

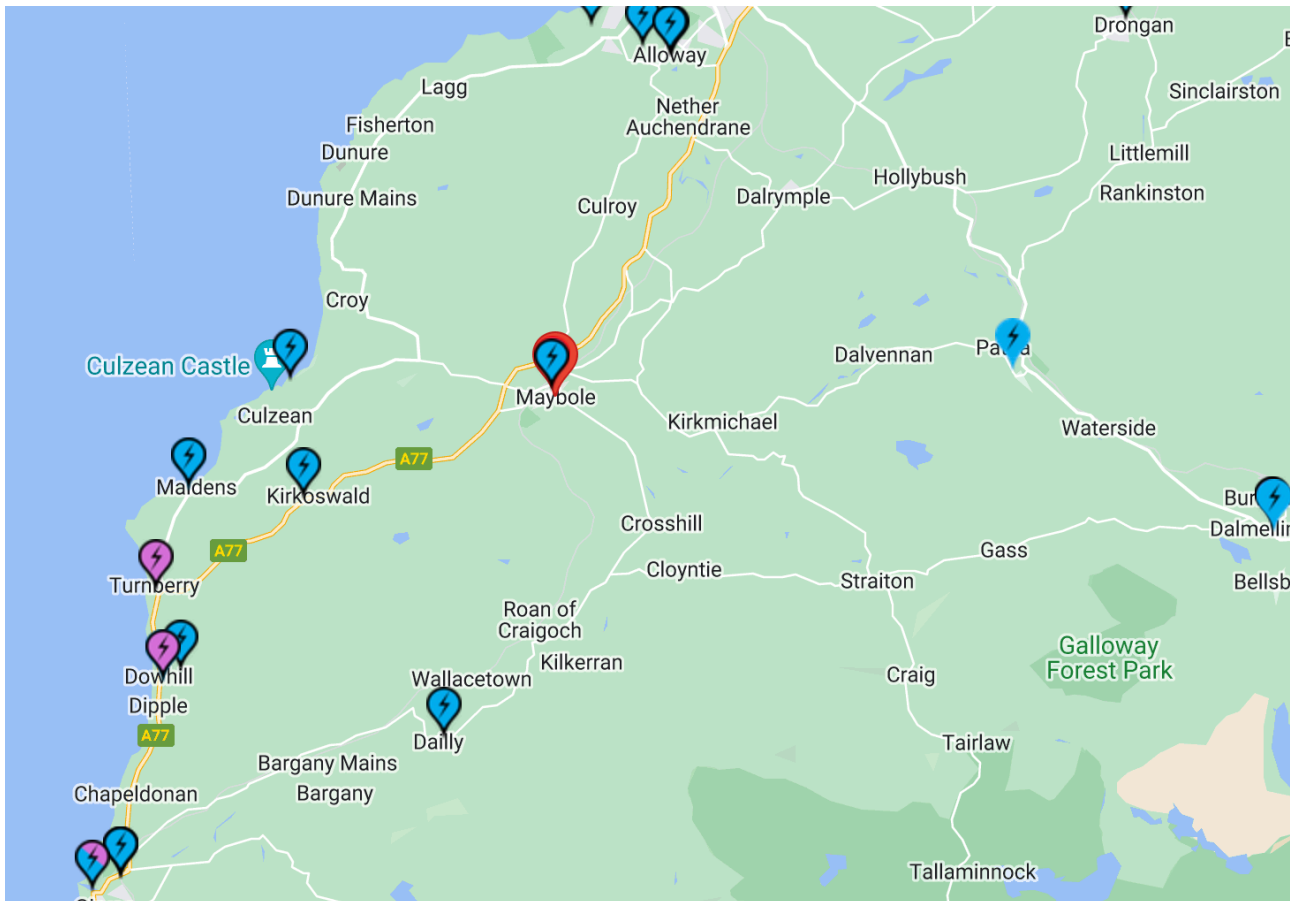


UK Government



Nov 2022

Foundations for Recovery: EV charge points and mobility hubs



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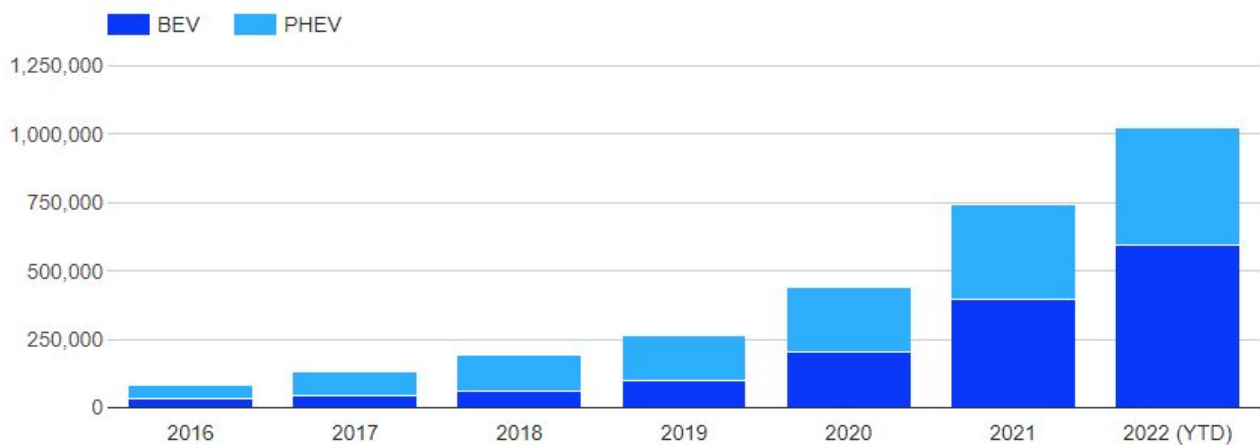
Context for EV charge points

The UK government has set a goal that all new motor vehicles should be electric powered by 2030 (that is cars and vans). As part of a broader move to net zero, which has strong rhetorical commitment by both Scottish and UK governments, it is generally accepted this is an essential move.

Partly driven by this consideration and partly by individuals' commitment to reduce their own carbon footprint, the level of electric car ownership in the UK has risen significantly, as shown in Figure 1 below, with almost 25% of new registrations being classified as plug-in in late 2022.

Figure 1 - EV sales growth UK

Cumulative number of plug-in cars registered in the UK (2016 to date)



Source: SMMT, October 2022



There are still significant technical challenges to achieving a replacement of petrol-powered vehicles, including the supply and wait of batteries, the resulting distance between charging, the time taken to charge, the availability of charge points and lack of robust forecasts of the number and geographical spread of charging points required.¹

There are advocates for hydrogen powered vehicles which, if the hydrogen were generated through "green" means would also assist in the journey to net zero. The argument on the role of hydrogen is very much a 'live' one and may take some time to be resolved.²

¹ See for example <https://from.ncl.ac.uk/ev-charging-infrastructure-what-is-the-situation>

² See for example <https://www.carmagazine.co.uk/electric/are-hydrogen-fuel-cell-cars-the-future/>

At present the number of electric vehicles on the road and the availability of charging points might be thought to at a "tipping point". But equally the provision of charging points might be seen as a barrier to further growth in electric vehicles. There have been many reports in media recently of malfunctioning charging points and dissatisfaction with journey times, charge levels and so on. The situation is developing rather faster than academic research studies can track, but live data on charge points and analysis of the types and spread of charge points can be gained from commercial providers, including ZapMap, whose data is widely used.³ Their data suggests only 6% are out of use at any time and this drops steeply for newer instalations.

Despite the short-term challenges it nevertheless appears highly likely that electric vehicles will continue to be part of the solution to net zero. And that over the next decade there will be a significant growth in the use of such vehicles.

