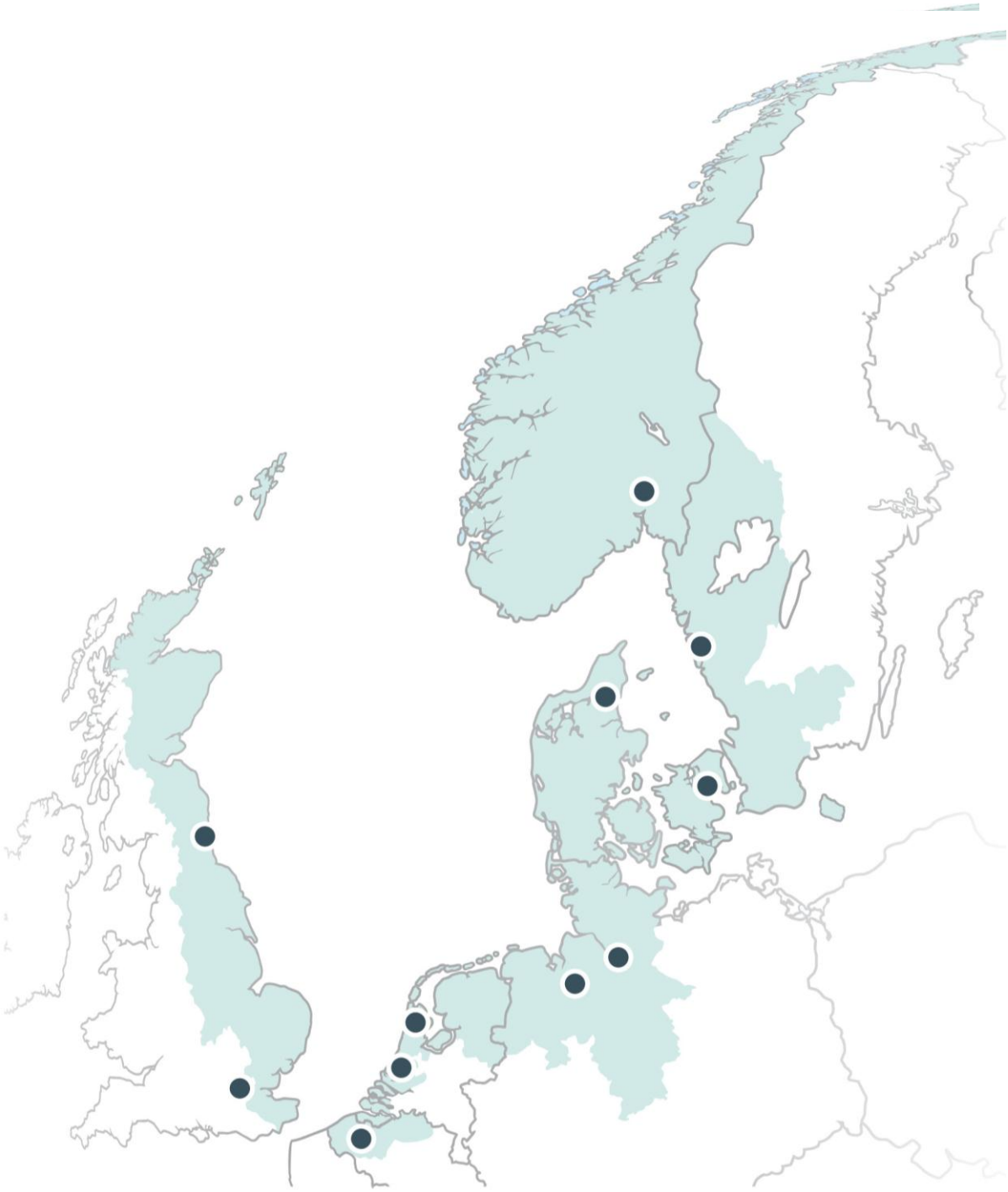
NORTH SEA REGION ELECTRIC MOBILITY NETWORK

e-mobility NSR

METHODOLOGIES FOR MUTUAL LEARNING

Work Package 3, Activity 6: Micro to Macro Investigation, Supplementary Paper to Main Report

Stephen Shaw and Nathaniel Evatt | 15th February 2013 | London



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1. Introduction and overview

"Methodologies for Mutual Learning" supplements the Main Report for Work Package Activity WP 3.6 in the *e-mobility NSR* work programme, which provides: '*an investigation at different scales from macro-level down to 'street level', especially around infrastructure of charging points, parking areas/waiting areas'. This includes consideration of 'different contexts from dense urban areas (central and inner suburban London, and central Newcastle / Gateshead) to city fringe and semi rural (Hertfordshire and East of England Counties, Tyne and Wear). The results will be used as input to other Activities and Work Packages'.*

As emphasised in the Main Report, the regionally-based 'Plugged In Places' (P-IPs) have been an important feature of the national strategy for developing electric mobility in the UK. Complementing other incentives to stimulate the early market for EVs, they provide a geographical focus for infrastructure provision. Managed by public-private consortia, and supported with match-funding from the Government (through to Spring 2013), P-IPs are designed to stimulate innovation and development in the trial areas that have received match-funding, e.g. 'Charge Your Car', 'Evalu8', and 'Source London' for the North East of England, East of England, and Greater London respectively. However, some important issues arise for the development of an effective EV infrastructure network to serve longer distance journey patterns, including transnational e-driving.

Local Authorities, working in collaboration with other stakeholder agencies, are playing a leading role in the development of a comprehensive charging network that is fully 'joined-up' and accessible from the EV user's point of view. To achieve the desired transition to mainstream acceptance of electric mobility, they must address two critical challenges:

- *Scaling up to the 'bigger picture'*: how to raise the confidence of EV users who wish to make longer journeys, including transnational journeys through international transport hubs to/from other NSR countries and elsewhere in Europe via ferry ports, airports and the Channel Tunnel?
- *Scaling down to 'street level':* how to ensure that EV users, especially those who are less familiar with the locality, have the confidence to find publicly-accessible points, plug-in, and leave their vehicles charging?

This report outlines two methodologies that could be further developed to help Local Authorities and other EV stakeholders in their localities to address these challenges, and to facilitate mutual learning from selected 'test-bed' localities in the context of the e-mobility NSR project. The prototype e-mobility knowledge platform discussed below is being piloted by the project team, using a digital map interface, which can be viewed:

maps.citiesinstitutesurveys.org/UKEmobility.html

The project team is piloting the digital map interface as a resource to support the development of electric mobility infrastructure. Thus, it will complement and inform other Activities and Work Packages in the *e-mobility NSR* project. Initially developed in the UK, it is anticipated that there will be opportunities for transnational comparisons through collaborations with our Partners and Sub-partners.

