



# INCLUSION Project

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Innovation Pilot Lab Cairngorm National Park:  
implementation and results - Final version

Version: 1.0

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## Document Control Page

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Abstract	<p>HITRANS is actively and continually looking to develop MaaS opportunities in the Highlands and Islands, with the INCLUSION Pilot Lab targeting Cairngorms National Park (CNP) in particular. The main aim of our Pilot Lab was to improve accessibility to public transport for older persons, young adults, teenagers and tourists in CNP, with e-bikes and car clubs being the main measures to be implemented in INCLUSION to achieve this objective, whilst also assessing if Mobility as a Service (MaaS) could work alongside these.</p> <p>HITRANS implemented e-bike trials in two locations in CNP - Aviemore and Grantown-on-Spey plus a third location in Fort William on the periphery of CNP working with local bike shops to offer a low carbon transport alternative to residents and tourists around the area. HITRANS also upgraded Real Time Passenger Information and facilitated early discussions on MaaS, ultimately leading to a successful funding application to trial MaaS in the HITRANS area. HITRANS also discussed options to extend car clubs into CNP, leading to the expansion of Enterprise car clubs in the area. Covid-19 significantly impacted the e-bike activities, with bike hires forced to close two months after launch. However, to support recovery, e-bikes were offered out for lengthy periods of time to local key workers at both bike hiring sites – a necessary and commendable adaption given the circumstances. This ensured key workers had a crucial mobility option at a time where other forms of transportation were shut down or reduced. The offer proved extremely popular with all bikes hired within a day. This has been a good news story to come out of the pilot and could potentially cause a modal shift, with users hiring the e-bikes for longer it could help to demonstrate the variety of journeys possible using an e-bike. Although this was not the outcome predicted, it demonstrates the flexibility of e-bikes in the area and personifies the term “demand responsive transportation”.</p>

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# 1 Introduction

The Highlands and Islands Transport Partnership (HITRANS) is the statutory regional transport partnership covering Eilean Siar (Western Isles), Orkney, Highland, Moray and most of the Argyll and Bute area. HITRANS is one of seven Regional Transport Partnerships in Scotland which were established through the 2005 Transport Scotland Act. The area accounts for around 50% of Scotland's land mass but is home to less than 10% of Scotland's population. HITRANS works with Local Authorities, the Scottish Government, Transport Scotland, Highlands & Islands Enterprise (HIE), transport operators and other stakeholders to improve transport services and infrastructure in the north of Scotland and on routes to the Highlands and Islands.

HITRANS actively and continually looks to develop MaaS opportunities in the Highlands and Islands, with the INCLUSION Pilot Lab targeting Cairngorms National Park (CNP) in particular. The main aim of our Pilot Lab was to improve accessibility to public transport for older persons, young adults, teenagers and tourists in CNP, with e-bikes and car clubs being the main measures to be implemented in INCLUSION to achieve this objective.

To assess this possibility of integrating e-bikes with current public transport offerings in CNP, HITRANS installed e-bike hubs in Aviemore and Grantown on Spey plus a third location in Fort William on the periphery of CNP. The aim being to see a modal shift from private car use to e-bikes and subsequently create a safer travel environment. The learnings gathered from this initial roll-out will inform future plans for further sites. HITRANS also met with car club operators in the area to assess if they would be interested in launching their services in the Cairngorms National Park as part of the pilot lab, with existing car club schemes in close proximity to CNP. The aim being that the e-bike and car club services would complement each other to replace key stages of journeys that are largely completed by private car use at present due to a lack of available services.

Complementary to the physical pilot lab measures described above, HITRANS is working with MaaS Scotland, Transport Scotland, local stakeholders and experts to launch Mobility as a Service (MaaS) in CNP; particularly for tourists arriving in the area who wish to complete their journeys without the use of private cars. This formed ongoing research throughout the project.

As a result of this, HITRANS was able to bring wider research to the INCLUSION project on issues related to governance and mobility management, such as work being conducted through the Cairngorms Connected project. User-centred research has been conducted, gathered and analysed on transport needs in CNP to co-create ideas for new mobility services.



## 2 Recap of the Pilot Lab Characteristics

### 2.1 Brief description of the pilot area

Cairngorms National Park (CNP) is one of the most popular tourism destinations in the Scottish Highlands – the most remote region in Scotland – and comprises an area of 4,528 sq km (1,748 sq miles), making it the largest National Park in the UK. Although the local resident base is around 18,000, the area experiences an estimated 1.87 million visitors per year for summer hiking and winter skiing. At 4.2 people per square kilometre, the population density is exceptionally low. Major centres of population are Aviemore (3,324), Ballater (1,446), Braemar (808), Grantown-on-Spey (2,484), Kingussie (1,473), Newtonmore (1,114) and Tomintoul (1,164).

Tourism is vital to CNP, accounting for 30% of the economy (GVA) and 43% of employment. Visitors flock to the area to appreciate the outstanding landscapes, wildlife and huge range of activities. Enhanced mobility in CNP has been identified as a means of promoting economic development, better customer service, a better visitor experience and sustaining local populations.

The Park is managed by the Cairngorms National Park Authority (CNPA) and spans five Local Authority areas – Aberdeenshire, Moray, Highland, Angus, and Perth & Kinross. The green shaded area on the map below highlights the scale of Cairngorms National Park in relation to the rest of Scotland.



*Figure 1 - Map of Cairngorms National Park*

*Map Source: Google Maps*

In the 2014/15 Cairngorms Visitor Survey, results revealed that Transport and Phone & Wi-Fi were the lowest rated facilities in the Park, with 28% stating Phone & Wi-Fi as 'poor' or 'very poor', and

17% of visitors expressing Transport facilities as 'poor' or 'very poor' – an increase from 11% in the 2009/10 visitor survey. Key results from the 2014/15 survey on method of transport are included below.

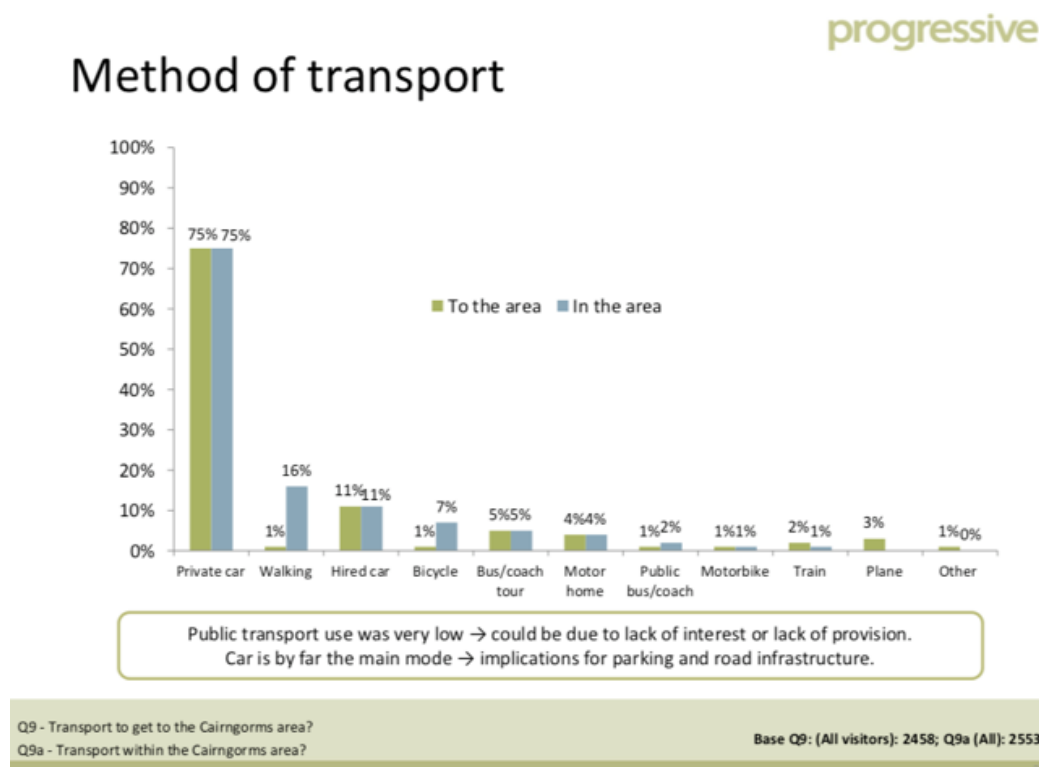


Figure 2 - Method of Transport in CNP

Source: Cairngorms Visitor Survey 2014-15, Full Report, 1st July 2015

Figure 2 above highlights the extremely low uptake of public transport in CNP, both for travel to and within the Park, with only 3% in total using public bus/coach and 3% using train service. In comparison, private car use is the primary mode of transport to and within the Park with 75% of respondents selecting this mode. To tackle these high numbers popular perceptions must be challenged, from seeing CNP as a sparse, wild landscape only accessible by private car, to a well-connected web of mobility options. In order to overcome this car centric data, we must first understand car cultures. Many aspects of car cultures are overlooked in transport policy – e.g. it is not only a rational, economic choice to use a private car, but includes a variety of aesthetic, emotional and sensory factors. Furthermore, in a paradigm generated by academics known as time-space compression, the flexibility associated with private car use has created spatially stretched and time-compressed lives. In short, private cars have the assumed benefit of 'saved travel time' because of their flexibility, accommodating the traveller from origin to destination – a benefit most other forms of transportation do not have. Because of this there remains a lack of support for alternative transportation.

The main advantage e-bike and car clubs have on private car use is the cost. According to the Office for National Statistics, weekly household expenditure on transport is more than expenditure on housing, fuel and power, shown in Figure 3 below. Promotion of the money saved by adopting such transport modes should become a strong selling point. Initiating such a shift in attitude and behaviour will require an integrated approach – the carrot and the stick. Promotion of alternative modes of transport such as the e-bike, but in situations where private car travel is necessary, car clubs and car sharing initiatives can be utilised.

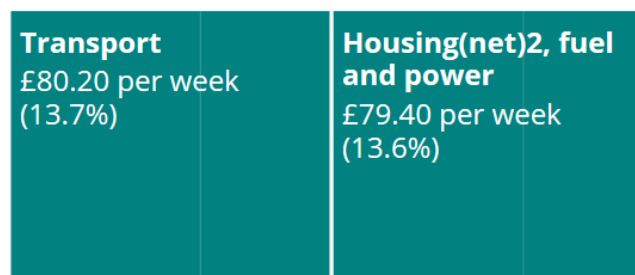


Figure 3 - Office for National Statistics Family spending in the UK April 2018 to March 2019.

The graph below shows a comparison between 2009/10 and 2014/15 results, highlighting the reduction of public transport usage over the five-year period.

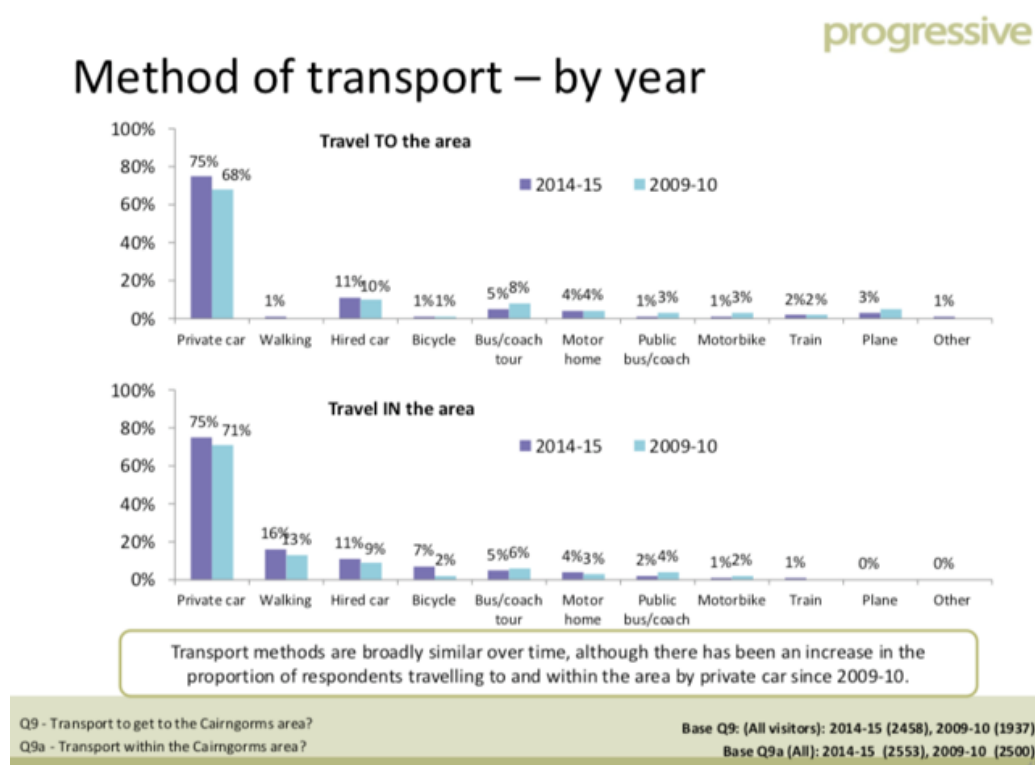


Figure 4 - Method of Transport Comparison 2009/10 vs. 2014/15

Source: Cairngorms Visitor Survey 2014-15, Full Report, 1st July 2015

As highlighted in these graphs, combining both travel to and within CNP, public bus/coach usage has reduced from a total of 7% in 2009/10 to 3% in 2014/15.