According to ZapMap:

"As mentioned earlier, 2022 was a year of countless announcements. But a particularly significant one came in March, when the government unveiled plans to support the UK market in reaching 300,000 public charging points by 2030.

Among other measures, the announcement included a £450 million Local Electric Vehicle Infrastructure Fund, with the aim of boosting projects such as EV hubs and on-street charging, so those without driveways don't miss out on cleaner transport.

In line with the government's consumer consultation, also published in March, the plans will set out a requirement for a 99% reliability rate at rapid charge points – to give drivers confidence in finding charge points that work wherever they travel.

Another significant announcement came in October, this time from the British Standards Institution (BSI). Sponsored by the UK Government and the charity Motability, the BSI launched a new accessibility standard for EV charging, PAS 1899:2022, Electric vehicles – Accessible charging – Specification.

This announcement was a crucial step forward for disabled EV drivers – because the new standard helps procurers of public charging points ensure that the UK's EV charging infrastructure is accessible for all users, including disabled people."

It is likely that the combination of market forces and government commitment to introducing electric vehicles will result in an ever-growing network of functioning and effective charge points. As with all new and developing technology, it is also likely that the technology associated with electric vehicle charge points – which is still developing – will drive down costs and drive-up reliability.

³ <https://www.zap-map.com/ev-charging-2022-what-happened/>

Nevertheless, there is a reasonable concern that rural areas in general, and North Carrick in particular might miss out on the growth of charge points and that in turn this could provide a barrier to local take up of more sustainable travel options and to visits from tourists from outside the area.

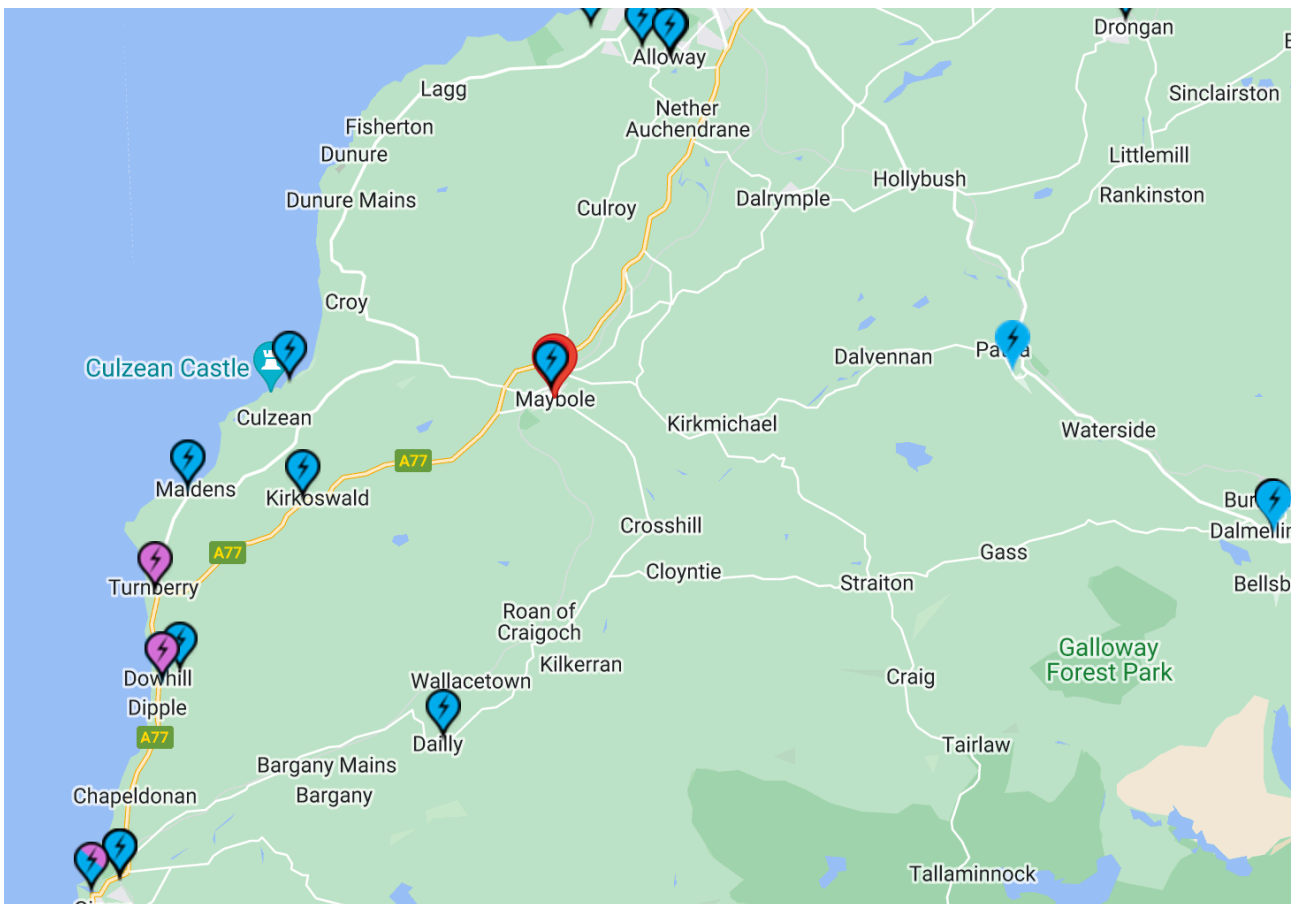
In tackling the wider foundations for recovery project, we have identified and developed a strategic approach, "Bruce's Web" which depends on developing a network of linked attractions across the area. In turn this has highlighted the role of local transport in an effective tourism strategy – not only in ensuring tourists can visit the area, but also that they can move effectively around the area, as should local residents.