2. Stakeholder collaboration: methodologies for mutual learning

The Main Report emphasises the importance of Local Authorities, working in collaboration with other stakeholders, as enablers and coordinators of the EV infrastructure that is needed to ensure mainstream market acceptance of e-mobility.

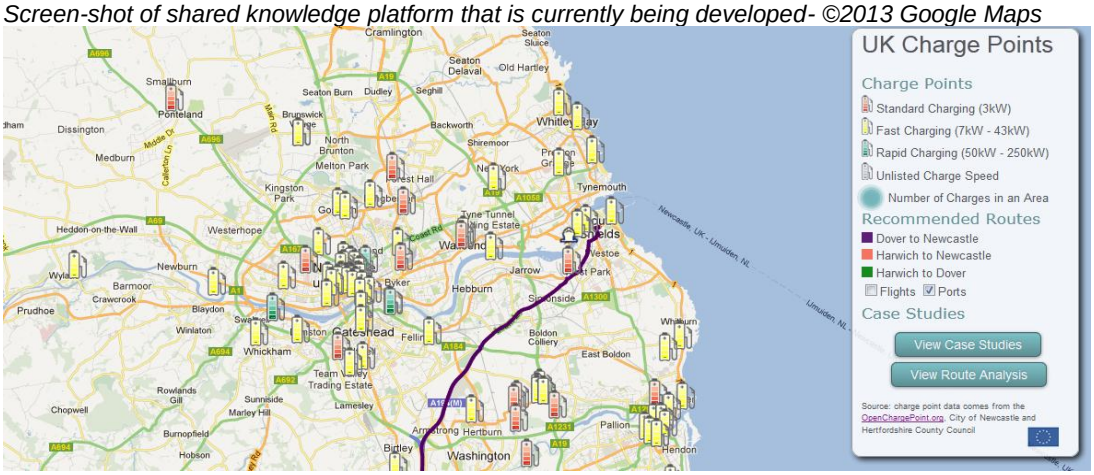
The methodologies outlined below are designed to enable mapping of EV infrastructure provision, including identification of the pattern of provision, e.g. routes, nodes, clusters. They can also be developed to enable practitioners to share their experience and expertise, facilitate constructive criticism, and develop good practice through mutual learning.

Thus, stakeholders would be able to visualize developments in different contexts, and consider how the desired outcomes can be achieved. The study team will make the on-line resource available so that it can be used to stimulate critical discussion, e.g. by stakeholder panels, on-line or through 'round table' meetings.

The work is being carried out by the project team drawn from Cities Institute, London Metropolitan University, and from Northumbria University. The prototype knowledge platform could be developed further to enable stakeholders to monitor and compare implementation within and between their areas, including visualisation for route planning to link up EV infrastructure for e-driving between (NSR) regions of the UK, to consider the prospects of cross-border journeys via international transport hubs, and potentially for other trans-national links across the NSR.

Further, the investigation can be extended down to the micro-scale of streets and parking spaces within neighbourhoods, urban and suburban centres, road junctions, transport hubs etc. It is anticipated that this analysis and deliberation will be used inform and promote 'good practice' solutions at different scales of operation, and in different geographical contexts.

Screen-shot of shared knowledge platform that is currently being developed- ©2013 Google Maps



3. Selection of sample test-bed areas

The project team will encourage EV infrastructure providers/hosts to reflect upon and review *implementation* of strategies, and *anticipated outcomes* in sample 'test-beds': localities that will be selected to stimulate critical discussion of how problems can be overcome, and how opportunities can be exploited (see examples in Appendix). These could be developed to provide real-world case studies to assess the installation of charging points with particular regard to *location and design.*

As emphasised in the Main Report, regional, national and trans-national charging networks must be able to service a diversity of journey types; in the East of England this is made explicit in the network development strategy, which will focus on five journey types:

1. Journeys within cities
2. Journeys between cities, including the P-IP for the city of Milton Keynes (another unitary authority)
3. Rural-urban journeys where there are no viable public transport alternatives, linking in with park and ride sites, and rail stations
4. London-based commuting, linking in with the capital's public transport and the adjacent Greater London P-IP
5. Potential journeys to/from ports and airports as international gateways

The range of external stakeholders that may collaborate with a Local Authority may vary according to the type of area (below) but will typically include: the distribution network operators (DNOs) responsible for installing charging equipment, electricity suppliers, EV vehicle manufacturers and retailers, owners of public car parks (other than the Local Authority), major employers, landowners, retailers and leisure services, and providers of charging point technology (Lumsden 2012)[1]. Localities are being selected to include test-beds that illustrate the issues that particularly affect:

a) Central/inner city areas

In the high density Central Business District and inner urban areas of a large metropolis such as Greater London, or a conurbation such as Tyne and Wear, e-drivers require a publicly-accessible network of charging points. This is needed, not only for those who are visiting or passing through, but also for the many residents of apartments and other housing that do not have access to off-street parking. In central/inner city areas there will also be many employees who do not have access to workplace parking where charging points might be installed.

b) Suburbs of large cities

In most lower-density suburban areas of large cities, such as Hertfordshire (North of Greater London), a higher proportion of residents have off-street parking. Nevertheless, to service through-journeys by longer distance EV drivers publicly-accessible points are needed, especially along (or close to) major routes and nodal points. Park-and-ride facilities at commuter railway stations may also host charging points. It should be noted that commuting patterns include cross city journeys *between* suburbs that create a demand for charging points in workplace parking, e.g. in suburban centres and business parks.

[1]Lumsden, M. (2012) 'Think Electric', *Focus,* Chartered Institute of Logistics and Transport, September.

c) Small to medium sized urban settlements

Free standing urban settlements (as opposed to conurbations and suburbs) tend to serve sub-regions as centres for employment, retailing, leisure and other services. Some, such as St Albans in Hertfordshire, are historic towns and cities that attract significant flows of visitors. As with b), those at the nodes of major routes for through journeys by longer distance EV drivers may provide useful locations to locate charging points.

d) Urban fringe, rural and semi-rural areas

Publicly-accessible charging points may also be required in less densely populated areas where settlements are smaller and more thinly dispersed.