Our Pilot Lab was designed to increase sustainable modes of travel in the area, both for tourists visiting the Park and for residents who will benefit from improved access to public transport services – focusing particularly on the elderly, those of reduced mobility and the young.

The key settlements within our Pilot Lab were Aviemore and Grantown-on-Spey:

### 2.1.1 Aviemore

- The population of Aviemore is 3,324<sup>1</sup> making it the largest settlement in the Cairngorms National Park.
- A key objective for CNP is to facilitate access across settlement edges into surrounding areas<sup>2</sup>, with our pilot lab in INCLUSION aiming to support this objective.



*Figure 5 - Map of Aviemore in relation to CNP*

*Map Source: Google Maps*

### 2.1.2 Grantown-on-Spey

- The population of Grantown-on-Spey is 2,484<sup>3</sup>, situated in the centre of the Scottish Highlands, 14 miles from Aviemore, and is often used as base for exploring the Strathspey area.

<sup>1</sup> [https://www.highland.gov.uk/info/695/council\\_information\\_performance\\_and\\_statistics/165/highland\\_profile\\_-\\_key\\_facts\\_and\\_figures/2](https://www.highland.gov.uk/info/695/council_information_performance_and_statistics/165/highland_profile_-_key_facts_and_figures/2)

<sup>2</sup> <https://cairngorms.co.uk/caring-future/cairngorms-landscapes/landscape-areas/?aviemore>

<sup>3</sup> [https://www.highland.gov.uk/info/695/council\\_information\\_performance\\_and\\_statistics/165/highland\\_profile\\_-\\_key\\_facts\\_and\\_figures/2](https://www.highland.gov.uk/info/695/council_information_performance_and_statistics/165/highland_profile_-_key_facts_and_figures/2)



*Figure 6 - Map of Grantown-on-Spey in relation to CNP*

*Map source: Google Maps*

### 2.1.3 Mobility demand

Traffic volumes in the CNP peak during school holidays and for accessing seasonal activities such as skiing. This makes small, unclassified roads (traditionally used for cycling and walking routes) busy and dangerous. The traffic has a constant level of HGVs passing through the CNP due to the whisky industry and ongoing connectivity to other parts of Scotland. The ability to offer connected mobility will assist the current statistic of 90% of visitors utilising the car to move compared to 3% by public transport and 7% by cycling<sup>4</sup>.

The underlying public transport infrastructure is fragile and includes fixed route bus and rail (both privately operated), some open access Demand Responsive Transport (operated by Community Transport and Local Authorities) and taxis. There are existing shared taxi/car sharing services but the latter of these operate on a closed Membership basis.

Access to public transport services in CNP, especially for older people and persons of reduced mobility needs to be addressed, and e-bikes can help achieve this aim. E-bikes cannot replace all journeys for all users; particularly for those most vulnerable. However, it has been proven that e-bikes can aid people who are elderly or less physically fit, along with making longer journeys achievable. Halfords acknowledged that people over the age of 55 account for 62% of their total sales of e-bikes, indicating e-bikes popularity with elderly people and suitability to be used by them<sup>5</sup>. A study carried out by Wheels for Wellbeing<sup>6</sup> disclosed that 18% of cyclists with a disability had acquired an e-bike. This provides evidence that persons of reduced mobility could potentially use e-bikes to travel rather than relying on alternative means of transport.

<sup>4</sup> Percentages relate to a sample size of 2,533 respondents to the Visitor Survey

<sup>5</sup> <https://www.telegraph.co.uk/news/2018/04/02/e-bikes-give-older-cyclists-boost-figures-reveal-battery-power/>

<sup>6</sup> <https://wheelsforwellbeing.org.uk>

This is also relevant to young people living in the area. It has been recognised that young people living within the CNP often do not have access to a car. Subsequently, we believe younger people would be eager to use e-bikes as a means of travel in the absence of alternatives.

A recognised issue is the high fuel costs present in rural areas. As travelling by car represents a significant cost, the implementation of e-bike schemes provides an opportunity to install e-bikes into an area where people will likely be attracted by the significantly cheaper costs of using one in comparison to owning a car. The recent introduction of a Nextbike cycling scheme in Stirling provides evidence which highlights the demand among society for the introduction of cycling schemes in their community. For example, since the launch of the Nextbike scheme in Stirling in 2014, 37,000 regular cycle journeys have been totalled.

Another great incentive for an e-bike network is the potential to link parts of the network with the NCN7 cycle network which was devised by Sustrans<sup>7</sup>. The Cairngorm area is renowned for fantastic scenery and a cycle route which enables the scenery to be experienced could be a great advantage in terms of attracting people to pursue cycling. Furthermore, e-bikes in this scheme would specifically be aimed at relatively short distances, which would improve the attraction and use of the NCN7.

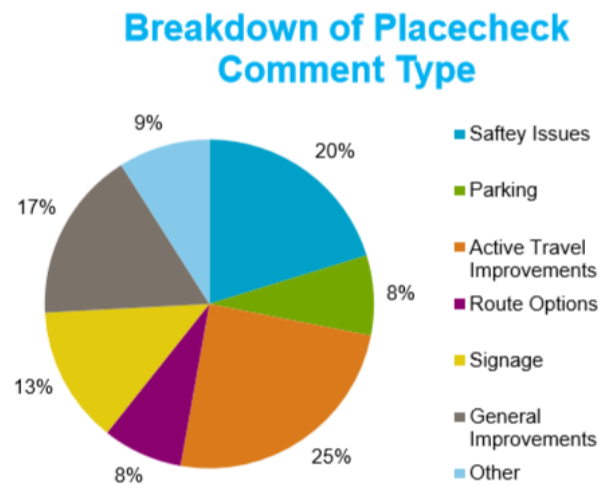
The Active Aviemore report<sup>8</sup>, completed in 2018 by AECOM, identified that a key aspiration of communities in the CNP was to develop an e-bike network and cycle paths to link communities, with views gathered through a Highland Community Planning Partnership Workshop. The report also highlighted the barriers to e-bike usage prior to the pilot study. Safety was frequently cited as a concern, with fast traffic in most central areas making potential e-bike users feel unsafe and at risk of physical harm. This is particularly concerning as some acknowledged they lacked an understanding of cycling rules and highlighted an apparent lack of signage to help tourists and residents alike navigate the area. Other barriers to e-bike adoption included the physical environment; the mountainous topography and lack of cycle infrastructure was of concern to some of the participants, with personal worries of their physical ability to conquer such terrain. These issues intensify with the Scottish weather being unpredictable and challenging at times. Individuals also raised the concern over a lack of cycling infrastructure at work, such as no bike racks or shelters, as well as no shower or locker facilities. These factors are likely to discourage workers from commuting on bikes. Of the 89 members of the public who were involved in the study, 25% of comments identified areas for active travel improvements, 20% identified safety issues, 17% identified areas for general improvements, and 13% identified issues relating to sign posting. 8% suggested potential route options and a further 8% highlighted issues with parking, shown in Figure 7 below.

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<sup>7</sup> Sustrans is a UK sustainable transport charity setup to improve walking and cycling: <https://www.sustrans.org.uk>

<sup>8</sup> <https://cairngorms.co.uk/caring-future/developing-park-access/activeaviemore/>





*Figure 7 - Breakdown of comments from Active Aviemore's public engagement consultation*

The Sustrans Report of 2013 outlines its key findings as being: 100% of survey respondents rated their e-bike experience as good/very good, 98% said they'd hire an e-bike in the Cairngorms again and 85% stated it is likely/very likely they will cycle e-bikes more often in the future. This report also discusses the main reasons its 41 participants had for not using e-bikes. Some participants were unaware of the benefits of e-bikes in aiding those more elderly or physically impaired to continue to be active, reducing the effort required of a conventional bike. This was followed up by critique that e-bikes lacked the publicity required to generate interest and understanding.

*"We like to cycle but are getting on a bit and are finding hills a bit of a struggle. At our age the e-bikes were the ideal answer for leisurely exploring"*

Participants also worried about the practicalities of e-bikes and framed the following as reasons to avoid their continued use: short lifetime of batteries, the heavy weight of the bikes when lifting to store them, and the need to have more off-road e-bikes due to the rugged landscapes of the area. Promising results include

Figure 8 below, showing that 62.5% of participants in this study believed e-bikes could be used to replace car journeys.

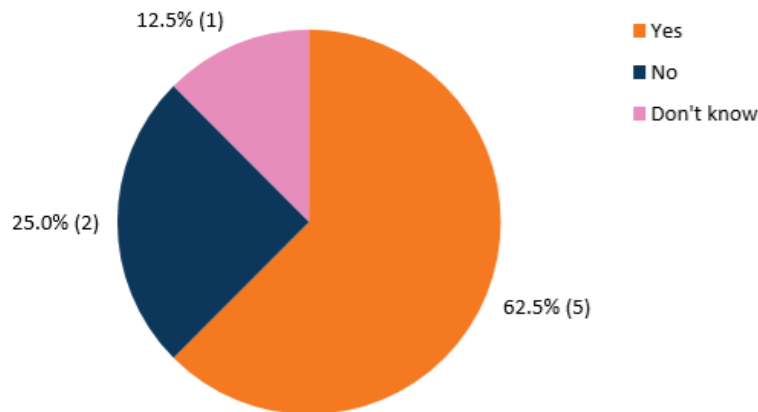


Figure 8 - Could e-bikes be used to replace car journeys?

Issues and concerns raised in this report provide a helpful insight into public attitudes; however, 75% of the participants in this research were aged 45 and over, and therefore it's important to highlight that the results might be skewed and underrepresent younger cyclists.

#### 2.1.4 Travel distances to the CNP

Approximate times of travel are provided in the table below.

Table 1 - Travel distances to CNP

Via	Inverness	Aberdeen	Perth	Edinburgh	Glasgow
Car	30mins	1hr	1hr 30mins	2hrs 30mins	2hrs 45mins
Bus	1hr 15mins	1hr 15mins	2hrs	2hrs 30mins	3hrs
Train	40 mins	2hrs 30mins	1hr 45mins	2hrs 30mins	2hrs 45mins

#### 2.1.5 Mobility Services in Cairngorms National Park

The following mobility services are operated in CNP:

##### Bus and coach

There are regular coach services from London, Edinburgh, Glasgow, Aberdeen and Inverness. Local buses connect the towns and villages throughout the Park, including dial-a-bus services and minibus services.



The main provider of public bus services in the area is Stagecoach North Scotland who operate the following bus routes to, from and within the area:

- Service 31 Aviemore → Town
- Service 34 Aviemore → Carrbridge
- Service 36 Aviemore → Grantown-on-Spey
- Service 38 Aviemore → Kingussie
- Service 39 Aviemore → Dalwhinnie
- Service M91 Aviemore → Newtonmore
- Service M91 Aviemore → Inverness (hourly frequency)

Other important bus services include:

- Megabus.com, operating the M90 Service from Inverness → Aviemore → Perth (for onward travel to Glasgow) → Edinburgh
- Scottish Citylink, who operate Gold Services G10 from Inverness → Aviemore → Glasgow, and the G90 Inverness → Aviemore → Perth → Edinburgh
- Maynes Coaches
- Speyside & Strathdon Dial-A-Bus services
- Where2Today minibus service between Aviemore and Laggan and Aviemore and Nethy Bridge



*Figure 9 - Example bus shelter in Aviemore*

Source: Cairngorms National Park website page: 'Getting Here'<sup>9</sup>

<sup>9</sup> <https://cairngorms.co.uk/discover-explore/enjoying-the-park/planning-a-visit/getting-here/>

## Rail

There are railway stations at Dalwhinnie, Newtonmore, Kingussie, Aviemore and Carrbridge. Trains between London's King Cross and Inverness stop off at either Kingussie or Aviemore. Aberdeen is the closest station to the east side of the National Park. The Strathspey Steam Railway runs between Aviemore, Boat of Garten and Broomhill at Nethy Bridge.

Rail services to Inverness, Glasgow, Edinburgh, London and intermediate stations serve Aviemore. The operators are:

- ScotRail – [www.scotrail.co.uk](http://www.scotrail.co.uk) – frequency of every 4 hours
- Virgin East Coast – [www.virgintrainseastcoast.com](http://www.virgintrainseastcoast.com)
- Caledonian Sleeper – [www.sleeper.scot](http://www.sleeper.scot)
- LNER – frequency of once daily

## Taxi/ Private Hire

Main taxi companies include [www.taxisaviemore.com](http://www.taxisaviemore.com) and [www.aviemoretaxis.com](http://www.aviemoretaxis.com).

A range of other taxi companies and private hire companies operate in the area for pre-booked services, found on the CNPA website: <https://visitcairngorms.com/transport>

Special services (e.g. for tourists, children etc.): various commercially operated tour services for tourist travel operate from locations outside the CNP area and encompass the Park in the tours offered.

## Flexible Public Transport

Moray Council operates the award-winning Dial M for Moray service, with a new service operated by a fully electric bus linking Forres with Aberlour in Speyside. The project is supported through the Interreg North Sea Region G-PaTRA project and is running until June 2021, allowing results and analysis to be captured within INCLUSION – particularly the MaaS aspect of our research on multi-modal journeys using more sustainable transport.