With this in mind this report also covers the potential for developing local "mobility hubs," to help embed sustainable and active transport mechanisms including walking, cycling and public transport as well as private vehicle charging.

Charge points in North Carrick

The Map below shows the location of charging points currently available across North Carrick and nearby. Most locations have more than one chargepoint and the total at the locations shown is 45 chargers, of differing speed of charge, if all are functioning.

Figure 2 Map of EV charge points in North Carrick and nearby (source ZapaMap)



It can be seen that, given the size of the area and transport links and also the provision of charging points outside the area (also shown) that the current level of provision is modest.

According to Scottish Government, in mid 2021⁴

“Scotland currently benefits from having around 43 publicly available EV charge points per 100,000 population and there are more rapid EV charge points per 100,000 in Scotland than anywhere else in the UK (and in overall charge points Scotland is second only to London)^[45].”

⁴ <https://www.gov.scot/publications/scottish-building-regulations-proposed-changes-energy-standards-associated-topics/pages/7/>

This is reflective of our commitment to invest in EV charging infrastructure ahead of need, in order to support and encourage uptake.

It is challenging to make an accurate assessment of the amount of charging infrastructure that will be required in the future as this will be subject to a number of variables, including advancement in battery and charging technologies. The Committee on Climate Change has estimated that there will need to be an overall investment of £280 million in Scotland (up to 2030) in public EV charging infrastructure, in addition to investment in EV charge points in homes and at workplaces^[46]. Therefore, there is still much to do to ensure that Scotland will meet the future demands of a mass EV market, and the legislative measures that we are proposing in this consultation are important to our overall approach to addressing this."

Any projection of need for charging points is hard to achieve given the many uncertainties. With around seven thousand vehicles per day using the A77 through Carrick, and viable petrol filling stations at a number of locations, it seems highly likely the current provision is significantly inadequate. Because of changes in technology in the future, and a hard to predict mix of public and private charge points, reaching a sensible goal for charge points across the area is challenging.