As with b), a higher proportion of residents will have off-street parking. However, the distances travelled will generally be higher, and 'gaps' between charging points may be longer. Again, it may be useful to locate at the nodes of major routes for residents, visitors and people passing through, e.g. car parks serving Northumberland National Park.

The project team is currently carrying out preliminary data capture and analysis. It is anticipated that the investigation will complement and inform to Work Packages/ Activities: WP2, A2; WP2, A3; WP3, A2; WP3, A5; WP3, A7; WP4, A2; WP6, A2; WP6, A6 (see below pp. 13-15).

4. Visualizing the 'bigger picture': Methodology I

Methodology I is designed to enable Local Authorities, working in collaboration with other e-mobility stakeholders, to visualize developments from the meso-level of regions/sub-regions up to the macro-level of inter-regional and transnational e-driving and consider how the desired outcomes can be achieved:

Scaling up to the bigger picture: to raise the confidence of EV users wishing to make longer journeys on between regions of the UK, and (potentially) between the UK and other countries via ferry ports, airports and the Channel Tunnel.

Using accurate spatial grid coordinates provided by our Sub-partners, the project team will plot the location/type of charging points on the national Ordnance Survey and Google digital map bases. In collaboration with Sub-partners, we are identifying examples that have been installed at nodal points, - e.g. urban centres/road junctions/transport interchanges - as well as those that have potential to serve longer distance routes for e-drivers, and the inter-modal hubs that have the potential to connect with networks in other NSR countries.

Reference can be made to these charging location maps (in digital form), together with P-IP/ Local Authority strategies and policy guidance (where these exist) as the starting point for discussion and debate, especially practitioners with special expertise and responsibility for implementing e-mobility infrastructure, e.g. transport planners, street engineers. This can inform the selection of sample test-bed areas, using Methodology ll below.

Emerging issues, lessons learned, what works well in different contexts:

Draft check list for discussion:

- How to coordinate cross-boundary payment systems to enable easier long-range travel for e-drivers?
- How to develop longer distance inter-modal travel, combining e-driving/parking at transport hubs, including airports, high speed rail stations, and ferry ports?
- How to 'future-proof' EV infrastructure technology?
- How to ensure compatibility of physical charging infrastructure for longer distance e-driving?
- How best to inform e-drivers of location/availability of charging points for longer journeys?
- How best to convey the benefits of e-mobility to different market segments among potential users and other stakeholders?
- What promotional campaigns are being conducted/planned, who are the intended target audiences, and what channels of communication are used?

Further questions arise concerning actual or anticipated performance:

Measurable outputs might include:

- What progress has been made in relation to strategies/policy guidelines, e.g. the geographical spread and type of location e.g. workplace, retail car park, station car park, on-street etc.?
- What benefits are expected in particular localities e.g. air quality improvement and noise reduction?

5. Visualizing a 'street level' picture: Methodology II

Methodology II is designed to enable Local Authorities, working in collaboration with other stakeholders, to visualize developments in different contexts, from the meso-level of regions/sub-regions down to the micro-level of localities where charging points are installed, and consider how the desired outcomes can be achieved:

Scaling down to 'street level': how to ensure that EV users, especially those who are less familiar with the locality, have the confidence to find publicly-accessible points, plug-in, and leave their vehicles charging?

Data capture through Participatory Geographic Information Systems (P-GIS) uses digital maps, with photographs/video-clips of localities and features (in this case charging infrastructure) to visualize developments and stimulate constructive discussion, e.g. how improvements might be made. The project team will use the digital map interface to record their commentaries and pinpoint precisely the locality/feature being discussed (see p. 10 below and Appendix for examples of sample 'test-beds').

The 'multi-layering' of P-GIS can enable different observations to be superimposed and compared. Where appropriate, the locality/feature can also be revisited to track development and change. Thus, P-GIS can enable digital 'stakeholder' maps to be built up as a valuable archive that can be accessed by decision-makers, users and other interested groups. P-GIS methodologies can be adapted and applied to map and monitor the installation of EV charging points in selected localities in the North East of England, East of England and Greater London P-IPs, as well as to review developments in different contexts.

Digital maps (Ordnance Survey and Google Earth) can provide the base on which to plot the location of selected charging points in localities as test-beds for effective implementation[2]:

(1) Large scale digital maps of the selected test-bed localities could be used to plot the location of charging points on Ordnance Survey and Google Earth digital map bases from Methodology I above;

(2) The local context can be described by overlaying relevant data, especially land use. This can be enhanced by socio-economic/demographic data (e.g. UK Census; Indices of Deprivation in residential areas);

(3) Decision-makers and practitioners responsible for installing charging points can comment upon the rationale for location and design, and intended benefits for the area concerned, as well as operational issues/constraints specific to that locality.

The stakeholder comments can be represented, e.g. as speech bubbles with grid references to identify the exact locations of the features discussed. 'Pop up' photographs can be used to illustrate the charging points *in situ,* together with public spaces footways, parking areas, nearby shops, cafés, community centres etc. Where appropriate, further interviews can be conducted, e.g. with the hosts of e-mobility infrastructure, e.g. customer car parks of supermarkets, civic buildings, offices, Train Operating Companies.

[2] With funding from the Engineering and Physical Sciences Research Council (EPSRC) between 2005-10, co-author Stephen Shaw coordinated several interdisciplinary studies[2] with the common aim of developing P-GIS As Principal Investigator : 'Inclusive and Sustainable Infrastructure for Tourism and Urban Regeneration,' (2005/8) [EP/D011671/1]; Co-Investigator: 'Accessibility and User Needs in Transport', (2007/10) [EP/E040764/1].

It is anticipated that test-beds could be re-visited to assess progress, thus allowing longitudinal analysis as well as spatial comparison of the different contexts from central and inner urban to city fringe to semi-rural. It is anticipated that the following, inter-related aspects will be included in the analysis through P-GIS:

Describing the local context: Emerging issues, lessons learned, what works well

Draft check list for discussion:

- EV user convenience, access and accessibility?
- Safety and personal security?
- Other users of the footway (pedestrians) and highway (vehicle users, cyclists)?
- Connections with other transport, especially public transport nodes?
- Adjacent land uses, e.g. shops, offices, restaurants, fast food outlets?
- Maintenance and upkeep of the charging infrastructure and streetscape?
- Conservation policies for the historic and natural environment?
- Visibility of the charging points in this locality, and how does this fit with the promotional and communication strategies above?

An illustrative case study of set of charging points installed in Gascoyne Way car park, Hertford, operated by East Hertfordshire Council is shown below (p. 10), with further examples in the Appendix.

