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Limerick City and County Council

Limerick Electric Vehicle Charging Strategy

May 2024

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Limerick Electric Vehicle
Charging Strategy

Section 1
North Star

1. North Star

The North Star of this project *is the creation of a strategic direction for Limerick City and County Council to facilitate the deployment of Electric Vehicle charge points across the City and County.*


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Section 2
Context

2. Context

Ireland's National Climate Action Plan has a stated ambition that nearly 1 in 3 private cars will be an electric vehicle (EV) by 2030. This reflects activities at a European and Global level where internal combustion vehicles (ICE) will be phased out in the short to medium term. In 2022, the European Parliament and Council agreed that by 2035 all new cars and vans registered in Europe will be zero-emission. The Limerick Shannon Metropolitan Area Transport Strategy (LSMATS) recognises the shift towards sustainable mobility and Zero Emission Vehicles Ireland (ZEVI), a recently formed agency of the Department of Transport released its EV strategy for the next 3-4 years and has identified key areas of focus, including:

1. En-Route Charging
2. Destination Charging
3. Home Charging with off-street facility
4. Home Charging with no off-street facility

Limerick City and County Council (LCCC), through this Strategy paper is focused on developing an approach to assess the expected Power requirements on the network and the resulting number of Charge Points (CP) required to facilitate the uptake of EVs.

This document looks at identifying a pathway to Deployment linked to local, national, and international drivers in this area.

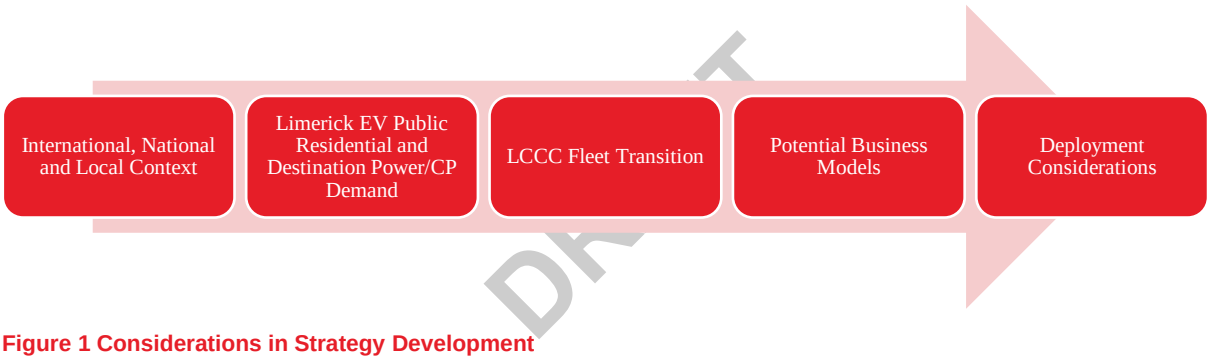

Figure 1 Considerations in Strategy Development

- **International/National/Local** – Assessing the Policy and International context to provide a foundation for strategic decision making.
- **Demand Analysis** – Using a structured approach to scenario development, undertaking a qualified and quantified data analysis to assess the projected demand and the implication on the charge point deployments.
- **Fleet Transition** – Assessing at a high level and against market examples, the possibilities for migration of some of the Council's vehicle assets to EV equivalents.
- **Business Model Options**– Presenting the range of Business model options to be considered and the impact in terms of risk and responsibilities.
- **Deployment Considerations** - Ensuring a tiered approach to deployment in order to ensure feasible and sustainable locations for deployment.

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Section 3
Electric Vehicles Explained

3. Electric Vehicles Explained

3.1 Charging Considerations – National and Local

Charging infrastructure deployment requires the right charger being made available in the right location with the right type of energy requirements in place to meet the need of the users. The speed and level of charge varies from EV model to EV model, but an average new EV would generally take approximately an hour to charge on a 50-kW fast charge point. The categories of charge points are broken down in ZEVI's National Strategy as Follows:

Table 1 Charge Point Type

Category	Sub-Category	Maximum Power Output	Definition
Category 1 (AC)	Slow AC charging point, single-phase	P < 7.4 kW	The standard, normal-power charging point
	Medium-speed AC charging point, triple-phase	7.4 kW ≤ P ≤ 22	
	Fast AC charging point, triple-phase	P> 22 kW	
Category 2 (DC)	Slow DC charging point	P < 50 kW	High-power charging point
	Fast DC charging point	50 kW ≤ P < 150 kW	
	Level 1 - Ultra-fast DC charging point	150 kW ≤ P < 350 kW	
	Level 2 - Ultra-fast DC charging point	P ≥ 350 kW	

The charge times vary depending on the charge already in the battery and the type of charger users. For a journey capability of 300km, a home single phase charger running at 3-7kW would typically take between 7-16 hours and a standard three phase (11-22kw) would take somewhere between 2-4 hours. The Fast DC chargers will take somewhere around 70 minutes and the Ultra-fast can achieve a charge in around 20 minutes, depending on a variety of parameters including initial charge state as well as driving behaviour, temperature, battery pack type.

To ensure the best investment is made in relation to charge point deployment, it is important to understand the nature of the charging requirements required linked to the predicted utilisation of the vehicle and the journeys taken. This is undertaken within the data analysis presented later in this document. The Northern and Western Assembly report on EV analysis that identified public charge points at a national level stated that in 2022 they identified that there were ~113 Charge Points in the County. However, the nature of these charge points is not linked necessarily to location optimisation for users, power utilisation nor the breakdown of need from a public and destination perspective but rather are available to all in a variety of different contractual arrangements. This strategy reviews the total need of the County.

3.1.1 National Charging Types

ZEVI have approached the challenges associated with charging by identifying Four key elements that can support as well as be considered as part of any infrastructure deployment. These are:

1. En-Route Charging
2. Destination Charging
3. Home Charging with off-street facility

4. Home Charging with no off-street facility

Local Authorities will play a key role in points 2 and 4 especially as well as supporting point 1, where possible. The reasoning behind this approach is twofold, one to help categorise the investment needed linked to the various travel patterns and utilisation expected across the island of Ireland and secondly, to recognise the involvement of a number of stakeholders including the private sector as well as local and national bodies to facilitate the uptake of Electric Vehicles.

Key considerations for Limerick's EV charging infrastructure
• LCCC will focus on identifying the demand for charge points. This is across all types of charging and will specifically identify across residential and destination-based charging needs for next step deployment and work with the private sector and other organisations to support the Demand based requirements.

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Section 4
European Review

4. European Review

A number of key European policies and regulations have been developed that support and direct the migration to Electric Vehicles.

- European Green Deal, European Commission, 2020
- European 'Fit for 55', European Commission, 2021
- Alternative Fuels Infrastructure Regulation, European Commission, 2022
- European Union (Energy Performance of Buildings) Regulations 2021, Government of Ireland, 2021.

4.1 European Green Deal, European Commission, 2020

The European Green Deal is a set of policy initiatives that aim to make the European Union (EU) climate neutral in 2050. It also sets the target of reducing by 55% the Greenhouse gases (GHG) emissions by 2030 compared with 1990 levels. A number of key Policy areas were identified within the Green Deal:

Figure 2 Green Deal

To achieve this goal, the EU recognises the need to support adequate and efficient charging and alternative fuel refuelling points in the EU for cars, planes, ships, as well as the ban on the sale of new cars and vans with combustion engines from 2035. This included legislative proposals to ensure more stringent air pollutant emissions standards for combustion-engine vehicles and a revision of CO2 emission performance standards for cars and vans and an EU strategy towards smarter mobility.

4.2 European 'Fit for 55', European Commission, 2021

The 'Fit for 55' package is a set of new guidelines and legal structures to help EU members reach the target of reducing GHG emissions by at least 55% by 2030. This package aims at providing a coherent and balanced framework for reaching EU's climate objectives and is focusing on 5 areas in particular:

- Tougher EU emission caps for power plants and factories
- Stricter national limits on GHG from "non-ETS" sectors
- Stricter EU caps on CO2 from cars
- Renewable energy
- Carbon Border Adjustment Mechanism (CBAM).

From an EV perspective, there is a focus on reducing greenhouse emissions in line with the need to have all new cars emission free post 2035. This has a direct impact into the growth required in terms of EV Charge points, and acknowledgment that this dependency on Charge points will increase as we get closer to that deadline.

4.3 Alternative Fuels Infrastructure Regulation, European Commission, 2022

As part of the 'Fit for 55' package, the Alternative Fuels Infrastructure Regulation (AFIR) sets concrete targets for deploying the infrastructure needed in the EU to meet the target of carbon neutrality by 2050.

It proposes distance-based targets for both the light and heavy-duty road vehicles by the end of 2025 for the TEN-T core network and for the TEN-T comprehensive network by 2030. Moreover, it establishes that Member States will be required to set minimum mandatory targets for the deployment of alternative fuels infrastructure and present their plan by 2024 on how to achieve it.

AFIR looks to ensure that there is a sufficient infrastructure network for recharging or refuelling road vehicles with alternative fuels with a need for full interoperability and ease of use throughout the EU.

The proposed regulation will play an important role in speeding up the deployment of this infrastructure so that the adoption of zero- and low-emission vehicles will be facilitated and support European Cities in reducing their transport emissions.

The Alternative Fuels Infrastructure Regulation sets important guidelines and targets for member states regarding the roll-out of alternative fuelling infrastructure.