However, linking goals for charge points to the wider concept of the "Bruce's Web" strategy, it might be appropriate to target:

- Charge points in each of the villages across North Carrick (see later for a link to mobility hubs).
- An initial target of at least 10 charge points per hub.
- A clear plan for each charge location which would allow a larger number of charge points if demand grows.

Other than the role of charge points in every location the numerical targets are notional and at this point we have been able to source evidence that would support a more precise target.

Ayrshire Roads Alliance promised earlier in 2022 to report back to South Ayrshire Council on its strategy and plans for EV points – including critically a basis for charging for public points in the future.

A useful workshop led by Scottish Futures Trust included reporting by East Lothian Council on their work to grow an EV charge point infrastructure and provides a useful reference.⁵

Funding

There has been funding available in the past for installing chargepoints at Tourist locations from the Energy Saving Trust, although at present this fund is closed. Instead there is a fund

⁵ <https://www.scottishfuturestrust.org.uk/page/electric-vehicle-charging-network>

available to businesses.⁶ Further funds may become available from time to time and it will be worth tracking any developments.

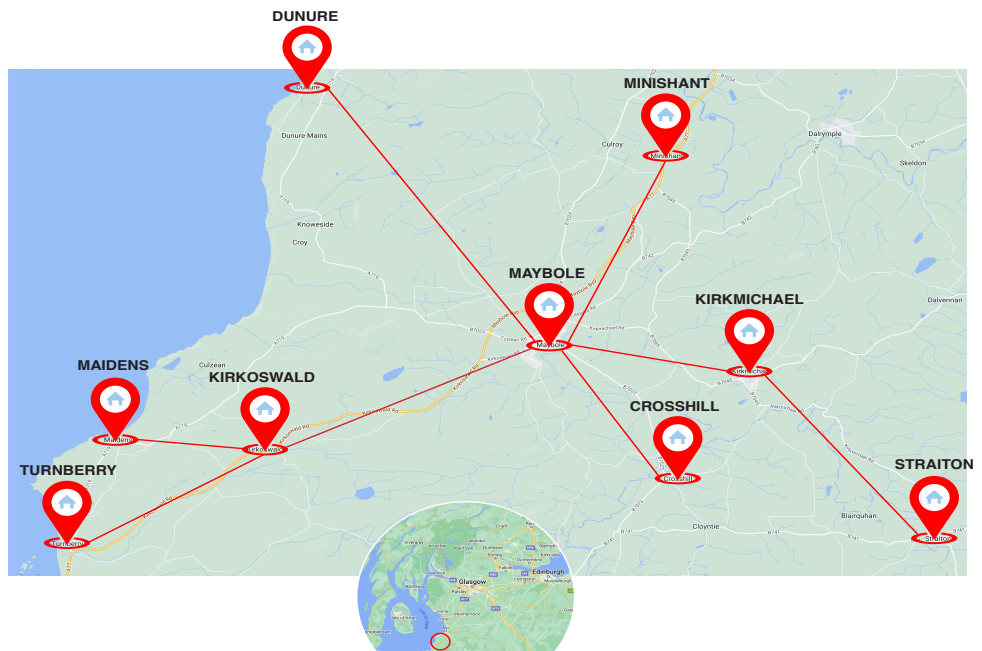
However in general we suggest that the best way of ensuring that North Carrick secures a larger network of public chargepoints is by working closely with South Ayrshire Council and Ayrshire Roads Alliance to ensure the area is considered properly in future plans.

⁶ <https://energysavingtrust.org.uk/grants-and-loans/business-charge-point-funding/>

Mobility Hubs

Bruce's Web

We have proposed and reflected through each of our workstreams the concept of *Bruce's Web*. This involves develop local itineraries and packages of experiences. It means structuring the tourism products around the separate communities in North Carrick, but linking them all together.