Sample 'test-bed': Gascoyne Way car park*

Street level': emerging issues, lessons learnt, what works well in different contexts

EV user convenience, access and accessibility?

When the Council owned car park was refurbished in 2011, four electric charging units were installed. Electricity is included in the daily car parking charges. However it is only available from 7.30am to 6.30pm, (chargeable hours for car park) and is switched off each night (to discourage people to stay overnight in camper vans etc. and use electricity). As yet, usage seems low.

Safety and personal security?

Bays are clearly defined with electric vehicle symbols on the floor and wall. There is CCTV, and no vandalism has been reported to date.

Connections with other transport, especially public transport nodes?

The car park is close to bus station and railway station and the centre of the town – about 5-10 minutes walk.

Maintenance and upkeep of the charging infrastructure and streetscape?

The Council are responsible for maintenance.

Visibility of the charging points in this locality, and how does this fit with the promotional and communication strategies above?

The points are in a high profile position near the entrance to the multi-storey, but it would be desirable to advertise their presence outside on public highway.

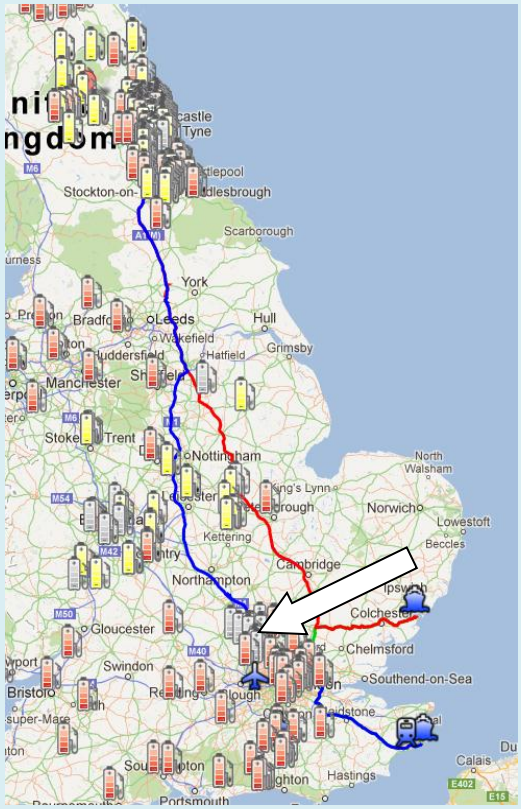
As yet, there is no external advertising of the electric charging units.

Measurable outputs and outcomes?

The car park is within the currently extended Air Quality Monitoring Area. Perhaps in the future, when electric cars are more commonplace, the positive effects will be measurable.

Further details:http://www.eastherts.gov.uk/index.jsp?articleid=25335

Destination East Hertfordshire Council- ©2013 Google Maps



Gascoyne Way Car Park: Street View- ©2013 Google Maps

6. Developing an e-mobility knowledge platform using a digital map interface

The project team is piloting an e-mobility online database with a map interface. In collaboration with our UK Sub-partners (Hertfordshire County Council, City of Newcastle etc.), we are using this online portal to identify charging points that have been installed, especially those at nodal points - urban centres/road junctions/transport interchanges - with the potential to serve longer distance routes for e-drivers, including those that connect with networks in other NSR countries. This web map is being designed so that it could be developed as a resource for Local Authorities and other agencies involved in implementing the charging network.

The intention is that these key stakeholders will provide information about charging points that they have installed or are installing along strategic routes throughout the United Kingdom. The participants would be able to use it as a basis for mutual learning, especially to share the experience of implementation in different contexts. Thus, they would pool their knowledge to reflect upon good practice: what needs to be improved, what works well, and what might be transferable.

The map displays charging points in four different colours based on their charging speed; standard 3 KW (marked 'red'), fast 7-43 KW (marked 'yellow'), rapid/quick 50-250 KW (marked 'green'), unknown (marked 'grey'). The map will also demonstrate the location of international ports of entry (airports, seaports, Chunnel Tunnel). Between these ports of travel, recommended driving routes will be created based on the location of charging points. As the project develops, the map could include more detailed case study specific information e.g. insights as to how and why certain charge point locations were chosen. This could be accomplished through a number of potential media forms including photos, videos, interviews, and audio recordings.

The 'work-in-progress' digital map interface sits on a Google base map that allows the user to easily zoom in and zoom out to view the necessary detail:

- At the macro-level the user is able to the see the location of selected charging points in relation to inter-regional routes across the UK, including those that link with international transport hubs.
- At the micro-level, the user can acquire very detailed information about the location of these charging points by viewing any charging point from aerial imagery. Another option is to use 'Street View' mode, which allows the user to view the exact charging location from ground level images. This tool can be utilised by selecting the orange coloured 'human' icon and dropping it on the map next to charge point in question.

Please view:

maps.citiesinstitutesurveys.org/UKEmobility.html

Spatial database

Behind the current map is a GIS database which pulls together data from multiple sources, including i) the data that our Sub-partners in Hertfordshire County Council and City of Newcastle accummulated up to September 2012, ii) data available from the National Chargepoint Registry and iii) data that we hope the providers of Zap Map and POD Point will be willing to share. This data sits on a MySQL database which contains information about charging point location, ownership, membership, charging type and other data where possible. The database could be developed further to include various forms of data, e.g. land use, video, photos, and audio recordings.

One of the challenges of mapping the charge points is gathering data from all of the relevant bodies currently holding charge point information. At the moment, different data is being held by Zap-Map, Source London, POD Point, Source East and the National Charge Point Registry. Our database is currently holding selected data, but not all charge point information because of data rights issues. The project team anticipate that the knowledge base could be expanded and developed as an archive. Thus it would provide a resource for Local Authorities and other agencies to monitor and discuss successful implementation. The project team makes reference to charging location maps produced from this database, together with P-IP/ Local Authority strategies and policy guidance (where these exist) as the starting point for interviews with key informants in the P-IPs, especially senior managers, practitioners with special expertise and responsibility for implementing e-mobility infrastructure.

As explained more fully in Main Report for WP 3.6 (Section Two), the UK Government announced its intention in November 2011 that a National Chargepoint Registry will be developed by POD Point – a UK-based chargepoint manufacturer – and provided as a publicly-accessible database of charging points across the UK (DfT 2011)[3]. As yet, however, the aspiration for a comprehensive register for EV users remains 'work in progress'. In September 2012, The House of Commons, Transport Committee (HC 2012: para. 29) observed that as yet 'this dataset is clearly far from complete'.