Table 2 AFIR Regulations

	Rechargers for light duty vehicles	Rechargers for heavy duty vehicles	Hydrogen Refuelling stations
TEN-T Core	recharging pool (**600kW** power output with 1 recharging station at 300kW) every **60km** by **2025** (in each direction of travel) **900kW** power output (2 recharging station at 350kW) by 2030	recharging pool (**2000kW** power output with 2 recharging station at 800 kW) every **60km** by 2025 **5000kW power output** (4 recharging stations at 800 kW) by **2030**	**2 t/day** at 700 bars every **100km** by **2027** Liquid hydrogen refuelling stations every **400km** by 2027
TEN-T comprehensive	Same as TEN-T Core	recharging pool (**2000kW** with 1 recharging station at 800 kW) every **100km** by **2030** **5000kW** power output (2 recharging stations at 800 kW) by **2035**	Same as TEN-T Core
Urban Node		urban node recharging points dedicated to heavy-duty (**1400kW power** output with recharging stations at 350kW) by **2025**	hydrogen refuelling station in each urban node by **2027**

	Rechargers for light duty vehicles	Rechargers for heavy duty vehicles	Hydrogen Refuelling stations
		3500kW power output at recharging stations (minimum **350kW** power output) by **2030**	
Safe and Secure Parking Areas		each safe and secure parking area **2 recharging stations** dedicated to heavy-duty (minimum **100kW** power output enabled for smart and bi-directional recharging) by **2027** **4 recharging stations** (**100kW** power output) by **2030**	

4.4 European Union (Energy Performance of Buildings) Regulations 2021, Government of Ireland, 2021

This document provides regulations which transpose requirements under the EU Energy Performance of Buildings Directive (EPBD) regarding building automation and control systems and electric vehicle recharging infrastructure.

Regarding EV charging infrastructure, the directive states the following:

- For an existing building (other than dwelling) with more than 20 car parking spaces, there shall be installed one or more recharging points before January 2025.
- New buildings and buildings undergoing major renovations (other than a dwelling), which has more than 10 parking spaces, shall install at least one recharging point and ducting infrastructure for at least one in every 5 car parking spaces to enable the subsequent installation of recharging points for electric vehicles.
- New buildings and buildings undergoing major renovations (containing one or more than one dwelling), which has more than 10 parking spaces, shall install ducting infrastructure for each car parking space to enable the subsequent installation of recharging points for electric vehicles.

Rialtas na hÉireann
Government of Ireland

Tionscadal Éireann
Project Ireland
2040

National Development Plan 2021-2030

Prepared by the Department of Public Expenditure and Reform

gov.ie/2040

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Government of Ireland

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Section 5
National Policy Review

5. National Policy Review

This section summarises the most relevant national policies, plans, and regulations for the development of the Limerick's Electric Vehicle Strategy, identifying seven key documents that must be considered. These are:

- Climate Action Plan 2024, Government of Ireland, 2024
- Climate Action Plan 2023, Government of Ireland, 2023
- Climate Action and Low Carbon Development (Amendment) Bill 2021, Government of Ireland, 2021
- National Development Plan 2021-2030, Government of Ireland, 2021
- Shared Island Initiative Report, Government of Ireland, 2022
- Zero Emission Vehicles Ireland, Government of Ireland, 2022
- National Sustainable Mobility Policy, 2022
- Renewable Transport Fuel Policy 2023-2025
- Electric Vehicle Charging Infrastructure Strategy 2022-2025, Department of Transport, 2023
- Local Authorities Electrification of Fleet and Electric Vehicle Charging Guidance, CCMA Charging EV Working Group, 2021.

5.1 Climate Action Plan 2023, Government of Ireland, 2023

The Climate Action Plan 2023 (CAP23) sets a roadmap for taking decisive action to reduce emissions in Ireland. The implemented plan has been defined to achieve the following main objectives:

- Reduce greenhouse gas (GHG) emissions by 51% by 2030
- Achieve carbon neutrality by 2050.

In the transport sector, the transition from the use of fossil fuel towards more sustainable forms of travel is a key element, thus the replacement of internal combustion engines with electric technologies will contribute with meeting the objectives defined in the CAP23.

CAP23 originally envisaged 945,000 electric vehicles (EVs) – Climate Action Plan 2024 (CAP24) showing a similar resolve with a slightly reduced target of 845,000 EVs, on Irish roads by 2030 but in turn calls out the importance of the Electric Vehicle and the work underway nationally and locally to support the transition. In particular, CAP24 draws out the Climate Change Advisory Council Recommendations around EVs including '…means of achieving significant reductions in emissions, particularly in rural areas, and improvements in the charging infrastructure and incentives for uptake are important measures in the short term' as well as the proposal to increase the target of commercial EVs to 150,000 from a previous 95000 figure.

5.2 Climate Action and Low Carbon Development (Amendment) Bill 2021, Government of Ireland, 2021

This bill supports Ireland's transition to Net Zero and achieve carbon neutral economy by 2050. It will establish a binding framework with clear targets and commitments set in law, and it will ensure the necessary structures and processes are embedded on a statutory basis to ensure the achievement of national, European, and international climate goals.

The bill includes key elements to meet the national climate targets. One is to incorporate the process of carbon budgeting into law by which the Government is required to adopt a series of economy-wide-five-year carbon budgets. The first two five-year carbon budgets should equate to a total reduction of 51% of emissions over the period of 2030. Moreover, the bill includes a requirement for each local authority to

elaborate a Climate Action Plan which will comprise both mitigation and adaptation measures and be updated every five years.

5.3 National Development Plan 2021-2030, Government of Ireland, 2021

The National development Plan (NDP) sets the Government investment strategy and budget for the period 2021-2030.

This plan states that the electrification of vehicles is a strategic investment priority in the transport sector and thus the transition to electric vehicles will continue to be supported by the Government. This support includes a regulatory backstop that will prohibit the sale of non-zero emission vehicles from 2030 onwards and will be underpinned and complemented by further support for electric vehicle charging infrastructure.

Under the NDP, the Government has allocated €100 million in the period to 2025 to support the investment in public charging infrastructure.

5.4 Shared Island Initiative Report, Government of Ireland, 2022

The Shared Island Initiative aims at harnessing the full potential of the Good Friday Agreement to enhance cooperation, connection, and mutual understanding on the island, as well as engaging with all communities and traditions to build consensus around a shared future. For this reason, this initiative involves working with the Northern Ireland Executive and the British Government to address strategic challenges faced on the island to further develop the all-island economy, deepening North/South cooperation, and investing in the Northwest and border regions.

By this initiative, the Government will work through all-island partnerships to explore and implement the provision of targeted electric vehicle charging infrastructure to benefit communities and increase the access to electric vehicles across the island. Moreover, in July 2022 the Government approved over €70 million for shared island investment of which €15 million are allocated for a Shared Island Electric Vehicle charging infrastructure scheme.

5.5 Zero Emission Vehicles Ireland, Government of Ireland, 2022

The Zero Emission Vehicles Ireland (ZEVI) has been established as a dedicated Office that aims at supporting the public sector, consumers, and business to continue to make the switch to zero emission vehicles.

The Office will lead on the delivery of Ireland's targets, originally under the CAP23 and now CAP24, to have an expected 30% of the private car fleet switched to electric by 2030. For this reason, ZEVI brings together schemes and incentives for electric vehicles and charging infrastructure.

5.6 Electric Vehicle Charging Infrastructure Strategy 2022-2025, Department of Transport, 2023

This strategy presents the pathway and practical steps for the delivery of a national electric vehicle charging network and thus it supports the delivery of the CAP23 ambition of nearly one million vehicles by 2030. The strategy is intended to develop a national infrastructure to address on-street, location, and fast charging infrastructure needs and to stay ahead of demand.

The strategy is based on five fundamental principles that underpin the national rollout of electric vehicle infrastructure over the coming decade.

These principles are the following:

- **Principle 1:** EV infrastructure will form part of a wider sustainable transport network.
- **Principle 2:** EV charging infrastructure will work for everyone, regardless of age, health, income, or other needs.
- **Principle 3:** For the majority of EV users, home-charging will remain the main solution.
- **Principle 4:** Options will be provided for those who cannot charge at home.

- **Principle 5:** Across the network, EV charging systems will be interoperable and as simple as possible to use.

This document focuses on the right for all to be in a position to access EV charge points, regardless of where they live etc.

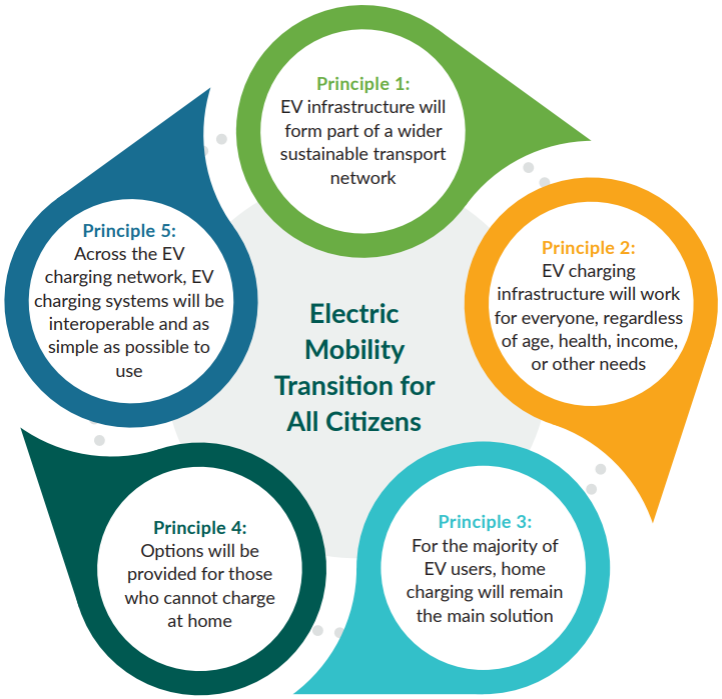


Figure 3 EV Charging Strategy Principles

5.7 Local Authorities Electrification of Fleet and Electric Vehicle Charging Guidance, CCMA Charging EV Working Group, 2021

This guidance document provides advice to Local Authorities (LA) on the electrification of their fleet and on the rollout of electric charging infrastructure with the aim of contributing to the national decarbonisation effort.