## Bicycle

National Cycle Network Route 7 runs from Glasgow to Inverness, passing through the west of the CNP. NCN7 is a combination of on and off-road sections and links up the communities of Badenoch & Strathspey.

The Deeside Way runs from Aberdeen on the east coast to Ballater in the east of the Cairngorms National Park. The Deeside Way provides an off-road cycling route linking up Dinnet and Ballater in the Royal Deeside area of the Cairngorms National Park.

Cycle touring on and off-road is a great way to get to and around the National Park. Sections of the Speyside Way and Dava Way are also suitable for cycling. For mountain biking, the four mountain bike centres can be found in Glenlivet, Laggan, the Lecht, and Tarland.

Bikes can be hired from various places across CNP, largely aimed at tourists so are mostly available at shops in Aviemore and at locations such as ski centres, Loch Insh watersports, lodges, and adventure pursuit companies. Aviemore has two specialist shops: Bothy Bikes and Mikes Bikes. A full list is available here: <https://visitcairngorms.com/onabike>

## Car Sharing / Liftsharing

The Badenoch and Strathspey Community Transport Company<sup>10</sup> offer a range of services including a Community Car Scheme. This service is provided by Volunteer drivers using their own vehicles to get people out to vital life and health services, increasing their social interaction. To become eligible for the scheme, you must have no transport of your own and be unable to access public transport for whatever reason. When a client registers with the scheme, they receive an ID number. Journeys can be anything from visiting a friend, shopping, attending the doctor, to the bus/train station or just going for coffee. Payment is on a minimum charge or mileage rate basis.

Additional car sharing services in the region include the Hltravel Liftshare scheme. HITRANS hosts the Hltravel Liftshare for those looking to car share across the region. Members of the car sharing site are saving on average £800 a year simply by sharing their journeys. It is when two or more people decide to travel to work together in one car rather than separately. It does not exclude people who would normally travel as a passenger on other transport, rather it is aimed at getting vehicles off the roads by increasing the number of people in each car.

Those wishing to use this service will complete a registration form and the details will be entered into the database. The [www.hitravel.liftshare.com](http://www.hitravel.liftshare.com) system will then produce a list of suitable sharers; people to pick up on the way or who live near you and who meet the criteria you have requested. This service has a lot of benefits both for the user and wider environment; reducing the mileage and everyday wear and tear on your vehicle, reducing fuel costs (and parking charges) by sharing the day-to-day expenses, reducing congestion and save valuable time – particularly at busy times of the day and reducing traffic pollution.

## Car Clubs

Car clubs are an important sustainable transport mode in regions such as CNP, given the geography and acknowledgement that not all journeys can be made by active travel. Unfortunately, this mode lacks infrastructure for those wishing to travel by this service; particularly electric car clubs that rely on a strong network of EV charge points. Improvements are continually being made within CNP to facilitate car clubs, and this is one of several aspects we aimed to improve within the INCLUSION project.

## Walking

There are a number of long-distance walking routes in the Cairngorms National Park:

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<sup>10</sup> [www.ct4u.co.uk](http://www.ct4u.co.uk)

- The Deeside Way runs from Aberdeen on the east coast to Ballater in the east of the Cairngorms National Park.
- The Speyside Way runs from Buckie on the Moray Coast to Aviemore in the Cairngorms National Park and links up the communities in the Badenoch & Strathspey area of the Park. A spur of the Speyside Way runs also from Ballindalloch to Glenlivet and Tomintoul.
- The Dava Way runs from Forres near the Moray Coast to Grantown-on-Spey in the Cairngorms National Park.

## Air

The nearest airport to the Cairngorms National Park is Inverness Airport, located approximately a 30 minute drive from the Badenoch and Strathspey area of the National Park, while Aberdeen International Airport is one hour drive away from the Royal Deeside area of the Park.

## Incentives / Travel Cards

The Thistle Assistance Card and App has been developed in partnership by Transport Scotland, Disability Equality Scotland and the Scottish Government to make using public transport easier for older people and those with disabilities or illness. It is supported by all 7 Regional Transport Partnerships, Transport Scotland, Transport Operators and disability groups (including RNIB, SATA, Disability Equality Scotland).

The card and App are supported by a wide variety of voluntary organisations across Scotland and by most bus, train, tram, ferry and airport operators. It is credit-card sized and comes with a supply of peel-off stickers, which advise the driver or conductor of your disability and the help you need in an easy-to-read format.

The App is downloadable for both Apple and Android enabled devices from Apple App Store and Play Store. The card is available to all people who require it with no eligibility criteria required.

## Conclusion

The above information highlights the different mobility services that exist within Cairngorms National Park; however, it further emphasises the gaps that exist and barriers to travelling more sustainably in the area. Most notable are the limited car club offerings, a lack of electric bikes and supporting infrastructure, and limited awareness of the Thistle Assistance Card. Therefore, the INCLUSION objectives described below are intended to improve these aspects and meet the needs of our target user groups.

## 2.2 Brief summary of the objectives of the Pilot Lab

The Cairngorms National Park Pilot Lab involved three Measures:

- E-bike hire
- Integrating a lift sharing scheme and car club with public transport (MaaS)
- Improving multi-modal travel information services

Table 2 overleaf provides an overview of each Measure's targeted vulnerable user(s) and prioritised area.

*Table 2 - Overview of targeted vulnerable user(s), prioritised area*

Pilot Measure	Targeted vulnerable user(s)	Prioritised area
E-bike hire	Elderly people, Persons of reduced mobility, Young adults, Teenagers, Local residents who suffer from fuel poverty due to high rural fuel costs, Tourists	Rural
Integrating a lift sharing scheme and car club with public transport and experiment with Mobility as a Service	Elderly people, Persons of reduced mobility, Young adults, Teenagers, Local residents who suffer from fuel poverty due to high rural fuel costs, Tourists	Rural
Improving multi-modal travel information services	Elderly people, Persons of reduced mobility, Young adults, Teenagers, Local residents who suffer from fuel poverty due to high rural fuel costs, Tourists	Rural

### 2.2.1 Target User Groups

**The Elderly:** Low car ownership levels are evident in the elderly population, which allied with sparse settlement patterns makes it challenging to serve people well in mobility terms. Car clubs will provide the elderly with available vehicles as and when needed rather than having to own a vehicle, and e-bikes have been shown to be successful with the active elderly population, as described in 2.1.3.

**Reduced Mobility:** As identified at a workshop organised through the Cairngorms Connected group<sup>11</sup>, reduced mobility does not always relate to physical disabilities, but should be considered for all disabilities, including those that might not be visible. Unreliable services can impact passengers who might feel uncomfortable if there is a risk of uncertainty over when/if a service will be available. Those with physical disabilities also noted that due to changing circumstances for drivers/available vehicles, it is not known if a vehicle will meet requirements for wheelchair access, or if the driver will be trained on how to assist those requiring it. It is clear there is a gap that needs

<sup>11</sup> Cairngorms Connected workshop held in Boat of Garten March 2019

addressed for those with reduced mobility to reach suitable public transport options, and e-bikes have been shown to be successful with those with reduced mobility, depending on the situation. Our wider research through Cairngorms Connected on improving public transport for those in CNP is continually looking to address these issues on vehicle requirements and driver training.

**The Young:** In the absence of public transport options, young people are reliant on parental lift giving which can place a pressure on the young persons and their guardians in terms of ability to access a range of services that might be available in the main regional centres within the CNP area. The development of a suite of mobility services, managed as a set of Mobility as a Service measures, could help develop tailored solutions that address a wide range of needs across demographics and geographies within the CNP.

**Tourists:** It has been estimated that 1.87 million tourists visit the Cairngorms National Park per annum. As noted in section 2.1, 17% of tourists perceived transport within the region to be “poor” or “very poor”. Therefore, the results of the Cairngorm Visitor Survey provide strong support for the implementation of e-bike schemes and car clubs as the statistics gathered imply that public transport services within the region are not sufficient in terms of satisfying tourists. Furthermore, as only 3% of tourists utilise public transport services in CNP, it is hoped that by launching e-bike and car clubs more tourists will make use of the available public transport services due to less need for a private car during their trip and increase potential for multi-modal trips; both cutting costs and reducing carbon emissions, increasing the demand and therefore supporting longevity of the service.

### 2.2.2 Measure objectives: E-bike Hire

HITRANS developed this measure to improve accessibility within the CNP for elderly people, persons of reduced mobility, young people, local residents suffering from fuel poverty and tourists. It involved setting up two small-scale e-bike hubs in the key gateway towns in the CNP: Aviemore and Grantown on Spey, with a third located in Fort William on the periphery of the CNP. Fort William is outside of CNP, however is a gateway to the Park from the south-west side. Six e-bikes were offered and hosted by each bike shop (Mikes Bikes in Aviemore, BaseCamp Bikes in Grantown-on-Spey and Nevis Cycles in Fort William).

#### Overall objective:

- to promote active travel and increase active travel options in CNP and to integrate e-bike schemes with public transport in the Cairngorms National Park

### 2.2.3 Measure Objectives: Integrating a lift sharing scheme and car club with public transport & experiment with Mobility as a Service

HITRANS developed the lift sharing and car club measures for use by elderly people, persons of reduced mobility, local residents suffering from fuel poverty and tourists. One complementary measure was undertaken: promotion of the Hltravel Liftshare (a ridesharing portal that is hosted on liftshare.com).

HITRANS applied to Transport Scotland's MaaS Investment Fund in August 2019, and in December 2019 was notified as being one of two successful applicants awarded funding in Scotland. The MaaS pilot is now in development, due to launch Spring 2021. It had originally been planned for a Summer 2020 launch but pushed back due to Covid-19.

### Overall objectives:

- Integrate a lift sharing scheme and/or car club with public transport
- Experiment with some Mobility as a Service (MaaS) use case scenarios dealing with integration of payment between different transport services

#### 2.2.4 Measure Objectives: Improving multi-modal travel information services

HITRANS developed this measure to deliver an improvement of multi-modal travel information, with the aim to deliver a regional, multi-modal information system using real-time data. The procurement notice was issued in October 2019 and the contract awarded in January 2020, with the new system going live shortly after. One complementary measure was undertaken: promotion of the Thistle Assistance Card and app, which aims to help elderly people and people with disabilities or illness to use public transport. A Scotpulse survey was commissioned as part of the Thistle Assistance Card advertising campaign. The results of the survey showed that there was little awareness of the Thistle Assistance Card in comparison to other similar services that benefit the target groups (e.g. the National Entitlement Card, Young Scot National Entitlement card). To increase awareness of this card and the associated app, a television ad was run from November 2019 until the end of January 2020.

### Overall objective:

- Deliver an improvement of multi-modal travel information services

## 2.3 Main outcomes of the design phase

### 2.3.1 Implementation Planning and Stakeholder Engagement

The design phase involved developing a Local Pilot Action Plan, conducting a pre-feasibility analysis and addressing requirements for the pilot projects. This included:

- Assessing the number of e-bikes that would be required at each location, the specifications of the hubs and liaising with local bike suppliers on maintenance aspects
- Liaising with car club and public transport operators on the development of MaaS
- Further review research findings from complementary studies by Cairngorms Connected and CNPA
- Exploring funding opportunities for the purchasing of e-bikes and associated equipment

Following this stage, questionnaires (Annex 1a – Residents and Annex 1b – Visitors) were designed for completion by both residents and visitors using the e-bikes. In addition, it was decided that case



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study interviews would be held with e-bike owners to further understand the impacts of running an e-bike scheme in rural areas.

The following stakeholders were engaged with throughout the design phase from a combination of HITRANS Board meetings, Partnership Advisor Meetings, Cairngorms Connected meetings and workshops, and Mobility as a Service planning and workshops:

- Cairngorm National Park Authority
- The Highland Council
- Transport Scotland
- Stagecoach
- ScotRail
- Moray CarShare
- Enterprise Car Club
- E-bike Shops



## 3 Pilot Lab implementation activities, timing and milestones

### 3.1 Actions at mobility service level

#### 3.1.1 E-bikes

E-bikes were introduced as an additional mobility service in CNP to improve accessibility to and within the Park for elderly people, persons of reduced mobility, young people, local residents suffering from fuel poverty and tourists.

The project involved setting up two small-scale e-bike hubs in the key gateway towns in CNP: Aviemore and Grantown on Spey. Six e-bikes were being offered and hosted by two local bike shops (and continue to be): Mikes Bikes in Aviemore and BaseCamp Bikes in Grantown-on-Spey, with a third location at Nevis Cycles in Fort William, on the periphery of the CNP.

#### E-Bike User Questionnaire & Case Studies

Questionnaires (Annex 1a – Residents and Annex 1b – Visitors) were designed and circulated to those hiring e-bikes from the three bike hire shops. It should be noted that the INCLUSION project only focuses on implementation and results from the locations within Cairngorms National Park: Aviemore and Grantown-on-Spey.

Shop owners helped people complete the forms and asked others to return them electronically through creation of an online survey using SurveyMonkey. In addition, key workers (who were given access to the e-bikes by HITRANS due to Covid-19) also agreed to complete online surveys. Further details and the outcomes from these questionnaires are covered in section 7.