According to DfT estimates, the total number of chargepoints in the UK is more than 3,000, but the National Chargepoint Registry has fewer than 500 entries. The Committee concluded: 'An accurate and comprehensive registry of chargepoints installed by the Plugged-In Places scheme should be made available within the next six months. Publication of a full registry should encourage private chargepoint providers to upload their data for public use. We recommend that it be made a requirement of Plugged-In Places funding that details of the location of chargepoints installed using this funding are uploaded to the National Chargepoint Registry (ibid: para. 32)[4].

It is anticipated that the National Chargepoint Registry for the UK will be completed by Spring 2013 as the Committee have recommended, and that the project team will then be able to map the relevant locations on our spatial database.

In the meantime, we should like to *explore the opportunities for transnational collaboration for this mapping project. The knowledge platform is designed to support large amounts of data which can then be visualised through the map interface. Sharing charge point data could greatly benefit all partners through the creation of a charge point map stretching across the North Sea Region.*

[3] Department for Transport (2011) Press Release 11th November 2011, http://www.dft.gov.uk/news/press-releases/dft-press-20111111/

[4] House of Commons (2012) Transport Committee - Fourth Report Plug-in vehicles, plugged in policy, 12th September, http://www.publications.parliament.uk/pa/cm201213/cmselect/cmtran/239/23902.htm

7. Conclusion and continuing input to other Activities and Work Packages

The methodologies discussed in this report have been designed to facilitate mutual learning, and support key stakeholders who are rising to the challenge of developing a network that is fully 'joined-up' and accessible. The prototype knowledge platform could be further developed to support the provision of infrastructure for e-drivers who wish to make longer journeys between regions of their own country, and potentially across national borders in the North Sea Region and elsewhere in Europe.

The project team is currently building a database with a digital map interface. Initially piloted in the UK with Sub-partners, including Hertfordshire County Council and City of Newcastle, the project team will explore opportunities for transnational collaborations to extend this emerging knowledge platform so that it supports practitioners who are working to develop charging networks for cross-border e-driving.

Thus, the knowledge platform is being piloted and developed as a resource to facilitate critical discussion, and to exchange 'good practice' solutions across sectors and at different scales of operation down to 'street' level. A comprehensive and effective charging network is required to raise the confidence of e-drivers that they will be able to complete their journeys without concern over the range of their vehicle. E-drivers, especially those who are less familiar with the locality, must also feel confident that they can find publicly-accessible points, plug-in and leave their vehicle charging. The selection of further test-bed areas would enable practitioners involved in implementing charging infrastructure to reflect upon and learn form practical experience in different geographical contexts, including central/inner city areas, suburbs of large cities, small to medium sized urban settlements, urban fringe, rural and semi-rural areas.

The project team anticipate that the emerging knowledge platform will be refined, tested and developed to provide an online resource that could support national and (potentially) transnational development of electric mobility, across different sectors. We anticipate that this could be developed to complement and inform other Activities and Work Packages in the e-mobility NSR project, in particular:

WP2 Publicity and communications

A2 Transnational dissemination: Wider promotion of the project.

Impacts: Wider promotion of the project and wider use of its results - in and outside the NSR.

Input: The web-based knowledge platform can be piloted to promote good practice with regard to charging provision in the context of the e-mobility NSR project, especially between Local Authorities and other agencies implementing EV infrastructure networks across the NSR.

A3 Cross-sectoral engagement: North Sea wide engagement of Local Authorities, government offices, universities, NGOs, SMEs and other sectors of society in project activities:

Impacts: Better awareness about e-mobility in the NSR and cross-sectoral stakeholder engagement in project activities.

Input: Using the evidence of and reflections upon good practice produced by Local Authorities and other agencies through the shared on-line knowledge platform, awareness of e-mobility could be enhanced, with a better appreciation of the need for engagement across sectors and between stakeholders involved in EV infrastructure.

WP3 Inventory of state of the art and stakeholder analysis

A2 Systematic stakeholder analysis: Study report with recommendations on stakeholder analysis.

Impacts: Insight into the role public and private stakeholders with regard to the implementation of electric mobility.

Input: The stakeholder analysis can be informed by the evidence to be uploaded by Local Authorities and other agencies that will focus on good practice through productive interaction between public and private stakeholders responsible for implementing EV infrastructure networks.

A5 Analysis of governance complexity and its links with e-mobility: Policy framework with recommendations

Impacts: Study and advice on governance issues relating to the transition towards e-mobility.

Input: This can be informed by the investigation of interaction between governance at different scales, and how high level policy intentions are implemented over time at street level; this will be developed using the digital map interface, especially through Methodology ll (above), with evidence uploaded to the prototype knowledge platform.

A7 Transnational learning: 2 Discussion papers, 2 Expert meetings

Impacts: Exchange of knowledge and experience between the project cities, particularly on specific issues that emerge from the project

Input: The knowledge platform has the potential to provide evidence concerning the on-going development of EV infrastructure networks; in particular, it will facilitate comparison between cities: what works best, what might be transferred in a particular spatial context, e.g. central/inner city areas, suburban areas, using Methodology II (above).

WP4 Development of a Transnational e-mobility plan

A2 Accessible route planning for E-mobility linking UK/North Sea Region partners: Mapping needs, pilot actions and strategies, route planning and interchange/ multimodal integration, development of tools.

Impacts: This activity will increase knowledge of virtual clustering, routing and the development of circle corridors from micro to macro level and links with the North Sea Region.

Input: The project team is piloting and developing the UK e-mobility online database with its digital map interface (see Methodology l, and section 6 above). We are using this online portal to identify charging points that have been installed, especially those at nodal points - e.g. urban centres/road junctions/ transport interchanges - with the potential to serve longer distance routes for e-drivers, including those that connect with networks in other NSR countries. The 'work-in-progress' e-mobility map is being piloted as a resource for Local Authorities and other EV stakeholders, initially with E-mobility NSR partners. It will be developed as to provide information on charging points throughout the United Kingdom, and as a basis for mutual learning, especially what should be improved, what works well, and what might be transferable.

Please view:

maps.citiesinstitutesurveys.org/UKEmobility.html

WP6 Set up Transnational Electric Mobility Information Centres (EMIC)

A2 Mapping current activities, campaigns, networks and information channels aimed at penetrating the market: Report, press releases and published materials.