It establishes that LAs should consider the development of an electric vehicle and electric vehicle charging point (EVCP) strategy for the deployment of EVs as part of their fleet and to assess the optimum locations of public EVCPs within their city and county boundaries. Moreover, in the medium and longer term, the LAs role will gradually transition to provide support and assistance to EVCP operators in the operation and maintenance of installed public charging facilities.

The document also specifies that LAs will lead the initial rollout of EVCPs, particularly for homeowners who cannot charge at home (20% share of EV owners). This role would need to be accompanied by and in time overtaken by the energy market which will need to fulfil the longer-term objectives for the provision of the public EV charging infrastructure.

Analysis undertaken by the Northern and Western Regional Assembly on the distribution of EVs shows that there are ~113 publicly availably EV charge points in Limerick. This is to accommodate the battery EVs that travel within Limerick, and from assessing data held within the official statistics of the Irish Motor Industry (motorstats), it appears that at this point in time there are ~1282 fully Battery powered EVs within the overall County. The future expected growth in Ireland is likely to be significant once internal combustion vehicles are no longer made available to the market.

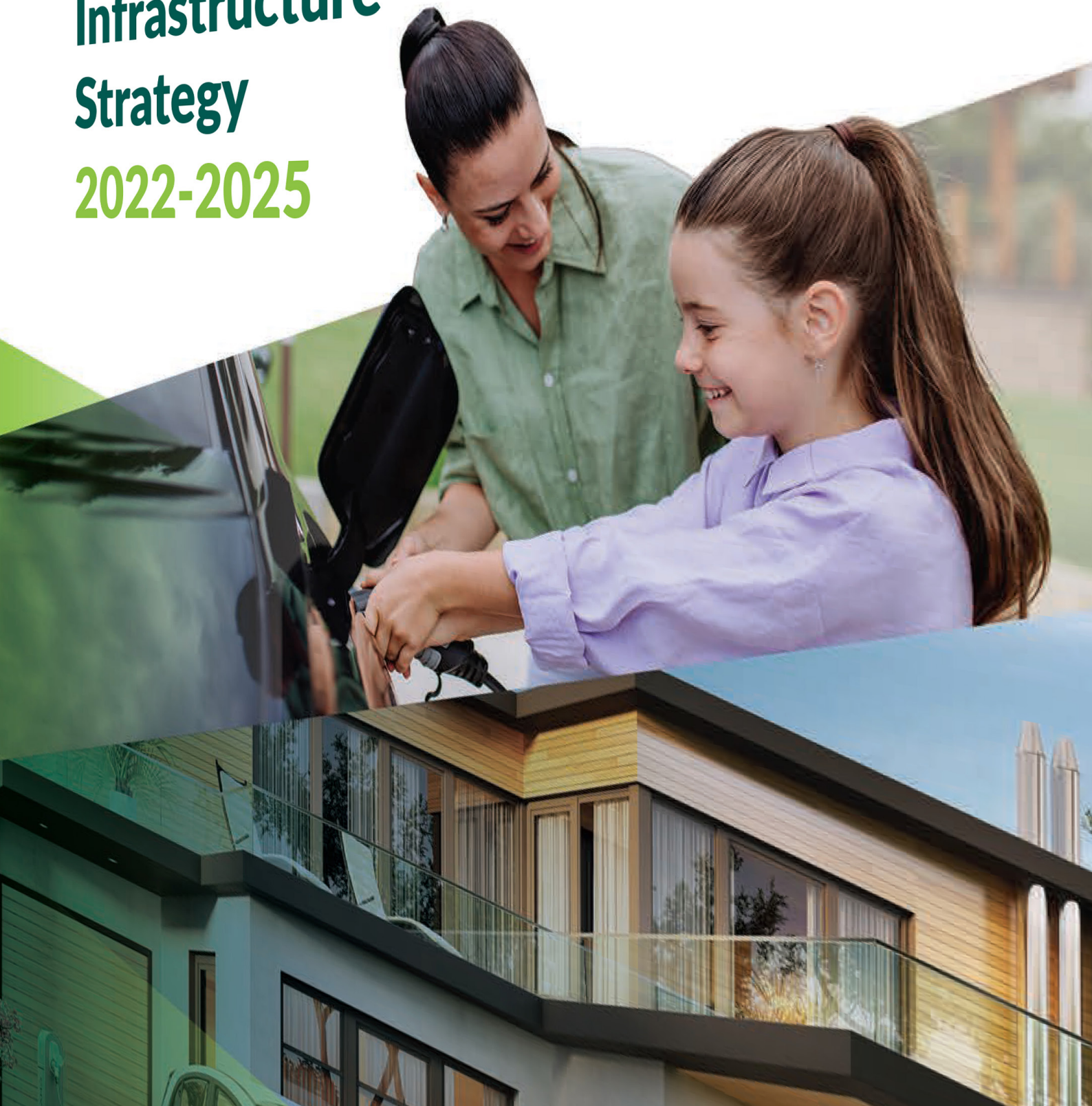
Key considerations for Limerick City and County Council:
• There is a concerted European focus to ensure that carbon reduction takes place within Transport. • With a projected one million EV vehicles on the road in Ireland by 2030, Limerick City and County council recognise the need to support the transition.

Key considerations for Limerick City and County Council:

- Residential parking and ensuring access for all through a variety of mechanisms is the priority of this strategy and will help ensure a just transition for all residents.
- Migration of the Council's own fleet towards EV can be an early focus early in demonstrating the pathway to EV transition.
- Engagement with National bodies such as ZEVI will help identify opportunities for funding paths as well as alignment with the desire to utilise communal hubs, community sites and shared mobility locations.

An Roinn Iompair
Department of Transport

Electric Vehicle Charging Infrastructure Strategy 2022-2025



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Limerick Electric Vehicle
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Section 6
Limerick Policy Review

6. Limerick Policy Review

At a local level, a number of pieces of work have already been undertaken that link with the deployment and growth of Electric Vehicles. These include development of:

- Limerick 2030 Vision: An Economic and Spatial Plan for Limerick.
- Limerick City and County Council Draft Local Authority Climate Action Plan, 2024-2029
- Limerick Development Plan 2022-2028
- Colbert Quarter
- Living Georgian City Laneways Demonstration Project:
- Limerick Public Realm Strategy
- Limerick Shannon Metropolitan Area Transport Strategy (LSMATS)
- Regional Spatial & Economic Strategy for the Southern Region
- Limerick Shannon Metropolitan Area Strategic Plan

Across the various Plans and Strategic perspectives, the importance of facilitating the migration to Electric Vehicles is highlighted, both in terms of the importance at a local level but also in aligning with the National activities in this area. Some key statements from the various publications include:

- *Utilisation of a low carbon economy and ensuring that removal of extraneous vehicles in the city centre where possible*
- *Supporting car-share facilities and the use of electric vehicles and securing investment in public transport. Facilitate the transition to zero emission delivery vehicles such as cargo bikes, solar powered and electric vehicles. Vehicles It is an objective of the Council to a) Encourage the switch to Electric Vehicles and e-bikes through the roll-out of additional electric charging points at appropriate locations, throughout Limerick, in association with relevant agencies and stakeholders; b) Facilitate the provision of electricity charging infrastructure for electric vehicles, both on street and in new developments;*
- *Infrastructure for Electric Vehicles will be integrated into developments in line with national requirements such that for Residential multi-unit developments both new buildings and buildings undergoing major renovations (with private car spaces including visitor car parking spaces), a minimum of 1 EV Charge Point space per five car parking spaces (ducting for every parking space shall be provided). For new dwellings with in curtilage car parking, there will be an installation of appropriate infrastructure to enable installation of recharging point for EVs. Non-residential developments (with private car parking spaces including visitor car parking spaces with more than 10 spaces e.g. office developments) shall provide at least 1 recharging point, and a minimum of 1 space per 5 car parking spaces should be equipped with one fully functional EV Charging Point. For developments with publicly accessible spaces (e.g. supermarket car park, cinema etc.), provide at least 1 recharging point, and a minimum of 1 space per 5 car parking spaces should be equipped with one fully functional EV Charging Point. The Council will liaise with other agencies to secure the retrospective provision of EV Charging Points within the public realm of settlements where appropriate.*
- *Facilitate the roll-out of electric cars through the provision of on-street public charging points where demand requires them. However, simply transitioning the car fleet to electric vehicles is insufficient to deliver a sustainable transport system and a key focus of the Strategy is to facilitate increased use of other modes in order to meet environmental, economic, and social objectives related to emissions, congestion and car-dependency. This supports the National ZEVI view of utilisation of shared hubs where possible to facilitate EV take up.*

- *Move away from polluting and carbon intensive propulsion systems to new technologies such as electric vehicles and introduction of electric and hybrid traction systems for public transport fleets. In line with the NPF, we need to ensure that our Region will enjoy a cleaner, quieter environment free of combustion engine driven transport systems by 2040.*

Key considerations for Limerick's EV charging infrastructure
• The strategy builds on the local transport initiatives which promotes sustainable mobility, and this includes the supporting infrastructure for the transition to EVs. • It establishes the requirement of additional public EV charging points across the city, both through the utilisation of car parking space as well as inherently considered as part of developments. • Emphasises the need for EVs to support a migration towards zero emission transportation.

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Section 7
Scenario Development

7. Scenario Development

To develop an understanding on the requirements relating to EV charge points, it is important in the first instance to develop an understanding on the range of scenarios linked to take-up as well as the energy availability. Utilising a well-established scenario model, there is the ability to undertake energy forecasting comprising of an approach for four Future Energy Scenarios (FES), each scenario projects the quantity of Electric Vehicles on the road against the total number of vehicles.