Case Study interviews were designed (Annex 2) and telephone interviews conducted with the owners of both bike shops in addition to the user surveys, producing some rich information. This was intended to be followed up with face-to-face feedback and evaluation sessions with e-bike shop owners once Covid-19 restrictions were lifted, however this will now occur outside the INCLUSION timeframe due to Covid-19 delays. There is significant potential and energy within these two case studies that bodes well for this service being rolled out in the future. The outcomes from these case studies are covered in section 7.

#### 3.1.2 Mobility as a Service

HITRANS applied to Transport Scotland's MaaS Investment Fund in August 2019, and in December 2019 was notified as being one of two successful applicants awarded funding in Scotland. The Project has progressed well through Phase 2, Delivery, with Marketing and Evaluation Subgroups having been setup, in addition to a new subgroup for establishing the case for and way forward of a Subscription payment model. Technical development of the app might have initially occurred

during the INCLUSION project timeframe; however, due to Covid-19 the MaaS trial will now fully operate outside of the INCLUSION project with the pilot due to occur in 2021. However, it should be noted that much of the initial research and feasibility assessments for the MaaS project was conducted within the INCLUSION project, including workshops with stakeholders and submitting the application that was ultimately successful.

The MaaS pilot will address various technology aspects, such as multi-modal smart booking and payment methods, and incorporating real time travel information. Due to the delayed launch (originally intended for Summer 2020 but delayed due to Covid-19), the focus has instead been to continue the establishment of bus operator relationships. The project will continue to work on the Demand Responsive Transport solution for Moray Council by Shottl and integrate the solution with the upcoming electric bicycling scheme launching in Inverness by Bewegen. Talks have commenced with ScotRail as the largest national train operator to discuss the possibility of a direct API integration onto the Mobbileo app as opposed to the current usage of the Trainline app. This will ensure that profit margins are not impacted by commission payment. Whilst this project will occur outside of the INCLUSION timeframe, it is important to highlight the improvements it will bring to the area as a result of the development and research conducted through INCLUSION.

### 3.1.3 Car Clubs

HITRANS worked with car club operators in the area to encourage moving their services into CNP to provide additional, more sustainable transport services with existing car club schemes operating near CNP. The aim was that the e-bike and car club services would complement each other to replace key stages of journeys that are largely completed by private car use due to a lack of available services.

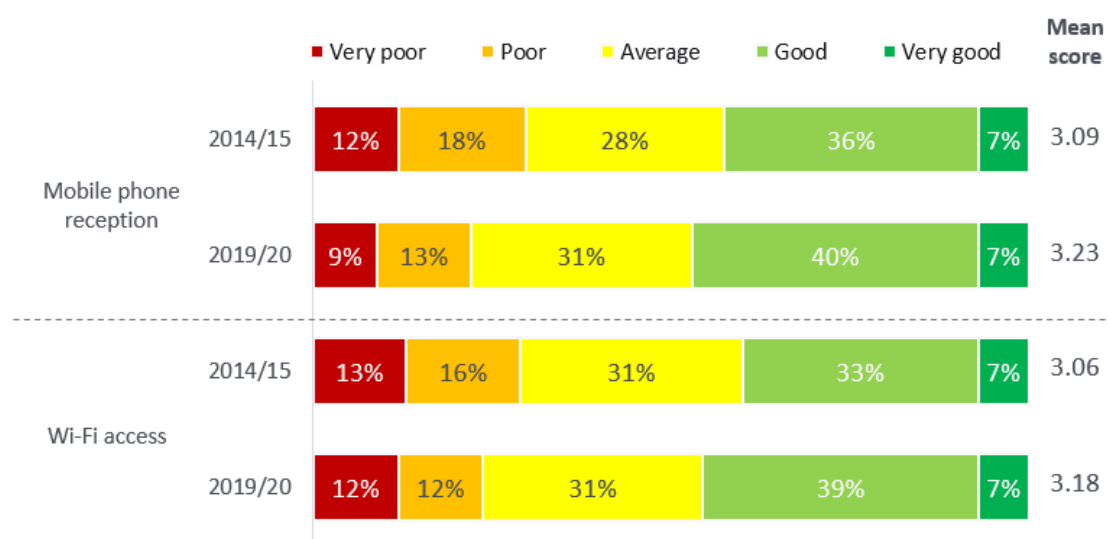
Car Club providers were involved by attending workshops held by Cairngorms Connected and the MaaS project development. An agreement was made that car club vehicles would be introduced into CNP, although no direct funding was applied to this from INCLUSION. However, the MaaS project includes car club operators and the work in reaching this development, as described above, was largely conducted through INCLUSION. The Car Club service will launch in line with the MaaS project outside of INCLUSION timeframes.

## 3.2 Actions for ITS Implementation

In October 2019, HITRANS went out to tender to deliver improved multi-modal travel information across the region. HITRANS agreed to an enhanced contract with Vix in January of 2020, replacing the previously outdated contract of 7 years with the new system, and went live in Spring 2020. This new system allows information to be displayed on street for passengers and can be updated as needed when timetables change, as opposed to the prior contract limiting change to 3 times a year. Furthermore, this new contract allows changes to be communicated more conveniently, directly through Vix instead of having to contact each supplier separately. The signs themselves have been replaced due to solar power being unsuitable in the winter months and new poles and information screens installed. The addition of totem poles at strategic interchanges has also proved useful,

supplying passengers with bus, rail, ferry and air information, promoting integrated travel with all information available in one place.

A potential issue highlighted through this process was WiFi/broadband connectivity in CNP. According to the Cairngorm National Park Authority's Visitor Survey, just under half of the participants (47%) gave a positive rating for mobile phone reception, whilst 22% rated this negatively. Ratings for Wi-fi access were similar, with 46% giving positive feedback and 23% rating it negatively. Although these are still fairly low, ratings have improved since the 2014-15 survey responses, shown below in Figure 10. In order to further develop intelligent transportation systems within CNP, it would be important to first improve WiFi/broadband connectivity to ensure any advances in real time travel updates are maximised.



*Figure 10 - Ratings from CNP Visitor Survey 2014/15 vs. 2019/20*

## 3.3 Planning, Feasibility and Funding

### 3.3.1 Planning and Feasibility

The following actions were conducted throughout the planning and feasibility stages:

- Assessing the number of e-bikes that would be required at each bike shop location, the specifications of the hubs and liaising with local bike suppliers on maintenance aspects;
- Liaising with car club and public transport operators on the development of MaaS;
- Further review of research findings from complementary studies by Cairngorms Connected and CNPA; and,
- Exploring funding opportunities for the purchasing of e-bikes and associated equipment.

Table 3 below details the steps taken to mitigate some of the project risks.

*Table 3 – Contingency Planning*

Risk	Likelihood	Mitigation
Limited knowledge of new services	High risk: The e-bike hubs are new concepts for the area, and a limited marketing budget could negatively impact on the uptake of the e-bikes. Lack of awareness of travel assistance cards and car sharing schemes.	Further funding was applied for through Paths for All Smarter Choices Smarter Places for marketing of the e-bikes, Hltravel Liftshare and Thistle Assistance Cards.
Climate	Medium risk: Unpredictability of the weather in Cairngorms National Park could impact on the success of the scheme.	In the procurement process, HITRANS looked at options such as weather resistant storage, types of e-bikes and their performance in different weather conditions.
Transport services	Medium risk: Risk of transport operators in the area changing services due to economic performance or cuts in subsidies.	Liaison with transport operators throughout the project, wider engagement with other transport modes such as community transport and took steps to mitigate the impact on the pilot lab.

### 3.3.2 Funding

The availability and access to funding proved a significant challenge in the project. As the INCLUSION project could not support direct funding of the e-bike equipment, it took several applications to a national funding source before being successful. A key reason for being unsuccessful was due to the populations of the proposed towns being too small to demonstrate value for money for providing e-bikes, despite CNP receiving 1.87million visitors per year. This reasoning highlights the difficulties in obtaining funding from national sources where local context might be misunderstood. Also, the funding mechanisms are split that results in funding needing to be obtained from multiple sources to successfully operate a pilot. For example, one funding source is used for the e-bike equipment, another for the docking stations and another for the marketing of the scheme. This can result in significant delays as all funding sources must align for the pilot to run as intended.

Funding was ultimately successful, however applying for the funding and negotiations with the funders took significant time throughout the INCLUSION project. More detail on funding and issues experienced are included in Chapter 4 and Chapter 7.

## 3.4 Key Milestones

A Gantt Chart overleaf shows the key milestones throughout the implementation phase.

Table 4 – Project Gantt Chart



## 4 Deviations from planning and corrective actions

### 4.1 Covid-19

Covid-19 has presented challenges in every walk of life, globally over the past few months. Therefore, it is no surprise that this research has been directly impacted both in terms of reduction of transport activity and visitors to the area, but also regarding deviations from the original pilot plan.

Covid-19 significantly impacted the planned Spring 2020 marketing campaign for the e-bike hires. Funding had been obtained from Smarter Choices Smarter Places to expand upon the initial launch in January 2020 with the intention to create a boost for the Spring tourist season leading into the busy Summer season. However, these activities were forced to stop when the UK entered lockdown on 23<sup>rd</sup> March 2020. In light of these challenges and to support recovery, e-bikes were offered out for lengthy periods of time to local key workers at both sites – a necessary and commendable adaption given the circumstances. This ensured that these workers had a crucial mobility option at a time where other forms of transportation were shut down or reduced. The offer proved extremely popular, with all bikes hired within a day. This has been a good news story to come out of the pilot and could potentially cause a modal shift, with users hiring the e-bikes for longer it could help to demonstrate the variety of journeys possible using an e-bike. Although this was not the outcome predicted it demonstrates the flexibility of e-bikes in the area and personifies the term “demand responsive transportation”.

### 4.2 Security of funding

This proved a significant stumbling block early in the project and led to several delays. As the INCLUSION project could not support direct funding of the e-bike equipment, it took several applications to a national funding source before being successful. A key reason for being unsuccessful was due to the populations of the proposed towns being too small to demonstrate value for money for providing e-bikes, despite CNP receiving 1.87million visitors per year. This reasoning highlights the difficulties in obtaining funding from national sources where local context might be misunderstood. Also, the funding mechanisms are split that results in funding needing to be obtained from multiple sources to successfully operate a pilot. For example, one funding source is used for the e-bike equipment, another for the docking stations and another for the marketing of the scheme. This can result in significant delays as all funding sources must align for the pilot to run as intended.

The MaaS project is another example where funding timelines has resulted in the MaaS pilot occurring after the INCLUSION project ends. However, HITRANS were one of only two places in Scotland awarded funding for the scheme and is a first of its kind for the area.

### 4.3 Thistle Assistance Card

This measure was an additional and very welcome complementary measure – the promotion of the Thistle Assistance Card and app which aims to help elderly people and people with disabilities or illness to use public transport. Figure 11 below highlights how the Thistle Assistance Card works in practice.

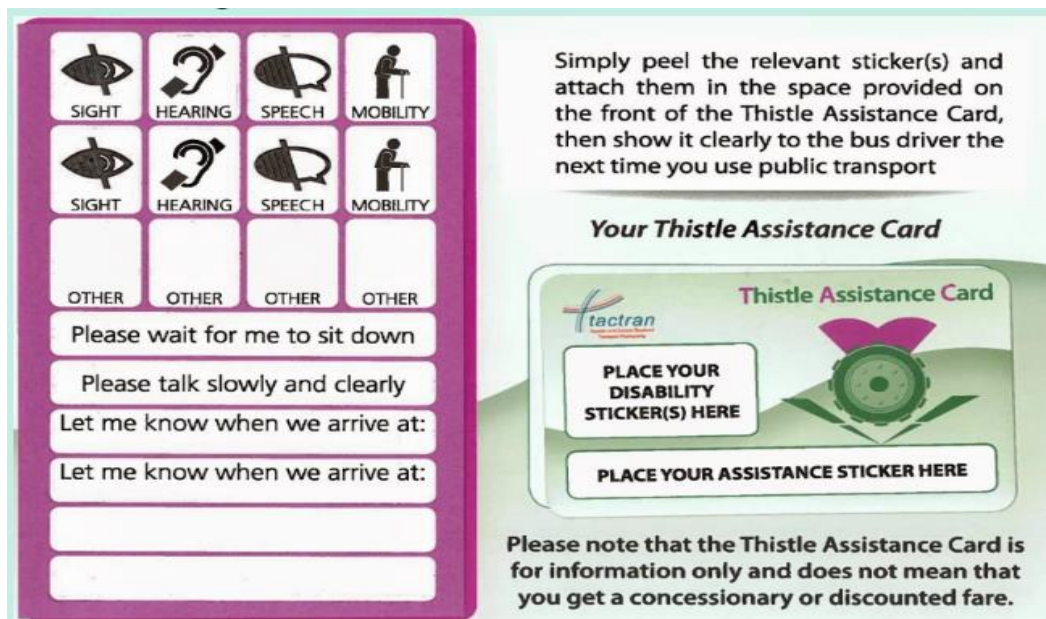


Figure 11 - Thistle Assistance Card

This measure was undertaken to strengthen our measure of improving access to public transport information. Funding was obtained from a national funding source, Paths for All Smarter Choices Smarter Places, to obtain research on awareness of the card and promote its use across the HITRANS area.

