congestion, all parts of the town are accessible by car and combined with very windy and wet weather in the winter, walking and cycling offer very little advantages apart from the monetary and health benefits. Double parking is a common occurrence and motorists will often go home if they cannot find a parking place as close as possible to their destination. The 'Smarter Choices, Smarter Places' programme has commissioned a study to uncover motorists' attitudes to their car and what would be required to change attitudes and behaviour. The results of this study will have implications for sustainable transport policy interventions across Scotland and the recommendations in this study should be reviewed in light of the results of the study.

6.1.2 The most valuable asset that Kirkwall has in terms of creating modal shift is the support of Council Members and Officers. There is significant senior Member support for the Smarter Choices, Smarter Places programme and officers are open-minded with regards to initiatives and tools that can be used to encourage more people to walk and cycle. Key partners and groups in the town should be engaged to work in partnership with the Council to promote the benefits of sustainable travel and it's role in combating climate change.

6.1.3 The demand management measures outlined in this report would probably be the most effective way to create modal shift as it would make journeys by car longer and less convenient. However, these measures would require the provision of new roads to create a 'ring road' for Kirkwall that would remove through traffic from the town. This is a long term aspiration that would require significant investment, however if a ring road was developed without demand management in the town itself, it is more likely to encourage people to drive and lead to increased levels of traffic.

6.1.4 The harsh winter weather in Kirkwall is a significant deterrent to walking and cycling in the town, but there are people who do walk and cycle all year round. According to MET office statistics, Kirkwall was the sunniest place in the UK in July 2008 with on average 8.9 hours of sunshine per day and this good weather was a common occurrence throughout the summer. There is anecdotal evidence to suggest that there were more people walking and cycling in Kirkwall because of the good weather and although these increases may not be sustainable throughout the year, the winter weather should not be used as a deterrent to introduce measures to encourage walking or cycling. Bus travel should be included as part of a mix to enable sustainable travel to be promoted in a year round promotional programme.

6.1.5 Kirkwall's compact street layout does not lend itself to new infrastructure for pedestrians and cyclists and any measures to encourage walking and cycling will need to be delivered through traffic management measures. The most effective of these measures will be the implementation of 20 mph zones, initially in residential areas, but lower speed limits should also be considered for main routes in Kirkwall where segregated provision for pedestrians and cyclists cannot be provided. A blanket 20 mph zone for Kirkwall may be controversial, but it is common practice in mainland Europe and is gaining popularity in the UK and the potential for such a measure should be studied further.

6.1.6 Orkney is twinned with the county of Hordaland in Norway, a country not famous for its high levels of walking or cycling, however, Trondheim which is located to the north of Hordaland is famous for it's high levels of cycling and is the only place in the world that has a bicycle lift on a very steep street in the city. In 1991 the city introduced tolls on the main roads into the city centre to fund the building of a city centre ring road. In 2005 the tolls were abolished after the ring road was built and considerable investments had been made in sustainable transport funded from the tolls. Between 1990 and 2004 cycling had increased by 3.5% since, car passengers numbers had decreased by 5.6% and although the population of Trondheim had increased by 12%, single car occupancy over this time period had only increased by 3%. Sandnes in Norway has also managed to develop a culture of walking and cycling despite harsh winters. Appendix 4 provides more information on how sustainable transport has been developed in Norway and other Nordic counties.

Appendix 1: Kirkwall Active Travel Network – Suggested Improvements

Route 1 – Coastal Route

Ref	Street	Start	End	Potential Intervention (subject to design)
1a	Existing coastal cycle track	Car park on Harbour Road	Harbour Road	Extend cycle track to connect to Harbour Street
1b	Existing coastal cycle track	Hatston slip	Hatston Pier	Extend cycle track from Hatston slip to Hatston Pier
1c	Harbour Street/Shore Street	Existing cycle track	Cromwell Road	Widen footway on southern side of road to improve conditions for pedestrians and to enable hostelries to develop outdoor cafes and improve connectivity between town centre and harbour Provide dropped crossings and tactile paving at St Catherine's Place roundabout
1d	Cromwell Road	St Catherine's Place	Islands View Road	Provide uphill advisory cycle lane Provide dropped crossings and tactile paving at all minor road crossings Provide cycle gap in the road closure
1e	Cromwell Road	Islands View Road	Carness Road	Provide shared use cycle track

N

0 250m 500m 1km

Kirkwall Potential Active Travel Plan Network (Indicative)

Figure A1: Route 1 coastal path

Key:

- Existing cycle track
- Proposed new cycle track
- Widen footway to create more space for pedestrians. Provide dropped crossings
- Provide gap for cyclists in existing road closure
- Provide uphill advisory cycle lane (Diagram 1004) at least 1.5m wide. Install dropped crossings and tactile paving

NOTE: Potential routes shown are indicative and are subject to change as a result of consultation, feasibility and design.