Impacts: Important basis in order to process with relevant guidelines for the EMIC

Input: The prototype knowledge platform with its digital map interface will highlight the importance of scale, location and geographical context for implementation of an effective EV infrastructure

network; through Methodologies I and II (above), the project team can capture information from the Local Authorities and other agencies.

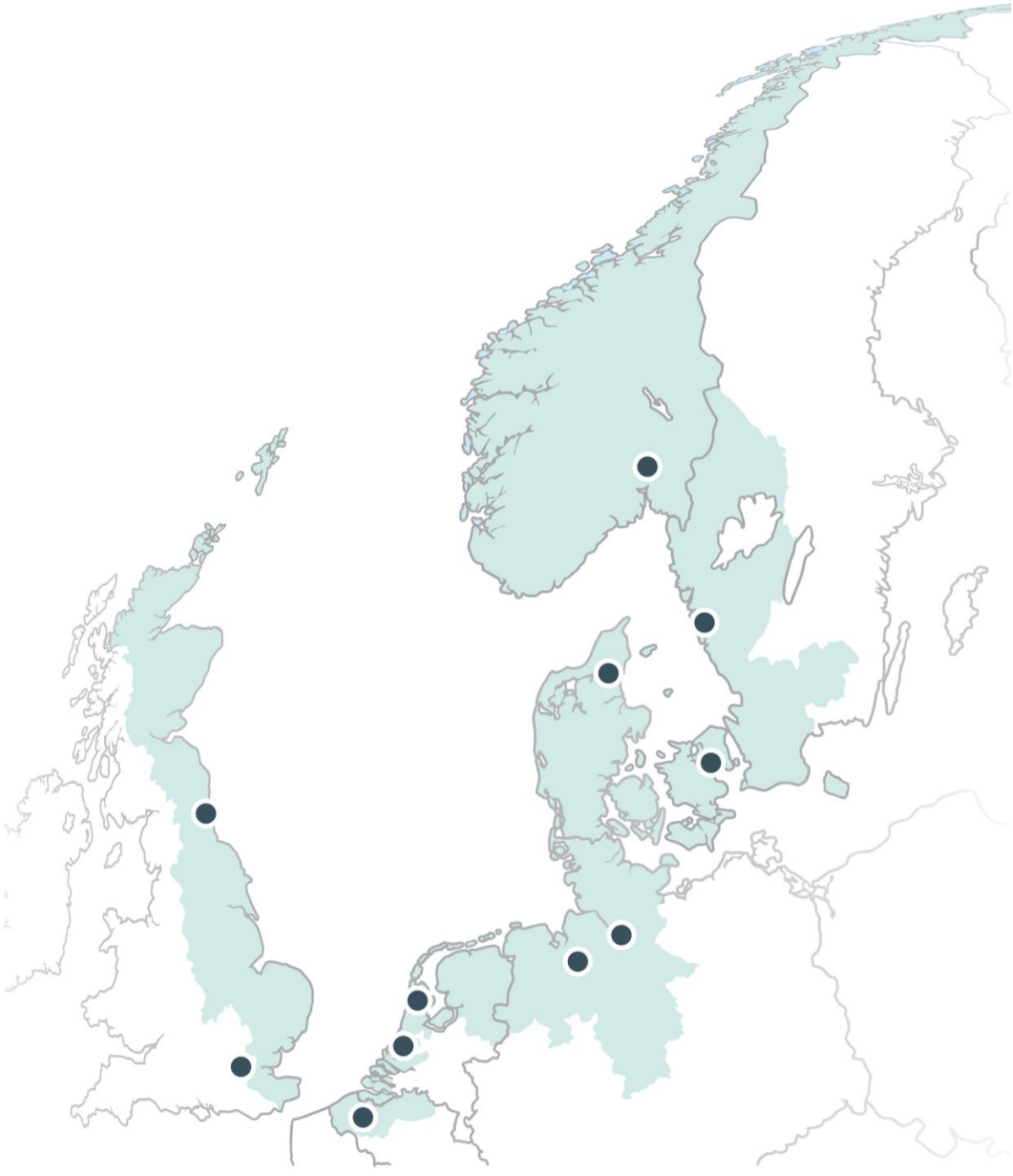
A6 Mapping public and private gaps and awareness needs: Report with recommendations

Impacts: This will contribute to main WP report with recommendations.

Input: The project team will capture information from key informants, e.g. in the trial areas of Plugged-In Places in the UK, and make recommendations to address public and private gaps and awareness needs; these and issues arising from other empirical studies will be reviewed to help inform the setting up of EMICs, and media campaigns to promote electric mobility.

Appendix

Further examples of potential ‘test-bed’ case studies (Methodology II)



Sample 'test-bed': Wood End Lane, Maylands car park

'Street level': emerging issues, lessons learnt, what works well in different contexts

EV user convenience, access and accessibility?

The Source East chargepoint (two sockets: one standard 13A/ 3kw, one fast 32A/ 7kw) is installed in a Dacorum Council owned car park that serves Maylands industrial estate: a major regeneration project. Within the car park it is conveniently positioned in a location next to a wheelchair users' parking bay.Parking fees appear low compared with town centre sites: just 10p for under 30 minutes, 3-4 hours £0.90, all day £1.60.

Safety and personal security?

The positioning appears safe and secure for users. The bay it self is under a streetlight and the walk to the car park exit also appears well lit.

Connections with other transport, especially public transport nodes?

The car park is on an industrial estate that is some distance from major public transport links.

Maintenance and upkeep of the charging infrastructure and streetscape?

The Council are responsible for maintenance.

Visibility of the charging points in this locality, and how does this fit with the promotional and communication strategies above?

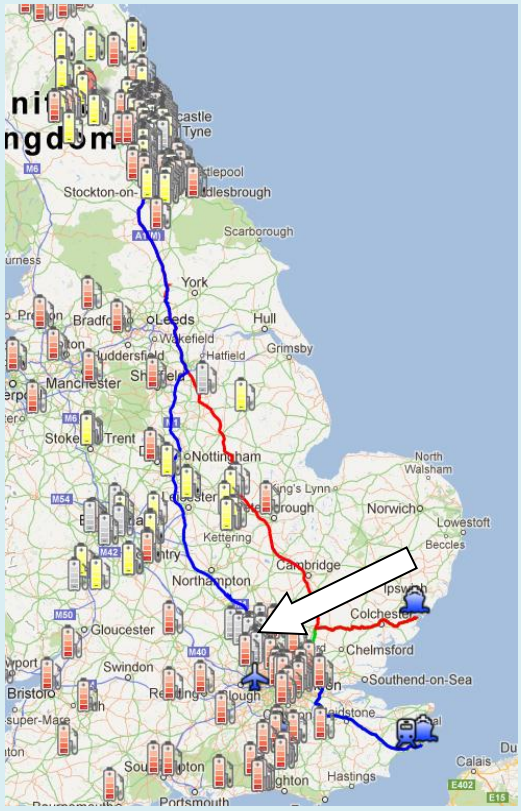
The points are in a high profile position near the entrance and therefore visible once in the car park, but it would be desirable to advertise their presence outside on public highway.