A Scotpulse survey was commissioned, with results showing that there was little awareness of the Thistle Assistance Card in comparison to other similar services that benefit the target groups (e.g. the National Entitlement Card, Young Scot National Entitlement card). To increase awareness of this card and the associated app, a television ad was run from November 2019 until the end of January 2020. Results are included later in this report.

### 4.4 Hltravel Liftshare

This was a further additional complementary measure – the promotion of Hltravel Liftshare. HITRANS hosts the Hltravel Liftshare for those looking to car share across the region. Members of the car sharing site save on average £800 a year by sharing journeys and is aimed at getting vehicles off the roads by increasing the number of people in each car.



Those wishing to use this service complete a registration form and the details are entered into a database. The [www.hitravel.liftshare.com](http://www.hitravel.liftshare.com) system will then produce a list of suitable sharers; people to pick up on the way, or who live nearby and who meet the criteria requested. This service has a lot of benefits both for the user and wider environment; reducing the mileage and everyday wear and tear on vehicles, reducing fuel costs (and parking charges) by sharing day-to-day expenses, reducing congestion and save valuable time – particularly at busy times of the day and reducing traffic pollution. HITRANS applied for funding from Paths for All Smarter Choices Smarter Places to enhance the promotion of Hitravel Liftshare throughout the area by advertising on petrol pumps – please see image below.



Figure 12 – Hitravel Liftshare Ad-Nozzles

Source: HITRANS

## 4.5 Introduction of Case Study interviews

Due to delays in getting the e-bike project started (resulting in a limited number of returned questionnaires), it was decided to conduct case study interviews with the e-bike owners. This proved very successful and resulted in a wide-ranging set of outcomes that added real value to the results in section 7.



## 5 Promotion and stakeholders' involvement

### 5.1 Main actors and their roles

#### 5.1.1 E-bikes

*Table 5 – Main actors and roles for e-bikes measure*

Type	Actor	Role(s)
Regional transport authority	HITRANS	Pilot Lab coordinator
Local business association	Cairngorm Business Partnership	Key stakeholder involved in workshops etc.
National transport agency for Scotland	Transport Scotland	Granted funding for MaaS pilot project (including the e-bikes and hubs)
National funding sources	Smarter Choices Smarter Places / Energy Saving Trust	Part-funding of the e-bike equipment (after several attempts) and marketing of the service – two different applications
Transport Service	Bike Shop Provider	Managed the day-to-day operational aspects and maintenance of the e-bike pilots

#### 5.1.2 Integrating a lift sharing scheme and car club with public transport and experiment with Mobility as a Service

*Table 6 – Main actors and roles for lift sharing and car club integration with public transport*

Type	Actor	Role(s)
Regional transport authority	HITRANS	Pilot Lab coordinator
Advertising agency	AdNozzle	Supplied ad space on gas pump nozzles for Hltravel Liftshare

App platform provider	Mobilileo	Primary platform provider (already have API feeds in place with rail operators and Stagecoach/Citylink and other regional transport providers)
App platform provider	SkedGo	Secondary platform provider (TripGo API, API link to Ticketer, which opens MaaS solution to independent regional bus operators), leading on demand responsive transport integration and management and support for the inclusion of community transport and social enterprise providers in the system
Electronic ticket machine provider	Ticketer	Provides existing API links with regional bus operators
Architectural services company	IBI Group	Add trip planning expertise and multi-modal routing platform with OpenTripPlanner
A school within the Environment Faculty of The University of Leeds	Institute for Transport Studies (ITS) Leeds	Leads on monitoring and evaluation of travel behaviour and behaviour change
Global design and engineering consultancy	Arcadis	Provides consultancy expertise to the Partnership
Rental car agency	Enterprise	Amending their services to open access to the Highland Council vehicles to the public in the evening and at weekends. 10 additional virtual vehicles will also be introduced in several locations to enable wider access to Car Club vehicles for residents and visitors
National transport agency for Scotland	Transport Scotland	Granted funding for the MaaS pilot project
Interreg North Sea Region-funded project	STRONGER COMBINED project	Providing funding for the MaaS pilot project

### 5.1.3 Improving multi-modal travel information services

*Table 7 – Main actors and roles for improving multi-modal travel information services*

Type	Actor	Role(s)
Regional transport authority	HITRANS	Pilot lab coordinator
Local Authority	The Highland Council	Procurement support for RTPI contract
Advertising	STV	Platform for advertising the Thistle Assistance Card campaign
National funding sources	Smarter Choices Smarter Places	Part-funders for advertising campaign
Travel information	Vix	Technology provider for multi-modal travel information across the region

## 5.2 Stakeholder engagement

HITRANS, The Highland Council, Cairngorm National Park Authority, Badenoch and Strathspey Community Transport Company and other key stakeholders, including the NHS, all came on board with the opportunity to use e-bikes/ bike docks within the Aviemore area. Partnerships such as those with PhD student Jenny Milne, focussing on MaaS, and others within INCLUSION have also evolved to help develop the scheme.

Discussions were held with car club operators to determine their level of involvement and expand services into CNP. Local bike hire providers ('Mikes Bikes' in Aviemore and 'BaseCamp Bikes' in Grantown-on Spey) came on board early and have become firm enthusiasts and promoters of the E-bike schemes in their premises.

Several workshops were held to facilitate engagement with the above stakeholders, including the Cairngorms Connected rural transport workshop and MaaS workshops to develop the funding application. Some of the above listed providers were engaged with instead through public procurement exercises, such as Vix.

Furthermore, HITRANS have extensive experience of working with communities to develop and implement transport solutions. Stakeholder needs and demands were considered, with outcomes

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presented to stakeholders and industry to begin planning for future challenges and opportunities for enhanced mobility amongst prioritised groups.

Stakeholders include: main partners, associate partners, Regional Transport Partnerships, five Local Authorities, Highlands and Islands Enterprise (HIE), Forestry Commission, VisitScotland, Scottish Natural Heritage, University of the Highlands and Islands (UHI), Scottish Enterprise, local businesses & community groups, land management & conservation groups, and other relevant/interested parties in the target area. Target groups and stakeholders have been consulted to optimise outcomes through the Cairngorms Connected research.

Case study interviews were held with the owners of both bike shops and their responses have been reported in section 7.

## 6 Institutional, regulatory and financial issues

### 6.1 E-bikes

A significant causal factor in the initial delays experienced by HITRANS was in the securing of funding. The public funding body, Transport Scotland, (which is more accustomed to working with cities) does not seem to be aware of the amount of tourist traffic (1.92 million people per year to Cairngorms National Park), despite the small resident population of 3,600 inhabitants in Aviemore. Even when additional funding was secured from other sources, the funders were very unwilling to allow partnerships with local bike shops. Significant lobbying and advocacy were undertaken to rectify this, which took time and led to a significant delay in the implementation of this measure.

Since the measure was implemented in January 2020, any impact evaluation possible for the shared e-bike measure will not reflect the true potential of this service due to the more limited use of e-bikes expected during dark and cold winter months.

In terms of co-operation with local stakeholders, conflict of interest with local businesses was an issue and continues to be an issue. HITRANS received a complaint from another bike hire company that was interested in partnering with them in this scheme. HITRANS has said they will consider taking them on board in the future if the current scheme is successful. Feedback from the case studies would suggest that the bike shop owners believe the scheme to be very successful, with the potential to deliver an even wider set of benefits, particularly associated with wellbeing, health and with stronger links to the business community.

#### 6.1.1 Drivers and Barriers – actions taken – outcomes

Tables have been generated to illustrate the drivers and barriers, actions taken and outcomes of three measures taken during the pilot. Table 8 highlights the key drivers to the e-bikes project, and Table 8 highlights the key barriers.

*Table 8 – e-bikes – drivers and barriers*

Driver		Actions taken to implement/ make use of an existing driver	Impact/ Outcomes
Political:  National prioritisation of MaaS, e-bikes, accessible travel and car clubs enabled local level implementation	<i>Medium</i>	Support for such measures from the national level adds to their legitimacy and most likely aided HITRANS secure the funding (albeit not from the national level)	The e-bike sharing scheme was successfully implemented

<b>Funding; Communication:</b>  Once funding was obtained, it covered ads in a local magazine and a public launch event	<i>Medium</i>	The e-bike sharing scheme was promoted widely to the target groups during Christmas and New Year 2019/20	Will be able to determine full impact based on the survey results that have been analysed.  The initial publicity targeted a limited audience during the winter months and as such drew a limited response. A second round of publicity was planned prior to Easter but this did not go ahead due to the onset of Covid-19. It is ready to go again post Covid-19.
<b>Business model:</b>  Incentives offered over Winter to get people to try the bikes	<i>Medium</i>	Incentives offered widely to the target groups, including come and try, free trials, and other launch events	Will be able to determine full impact based on the survey results that have been analysed.  Several other activities were planned prior to Easter, most notably with the Badenoch & Strathspey Community Transport Company; local Care Homes; and GP practices. This is now planned post Covid-19

*Table 9 – e-bikes – drivers and barriers 2*

Barrier		Actions taken to overcome barrier	Impacts/ Outcomes
<b>Funding inaccessible; political:</b>  Difficult to obtain national funding for e-bike schemes; disjointed funding foci; fear of interventions in free market	<i>Medium</i>	A significant amount of time was spent unsuccessfully bidding for funds. HITRANS needed to instead discuss with providers and try to collaborate with other groups to deliver outcomes.	Funding was secured to implement this measure. Continued funding of projects or expansion via further bid funds will be needed.

<b>Business model:</b>  Even when additional funding was secured, funders were unwilling to allow partnerships with local bike shops.	<i>Strong</i>	Significant lobbying and advocacy undertaken	Significant delay in terms of the delivery of e-bike hire project
<b>Organisational/ Institutional factors:</b>  Delay in recruitment of project management resource	<i>Medium</i>	Recruited short-term Project Manager	Delayed delivery of key measures identified. Short-term contractor cover established in Feb 2020.

## 6.2 Integrating a lift sharing scheme and car club with public transport and experiment with Mobility as a Service

A notable barrier for this measure was the hesitance of car club operators to take the financial risks and uncertainties associated with expanding their services in a deep rural area and allowing younger people to use their cars. For example, HITRANS tried to engage with the social enterprise, Moray Car Club, but they were reluctant for exactly these reasons. They did not think their insurance covered drivers aged 17-21 years and believed this would increase their costs, so they had not included this group in marketing or considered them as key users. However, after inspecting their insurance policy they found it did cover these drivers, but they were still reluctant to target this user group, and the risks of expansion into a rural area were still present.

As with the other measures in the Cairngorms PL, access to funding was a major barrier which resulted in delays to the implementation of the measures. Eventually HITRANS won public funding for a MaaS platform for the Highlands through the MaaS Investment Fund, which aims to encourage people out of cars and onto sustainable forms of transport. This includes 10 new car club locations, one of which will be a location in Aviemore. This has been the most notable driver so far, as it enables HITRANS to implement this measure.

The MaaS funding available is for an initial 6-month live pilot project but it is hoped that through a successful deployment and with additional support from our INTERREG North Sea Region project, Stronger Combined, it will be possible to extend the pilot period and develop a viable commercial product.

## 6.2.1 Drivers and Barriers – actions taken – outcomes

*Table 10 – Integration of lift sharing and car club with public transport – Drivers and barriers*

Driver		Actions taken to implement/ make use of an existing driver	Impact/ Outcomes
<b>Political context; funding:</b> National prioritisation of MaaS, e-bikes, accessible travel and car clubs helps local level to implement	<i>Strong</i>	In December 2019, HITRANS won public funding for a MaaS platform for the Highlands through the MaaS Investment Fund (which aims to encourage people out of cars and onto sustainable forms of transport) - This includes 10 new car club locations, which includes the location in Aviemore	An agreement was made that car club vehicles would be introduced into CNP through the MaaS platform; however, this is now occurring outside of INCLUSION timeframes due to Covid-19 delays.
<b>Communication:</b> AdNozzle supplied ad space on petrol pump nozzles	<i>Medium</i>	HiTravel Liftshare widely promoted to the target users at petrol stations	Notable increase in website traffic, number of members and journeys made using the scheme
<b>Cooperation among actors:</b> Existing agreements and structures in place to facilitate implementation (data privacy agreement with tech company; Mobbileo already have API feeds in place with rail operators and Stagecoach/Citylink)	<i>Not yet known</i>	Partnership agreement has been made and will make use of these structures in the pilot project	Due to Covid-19 delays, the MaaS project will launch after INCLUSION project timeframes. However, this driver will be assessed as part of that project.



*Table 11 – Integration of lift sharing and car club with public transport – Drivers and barriers 2*

Barrier		Actions taken to overcome barrier	Impacts/ Outcomes
<b>Political Context; Business model:</b>  There used to be various demand-responsive services at end of 20th century, but couldn't run without public subsidy; social car club expected to fill gaps, but unable to take risks	<i>Weak</i>	A larger car club (Enterprise) came on board who was willing to take these risks	An agreement was made that car club vehicles would be introduced into CNP through the MaaS platform; however, this is now occurring outside of INCLUSION timeframes due to Covid-19 delays.
<b>Funding inaccessible; Political:</b>  Difficult to obtain national funding	<i>Medium</i>	Possible but time-consuming to obtain public funds	Funding was successfully won, after significant time and effort was spent
<b>Cooperation among actors; Business model:</b>  Reluctance of car clubs to expand into deep rural areas & insurance concerns for young drivers	<i>Weak</i>	Convinced a larger car club (Enterprise) who was willing to take these risks	An agreement was made that car club vehicles would be introduced into CNP through the MaaS platform; however, this is now occurring outside of INCLUSION timeframes due to Covid-19 delays.