Route 2 – East to West Route

Ref	Street	Start	End	Potential Intervention (subject to design)
2a	Existing cycle track	Pickaquoy Loan	Pickaquoy Centre	Extend cycle track to sports centre including a coherent and direct route through car park to existing cycle parking
2b	Existing cycle track	Pickaquoy Loan	The Crafty	Alter access barriers to improve access and widen access ramps into supermarkets
2c	Junction Road	The Crafty	Victoria Street	Extend existing cycle track through junction and Gunn's Close to Victoria Street. Widen Gunn's Close by moving existing car park boundary wall
2d	Existing path	Ayre Road	Bowling Alley	Resurface and widen existing path to at least 2.5m. Extend path to connect with coastal cycle route, provide access points to Glaitness Primary School/Pickaquoy Loan cycle track and Pickaquoy Centre. Extend cycle track from Bowling Alley to West Tankerness Lane
2e	West Tankerness Lane/Tankerness Lane	Great Western Road	Palace Road	Improve junction of Great Western Road/West Tankerness Lane and Junction Road/Tankerness Lane for cyclists and pedestrians Close the junction of Tankerness Lane/Palace Road to motor vehicle traffic to improve safety for pedestrians Provide dropped crossings and tactile paving along entire route Sign National Cycle Network
2f	Palace Road	Tankerness Lane	Thoms Street	Provide an uphill cycle lane on Palace Road Relocate bus stop and car parking on west side of road to provide a build out to improve connectivity to Coplands Lane 'Tighten' junction at School Lane to improve pedestrian access, remove extensive visirail and ensure dropped

Ref	Street	Start	End	Potential Intervention (subject to design)
				crossings and tactile paving is provided Sign National Cycle Network
2g	Thoms Street	School Place	Cycle track to Muir Drive	Provide an uphill advisory cycle lane Improve crossing point at cycle track adjacent to Garrioch Street Install dropped crossings and tactile paving along entire route Improve crossing point on The Meadows and rationalise access barriers

0 250m 500m 1km

N

Kirkwall Potential Active Travel Plan Network (Indicative)

Figure A2: Route 2 East to West

Key:

- Existing cycle track
- New cycle track
- Upgrade existing path into shared use footway/cycletrack
- Install road closure with gap for pedestrians and cyclists
- Provide uphill advisory cycle lane (Diagram 1004) at least 1.5m wide.
- Improve junctions with pedestrian priority
- Signed on-road route for cyclists

Note: Dropped crossings with tactile paving to be provided along the entire route

NOTE: Potential routes shown are indicative and are subject to change as a result of consultation, feasibility and design.

Connect to existing coastal routes

Provide links to proposed new housing and hospital

Provide links to proposed new housing

KIRKWALL

Mainland

Halcrow

Route 3 – Radial Route 1 and Spurs

Ref	Street	Start	End	Potential Intervention (subject to design)
3a	Junction Road/New Scapa Road	Harbour Street	Scapa Crescent	Improve safety for pedestrians and cyclists on this strategic route applying 'Mixed Priority' principles Ensure junction design at Pickaquoy Road provides extension of cycle track to Gunn's Close Widen footway opposite Burnmouth Road Install dropped crossings and tactile paving along the entire route Sign National Cycle Network
3b	Old Scapa Road/High Street	Junction Road	End of 30 mph zone	Install traffic management measures to reduce speed Install dropped crossings and tactile paving along the entire route Sign National Cycle Network
3c	Glaitness Road	High Street	End of 30 mph zone	Install traffic management measures to reduce speed Install dropped crossings and tactile paving along the entire route

N

0 250m 500m 1km

Kirkwall Potential Active Travel Plan Network (Indicative)

Figure A3: Route 3 Radial route and spurs

Key:

- Provide link between existing cycle track and town centre
- Treat section of road as 'mixed priority' and improve conditions for pedestrians and cyclists
- Improve junctions for pedestrians and cyclists
- Install measures to reduce speed of traffic and provide flush dropped crossings

NOTE: Potential routes shown are indicative and are subject to change as a result of consultation, feasibility and design.