The four scenarios are as follows:

Table 3 Scenario Considerations

Steady Progression (prior to 2022 FES report) Or Falling Short (2022 FES report)	Electric Vehicles are slow to be adopted by the public, due to the cost of new vehicles and limited access to charge points, therefore the Public and Private sectors are reluctant to install dedicated charge points until revenue forecasts can be justified. In this scenario, the forecast for the 2030 ban on new petrol/diesel vehicles is missed and is instead achieved in 2035 by cars and 2040 by vans.
System Transformation	The Public and Private sectors are first to deploy charge points for EV drivers ahead of the need, this in turn spurs on greater EV uptake as the charging provision is present across public residential, destination and on-route locations.
Consumer Transformation	Drivers adopt EVs ahead of charging provisions, most likely to be led by drivers with access to off-street parking. This in turn allows the Public and Private sectors to provide charging provision at all other location types due to demand and forecast revenue justifying Capital Expenditure CaPEx costs.
Leading The Way	This is the fastest rate of decarbonisation scenario, which in turn is the most aggressive approach for EV uptake, this is not down to one individual group, rather as a combination change across all groups.

There are four Arup model scenarios that are based on the Energy forecast and the model scenarios developed manipulate different key EV assumptions surrounding user behaviour, technology and charge point incentives/schemes held by wider and local Government.

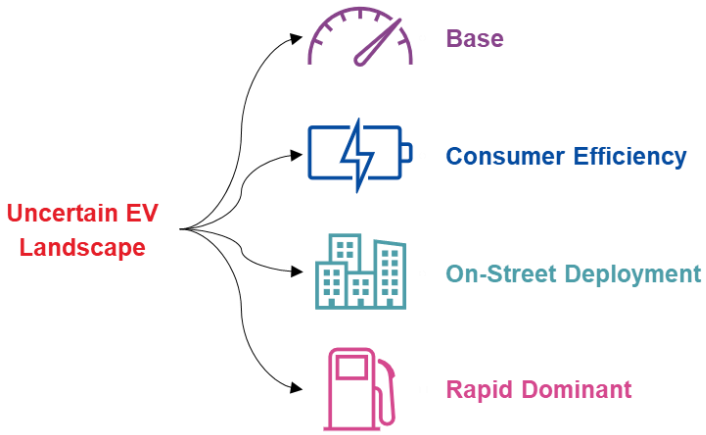

Figure 4 Arup Model Scenarios

The four Arup model scenarios are described as follows:

Table 4 Model Development

Base	A baseline set of assumptions are established using market and behaviour observations to date, continued forward with trends to forecast EV energy and charge point quantity.
Consumer Efficiency	A scenario where consumers are more environmentally conscious. EV drivers chose to have a vehicle with a battery suitable for every day short distance use and do not purchase the largest range EV on the market. EV drivers are also more efficient with charging their vehicles; favouring lower charger speeds.
Govt. On-Street	In this scenario it is assumed that a Government incentive or scheme is in place and widely adopted enabling drivers who have no off-street parking the ability to charge close to home via public residential charging.
Rapid Dominant	In this scenario EV drivers are expected to follow the behaviour patterns observed in ICE vehicle refuelling, therefore a greater need for Ultra-fast and above charge points to reduce consumer dwell times.

The graph shown in Figure 5 indicates the forecast uncertainty with time, where the **Transformation** Electric Vehicle uptake curve is combined with each of the four Arup model scenarios to model charge infrastructure demand at Destination and Public Residential locations. Customer Transformation also refers to Authorities/Charge Point Operators supporting the industry and those that have already taken the first move to deploy charge points to facilitate the consumer making the switch to EV.

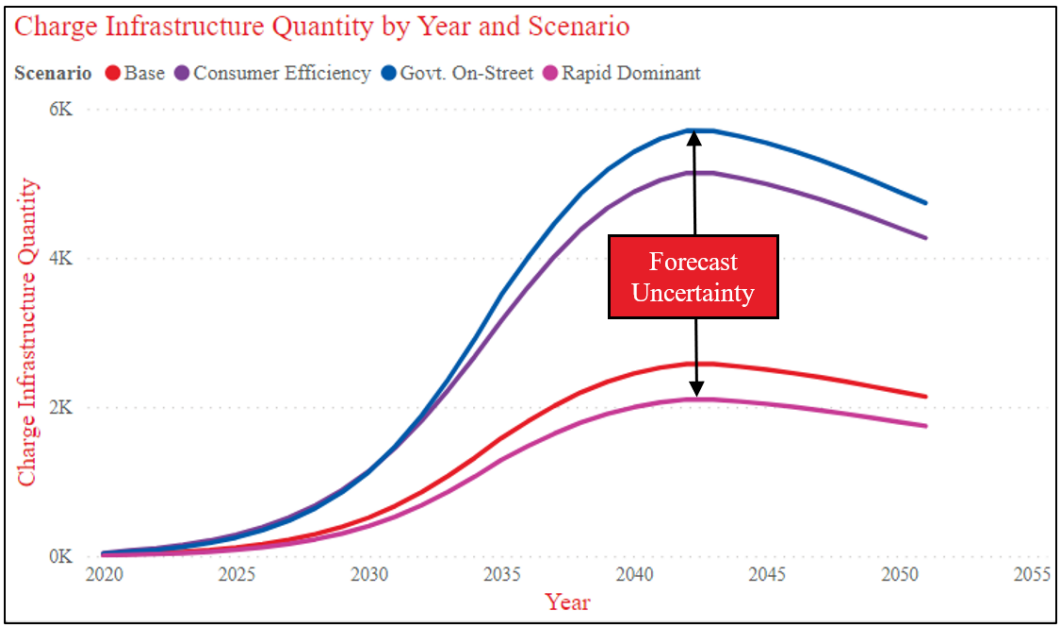

Figure 5 Scenario Uncertainty

The focus of this report will cover the scenario combination for **Consumer Transformation** and **Base** in Limerick City and County Council. There are a number of EV chargers within Limerick, building on the approximately 139 already recorded in place according to the Northern & Western Regional Assembly EV report.

7.1 Approach

In line with ZEVI's Infrastructure strategy, there are 4 charge point considerations as outlined in Section 3.2.1, namely:

- Home
- Destination
- Public Residential
- En-Route

Charger location	Location/Charge Type/Charge Time
Home	Charge points associated with off-street parking/driveways (detached and semi-detached bungalows and houses). It is expected that most of EV owners (80%) will charge their vehicles at home, and thus home charging will remain as the main solution. The home location is typically associated with 3kW and 7kW rated charge points due to the long dwell times overnight (10 hours or longer). 3kW chargers are simple and easy for any homeowner to 'install' whereas 7kW chargers need a dedicated charge plug-in point (commonly observed with new builds).
Destination	Charge points associated with attractions, such as supermarkets, shopping centres and work. The installation of charging points at destinations will allow people to charge their vehicles while out of home. A multifaceted scheme, such as through engagement with the private sector as well as through the work of ZEVI and their funded initiatives targeting Sports clubs and Visitor locations, will support the installation of charging points at destinations to provide a reliable network of publicly charging points. Charger ratings will typically range between 7kW and 150kW, with dwell times expected to be between 1 hour and 8 hours, dependant on the attraction.
Public Residential	Charge points associated with on-street deployment or similar, meeting the needs for those who cannot charge at home due to limited off-street parking access. This will provide access to charging point to people without one at home. The EU's Just Transition Funded Community Facilities scheme as well as Pobal's Shared Island Sports Club schemes show a determination to provide an option to all parts of society as well as emphasising the importance of shared community facilities. These charge points are likely to be a mix of slow/medium typically but depend on the type of capacity available and will include higher ones such as 50kW DC where needed. Examples of these charge points would include typical charge point infrastructure as well as the potential for the use of innovative solutions linked to lighting and other options. All would require dedicated EV bays on-street or in car parks close to residential housing.
En-Route	The provision of high-powered public charging points on the key national road network will enable motorists to fast-charge their vehicles at locations such as service stations etc. Chargers that are Ultra-fast and above are the closest charging equivalent to the ICE vehicle petrol/diesel refuelling. These charge points are most appropriately placed at fuel courts and service stations in close proximity to the SRN/Highway. Charge times are expected to be less than 1 hour.

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Limerick Electric Vehicle
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Section 8
Analysis

8. Analysis

8.1 Modelling the Demand

The Strategy is focused on the **Public Residential** (those without off-street parking provision) and **Destination** charging in line with ZEVI guidance as this allows LCCC to make an immediate impact in terms of deployment of EV charge points in relevant locations. The Strategy looks at the Power demand expectations at Peak times in order to help assess the number of chargers required.

To ensure the right charger, in the right location, for the right user requirements, it is important that the demand is fully understood and assessed. This is undertaken at a macros level through utilisation of the Scenarios and assumptions and then linked to the data sets showing current and projected demand across Limerick. This demand forecasting is then analysed at a granular level to ensure the quantity and type of chargers are fit for purpose.

A variety of considerations were undertaken to help the assessment of user needs including:

Figure 6 User Need Assessment

Supporting this, a range of data sets are considered to help the model including but not limited to:

- Mobile phone data
- Electricity Utilisation Projections
- Battery Size
- Average Journey distances
- Journey types
- Dwell times.

8.1.1 Detailed Origin-Destination Analysis

Building on the available National Transport Data (NTEM) data sets, Arup utilised anonymised and aggregated data from the Mobile Phone provider Three in conjunction with the data company CKDelta, to help achieve a greater granularity in the Origin and Destination patterns for Limerick. This helped support an understanding of where journeys were ending within the County from travel starting outside Limerick but also journeys starting and finishing within Limerick. This supports the development of a model that is based on actual trip patterns and in turn can be linked to the scenario described earlier.