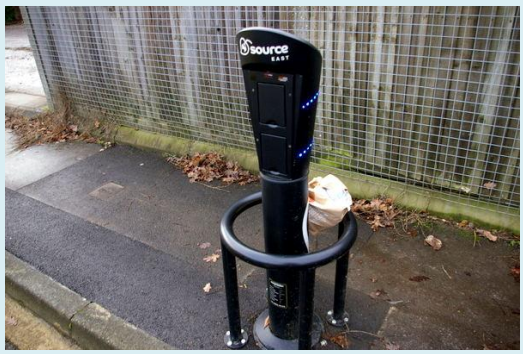
As yet there is no external advertising of the charging points

Rationale, measurable outputs and outcomes?

The chargepoint was installed with 50% funding from Evalue8 and 50% from Local Sustainable Transport Fund (LSTF)

Destination Dacorum District Council - ©2013 Google Maps





Sample 'test-bed': Durrants Hill Road, Apsley car park

'Street level': emerging issues, lessons learnt, what works well in different contexts

EV user convenience, access and accessibility?

The Source East chargepoint (two sockets: one standard 13A/ 3kw, one fast 32A/ 7kw) is installed in a Dacorum Council owned car park that is adjacent to a canal and wooded area, close to Apsley village. Within the car park it is conveniently positioned in a location about 6 bays from the entrance/exit where there is also a toilet block and close to a wheelchair users' bay. Parking fees appear low compared with town centre sites: just 10p for under 30 minutes, 3-4 hours £0.90, all day £1.60.

Safety and personal security?

The positioning appears safe and secure for users in that the bay itself is under a streetlight and the walk to the car park exit also appears well lit. However the points are adjacent to bushes, a wooded area and canal.

Connections with other transport, especially public transport nodes?

The car park is close to the small commuter village of Apsley and its railway station.

Maintenance and upkeep of the charging infrastructure and streetscape?

The Council are responsible for maintenance.

Visibility of the charging points in this locality, and how does this fit with the promotional and communication strategies above?

Again, the points are in a high profile position near the entrance and therefore visible once in the car park. It would be desirable to advertise their presence outside on public highway. No external advertising of the charging points, as yet.

Rationale, measurable outputs and outcomes?

The chargepoint was installed with 50% funding from Evalue8 and 50% from Local Sustainable Transport Fund (LSTF)

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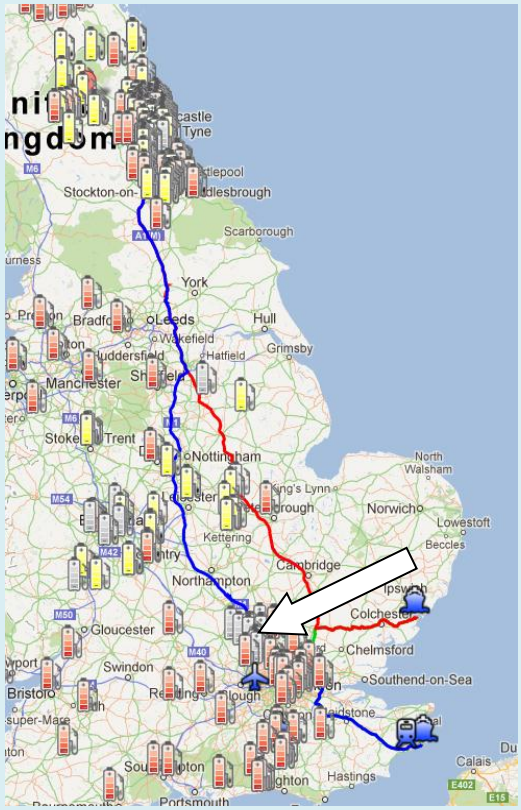

Sample 'test-bed': London Road, St Albans

'Street level': emerging issues, lessons learnt, what works well in different contexts

EV user convenience, access and accessibility?

The Source East chargepoint (two sockets: one standard 13A/ 3kw, one fast 32A/ 7kw) is installed on-street in a parking space on a main commercial thoroughfare in the centre of St Albans, near to Peacock Junction. The EV space is in front of a Blockbuster video hire shop and a food takeaway. Parking fees are high on this street and time restricted 2 hrs, 8.30-18.30 maximum 2 hours £2.40.

Safety and personal security?

The positioning appears safe and secure for users. The street is well lit and there seems to be considerable pedestrian movement as well as vehicles.

Connections with other transport, especially public transport nodes?

The location is close to bus services.

Maintenance and upkeep of the charging infrastructure and streetscape?

The Council are responsible for maintenance.

Visibility of the charging points in this locality, and how does this fit with the promotional and communication strategies above?

The charging pointis in a prominent position, but as yet there is little indication that the bay is for EV users. Indeed at the time of observation, it was occupied by another vehicle.

Funding, measurable outputs and outcomes?

The chargepoint was installed with 50% funding from Evalue8 and 50% from Local Sustainable Transport Fund (LSTF) in a potentially high profile location, but would benefit from clear signage to encourage EV users, and discourage others from using it.