Route 4 – Radial Route 2 and Spur

Ref	Street	Start	End	Potential Intervention (subject to design)
4a	Dundas Crescent/Bignold Park Road	School Place	Lynn Road	Provide an uphill advisory cycle lane Install dropped crossings and tactile paving along the entire route Provide raised crossing points at the junctions of The Meadows, Holm Road and George Street Sign National Cycle Network
4b	Holm Road	Holm Branch Road	Bignold Park Road	Install dropped crossings and tactile paving

N

0 250m 500m 1km

Kirkwall Potential Active Travel Plan Network (Indicative)

Figure A4: Route 4 Radial route 2 and spur

Key:

- Provide uphill advisory cycle lane (Diag 1004) at least 1.5m wide Provide dropped crossings with tactile paving
- Improve junctions for pedestrians and cyclists
- Install flush dropped crossings and tactile paving along corridor

NOTE: Potential routes shown are indicative and are subject to change as a result of consultation, feasibility and design.

Route 5 – College Route

Ref	Street	Start	End	Potential Intervention (subject to design)
5a	Existing cycle track	Wasdale Crescent	East Road	Cut back overhanging vegetation Rationalise access barriers to slow cyclists down without forcing them to dismount
5b	Weyland Terrace	Cromwell Drive	East Road	Provide a contraflow cycle lane to allow cyclists two way access to new cycle track
5c	East Road	Orkney College	St Catherine's Place	Remove grass verge in footway to widen existing footway Provide dropped crossings with tactile paving along the entire route
5d	St Olaf's Wynd	Garden Street	Bridge Street	Provide contraflow facility for cyclists Install dropped crossings and tactile paving

N

0 250m 500m 1km

Kirkwall Potential Active Travel Plan Network (Indicative)

Figure A5: Route 5 College Route

Key:

- Allow two-way cycling (contra flow)
- Remove grass verge footway
  Provide dropped crossings and tactile paving along route
- Cut back vegetation and improve access barriers
- On road route for cyclists (signed) ensure route has dropped kerb crossings and tactile paving
- Existing cycle track (shared use)

NOTE: Potential routes shown are indicative and are subject to change as a result of consultation, feasibility and design.

Route 6 – School Links

Ref	Street	Start	End	Potential Intervention (subject to design)
6a	Existing cycle track	Pickaquoy Road	Glaitness Road	Rationalise access barriers to slow cyclists down without forcing them to dismount
6b	The Meadows	Bignold Park Road	Berstane Road	Provide a shared use footway cycle track Install dropped crossings and tactile paving along entire route
6c	Berstane Road	Papdale Loan	Annfield Crescent	Provide a raised crossing and rationalise access barriers to slow cyclists down without forcing them to dismount
6d	Berstane Road	Carters Park Road	East Road	Provide a formalised route on existing desire line wide enough for pedestrians and cyclists with dropped crossings and tactile paving
6e	Mill Street/Willow Road	Kings Street	Garrioch Street	Install traffic calming to improve pedestrian and cyclist safety Install dropped crossings and tactile paving along the entire route
6f	Willowburn Road	Queen Street	Willow Road	Install traffic calming to improve pedestrian and cyclist safety Install dropped crossings and tactile paving along the entire route
6g	The Willows	Willowburn Road	Mill Street	Improve existing path to connect to Papdale Primary School including widening of the route
6h	Access track	George Street	Meadowbank	Formalise existing path and improve surface
6i	Bignold Park	Access at Bignold Park Road	Meadowbank	Provide a new shared use footway/cycle track and improve access barriers at Meadowbank

0 250m 500m 1km

N

Kirkwall Potential Active Travel Plan Network (Indicative)

Figure A6: Route 6 School links

Key:

- Provide a shared use footway/cycle track
- Existing shared use cycle track requires work to improve access barriers
- Install traffic calming to improve pedestrian and cyclist safety
- Existing cycle track
- Signed on road route for cyclists Ensure all route have flush dropped kerbs with tactile paving
- Improve junctions for pedestrians and cyclists

NOTE: Potential routes shown are indicative and are subject to change as a result of consultation, feasibility and design.

Route 7 – Local Links

Ref	Street	Start	End	Potential Intervention (subject to design)
7a	Desire line	Lynn Road	-	Formalise desire line including the provision of dropped crossings and tactile paving
7b	Cycle track	Rope Walk	-	Widen existing cycle track and smooth out sharp bend
7c	Existing path	Rope Walk	Easdale Loan	Widen and surface path and provide dropped crossings and tactile paving
7d	Existing path	Royal Oak Road	Kirklands Road	Widen and resurface path and provide ramped access to avoid steps
7e	Existing path	Scapa Crescent	Pipersquoy Road	Surface path and install lighting
7f	Victoria Lane	Laverock Road	Victoria Road	Improve connectivity between Laverock Road and Victoria Lane including the removal of access barriers

Kirkwall Potential Active Travel Plan Network (Indicative)

Figure A7: Route 7 Local links

NOTE: Potential routes shown are indicative and are subject to change as a result of consultation, feasibility and design.