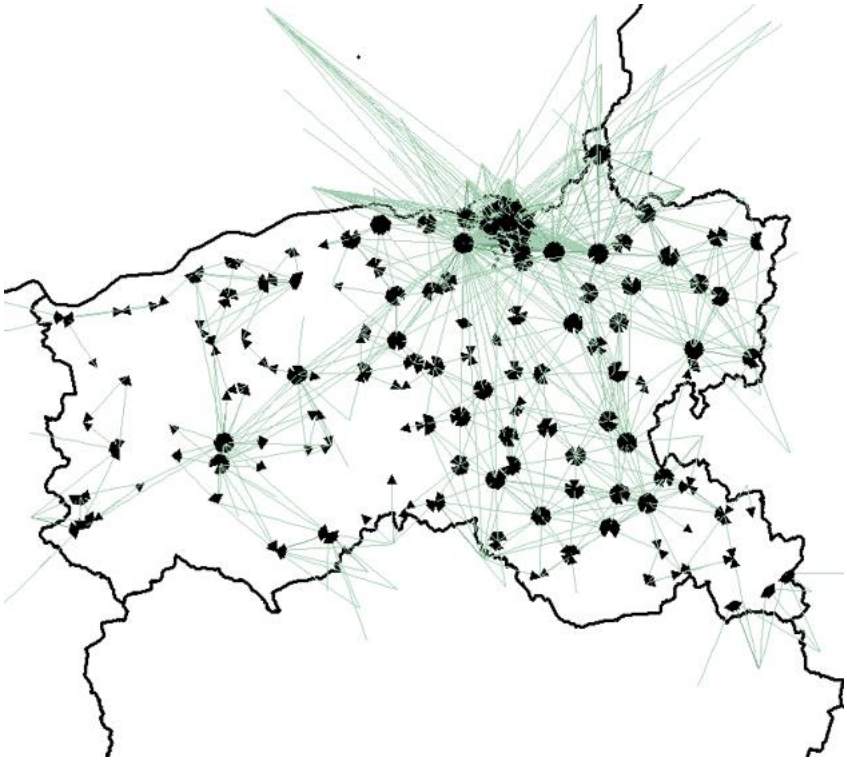

Figure 7 Three mobile trips (2021)

Figure 7 shows the average weekday trip data provided by Three mobile; using start Electoral Division and end Small Area within Limerick City and County. The utilisation of an Electoral Division and 'Small area' representation allows for a detailed analysis to be undertaken at a granular level to support strategic investment.

Arup utilised a filter to the map to show only trip counts for 100 or greater per origin/destination pair. This helped in mapping in a clearer fashion the origin/destination pairs which then contributed to the overall demand modelling completed at a later stage.

Similarly, Figure 8 shows the trip demand for each Small Area within Limerick City and County, using the same core dataset provided by Three mobile. The darker the red colour the greater the quantity of trips ending in that Electoral Division. This polygon filled map allows for immediate visualisation of how the trip demand data is spread across the region, for example, is it more apparent in this map that the city centre has a greater quantity of trips compared to the more rural Electoral Divisions, however there are some medium demand locations such as Newcastle West and Kilmallock.

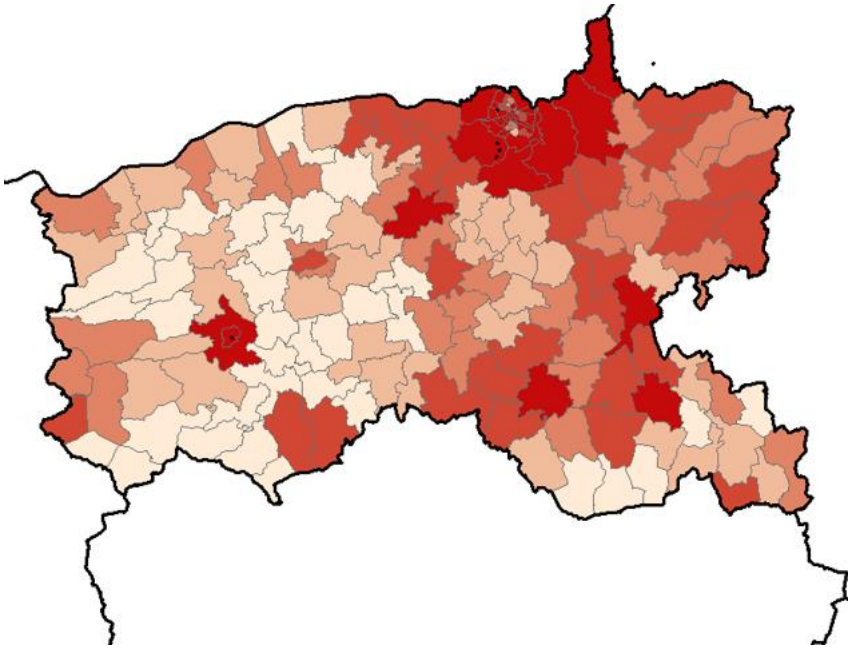

Figure 8 Trip demand (for the year of 2021)

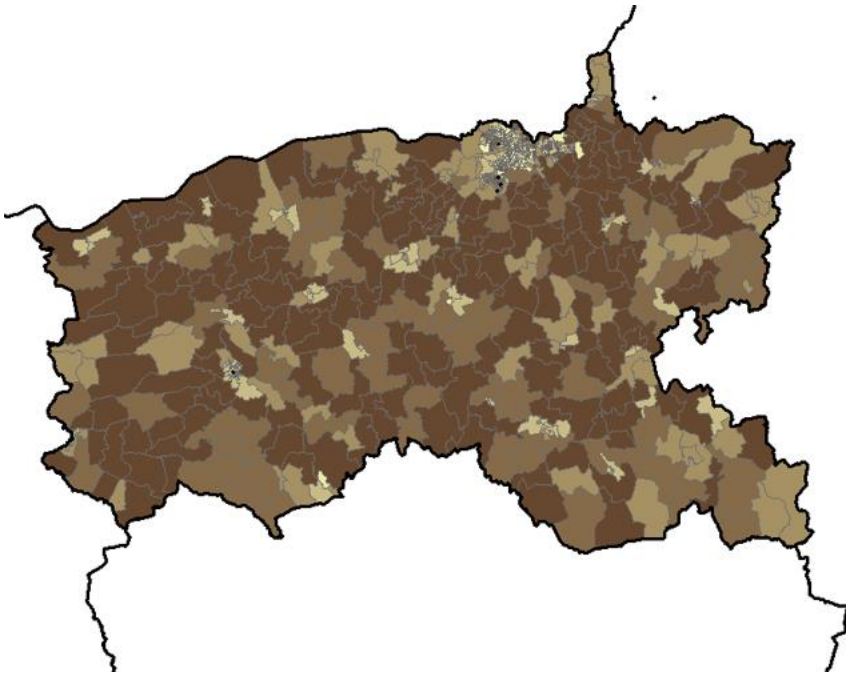

Figure 9 Home Charging Capability

Figure 9 shows the ability of households to charge at home based on assessments of a range of data. The darker the grading, the more likely that housing is predominantly made up of detached or semi-detached houses, or housing with off-street parking, and as such, aligns with the national perspective of the majority of the population, a nominal 80%, being able to charge from home.

The next step of the analysis was then to look at the demand against public residential to identify where charge points would be required to meet the demand for those living without any off-street parking available. The analysis is shown in Figure 10 below, highlighting, as expected, the strong demand within the Metropolitan area (darker area) as well as locations across the county that look for public residential parking to be in place.

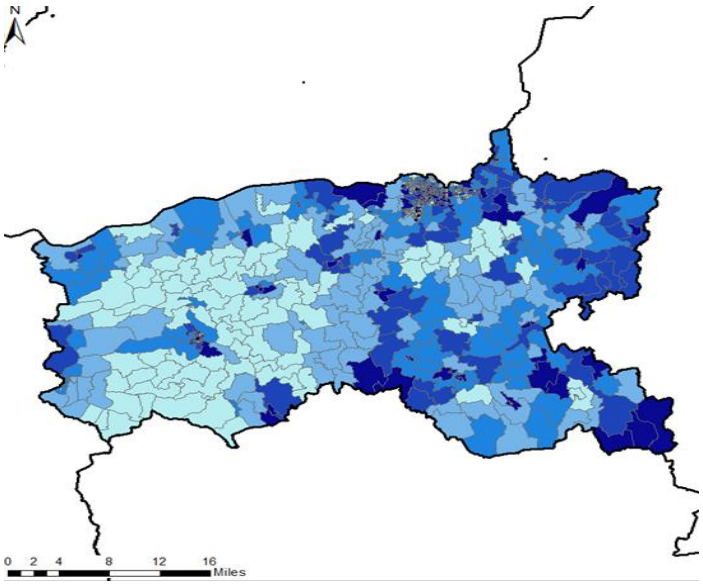

Figure 10 County Charge Infrastructure demand (Public Residential)

8.2 Modelling the Energy Requirements

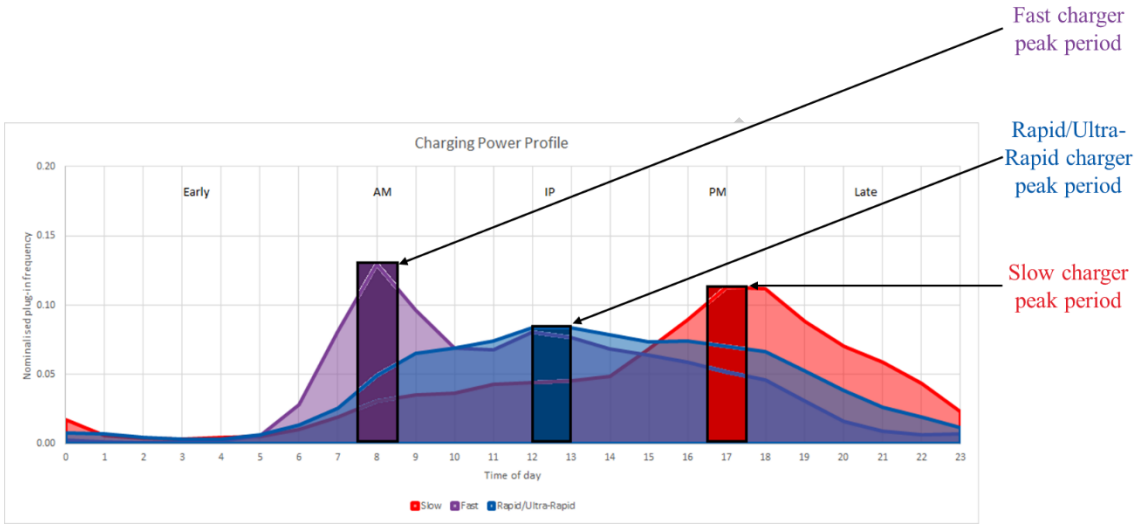

Figure 11 Power Demand Considerations

A key element of review was the potential power demand on the network which in turn will link to the level of charge points required to cover this demand. The Peak Power demand is a key metric to assess in order to deploy sufficient charge points to cover this need. Fig. 11 above shows the approach to power management linked to demand on the network. From this, a series of models were run in order to assess Destination and Public charging requirements, asshown in the diagrams below.