## 6.3 Improving multi-modal travel information services

As with many of our measures, lack of direct funding to HITRANS from central Government means significant time was spent bidding for funds. The improvements to real time passenger information required collaboration with several stakeholders to deliver outcomes. For the Thistle Assistance Card, results show that there is little awareness of the card in comparison to other similar services that benefit the target group. A key barrier for this would again be funding limitations to market the scheme.

### 6.3.1 Drivers and Barriers – actions taken – outcomes

*Table 12 – Improving multi-modal travel information – drivers and barriers*

Driver		Actions taken to implement/ make use of an existing driver	Impact/ Outcomes
Political; funding:  Improvement of real time multimodal travel information	<i>Strong</i>	This solution delivers a regional, multi-modal information system using real-time data. The procurement notice was issued in October 2019 and the contract awarded in January 2020, with the new system going live shortly after.	Improved real-time multi-modal travel information across region
Communication:  STV campaign on Thistle Assistance Card	<i>Medium</i>	Thistle Assistance Card exists and is available to all Regional Transport Partnerships, but funding was obtained to market more widely & better understand current knowledge of scheme	Knowledge that scheme is not widely known about and more needed to be done to increase awareness – STV campaign was launched

*Table 13 – Improving multi-modal travel information – drivers and barriers 2*

Barrier		Actions taken to overcome barrier	Impacts/ Outcomes
Funding accessibility; Political Context:  Difficult to obtain national funding	<i>Medium</i>	Possible but time-consuming to obtain public funds	External funding obtained for RTPi improvements  External funds obtained to help market Thistle Assistance Card
Organisational/ Institutional factors:  Delay in recruitment of project management resource	<i>Weak</i>	Recruited short-term Project Manager	Delayed delivery of key measures identified. Short-term contractor cover established in Feb 2020.

## 7 Main results of the pilot

### 7.1 Evaluation activities and target indicators

As discussed in the earlier sections of this report, the Cairngorms National Park pilot lab was focussed on developing three INCLUSION measures, coordinated by the regional transport authority for the Scottish Highlands (HITRANS), and summarised in Table 14 and Table 15..

Table 14 describes the e-bike hire measure which was fully implemented and has been subject to impact evaluation. The main results from this are described in the remainder of this Chapter. Table 15 presents two further measures which were developed within the INCLUSION project, but because of difficulties experienced in the delivery process were not fully operational in time to be subjected to impact evaluation. Both measures in Table 15 have been included in the process evaluation analysis to understand, in detail, the issues encountered and the barriers and challenges that led to delays in getting these measures operational in the CNP area. Access to funding was the major barrier which resulted in delays to the implementation of the measures in Table 15. This is highlighted in detail in Section 6 of this report. The remainder of this chapter relates only to the E-bike sharing measure.

*Table 14 - INCLUSION measures demonstrated and subject to impact and process evaluation in CNP PL*

Measure name	Description
Introduction of e-bike hubs at number of locations in CNP	The E-bike hire project in Speyside / Cairngorms is focussed on implementing 3 small scale E-Bikes hubs in key gateway towns/transport interchanges for the national park. The goal is to promote modal shift and create a safer active travel environment for residents and visitors to travel within the National Park. The target users are elderly people, persons of reduced mobility, young adults and teenagers, local residents who suffer from fuel poverty due to high rural fuel costs, and tourists. The learning gathered from this initial roll out will inform future plans for further sites in these towns and also to new settlements building on learning and research gained from other current projects.

*Table 15 – INCLUSION measures developed and subject only to process evaluation in CNP PL*

Measure name	Description
Integrating a car club with public transport and experiment with Mobility as a Service	Introduction of a small Car Club in Aviemore to meet mobility demand in that area. Strategies will be developed to promote and encourage use by young adults. The car club will form a component part of a wider MaaS system for the area. Main target users are persons of reduced mobility, young adults, local residents who suffer from fuel poverty due to high rural fuel costs, and tourists.

Improving multi-modal travel information services	Delivery of a regional, multi-modal information system using real-time data. Target users are elderly people, persons of reduced mobility, young adults, teenagers, local residents who suffer from fuel poverty due to high rural fuel costs, and tourists.
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## Overview of E-bike share demonstration phase

Significant initial delays were experienced by HITRANS in securing the funding necessary to pay for the purchase of e-bikes for the scheme. Further delays were encountered in gaining approval for the partnership model of delivery involving local bike shops to host and manage the operation and maintenance of the e-bikes. Detailed information on these issues is presented in Section 6.

The e-bike scheme was launched at the beginning of January 2020 and was operational for public hire until the Covid-19 lockdown in mid-March 2020. This was a much shorter than planned demonstration period and as a result, the impact evaluation results reported in this chapter do not reflect the true potential of this service due to the more limited use of e-bikes expected during dark and cold winter months. Furthermore, a significant re-launch of the service with extensive marketing and promotion was planned for the Easter period to coincide with improved weather, lighter evenings and increased visitor numbers. However, the Covid-19 lockdowns from March 24<sup>th</sup> forced the closure of the local bike shops operating the e-bike hire scheme and the freezing of e-bike hire. The planned promotion and service relaunch had to be put on hold. This closure has continued through the Spring and into the Summer months resulting in no further e-bike hires. It is important to recognise that the figures for Winter hires, between January and March 2020, do not give a true reflection of the potential that the e-bike service offers. This must be borne in mind when interpreting the results presented.

It is important to highlight that in response to the challenges faced by Covid-19 and to support recovery, the e-bikes were offered out for lengthy periods of time to local key workers at both sites – a necessary and commendable adaption given the circumstances. This ensured that these workers had a crucial mobility option at a time where other forms of transportation were shut down or reduced. The offer proved extremely popular with all bikes hired within a day. This has been a good news story to come out of the pilot and could potentially cause a modal shift, with users hiring the e-bikes for longer it could help to demonstrate the variety of journeys possible using an e-bike. Although this was not the outcome predicted it demonstrates the flexibility of e-bikes in the area and personifies the term “demand responsive transportation”.

## Summary of impact evaluation approach

The total number of e-bike users during the demonstration who completed the survey questionnaire was 46. Taking this into account, a more focused evaluation has been conducted with the e-bike users but supplemented with feedback from other stakeholders involved in delivery of the service. This gives indications of the potential for such a service when it continues to be delivered in more favourable good weather conditions and helps identify opportunity for expansion of the service to other locations and more users.

## Summary of main findings from e-bike user surveys

The main aim of the e-bike share service is to promote active travel and increase active travel options for vulnerable users in CNP. A long-term goal is for residents to cycle more and to purchase their own e-bike as a result of experiencing use through the e-bike share scheme.

The main source of data used to evaluate the impact of the e-bike hire service comes primarily from user surveys completed by users of the e-bikes when they complete their hire. These were distributed as paper surveys by the bike shops hiring the e-bikes and were also made available as an online survey for those who preferred to provide feedback at a later time. The number of surveys returned from each e-bike hire location is presented in Table 16.

*Table 16 - Summary of e-bike user survey responses from each Hub location in CNP*

Location	Residents	Visitors	Total
Aviemore	18	5	23
Grantown	4	5	9
Fort William	13	1	14

Despite the short demonstration period and taking place during winter months, there are indications from the user feedback received that the e-bike hire measure has potential to address the main aims of the measure. Table 17 summarises the user feedback related to the main aims of the e-bike share scheme.

*Table 17 - Summary of main measure aims against impacts observed*

Measure Aim	Impacts
To increase active travel options in CNP for vulnerable users	5 resident respondents (15%) were over 65 and 20% were in the 56-65 bracket. A further 2 residents used the e-bikes to help recover from injury or to help with an underlying respiratory condition
For residents to cycle more	Over 65% of residents had never used an e-bike before, but all respondents stated they would use e-bikes again
For residents to purchase their own e-bike because of experiencing use through the e-bike share scheme	4 resident e-bike users have purchased an e-bike since hiring

Although numbers of users were limited, those that did use the e-bike were all very positive about the experience.

- For tourists, as expected, the overwhelming reason for using the e-bikes was leisure.
- For residents, leisure and health were the most commonly stated reason for use, with accessing work mentioned by 6 users (17% of residents).

It is particularly encouraging that the e-bike hire scheme has been used to access work and has been used to increase mobility options for mobility impaired and older users, especially as elderly users are least likely to hire e-bikes during cold winter months.

Also, it is of note that while all respondents either never used public transport or only used it occasionally, 3 out of the 11 visitors did access the CNP area by train and then used the e-bike to get around. This suggests there is potential for the e-bike scheme to facilitate greater visitor access to CNP by public transport (on average, only 3% of tourists use public transport to access CNP. Source: Cairngorms Visitor Survey 2014-15, Full Report, 1st July 2015).

### Surveys with e-bike shop owners

The e-bike hire schemes were introduced at two locations in Cairngorms National Park and a third location on the periphery of the Park through a public-private partnership agreement between the regional transport authority (HITRANS) and local bike shops in Aviemore, Grantown on Spey and Fort William.

In order to supplement the user feedback reported on above, interviews were conducted with the bike shop owners to establish a more complete picture of the benefits to bike shops, benefits to users, and longer-term opportunities and potential impacts foreseen by the bike shop partners. The results from these interviews and surveys are summarised in Table 18.

**Table 18 - Overview of feedback received from bike shop owners**

Business benefits	Enabled a bigger range of bikes on display and available for hire.
	Increased sales through talking about, showing and allowing local people to trial the e-bikes. Between Jan and mid-March 4 e-bikes were sold to persons who had hired an e-bike through the scheme.
Community benefits	Increased knowledge and awareness of cycling and e-bikes in the community.
	Health benefits of e-bikes and empowering users lacking confidence or with mobility impediments: <ul style="list-style-type: none"> <li>• In Aviemore, the bike shop has had people recommended to try e-bikes by the local GP (Doctor's) practice. The bike shop has been working on building a positive relationship with the GP practice.</li> </ul>

	<ul style="list-style-type: none"> <li>• Two customers, unable to cycle and suffering a lot of pain when walking after hip operations, hired e-bikes and realised they could become mobile and enjoy cycling again without pain. Both have now ordered an E-bike as a result of the hire scheme.</li> <li>• One older customer had a fear of cycling and not being able to make it home. Hired an e-bike which immediately removed this fear. Ordered an e-bike as a result.</li> <li>• Another customer had not cycled for years due to poor fitness and a back problem – found regular bike too difficult – Hired e-bike which took the stress out of cycling and enabled customer to become active again.</li> </ul>
Improving engagement with vulnerable target groups.	<p>Plans are in place for greater promotion and referral for e-bike use through GP practices in Aviemore and Grantown-on-Spey and through the local Chiroprapist. This is particularly relevant to the more able elderly population and for those with certain mobility difficulties.</p> <ul style="list-style-type: none"> <li>- <i>“With the new hospital due to open in Aviemore in 2021, we are keen to explore with health partners how we could better support and promote wellbeing and good mental health within our local community.”</i></li> </ul> <p>E-bike open days have been held at villages outside the immediate bike shop location. One has been held which was well attended and another had been planned in April 2020 but had to be cancelled due to Covid-19. This raises awareness and provides opportunity to trial e-bikes for local residents in deeper rural settlements outside the bike-shop vicinity.</p> <ul style="list-style-type: none"> <li>o A 76-year-old has said the e-bike has been his lifeline, given he lives in a deep rural area. The bike shop was able to deliver his e-bike to Laggan (40km from Aviemore).</li> </ul> <p>Plans are being developed to link promotion to elderly persons through the local Community Transport Company and Day Care Centres, benefiting the more able elderly people that can access these services.</p> <p>To broaden this to as many vulnerable users as possible, the inclusion of e-trikes is being considered to enable many more elderly and mobility impaired persons to benefit from the scheme. The e-trikes can carry 2 passengers on the front with one cyclist, usually a volunteer from the Community Transport Company. The aim is to improve mental health and wellbeing and tackle loneliness and isolation, so will benefit service users and volunteers alike.</p>



	Two of the bike shops are keen to further promote to younger age groups, working with a local college and local teachers with free demonstration days. This will be pursued once again once Colleges and Schools re-open after lockdown restrictions are relaxed.
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Figure 13 - E-Trike in use in Cairngorm National Park

Source: Badenoch and Strathspey Community Transport Company Newsletter, March 2019

From the data gathered, it is possible to see general improvements in transport methods overall. Positive changes come as visitors are decreasing their private car, private bus/coach tours and plane usage whilst increasing use of public transportation, bus/coaches, hire cars and trains, and active transportation such as walking. However, we can also observe negative changes, such as an increase in prevalence of motorhomes/campervans and a decrease in bicycle/mountain bike usage within the Cairngorms area. There is more work to be done to improve public transport offerings in Cairngorms National Park, but the INCLUSION project has provided a valuable platform in which to make positive changes in the area.