Route 8 – Town Centre Links

Ref	Street	Start	End	Potential Intervention (subject to design)
8a	Bridge Street, Albert Street, Victoria Street	Harbour Street	Clay Loan	Extend pedestrianisation from 10am to 4pm and allow two way cycling
8b	Broad Street	Castle Street	Victoria Street	Widen footway on the west side of the street to reduce the width of the carriageway and reduce the impact of vehicular traffic Redesign the junction at Palace Road/Victoria Street to improve the public realm and provide increased space for pedestrians
8c	Castle Street	Junction Road	Broad Street	Reduce width of carriageway by increasing the width of footways and providing advisory cycle lanes Provide dropped crossings and tactile paving along the entire route

N

0 250m 500m 1km

Kirkwall Potential Active Travel Plan Network (Indicative)

Figure A8: Route 8 Town Centre links

Key:

- Pedestrian area from 10am to 4pm Allow two-way cycling outwith these hours - consider enforcement with rising bollards
- Widen footway on west side
- Widen footways and provide advisory cycle lanes
- Existing vennels/routes
- Improve area to provide more space for pedestrians
- Provide flush dropped kerbs and tactile paving along entire route

NOTE: Potential routes shown are indicative and are subject to change as a result of consultation, feasibility and design.

Halcrow

Appendix 2 – Recommended Amendments to Orkney Islands Council Roads Development Guide

Roads Development Guide

The recommended amendments to the Orkney Islands Council (OIC) Roads Development Guide to improve provision for pedestrians and cyclists are described below.

Table 5.1.2 – Speed Limits

This table sets out the Route Hierarchy for urban areas. Local roads are classed as those with up to 1000 vehicles a day and serve up to 500 dwellings or industrial estates. The design speed for these roads is stated to be 50kph, however, for such lightly trafficked roads, it is recommended that the design speed be reduced to 30kph. The same recommendation is also made for **General Access Roads** that serve up to 200 dwellings.

Paragraph 5.1.2.4 – Local Distributor Roads

This paragraph states that these roads are 'primarily ***designed for the needs of moving vehicular traffic***'. There should be some acknowledgement that non-motorised users will also need to be considered on Local Distributor Roads, especially where they serve main trip generators and attractors and run through residential areas.

Paragraph 5.1.1.5 - Access Road – General and 5.1.2.8 Access Loops and Cul-de-sacs

The description of General Access Roads suggests a road layout based on cul-de-sacs and loops. In practice, this type of layout is advantageous to those using motorised vehicles, but they create 'introverted' layouts which often involve long detours for pedestrians and cyclists. Ideally the guidance should be changed to reflect the advantages cul-de-sacs can have for pedestrians and cyclists when they are integrated with each other through 'short-cuts'. It would also benefit vulnerable road users if the design speed were reduced to 30kph, especially in residential areas.

Paragraph 5.1.3.4 - Bus Operations

Orkney has a unique hail and ride system that has negated the need for bus stops in some places. The development guide should reflect this arrangement.

Paragraph 5.2.2 – Junctions

A common characteristic of roads in Kirkwall are wide junctions that are convenient for motorists as they require minimum de-acceleration to manoeuvre but they are inconvenient for pedestrians as they increase the distance needed to cross the road. The guide does recommend that developers liaise with the Council with regards to exact dimensions, but the dimensions in table 5/2/4 for urban roads should be used. The table below shows the recommendations from the document and suggested changes to improve pedestrian permeability and safety.

Type of Road	Design or measured speed	Corner radius	Recommendations
Primary distributor	85 kph/53 mph	Compound curve – 27m/9m	Reduce design speed to 50 kph and corner radius to 6m
District distributor	60 kph/37 mph	Compound curve – 27m/9m	Reduce design speed to 50 kph and corner radius to 6m
Local distributor	50 kph/31 mph	10m	Reduce corner radius to 6m