Key features of the web

Each community is in a business relationship with all the others, linked through a hub in Maybole – mutual support is essential. Within this structure of a supportive centre and linked nodes, each community will have responsibility for, and control, its offer – based on agreed minimum services and standards. This approach should enable distribution of tourist visits across the area, leading to longer stays and higher spend by providing much more than a day trip experience. In turn this will support more businesses to flourish and for communities to thrive.

Core facilities

For a small area with closely linked communities, there is a wide variety of stories to tell and interpret for visitors. Carrick has a collection of characterful villages, agricultural and coastal landscapes and lots of history. There is much that exists and more to build on. But these assets cannot be exploited without a basic set of year-round services, without which *no other investment* will deliver significant results:

- Adequate car (and motorhome parking and facilities in most places);
- DDA accessibility to the places people will visit;
- Electric vehicle charging points that work;
- Toilets (and showers for active visitors in at least some locations); and
- Places to eat and drink.

Distinctive offers

To be successful, each community will then need to provide interest for different members of visitor groups with its own distinctive variations on:

- An activity hub – promoting local activities like walks, cycle routes, water sports, etc.
- Interpretation and showcasing local history, heritage, arts and culture
- Promoting local businesses and services – making it easy for visitors to spend money
- Somewhere to go when the weather is bad.
- Distinctive local offerings that make each place worth visiting.

Linkages

The network will work most effectively when each of the 'nodes' actively directs people to the others – through information, signage and linked stories and themes. People should have a clear idea where their next stop is going to be as they explore the network.. There will be a role for the central hub in promoting the nodes and overall experience, as well as direct links between the nodes, informed by a clear understanding of what each other offers.

To make these hubs work other linking activity will be required:

- An increase in the availability of public transport;
- Local transport hire facilities – e-bikes and other modes;
- Improved road signage highlighting the network for road and rail and trail travellers;
- Improved path and trail signage also highlighting the network; and
- Access to travel support services such as bike repair and outdoor equipment.

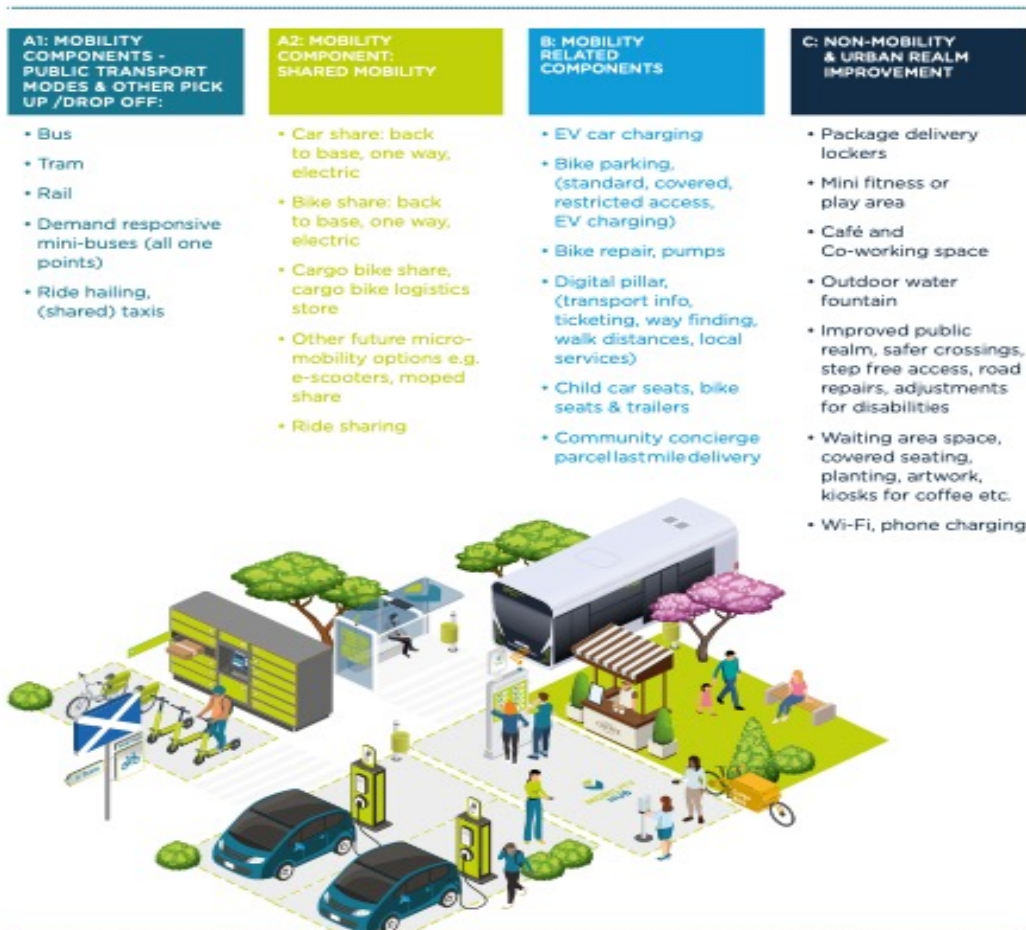
Each community links with all the others