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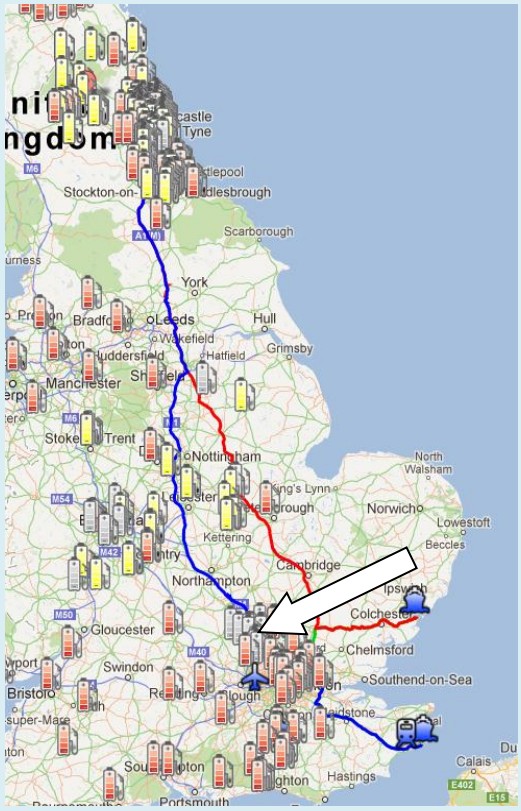

Sample 'test-bed': Charter Close, St Albans

'Street level': emerging issues, lessons learnt, what works well in different contexts

EV user convenience, access and accessibility?

The Source East chargepoint (two sockets: one standard 13A/ 3kw, one fast 32A/ 7kw) is installed on-street in a parking space on a relatively quiet semi-residential road near the Civic Centre in the centre of St Albans. The EV space is in front of a small park and sitting area. The Parking fees are high on this street and time restricted 2 hrs, 8.30-18.30 maximum 2 hours £2.40

Safety and personal security?

The positioning appears safe and secure for users. The bay it self is under a streetlight. Although a quiet close, during the daytime there appeared to be natural surveillance from people walking by as this is on a walking route between shops, the Civic Centre, and theatre.

Connections with other transport, especially public transport nodes?

The car park is close to public transport links at the centre of St Albans.

Maintenance and upkeep of the charging infrastructure and streetscape?

The Council are responsible for maintenance.

Visibility of the charging points in this locality, and how does this fit with the promotional and communication strategies above?

The charging point is in a fairly prominent position but as yet without directional signage or clear explanation that this is a bay for EV users. At time of visiting there was a sign that it is reserved for 'Club permit holders only' which might deter EV users.

Measurable outputs and outcomes?

The chargepoint was installed with 50% funding from Evalue8 and 50% from Local Sustainable Transport Fund (LSTF)

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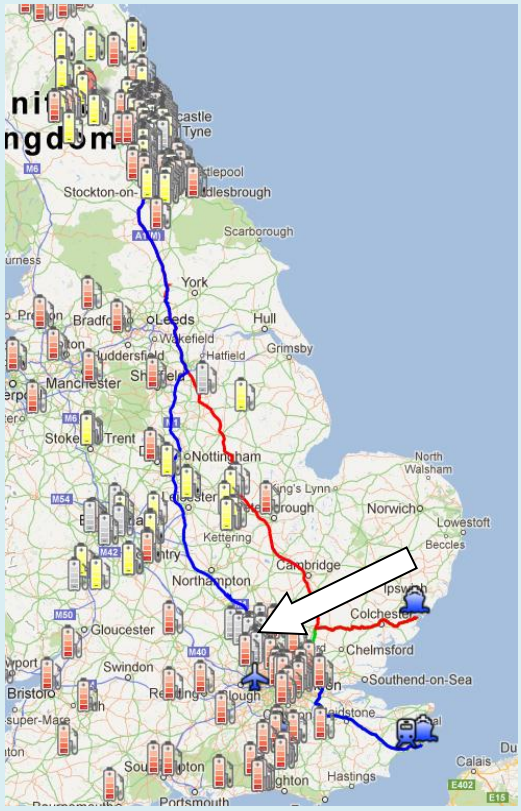

Sample 'test-bed': Hall Place Gardens, St Albans

'Street level': emerging issues, lessons learnt, what works well in different contexts

EV user convenience, access and accessibility?

The Source East chargepoint (two sockets: one standard 13A/ 3kw, one fast 32A/ 7kw) is installed close to the centre of St Albans. The position is quite prominent and accessible as it is close to the junction of St Peter's Street - a major commercial thoroughfare, in a mainly residential street, Hall Place Gardens is a mainly residential street. The chargepoint is in an on-street parking bay by a doctor's surgery.

Safety and personal security?

The positioning appears safe and secure for users. The bay it self is well lit.

Connections with other transport, especially public transport nodes?

The car park is fairly close to public transport links.

Maintenance and upkeep of the charging infrastructure and streetscape?

The Council are responsible for maintenance.

Visibility of the charging points in this locality, and how does this fit with the promotional and communication strategies above?

The charging point is in a fairly prominent position, but as yet would benefit from directional signage and clear explanation that this is a bay for EV users. Another vehicle was parked at the time of the observation.

Measurable outputs and outcomes?

The chargepoint was installed with 50% funding from Evalue8 and 50% from Local Sustainable Transport Fund (LSTF)

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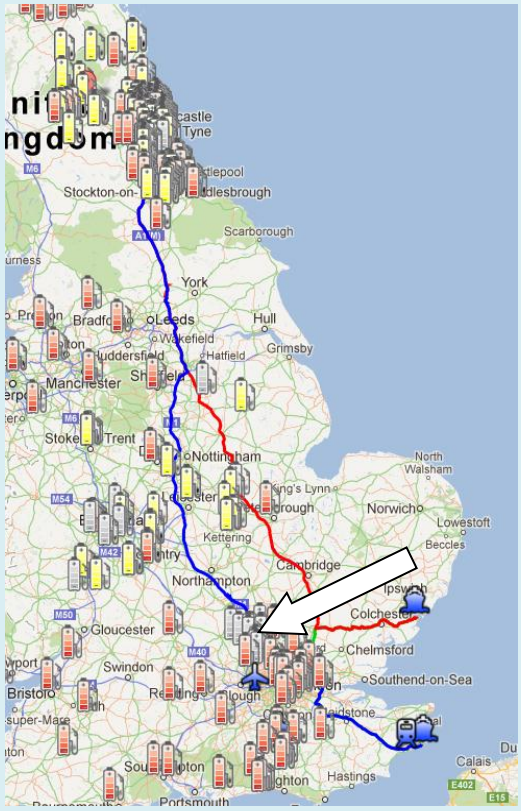

NORTH SEA REGION ELECTRIC MOBILITY NETWORK

e-mobility NSR

About E-Mobility NSR

The Interreg North Sea Region project North Sea Electric Mobility Network (E-Mobility NSR) will help to create favorable conditions to promote the common development of e-mobility in the North Sea Region. Transnational support structures in the shape of a network and virtual routes are envisaged as part of the project, striving towards improving accessibility and the wider use of e-mobility in the North Sea Region countries.

www.e-mobility-nsr.eu

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