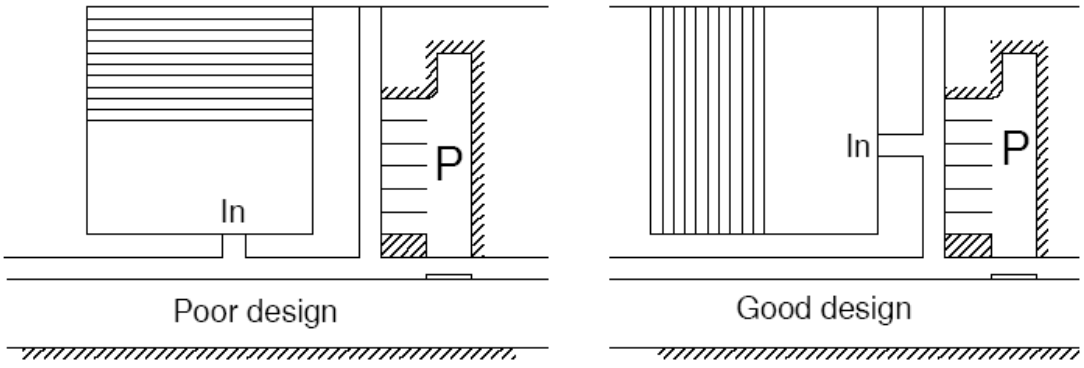
Type of Road	Design or measured speed	Corner radius	Recommendations
General access road	50 kph/31 mph	10m	Reduce corner radius to 6m
Industrial access road	50 kph/31 mph	10m	Reduce corner radius to 6m
Minor access road	30 kph/18 mph	6m	None
Access loop/cul-de-sac	N/A	N/A	None
Individual industrial access	N/A	N/A	None
Small house groups	N/A	N/A	None
Individual house access	N/A	N/A	None

Paragraph 5.2.3 – Cycle Tracks and Lanes

The recommendations here are over simplified and do not reflect current design guidance as there are no caveats on vehicle speed and volume on the use of mandatory cycle lanes outwith the guidance in Figure 5.1 in Cycling by Design, 'Link Specification Guide Criteria.' The document should refer developers to Cycling by Design for any type of cycle facility as in paragraph 5.2.8.

Paragraph 5.2.5.1 – General

The document uses a visual representation to demonstrate good and bad design in relation to the siting of car parking and entrances to buildings as shown below:



The example showing 'poor design' is in fact the most appropriate layout for pedestrians whereas the 'good design' reflects the tone of the document which promotes vehicular access and to discourage on street parking. The description of the diagram should be altered so that in the future buildings are designed to provide the most convenient access for vulnerable road users and indiscriminate parking should be controlled using physical

measures, waiting restrictions and effective enforcement rather than penalise pedestrians.

Paragraph 5.2.5.8 – Cycle Parking Standards

The development guide sets out recommended cycle parking guidelines for new developments including one cycle stand (Sheffield type) for each new flat. Sensibly the guidance states that 'covered facilities may be a suitable solution. If long term cycle parking is envisaged, then enclosed lockable facilities may be the better option.' This is a sound recommendation bearing in mind the salty sea winds which can rust exposed metal very quickly in Kirkwall.

Table 5.2.9 sets out cycle parking standards for other types of development:

Development	Required Cycle Parking
General commercial	2 + 1 space per 250 sq m gfa
All others	1 space per 8 car parking spaces or as otherwise specified

Both cycle parking and car parking standards are set out within the Guide and although planning staff are highly knowledgeable with regards to the car parking standards it appears that they are unaware of any standards relating to cycle parking. To encourage more widespread application and promotion of cycle parking standards, it is recommended that Supplementary Planning Guidance encompassing parking standards for all modes be produced and the opportunity taken to update the existing standards. For car parking, it is recommended that in line with Scottish Planning Policy 17, maximum car parking standards should be set for residential properties and that cycle parking standards are updated. The table below shows a comparison of cycle parking standards for other Local Authorities along with guidelines in Cycling by Design and a recommendation for OIK.

Location	Aberdeen	Edinburgh	Glasgow	Cycling by Design	Recommended
Student flats/Halls of residence	1 space per 8 staff and residents	1 space per dwelling	1 space per 6 staff and residents	1 space per 8 staff and residents	1 space per dwelling
Old persons home/sheltered accommodation/sheltered housing/special needs housing	1 space per 8 parking places	1 per staff dwelling	N/A	N/A	1 space per 3 staff Sheltered accommodation: 1 space per 450m^2
Flats	1 space per flat	1 space per flat	N/A	N/A	1.5 spaces per flat
General Housing 1 to 3 rooms per dwelling	N/A	1 space	N/A	N/A	2 spaces for 1 bedroom, 2 spaces per 2 bedrooms, 3 spaces for 3+ bedrooms
General Housing 4 or more rooms per dwelling	N/A	2 spaces	N/A	N/A	3 spaces
Housing for Local Authority or Housing Association, 1, 2 or 3 rooms per dwelling	N/A	1 space	N/A	N/A	N/A
Housing for Local Authority or Housing Association, 4 or more rooms per dwelling	N/A	2 spaces	N/A	N/A	N/A
Food Retail	1 space per 1000m^2	Minimum 1 space for customers and one space for employees per 500m^2	2 spaces + 1 space per 350m^2 and for staff 1 space +1 per 20 staff*	1 space per 500m^2	2 spaces + 1 space per 350m^2 and for staff 1 space +1 per 20 staff*
Non Food Retail	1 space per 1000m^2			1 space per 1000m^2	
Primary School	1 space per 25 staff and pupils	2 spaces for visitors,** 1 space per 10 staff and 1 space per 10 pupils aged	1 space + 1 per 20 staff and pupils	1 space per 25 staff and pupils	1 space + 1 per 20 staff and pupils