The network will work most effectively when each of the 'nodes' actively directs people to the others – through information, signage and linked stories and themes. People should have a clear idea where their next stop is going to be as they explore the network. And each stop should provide a longer visit than a 20-yard walk from the car.

There will be a role for the central hub in promoting the nodes and overall experience. But to work well, direct links between the nodes, informed by a clear understanding of what each other offers, will be essential.

Linking and moving people

There is a clear need to underpin the strategy with a strong active and sustainable transport component. In part this means building the local offer, with 'mobility hubs' as the goal... The concept of mobility hubs has been advocated across Scotland by Como and guidance on the development published.⁷



The figure above summarises the type of mobility hub envisaged on a Scottish basis.

The essential concepts behind a mobility hub are that each would form a transport node where public transport, private vehicles, bikes, e-bikes, access to walking routes and so on would all come together. This would mean easy transfer between, for example, a tourist arriving in the area by car to use local public transport or hire an e-bike.

⁷ <https://www.transport.gov.scot/media/49056/stpr2-phase-1-ast-project-5-mobility-hubs-3-feb-2021.pdf>

In principle the value of such a hub placed in each of the North Carrick towns and villages can easily be seen as key to supporting the Bruce's Web concept. Importantly, mobility hubs would enhance services for local residents as well as for tourists.

This concept is becoming increasingly common throughout Europe and there is specific planning guidance for such hubs in Scotland. The diagram and table above indicate the full range of elements and not all will be relevant to North Carrick.

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However, in rural areas the practicality of and indeed need for, completely collocated services may not be as high. In a small village the placing of a car park a little distance away from a bus stop might not be a major challenge. There are also practical considerations of line acquisition and cost which might make creation of a mobility hub such as that shown in the standard illustration above impossible.

So instead, we suggest that it would be appropriate to set a goal to develop mobility hubs in each of the village and town locations around North Carrick along the following lines:

- A series of elements within easy distance of each other – say, three to four hundred metres or a five-minute walk.
- An emphasis on directional and interpretative signage that enables visitors to locate the cluster of facilities and nearby pathways, cycleways and so on.
- The charging points located in an appropriate place in the village where they might be overseen.
- An e-bike hire station, most likely associated with an existing local business such as a café or local shop (particularly one with extended hours).
- Hub parking.
- Public transport (i.e., bus).

It also seems likely that making the web concept work effectively would require additional public transport options between the hub nodes. One option here would be to develop a service with an operator such as Ayrshire Community Transport that would provide a regular service between each of the mobility hubs, thereby supplementing the bus services which, by in large, start and finish outside the area.

NCCBC

**Foundations for Recovery:
EV charge points and mobility hubs**



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