EV power demand (kW) for **Peak Power demand** in the Limerick across City and County in 2025 up to 2030 using Base and Consumer Transformation scenarios are illustrated. The figures are based on estimations and best intentions and should not be viewed as absolute as the model and the strategy will evolve and update over time. The proposed split of charge types will also need to be reviewed at implementation phase and as such, is to be seen as a representation for a possible deployment approach that reflects the power requirements.

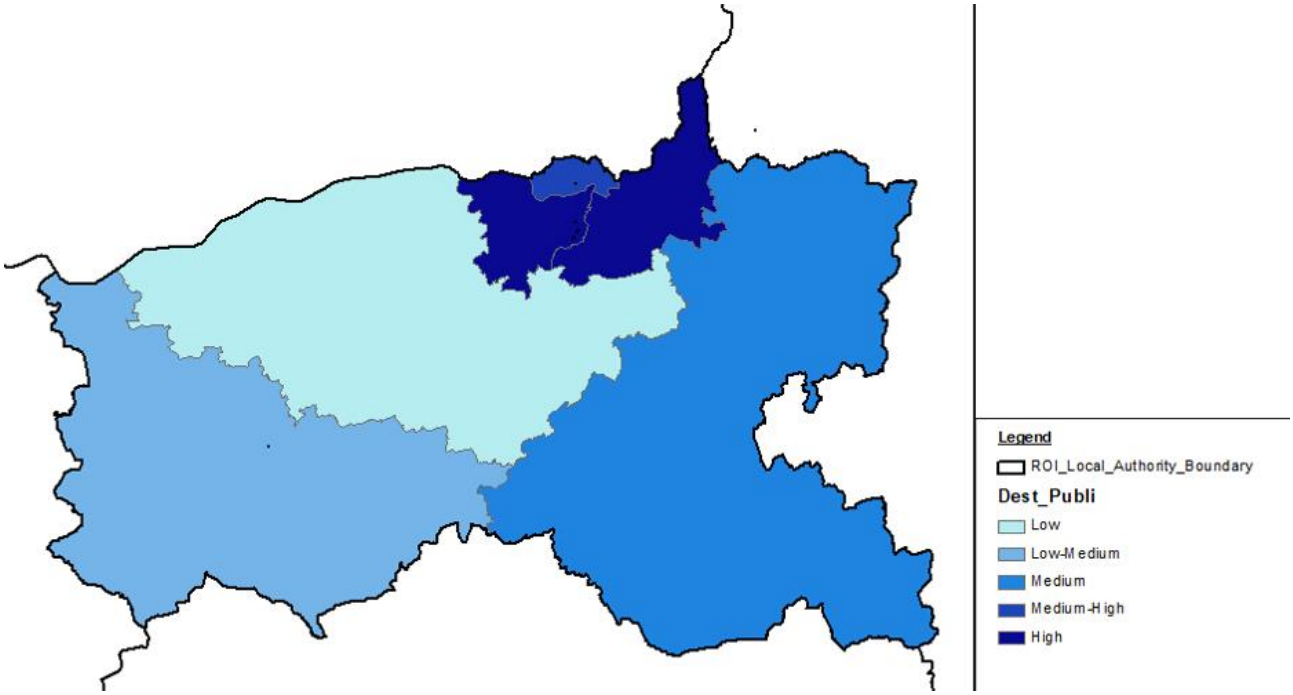

Figure 12 Peak Power (kW) Demand (Destination and Public Residential) from Present to 2030

It is then possible to assess the cumulative peak power demand on the network, that is, total EV power demand (kW) in Limerick City and County **(destination + public residential charging power demand)** across a wider timeline as shown in Table 7 below.

Table 5 Total (Destination and Residential) Power Demand from 2025 to 2050

Location Type	2022	2025	2030	2035	2040	2045	2050
Home	5,489	20,427	82,794	170,387	194,336	179,429	154,968
Destination	**1,886**	**6,803**	**26,127**	**50,763**	**57,895**	**53,399**	**46,075**
Fast AC/ Slow DC	502	1,812	6,960	13,523	15,422	14,225	12,274
Fast AC/L1/L2	1,383	4,991	19,167	37,241	42,472	39,175	33,802
Public Residential	**54**	**499**	**4,043**	**12,481**	**14,235**	**13,143**	**11,352**
Total	7,429	27,728	112,964	233,631	266,465	245,972	212,395

Based on the **scenario** model results it is forecasted that peak power will be approximately 7,301kW for 2025 and 30,170kW for 2030 (Destination and Public Residential). The 2030 figures will be reviewed post 2025 to assess the take up that is actually happening in the marketplace.

Table 6 Distribution of (Destination and Residential) Power Demand from 2025 to 2030 across the Municipal Districts

Area	Power Demand (kW)	
	2025	**2030**
Adare-Rathkeale	620	2,563
Cappamore-Kilmallock	1,239	5,120
Limerick City East	1,597	6,598
Limerick City North	1,279	5,286
Limerick City West	1,852	7,651
Newcastle West	714	2,951
Total	7,301	30,170

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Section 9
Destination and Public Residential Business Model Options

9. Destination and Public Residential Business Model Options

A number of potential business models exist in the EV ecosystem with work done by a number of agencies to date including the European Investment Bank on EV charging concession business model assessment. To ensure a sustainable Business model is in place, it is necessary to consider a range of elements including:

- Who provides the electrical infrastructure, who is responsible for ownership of that infrastructure for the duration of the lease, and who pays for electricity consumed.
- What is the contractual mechanism for the operation across all the business models and the performance management requirements needed.
- Can a lease agreement be tendered, how is the Rent determined and adjusted, and how are Service Levels contractually associated with the Rent.
- Consideration of the use of an incentive scheme to ensure the payment of the lease is null if the Service Levels are achieved.
- Ensuring pricing equity to facilitate EV update across the community.
- Ensuring transparency and consistency in the operations and responsibilities across the EV system.
- The organisational impact, monitoring and reporting requirements to be put in place.
- Consideration of the impact of the data exchange needed to align with AFIR requirements at an EU level.

The European Investment Bank have identified 5 potential elements, including:

- Public Contract
- Joint Venture
- Concession
- Availability Based contract.
- Licensing Model

Arup has in turn taken these and applied them to a local authority perspective in order to frame the elements across 3 main areas as outlined below. The models presented articulate the role and position LCCC might take in order to facilitate the deployment of Public and Destination type chargers.

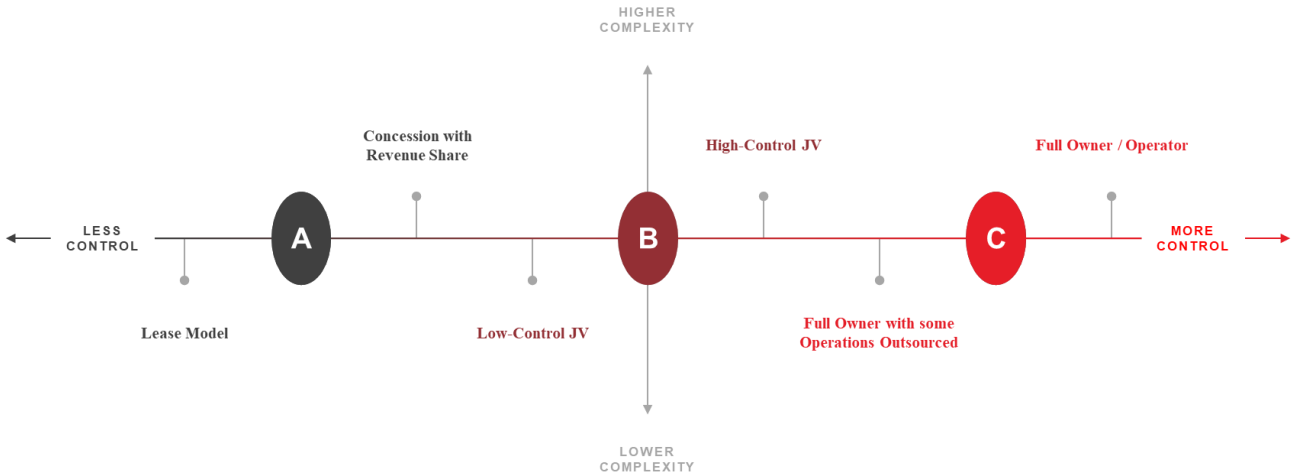


Figure 13 High Level Business Models

9.1.1 Business Model A

LCCC retains ownership of the charging site land and leases it out to a CPO (Chargepoint Operator). With low complexity, this could be a simple lease, or, with higher complexity and risk, a concession with LCCC receiving revenue share.