Location	Aberdeen	Edinburgh	Glasgow	Cycling by Design	Recommended
Secondary School	1 space per 25 staff and pupils	2 spaces for visitors,** 1 space per 10 staff and 1 space per 5 pupils	1 space + 1 per 20 staff and pupils	1 space per 25 staff and pupils	1 space + 1 per 20 staff and pupils
College/University	1 space per 25 staff and pupils	At least 2 spaces for visitors,** 1 space per 10 staff and 1 space per 3 students	1 space + 1 per 20 staff and pupils	1 space per 25 staff and pupils	1 space + 1 per 20 staff and pupils
Hospitals	1 space per 8 parking spaces	1 space per 3 consulting rooms,** and 1 space per 10 staff	1 space + 1 per 20 staff	1 space per 8 parking spaces	1 space per 8 parking spaces
Bus station	N/A	Cycle parking provision must relate to employee and customer numbers analogous to other land uses	2 spaces per hundred peak period passengers	2 spaces per hundred peak period passengers	2 spaces per hundred peak period passengers

*1 space plus 1 space per 20 staff ensures a minimum level of staff provision at workplaces with fewer than 20 staff.

**As close to the main entrance as possible

Paragraph 5.2.9 – Pedestrian Facilities

The Guide recommends that uncontrolled pedestrian crossing points are inset into the side road 1m away from the tangent of the radius. Although the provision of inset crossing points to minimise the crossing distance are recommended by the Department for Transport in 'Guidance on the Use of Tactile Paving Surfaces,' it is not essential to set them back 1m from the tangent point. The document also sets out the limitations of inset crossings:

'It is recognised that it is not always possible or desirable to provide inset crossing points. The main limitations occur where:

- ***There is insufficient footway width in the side street to provide the manoeuvring space needed for ramped approach to a dropped kerb***
- ***Pedestrians crossing at such points would not be visible to approaching drivers***
- ***The dropped kerb is likely to be blocked parked cars***
- ***The inset crossing is too remote from the pedestrian desire line'***

The Guide should reflect the above guidance and be amended to ensure dropped kerbs are provided on pedestrian desire lines and are not blocked by parked cars. Reducing the radius curve on side roads will also help to provide shorter crossing distances for pedestrians.

Appendix 3 – Examples of Pedestrianised Towns and Cities in the UK and Europe

The purpose of this list is to illustrate that pedestrianisation is a common phenomenon all over the UK and Europe, regardless of the size of a town or city. It is also a widespread solution to the problem of vehicular traffic in those places where the town centre is characterised by narrow street layouts formed between medieval and Victorian times.

Country	Town/City	Population	Comments
Austria	Salzburg	150,269	Old town medieval centre where shopping area is concentrated is car free
Belgium	Bruge	117,224	Medieval town centre is car free
France	Lyon	470,000	Traffic free area is in the 17th and 18th Century quarter
France	Dijon	150,803	Car free town centre where there are old buildings and narrow streets
France	Lauzerte	1,487	Often called the most beautiful village in France, the town centre established in the 13th Century is traffic free
France	Sarlat	9,707	Famous 14th Century preserved town. Centre is largely car free. Nominated for UNESCO World Heritage Site
Germany	Lindau	24,537	Main shopping street is car free and major tourist attraction
Germany	Rothenburg ob der Tauber	11,226	Famous for location of Chitty Chitty Bang Bang. Medieval town centre is mostly car free
Greece	Spetses	3,846	Island where cars are severely restricted. Served by horse and cart, water taxis, some conventional buses and taxis. Popular tourist destination served by high speed hydrofoils and ferries
Greece	Hydra	2,719	Only motorised vehicles allowed are refuse vehicles. Popular tourist destination served by catamarans and high speed hydrofoils
Holland	Delft	96,168	Old town centre with medieval street layout is pedestrianised
Holland	Groningen	30,000 in city centre	Medieval town centre is pedestrianised
Italy	Assisi	26,196	World Heritage Site where medieval town centres is pedestrianised
Italy	Orta San Giulio	1,170	World Heritage Site, access by cars restricted, residents must apply for a permit to have a car
Norway	Grimstad	9,500	Town centre is pedestrianised
Sweden	Old Town Stockholm	3000	Medieval town centre is pedestrianised
Sweden	Jakriborg	2000	New town where general car access is restricted, town centre is car free
Sweden	Neuchatel	32,389	Old town centre is pedestrianised