## 7.2 Other Research Conducted

### Cairngorms Visitor Survey Analysis

The Cairngorms National Park Authority conduct Visitor Surveys approximately every 5 years to understand visitor profiles, behaviour and experience. It should be made clear that this survey is not linked to the INCLUSION project; however, it has been included in this report due to its relevance to research in CNP, and statistics from the 2014/15 survey were included in the INCLUSION CNP overview at the beginning of the project.

By comparing data from the 2009-10, 2014-15 to the 2019-20 Cairngorms Visitor Survey, trends can be recognised in method of transport behaviour for both travel to and within the CNP. The data below has been colour-coded to highlight positive and negative changes in the 2019-20 data. Any data without changes can be seen as neutral.



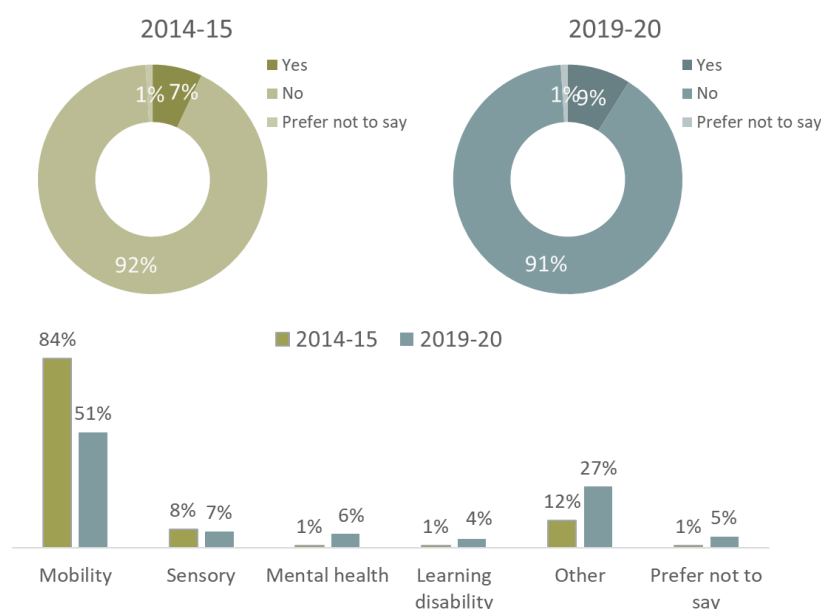
*Table 19 - Method of transport behaviour for both travel to and within the CNP*

Key	
Positive change	
Negative change	
Neutral	

Transport <u>to</u> the Cairngorms area			
	2009-10	2014-15	2019-20
Private car	68	74	65
Hired car	10	11	18
Motorhome/campervan	4	4	8
Train	2	2	4
Public bus/coach	3	1	3
Walking	-	1	2
Private bus/coach tour	8	6	2
Plane	4	3	2
Motorbike	3	1	1
Bicycle/mountain bike	1	1	1
Other	-	1	1
Transport <u>within</u> the Cairngorms area			
	2009-10	2014-15	2019-20
Private car	71	74	65
Hired car	9	11	18
Motorhome/campervan	3	4	8
Train	-	1	2
Public bus/coach	4	2	4
Walking	13	15	24
Private bus/coach tour	6	5	2
Plane	-	-	-
Motorbike	2	1	1
Bicycle/mountain bike	2	7	5
Other	-	1	0

From the data displayed in the tables above it is possible to see general improvements in transport methods overall. Positive changes come as visitors are decreasing their private car, private bus/couch tours and plane usage whilst increasing use of public transportation, bus/coaches, hire cars and trains, and active transportation such as walking. However, we can also observe negative changes, such as an increase in prevalence of motorhomes/campervans and a decrease in bicycle/mountain bike usage within the Cairngorms area.

Just under 1 in 10 visitors to the area reported that they or someone travelling with them had health problems or disabilities. The data illustrates that mobility related issues continue to be the most prominent, 51%, a section of the population the e-bikes in particular aimed to attract as they are suitable for those with limited mobility.



**Figure 14 – Visitor Survey Comparison 2014-15 and 2019-20**

*Source: Cairngorm National Park authority visitor survey final report*

Furthermore, there has been an increase of 5% to mental health related issues amongst visitors, which could include stress, anxiety, and depression. In response to this it is important to emphasise the benefits of the CNP in promoting peace, quiet and relaxation, and the associated health and wellbeing benefits of active travel.

### 7.3 Pilot Lab vs INCLUSIVITY goals

The main INCLUSION principles addressed by the e-bike share scheme are convenience and empowerment. The access to an e-bike allows residents, who do not have access to their own private transport, a direct mobility option to access work or for leisure and social trips. For older persons and those with certain mobility impairments, the e-bike can provide an active travel option that enables longer trips and provides the extra thrust required when going uphill. This enhances confidence and empowers a wider range of vulnerable users to enjoy cycling and active travel.

To ensure hire prices are affordable to lower income local users, the bike shops are developing different pricing for tourist use and for local residents. Daily charges for tourist hire range from £40-£55 per day with slightly lower half day rates. It is anticipated that these high charges for tourist hires can be used to cross-subsidise longer term and low-cost hire to local residents so that the operational costs and revenues are cost-neutral. It will take a full season to establish the discounted pricing and conditions for local hires, but this is a medium-term goal. At present all three shops provide locals with an hour-long hire for free on a trial basis, but all three shops are keen to establish longer-term low-cost hire during Winter months for locals.

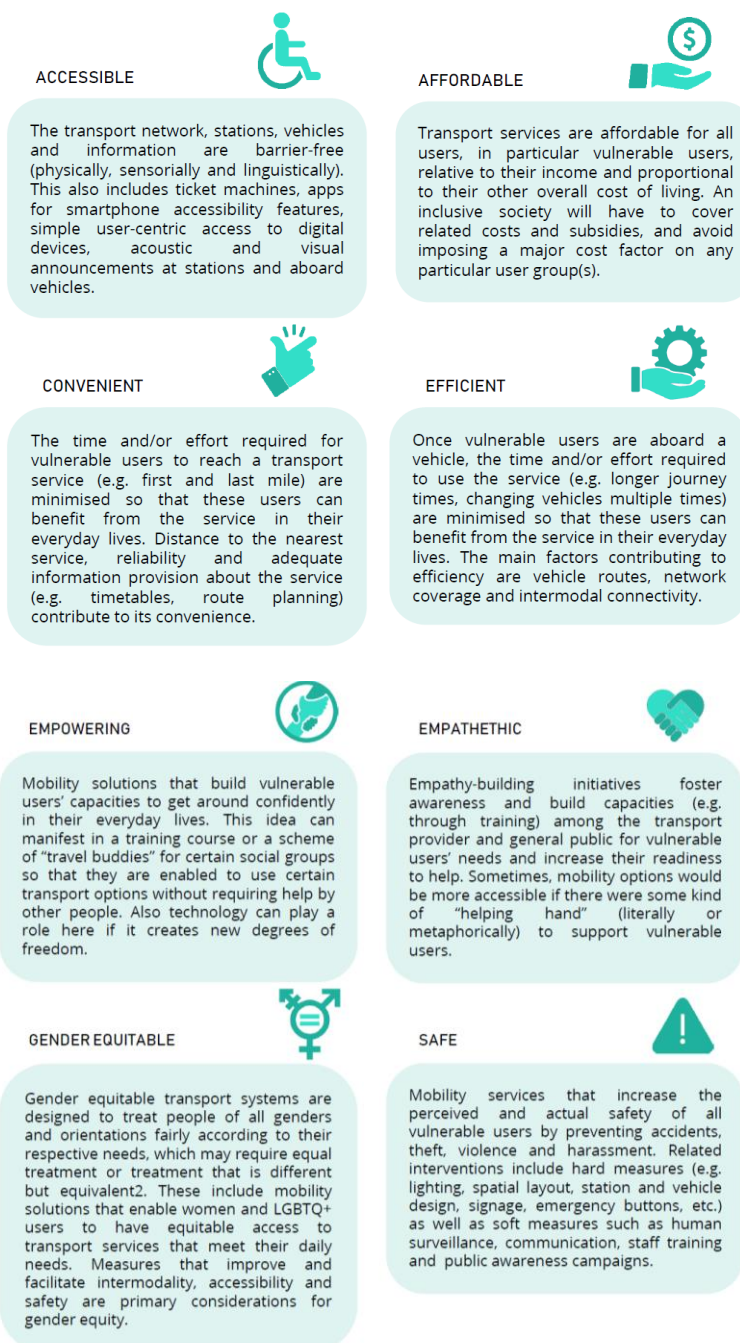


Figure 15 –INCLUSION inclusivity goals

## 8 Assessment

### 8.1 Benefits of the actions developed

The e-bike share service has empowered:

- more able old persons to enjoy active travel for health and leisure purposes;
- persons with certain mobility impairments or health conditions to aid recovery/maintain fitness; and
- younger persons and those suffering from transport poverty to access work by providing an affordable travel option that fosters independence.

In the recovery from Covid-19, the e-bike share service offers a much safer form of transport than collective travel options and will be an increasingly valuable part of rural mobility and a key transport supply option within Mobility as a Service solutions.

In rural areas, due to the low population density, the public transport network is sparse with limited spatial and temporal coverage. As a result, there are often no suitable transport options for accessing work opportunities located outside the main towns or which have non-standard shift patterns, or to access destinations for leisure or social trips. Having access to a shared asset such as an e-bike, at the times it is needed, can overcome these mobility gaps for many user trips.

In the rural CNP area the demand from individuals for a shared e-bike service is not sufficient for commercially viable operation from private sector providers. For the public sector to set-up and manage the e-bike sharing service would require significant on-going day-to-day operational input and additional infrastructure or premises to establish hubs for hosting the service. This would require significant additional budgets and staffing, both of which are very limited in rural areas. The solution that was delivered for CNP was to establish a public-private partnership with local bike shops that already existed in the main towns of the CNP area. Through this partnership the public sector partner (HITRANS in the CNP case) provided the financial support to purchase the e-bikes and then partners with local bike shops that own suitable premises and employ office/admin staff who can host and operate the service. While there is still the requirement for some public sector funding, the overall cost of delivering the service is significantly reduced compared to the cost of the public sector providing the service on its own.

The MaaS project will happen outside of INCLUSION timeframes, however the benefits are intended to be:

- Offer a new mobility platform offering all modes of transport through a single smartphone app
- Provide residents and visitors with access to buses, trains, car hire, car clubs, bicycle hire, air travel and ferries

- Enable transport providers access to data about the demand for their services, helping them to better understand the needs of people in the region and make decisions about the provision of services
- Address various technology aspects for wider roll-out of multi-modal smart booking and payment methods, incorporating real time travel information.

The enhanced marketing of the **Hltravel Liftshare service** resulted in an increase in memberships following the marketing campaign. 15 new members signed up to the platform during the month of the advertising campaign, compared with 2 new members the previous month.

The enhanced **Thistle Assistance Card** marketing was successful in driving traffic to the Thistle Assistance website ([www.thistleassistance.com](http://www.thistleassistance.com)) and direct request for new cards and App downloads (over 10,000 and 250 respectively). The TV advert produced can be re-run and used to market the card elsewhere, and the campaign has increased engagement with transport operators and 3rd sector organisations such as the McMillan Cancer Trust, Diabetes Scotland & Alzheimer Scotland.

## 8.2 Key transferability issues

### Strong points

- Public-private partnership with local bike shops provides a successful and cost-effective mechanism for delivering e-bike sharing schemes in rural areas.
- Public sector financing to purchase the e-bikes provides the leverage to ensure vulnerable users and locals can benefit from the scheme.
- Using local bike shops to host the service reduces operating costs, provides in-house maintenance and increases promotion and engagement within the local community.
- Importantly, bike shops act as the local champion, continually promoting e-bikes within the community and establishing partnerships with local health service providers and local businesses. Another advantage over a stand-alone on-street hire service.
- E-bikes are popular for people with health-related concerns, for example, hip, heart, knee problems.
- Generating revenue from tourist use provides an opportunity to cross-subsidise discounted local hires.
- The various technology aspects of the MaaS platform and partnership-building can be transferable to other areas adopting multi-modal, smart booking and payment methods, incorporating real time travel information into one application; particularly for rural areas.
- The TV advert produced to promote awareness of the Thistle Assistance Card can be re-run and used to market the card elsewhere.
- The service offered by Hltravel Liftshare can be modelled and rolled out elsewhere.

## Weak points

- Securing public sector funding to purchase or lease the e-bikes is required.
- Not everyone is able or confident enough to ride an e-bike.
- There may be conflicting demand between tourists and residents for e-bike hire during summer/tourist high season.
- Safe active travel routes are still required to allow more users to feel safe when using an e-bike – particularly on busier routes with high volumes of traffic.
- Connectivity issues in rural areas when trying to operate a mobile application such as the MaaS platform.
- Despite increased advertising, it is still difficult to ensure all possible users know about the travel assistance cards available to them, such as the Thistle Assistance Cards; particularly bus drivers who need to be aware of what the card is and how to help users.

## Potential transferability of the Pilot Lab measures and approach and related opportunities

Short term hires are good for tourist, leisure and health/fitness related trips. Longer term hire of several weeks are better for accessing work and can help young people or unemployed access job or training opportunities for the duration of a course or until they can afford to purchase their own form of transport. The hiring of e-bikes to key workers could help to demonstrate this, if we gain an understanding of user perceptions following the longer hires and using the e-bike for multiple journeys.