Country	Town/City	Population	Comments
Switzerland	Appenzell	5,618	Old town centre is pedestrianised
Switzerland	Gstaad	2,500	Old town centre is pedestrianised
Switzerland	Rapperswil	24,400	Medieval town centre is pedestrianised
Switzerland	Brig	5,000	10 blocks in old town are car free
UK	Blackburn	105,085	Cycling permitted in pedestrianised area
UK	Bolton	139,403	Main high street pedestrianised
UK	Kendal	27,521	Main high street pedestrianised
UK	Manchester	458,100	Pedestrianised area expanded after IRA bombing in 1990s
UK	Stockport	136,082	Two main streets in city centre pedestrianised
UK	Newcastle	189,863	A total of six streets pedestrianised in the city centre
UK	Sunderland	177,739	Main high street pedestrianised
UK	Gateshead	78,403	Two main streets in city centre pedestrianised
UK	Sheffield	530,300	Four streets in city centre pedestrianised
UK	Birmingham	1,010,200	Extensive area pedestrianised in city centre
UK	Leicester	292,600	Main high street pedestrianised
UK	Stoke	239,700	Two main streets in city centre pedestrianised
UK	Loughborough	57,600	Main high street pedestrianised
UK	Hinckley	43,246	Four streets pedestrianised in the city centre
UK	Chesterfield	100,600	Two streets in the city centre pedestrianised
UK	Nottingham	288,700	Extensive Pedestrianisation in the city centre with over 20 streets pedestrianised during the day
UK	Rushcliffe	109,000	Two streets in the city centre pedestrianised
UK	Cambridge	120,000	Two streets in the city centre pedestrianised
UK	Ipswich	121,000	Main high street pedestrianised
UK	Watford	80,000	Two streets in the city centre pedestrianised
UK	Chichester	23,731	Two streets in the city centre pedestrianised
UK	Brighton	155,919	Three streets in the city centre pedestrianised
UK	Oxford	151,000	Main high street pedestrianised
UK	Reading	143,096	Three streets in the city centre pedestrianised
UK	Bristol	416,400	Three streets in the city centre pedestrianised
UK	Salisbury	45,000	Main high street pedestrianised

Country	Town/City	Population	Comments
UK	Torbay	134,200	Main high street pedestrianised
UK	Southampton	228,600	Main high street pedestrianised
UK	Paignton	48,251	Main high street pedestrianised
UK	St Ives	11,165	Main high street pedestrianised
UK	Falmouth	21,635	Main high street pedestrianised
UK	Truro	20,920	Three streets in the city centre pedestrianised
UK	St Austell	22,658	Main high street pedestrianised
UK	Newquay	19,562	Main high street pedestrianised
UK	Preston	131,900	Main high street pedestrianised
UK	Lancaster	45,952	Main high street pedestrianised
UK	Liverpool	435,500	Main high street pedestrianised
UK	York	193,300	Extensive pedestrianisation with 15 streets closed to traffic during the day
UK	Hull	257,000	Main high street pedestrianised
UK	Leeds	443,247	Main high street pedestrianised
UK	Whitby	13,594	Two streets in the city centre pedestrianised
UK	Hereford	50,400	Five streets in the city centre pedestrianised
UK	Beeston	16,000	Main high street pedestrianised
UK	Lincoln	87,800	Two streets in the city centre pedestrianised
UK	Wigston	33,116	Main high street pedestrianised
UK	Peterborough	163,300	Main high street pedestrianised
UK	Canterbury	43,432	Five streets in the city centre pedestrianised
UK	Portsmouth	197,700	Main high street pedestrianised
UK	Penzance	20,255	Main high street pedestrianised
UK	Redruth	12,352	Main high street pedestrianised
UK	Liskeard	9,899	Main high street pedestrianised
UK	Gloucester	123,205	Four streets pedestrianised in the city centre
UK	Cardiff	317,500	Main high street pedestrianised
UK	Fort William	9,908	Main high street pedestrianised
UK	Inverness	40,949	Main high street pedestrianised
UK	Elgin	20,829	Main high street pedestrianised