Presence of local bike shops to establish a partnership model of delivery is essential to the longer-term success and sustainability of this measure when delivered in rural areas.

The various technology aspects of the MaaS platform and partnership-building can be transferable to other areas adopting multi-modal, smart booking and payment methods, incorporating real time travel information into one application; particularly for rural areas.

The services offered by Hltravel Liftshare and Thistle Assistance Card can be modelled and rolled out elsewhere.

## Expectations for the future

Working with local businesses is the best way engage with target groups – working with health practitioners to refer patients with mobility problems or health conditions; working with local employers to identify employees requiring access to work; working with organisations supporting older persons to keep active and maintain independence.

E-bikes offer a safe mobility option that can help replace some public transport or volunteer ridesharing trips that have been discontinued because of Covid-19.

## 8.3 Lessons Learned

### 8.3.1 E-bikes

The experiences gained through this measure exposed two main concerns with regard to national funding for e-bike hire schemes and also the actual timing of the launch of this project, which occurred during the Winter months:

1. Disjointed funding foci at the national level:
  - a. Some funders / funding programmes only support capital infrastructure (e.g. docking stations) and others support only non-infrastructure costs (e.g. e-bikes). However, an e-bike scheme requires both.
  - b. Silo thinking, despite the fact that the money is coming from the same Government fund.
2. Funders' fear of interventions in the free play of market forces:
  - a. Many funders feared that if the e-bikes have to be checked out from a local retailer, this would give an unfair advantage to this business.
  - b. However, the e-bike handling service is certainly not an income generator for these shops (clearly articulated by the shop owners during the case study interviews with them).
3. Recognition that the project would have been better launched in the Spring to ensure maximum use of the e-bikes, maximum publicity of the scheme, and maximum benefits to the target groups.

Having bike shops host the e-bike share has the benefit of saving costs that would have otherwise been spent on on-street infrastructure. However, this comes with a potential point of tension: conflict of interest regarding the (perceived or actual) "preferential treatment" given to the private bike shops for hosting this public service.

Therefore, the lesson learned is that when using public funding to set up an e-bike sharing scheme hosted by bike shops in a rural area, it is often necessary to continue to prove - both to the funding body and also to any other competing bike shops - that the hosting bike shops do not make a profit of the e-bike sharing scheme. This also points to the need for greater awareness of community wealth building via such e-bike sharing projects.

Generally, there needs to be better alignment of the national-level priorities and processes for receiving funding for measures that support those priorities. In other words, national level funding needs to be made more accessible to rural areas by being better tailored to also apply to rural/ tourist areas' local context conditions.



### 8.3.2 Integrating a lift sharing scheme and car club with public transport and experiment with Mobility as a Service (MaaS)

It is clear that public subsidy is essential for the success of (shared) mobility solutions in rural areas. In the case of car clubs, a large car club is often needed which can take on the financial risks of starting up services in a rural area. Therefore, the keys to getting a car club scheme running is public funding (e.g. the MaaS project), and a large car club operator (e.g. Enterprise) who is willing and has the capacity to take the risk to expand into a deep rural area.

However, there is a bigger political issue at play with regard to public subsidy for demand-responsive services. There used to be various demand-responsive services in the Cairngorms PL area at the turn of the last century. However, because they cannot operate without public subsidies, they were discontinued. Now, many rural areas are in times of declining real term public sector budgets. Therefore, charities are expected to provide certain public services (including transport) typically through volunteers and other third sector solutions. The challenge is to find the right balance between public-private-community/grassroots partnerships to implement shared mobility solutions that can benefit vulnerable users in rural areas over the longer-term.

While it is too early to assess the lessons learned from implementing the MaaS measure, some lessons have been learned in terms of the accessibility of funding and political support for such measures. The prioritisation of MaaS at the national level has enabled the local level to drive these measures forward by making funding available. However, the bureaucracy involved to secure funding such as this has been a major barrier and can result in significant implementation delays. This again points to the need for better alignment of the national-level priorities and processes for receiving funding for measures that support those priorities. National level funding needs to be made more accessible to rural areas by being better tailored to also apply to rural/ tourist areas' local context conditions.

### 8.3.3 Improving multi-modal travel information services

Available funding is still at the core of this measure, and complexities in joining up multiple transport modes into one real-time travel information service. Also, even if schemes do exist to assist those in need when using public transport (Thistle Assistance Card), our research showed there is limited awareness of these schemes. Additional funding was then required to further market the Thistle Assistance Card, but this highlights again that limited marketing budgets for Local Authorities will result in under-utilised schemes with limited ability to promote the availability and use of such schemes.



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## 9 Conclusion

Throughout the INCLUSION project, HITRANS successfully implemented e-bike trials in two locations in Cairngorms National Park with a third on the periphery of the park, improved Real Time Passenger Information, launched a Mobility as a Service project in the wider HITRANS area, and facilitated discussions that lead to expansion of car clubs in the area. Additional measures were also included to complement our work, including improving awareness of the Thistle Assistance Card and the HIttravel Liftshare platform. Despite setbacks due to Covid-19 and some difficulties in obtaining wider funding to support these initiatives, HITRANS' overall aims of the INCLUSION project have been met through this collection of measures.

The COVID-19 pandemic has caused unprecedented disruption to all walks of life. Therefore, it is no surprise that the CNP pilot study for INCLUSION was directly affected both in terms of reduction of transport activity and in the number of visitors to the area. In these circumstances, it was necessary to deviate from the original plan and repurpose elements. The e-bike pilot was used to accommodate key workers during the pandemic, being made available to them to ensure a reliable mobility option at a time where other forms of transportation were reduced or shut down entirely. This development continued to aid the study, as the key workers agreed to complete e-bike questionnaires to contribute to the INCLUSION analysis. Although this is not the outcome predicted, it demonstrates the flexibility of e-bikes in the area and personifies the term "demand responsive transportation"

## The INCLUSION consortium



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For further information please visit [www.h2020-inclusion.eu](http://www.h2020-inclusion.eu)



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## Annexes

### Annex 1a E-bike Interview Questionnaires (Residents)

#### RESIDENTS

##### Research Questionnaire: Rural E-Bikes Project

###### EXPLANATION OF PROJECT

The e-bike you hired recently was part of a project to address some of the challenges related to the accessibility of public transport in rural areas. The project is being run by HITRANS, the Regional Transport Partnership for the Highlands & Islands, in partnership with local bike shops.

The project is looking at how to improve accessibility to e-bikes for residents and visitors in rural areas, to encourage greater wellbeing and improve options for sustainable travel.

The information you provide in this questionnaire is anonymous, and your responses will help us to develop and deliver better services in rural areas in the future. The questionnaire should take approximately 5 minutes to complete.

If you would like more information about the project or have any questions, please contact Vikki Trelfer: [vikki.trelfer@hitrans.org.uk](mailto:vikki.trelfer@hitrans.org.uk) / T: 01463 218812.

###### CONSENT STATEMENT

Please read the statements below and tick the final box to confirm you agree to participate in the project and have read and understood the statements.

I confirm that I understand that the e-bike I hired is part of a wider project. I have had the opportunity to ask questions about the project and have had these answered satisfactorily.

I consent to my answers being used to generate insights for the project.

I understand that my participation in this research is voluntary and that I may withdraw from the research at any time by emailing [vikki.trelfer@hitrans.org.uk](mailto:vikki.trelfer@hitrans.org.uk).

I consent to allow the fully anonymised data to be published and shared to help improve access to e-bikes in rural areas.

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I understand that the anonymised information/data acquired will be securely stored, and may in future be made available to others for research purposes.

☐

I confirm that I have read and understood the above statements (check the box)

Q1. What mode of transport do you normally use to travel **out of** Aviemore/Grantown on Spey? (please circle)

Car (driver) / Car (passenger) / Train / Bus / Motorbike / Bicycle / Walk / Other .....

Q2. What mode of transport do you normally use to travel **within** Aviemore/Grantown on Spey? (please circle)

Car (driver) / Car (passenger) / Train / Bus / Motorbike / Bicycle / Walk / Other .....

Q3. How regularly do you use public transport e.g. bus, train etc? (please circle)

Every day / A few times a week / Once or twice a week / A few times a month /

Once or twice a month / Occasionally / Never

Q4. How regularly do you cycle? (please circle)

Every day / A few times a week / Once or twice a week / A few times a month /

Once or twice a month / Occasionally / Never

Q5. Have you used an e-bike before? (please circle)

Yes / No

Q6. What journey/s did you undertake during your hire? (please describe)

Q7. Did you use the e-bike to connect to/from any other form of public transport? (please describe)

Q8. How did you find using an e-bike? (please describe your experience)

Q9. Would you use an e-bike again? (please explain your answer)

Yes / No

Q10. Overall, how would you rate active travel offerings in Cairngorms National Park? (please circle)

Very Good / Good / Average / Poor / Very Poor

Q11. How would you rate access to public transport in Cairngorms National Park? (please circle)

Very Good / Good / Average / Poor / Very Poor

**A few questions about you:**

Q12. Do you live in/near Aviemore? (If no, please say where you live)

Q13. What is your age? (please circle)

16-25 / 26-35 / 36 – 45 / 46 – 55 / 56 – 65 / over 65

Q14. Do you find it difficult to walk more than 500 metres?

Yes / No

Q15. Do you have caring responsibilities?

No

Yes – child / Yes – parent / Yes – spouse / Yes - other

Q.16 Roughly how much per week do you spend on transport? (E.g. petrol, bus fares etc)

£0-£10 / £11-£20 / £21-£30 / £31-£40 / £41-£50 / more than £50

Q17. Do you find it difficult to afford your weekly spend on transport?

## Annex 1b E-bike Interview Questionnaires (Visitors)

Q1. What mode of transport did you use to travel **to** Aviemore/Grantown on Spey? (please circle)

Private Car / Hired Car / Train / Public Bus or Coach / Bus or Coach Tour / Motorbike / Motorhome / Bicycle / Walk / Plane / Other .....

Q2. What modes of transport have you used whilst travelling **within** Aviemore/Grantown on Spey? (please circle)

Private Car / Hired Car / Train / Public Bus or Coach / Bus or Coach Tour / Motorbike / Motorhome / Bicycle / Walk / Other .....

Q3. How many nights are you staying away from home, and how many of those nights are being spent in the Aviemore/Cairngorms area?

Nights away from home:

Nights in the area:

Q4. How regularly have you used public transport (e.g. bus, train etc) whilst visiting Aviemore/Grantown on Spey? (please circle)

Every day / A few times a week / Once or twice a week / A few times a month / Never

Q5. How regularly do you cycle? (please circle)

Every day / A few times a week / Once or twice a week / A few times a month /

Once or twice a month / Occasionally / Never

Q6. Have you used an e-bike before? (please circle)

Yes / No

Q7. What journey/s did you undertake during your hire? (please describe)

Q8. Did you use the e-bike to connect to/from any other form of public transport? (please describe)

Q9. How did you find using an e-bike? (please describe your experience)

Q10. Would you use an e-bike again? (please explain your answer)

Yes / No

Q11. Overall, how would you rate active travel offerings in Cairngorms National Park? (please circle)

Very Good / Good / Average / Poor / Very Poor

Q12. How would you rate access to public transport in Cairngorms National Park? (please circle)

Very Good / Good / Average / Poor / Very Poor

**A few questions about you:**

Q13. Have you visited Aviemore / the Cairngorms before?

Q14. What is your age? (please circle)

16-25 / 26-35 / 36 – 45 / 46 – 55 / 56 – 65 / over 65

Q15. Do you find it difficult to walk more than 500 metres?

Yes / No

Q16. Do you have caring responsibilities?

No

Yes – child / Yes – parent / Yes – spouse / Yes - other

Q17. Roughly how much do you spend on transport per day while on holiday? (E.g. car hire, bus fares, taxis etc)

£0-£10 / £11-£20 / £21-£30 / £31-£40 / £41-£50 / more than £50



## Annex 2 Case Study Interview Questionnaire

E-Bike INCLUSION project, in partnership with HITRANS

Questionnaire - to help with preparation of Case Studies for the final report

1. In what ways have you, as a business, benefitted from hosting the e-bikes service?  
  
And... in what ways do you see potential benefits that are perhaps not realised yet? (e.g. more footfall in store; more sales of accessories to e-bike users; e-bike sales to those that have tried out e-bikes through the scheme; more positive attitudes towards cycling; more positive attitudes from wider community towards your business).
2. Do you have ideas on how the service can be more effectively marketed to different groups?
3. Should a different pricing strategy and mode of operation be applied in the off-season outside busy tourist periods to maximise utilisation throughout the year? (e.g. lower hire charges and longer hire periods such as weekly hire periods in off season rather than half day or daily hires in busy tourist periods).
4. Should some bikes always be retained for use by locals – even in busy tourist periods?
5. Are you able to undertake all necessary maintenance in-house?
6. What is your general impressions of the partnership agreement with HITRANS?
7. Are you interested in longer term continuation of the arrangement with HITRANS?
8. If tourist demand and revenues are sufficient, would you be interested in expanding the arrangement to include more cycles?
9. Do they have ideas on ways in which the delivery of the service can be improved for you as a business and/or for the users?
10. Any other comments/thoughts