Country	Town/City	Population	Comments
UK	Falkirk	32,379	Main high street pedestrianised
UK	Perth	43,450	Main high street pedestrianised
UK	Milngavie	12,795	Main high street pedestrianised
UK	Stornoway	8,055	Two streets in the city centre pedestrianised
UK	Dingwall	5,026	Main high street pedestrianised

Appendix 4 – Case Studies of Nordic Cycling

Sandnes, Norway

Population: 56,000

In 1991 Sandnes joined the 'Healthy Cities Project' was to promote sustainable development through land use and transport to improve the health of residents. The main objectives of the project where to:

- Reduce the total amount of traffic
- Encourage walking, cycling and public transport use and thus reduce private car traffic

This was a pilot project that focussed on cycling to make the town safer and for cyclists to encourage the use of a bicycle for transport for as many people as possible. Between 1991 and 2001 12.5 million Euros was spent on the infrastructure and 1.25 million Euros was spent on promotional campaigns. Based on 2000 currency conversion rates this equates to a yearly budget of £850,690 over the ten year period or £15 per head of population. The project involved:

- Development of a network of cycle routes from the city centre to outlying neighbourhoods
- Provision of cycle parking stands
- Cycle map for Sandnes
- Development of recreational cycle routes
- 'Free' bike hire scheme in the town centre
- Promotional campaigns

After ten years 70km of cycle routes have been built, 400 cycle parking spaces have been created and there are 225 bikes for hire in the town centre. After ten years cycle traffic had increased by 10% and now accounts for 5% of all traffic in the winter and 12% in the summer.

Trondheim, Norway

Population: 150,000

In 1990 Trondheim adopted a transport strategy influenced by the World Commission on Environment and Development that aimed to decrease pollution related to health problems. The other objective of their strategy was to use money that was normally spent on 'roads' on other forms of transport. A year later a number of toll roads were built and the income was used to build a ring road to remove through traffic from the town and to finance a cycle network aimed at commuters. The toll roads have now been removed but the revenue received through the project has had a lasting impact as shown below:

Mode	Modal split in 1990	Modal split in 2004
Car driver	46.1	49.1
Car passenger	14.7	9.1
Public transport	8.5	10.7
Cycling	8.3	11.8
Walking	22.4	17.7

Appendix 5 – Photographic Record of Walking and Cycling Infrastructure in Kirkwall

Traffic free vennels in town centre encourage people to use streets as meeting places

Poor connectivity to Palace Road

Exceptional maintenance standards in vennels

Visi-rail hinders pedestrians at Union Street

Halcrow

Pedestrians walk in road on Laing Street

Narrow footway on Junction Road

Gunn's Close - should be widened for cyclists and connected to cycle track on The Crafty to provide a continuous route to the town centre

Narrow footway on Shore Street

Halcrow

Desire line to cycle track behind supermarkets

Access barriers need to be designed to slow cyclists down without difficult manoeuvres

Narrow ramp to supermarket

Narrow ramp to supermarket

Halcrow

Good example of raised crossing on cycle track near Solisquoy Loan

Good example of access barriers on road closure

Over engineered access barriers

Dividing strip 'forces' cyclists to cycle towards wall. Note falling masonry requiring maintenance

Halcrow

Access barriers in Quoybanks should be replaced with bollards

Shortcut through garages in Quoybanks should be surfaced and lit

Shortcut in Quoybanks requires surfacing and steps replaced with DDA compliant ramp

Halcrow

Good example of flush dropped kerbs and tactile paving on desire line at Buttquoy Crescent

Thoms Street would benefit from an uphill advisory cycle lane

The Meadows – requires traffic free footway/cycle track

Poor connectivity between cycle tracks to Muir Drive and Kirkwall Grammar School

Halcrow

Poor connectivity to Papdale Loan cycle track

Damage to Weyland cycle track from invasive weeds

Grass verge should be removed on East Road to provide more space for pedestrians

Over engineered barriers in middle of Weyland cycle track

Halcrow

New gap in existing road closure would aid cyclists

Maintenance required on Weyland cycle track

Coastal cycle track should be extended through car park to Shore Street

Existing path adjacent to Pickaquoy Road requires upgrading

Halcrow

Very wide junction at Great Western Road Is difficult for pedestrians to cross

Access barriers at library are over engineered

Conflict between vehicles pedestrians and vehicles in historic core (Victoria Street)

Signing of National Cycle Network stops at the town boundary

Halcrow

Pedestrian desire line at Lynn Road

Pedestrian desire line between Weyland Terrace and Carters Park Road

Residential cycle parking at new development at Ropewalk. Would benefit from a weatherproof cover.

One of the roads that would benefit from an uphill cycle lane (Palace Road)

Halcrow