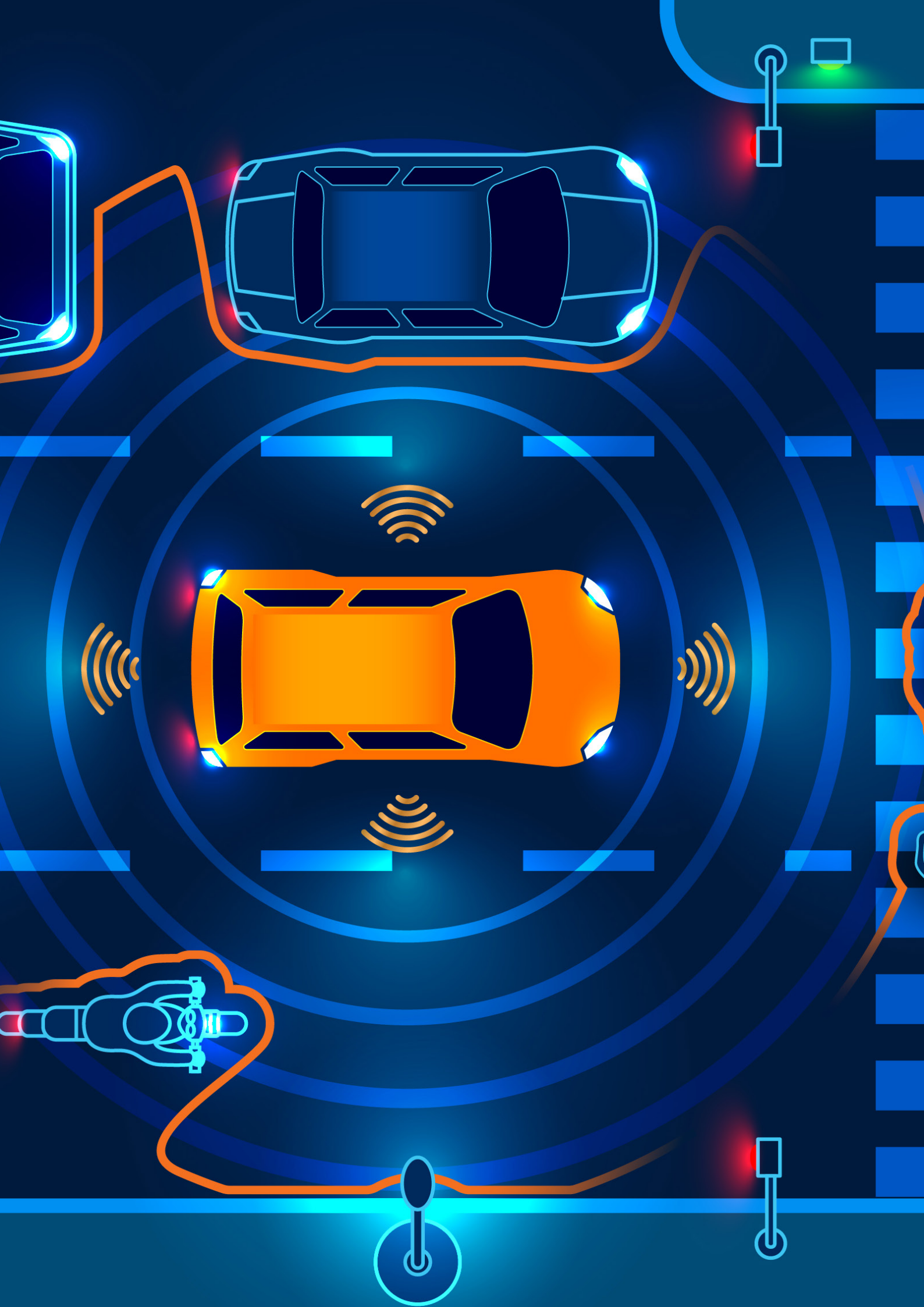
9.1.2 Business Model B

LCCC creates a joint venture partnership with at least one other party (e.g., service statin/park operator or CPO) to jointly own and operate the charging site(s). LCCC's role – and thus risk, return, complexity faced, etc. – ranges from low to high control.

9.1.3 Business Model C

LCCC provides a turnkey rapid charging solution at all sites as the full owner and operator. As in the other business models, complexity and risk can be abated by outsourcing some or all O&M etc. to a third-party vendor.

At this point in time, with an evolving market space and ongoing engagement at National and international level, that LCCC consider the use of Business model A for a number of sites for a defined short time frame, in order to ascertain its performance and develop a 'lessons learnt' approach to help further investment cases.



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Charging Strategy

Section 10
Deployment Considerations

10. Deployment Considerations

The deployment of EV charge points needs to be done in a fair and equitable way. Through the National Infrastructure Plan, it is identified that up to 80% of the population will undertake their charging at home. In turn, destination charging for those taking journeys for work/shopping/business can be accommodated through the deployment of private operators. For those that require access to local charge points due to the unavailability of off-road parking, the ability to integrate with a wider shared space such as Local centres and/or suitable neighbourhood locations will support wider mobility integration. For on-street charge point deployment, utilising available parking spaces, it is not a straightforward deployment solution.

Table 7 Deployment Challenges

Deployment Challenges	Description
Limited on-street parking locations for residents without off-street space	Terraced or apartment dwellers will by and large have limited options for deployment of EV charge-points
Lack of available public sites for implementation of charging points	This will lead to a limited number of charging points which will not be able to serve the increased demand for EVs equitably.
Impact on street-clutter	EV Charge Points are part of street furniture and as such, should not be out of line or take from the environment in which they are installed
Optimisation of the EV Charge point	The type of charger deployed will impact the time required to charge and therefore the time for a vehicle to be in the charging bay
Residential development with Communal charging	Shared parking spaces will require a considered approach to how charging services are provided and managed
Business Model consideration	Consideration of the transactional whole life costs of the parking asset as well as supporting equitable charging for consumer
Demand led deployment	Deployment of charger numbers and type must be aligned to demand assessment
Insufficient grid capacity to meet demand	The grid may not have the capacity and resilience to support fast charging infrastructure
Lack of sufficient public and private funding for rollout of charging infrastructure	Funding allocated for charging infrastructure might not cover the high-cost installation and maintenance of charging infrastructure
Lack of reliable public charging points across the city and county	Non-operational charging points will affect the capacity of the charging network to meet demand. This could become EVs less attractive for people to switch to them.
Lack of interoperability	EV owners will find challenging using EV charging points without the option of contactless payment, and a unique and easy-to-use digital interface.

To ensure a sustainable approach to installation, it will be necessary that construction will be short-term and localised. In addition, ground works will tie into existing infrastructure.

The nature of the construction works will involve standard routine construction methodologies, that are not complex in nature. Groundwork will tie into existing infrastructure and occur in the existing urban environments. Construction will also be short-term and small scale.

Best practice construction practices, such as CIRIA Good Practice will also be implemented throughout the construction phase by the appointed contractor which include pollution prevention control measures to control surface water runoff. These measures are a standard operating procedure and are not included to protect any European site.

10.1 Considerations for On-street parking using Local Authority car parking space.

In line with the National Infrastructure Strategy 2022-2025, it is important to consider how charging, or access to charging can be provided in order to facilitate an equitable and fair uptake of EVs for all parts of the population, regardless of where they live. The Government have laid out that though 80% of all charging will take place at home through, Principles 2 and 4 of the five Principles outlined in the document, touch upon how residents in roads without off-road parking must be accommodated.

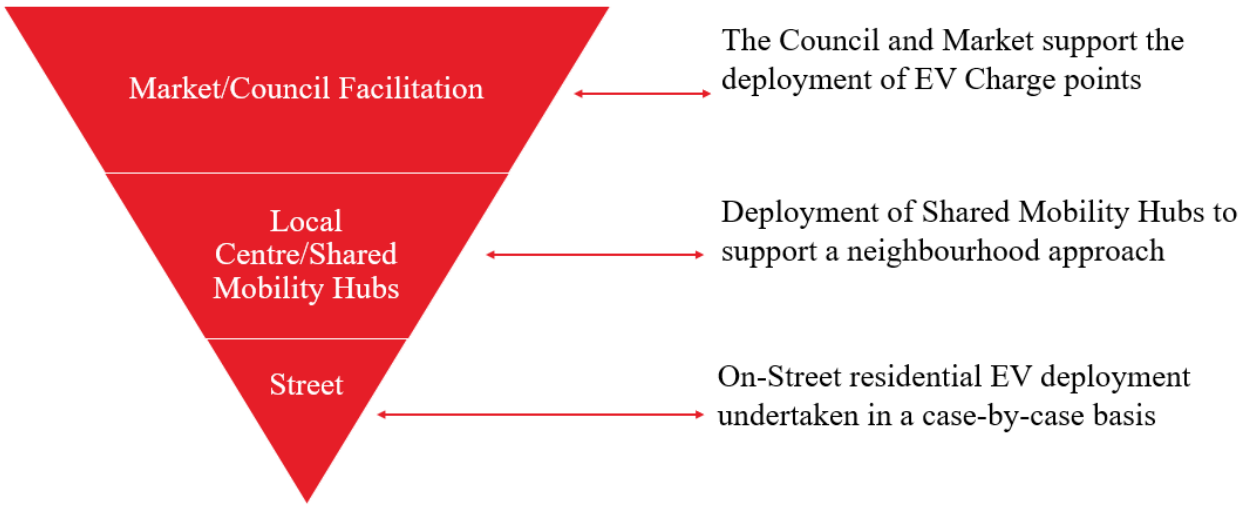
The Strategy also states that *Residential neighbourhood charging* will provide a similar solution to home charging for EV owners without access to a driveway and *Shared charging* can bring significant benefits, particularly in urban areas, where it can provide a charging solution for EV owners without a home-charging option themselves. The options and challenges associated with utilisation of Council parking bays are outlined below:

Table 8 On-Street Parking considerations

Options	Challenges	Considerations
a. Utilisation of Street Lighting as a source of energy to power on-street charging	1. Utilisation of street lighting to power third parties will have to be considered as part of an engagement plan between the council and the ESB. If the streetlight is the Council's property, there will be clarification needed as to whether the Council can be permitted to provide charging * 2. The energy available as well as the condition of the power network that facilitates the public lighting environment must be considered.	1. Engage with key stakeholders such as the ESB and CRU to establish a clear regulatory position on this. 2. Review power capability of the current public lighting infrastructure
a. Using cables from the residential property, under suitable protective mats/coverings to bring charge to the Vehicles on street.	1. There is both a safety and insurance concern raised towards the use of cables coming from private residence and operating in the public domain. Assessment elsewhere has identified concerns in relation to wiring and earthing as well as insurance issues.	1. LCCC to review with their insurers the position in terms of supporting cable runs. 2. LCCC to engage with NSAI's working group on cabling and safety issues
c. Utilisation of 'gullies' to run a cable from private dwellings to an EV	1. As above	1. As above
d. Installation of EV charge points as part of the existing Parking Bays	1. Utilisation of a space currently dedicated to on-street parking means that there may be the perception that there is one less parking bay available or that the house in line with the parking bay has priority for charging. 2. Technically, it may be possible to manage the charge times for the user. However, to prevent destination charging taking place, as well as linking to the assessment on potential utilisation, the charging would be primarily 'slow' in nature. This would negate the need for 'fast/ultra' charging with time limited penalties to be put in place. 3. Available capacity on the grid will have to be established to drive the installation considerations. 4. There is also the challenge around enforcement if the spot is used but not for charging.	1. Utilisation of a slow charger significantly impacts the possibility of destination charging becoming an issue. 2. Significant engagement with ESB is necessary to assess the power availability in the area. 3. The underground conduit must be installed to run wiring from the public power grid to each charger. Ducting should be put in place for the whole street to facilitate the cable run if not already present.
e. Use Local Centres or nearby shared car parks to deploy EV charging hubs	1. Examining parking locations within a 10min walk explore options available to potentially support residential charging.	1. Building on the requirements for consultation with ESB as outlined in Point D, it is possible to deploy communal or mobility hubs. Mobility hubs are encouraged as part of the latest EV National strategy.

Options	Challenges	Considerations
f. Change the road layout/direction to facilitate the installation of extra parking space that would be just for EV charging.	1. Creation of alternative Traffic Management will have an impact on neighbouring roads as well as residents' access to their own street. Stakeholder engagement will be very important on this.	1. Active Travel reviews to consider the change of layouts to support sustainable mobility

As such, with the range of considerations and impacts associated with deployment of the Charge Points, it is proposed that the Charge points be deployed in the following fashion:



This approach allows for the market and the council to work to both support and facilitate the deployment and utilisation of Charge Points. In turn this allows the Council to support the utilisation of Mobility hubs, from shared residential slow overnight charging locations to multi-service transport exchanges that would include use of bikes/scooters etc. These would support migration to zero emission travel across all modes of transport as well as allowing for on street deployment to be considered in a case-by-case basis.

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Section 11
Council Fleet Transformation

11. Council Fleet Transformation

A key early stage in the migration to EV vehicles is supporting the Council's own fleet in identifying opportunities to convert to non-ICE options. As stated in the LGMA's Local Authorities Electrification of Fleet and EV Charging Guidance document of 2021, 'transitioning the LA fleet to EVs, especially the lower-powered vehicles like cars and vans, will contribute to reduced energy costs and lower GHG emissions by the sector'. The following elements are considered when looking at Fleet transition, namely:

- **Miles travelled** – Understanding the typical journey patterns that vehicles will undertake as well as the maximum distance travelled. This ensures that there are no situations where extraordinary distances are not feasible due to the EV transition.
- **Location** – Consideration of charging opportunities linked to space, parking, power supplies need to be factored in as part of any long-term EV transition.
- **Vehicle Options** - The types of vehicles utilised has an impact on the transition also as this will influence the viable market choices.

Arup utilised it's in-house Charge4Fleets to assess feasibility and scope for fleet electrification by providing insights on:

- Fleet operations
- Charging site selection
- Risk assessment for driving range.

This work focused on addressing replacement options for panel vans as they are identified as a vehicle choice with a number of EV equivalent options available in the market.

11.1.1 Fleet Operations

The first step was to capture the type of vehicles utilised by LCCC, ranging from tippers and tractors to refuse vehicles. Panel vans were identified as most strategic to convert in the near-term. These range from 1.4 Tonne to 3.4 Tonne Panel vans from Renault, Volkswagen, and Ford.

Following this, a detailed data assessment was undertaken using existing records in order to understand the distance travelled per day, on average, as well as the maximum travel journey length. The vehicles reviewed covered at a minimum, LCCC activities for:

- Dog Warden
- Litter Department
- Operations
- Parks
- Housing Maintenance

Examining the driving patterns over a 3-month period, it was found that on average, 74km were travelled with a maximum distance length of 177km recorded. This is the case for 16 vehicles in the current fleet. Daily average was calculated using a conservative estimate of the number of days of operation over the 3-month period. The market was then assessed against stated performance capabilities to assess what options exist at this point in time to ensure that at the very least, the average and maximum journey distances were possible by a non-internal combustion engine. The box plots represent the minimum and maximum range generated from an industry standard methodology (WLTP – World harmonised Light Vehicle Test Procedure), used to verify EV vehicle ranges. The wide range is expected given that energy efficiency is highly impacted by speed of travel, outside temperature, and payload.

The fleet may be filtered by department to capture the nuanced operational requirements and better identify the most suitable EV replacement.

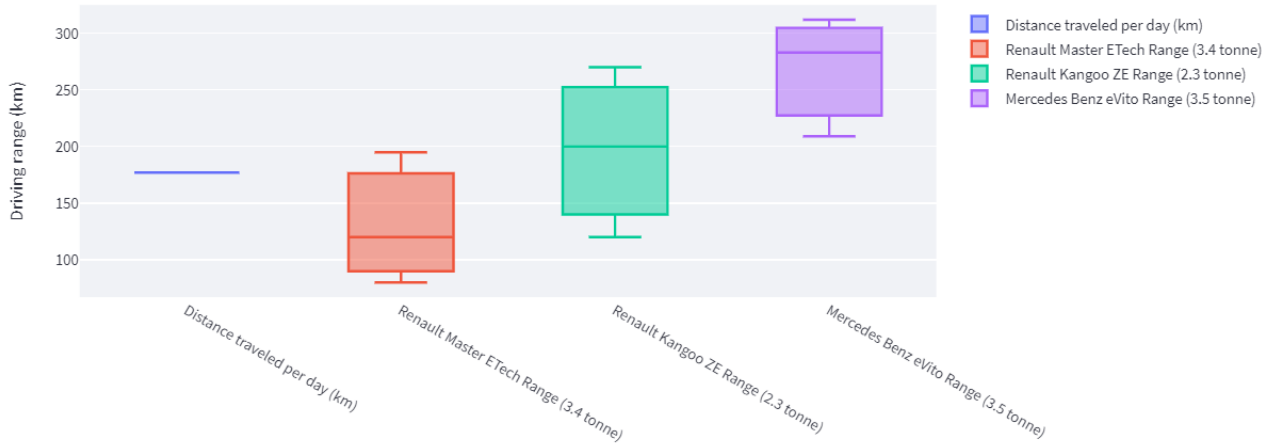

Figure 14 Sample Market review to cover the maximum travel distance.

The following sections expands on these themes and breaks them down against a suite of key enablers to support successful deployment.

11.1.2 Location Analysis

The second phase of data analysis was to look at locations that could offer opportunities for EV installation.

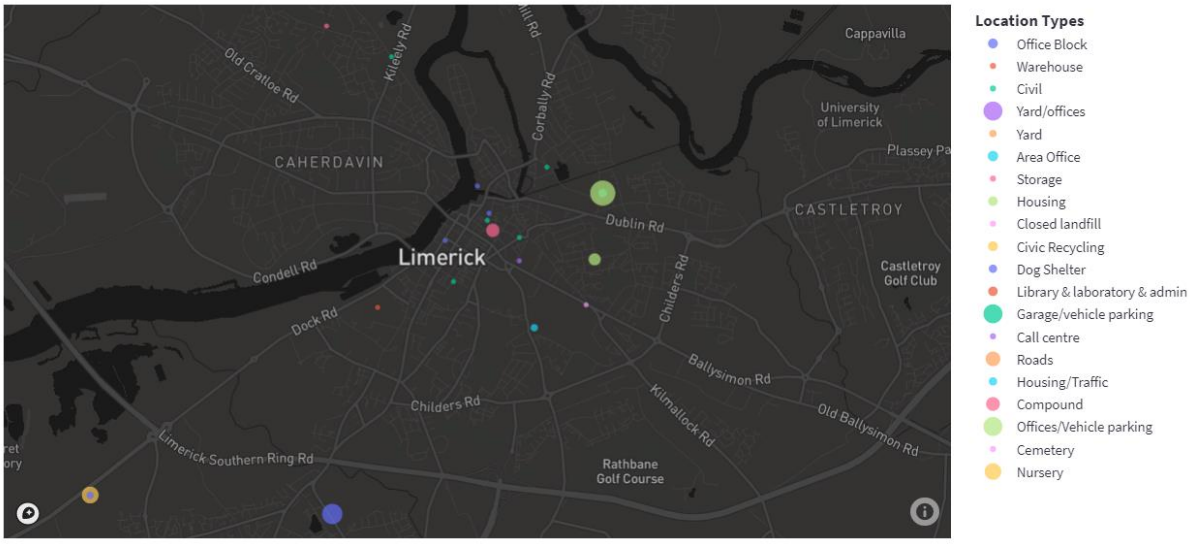

Figure 15 Distribution of vehicle depots and numbers at these points.

From this, a filter can be applied to examine those sites where space is available and as such offers the prime opportunities for EV fleet deployment, as shown in Figure 16. The space required is linked to accessibility requirements of the EV charge point as well as the parking provision at these areas itself.

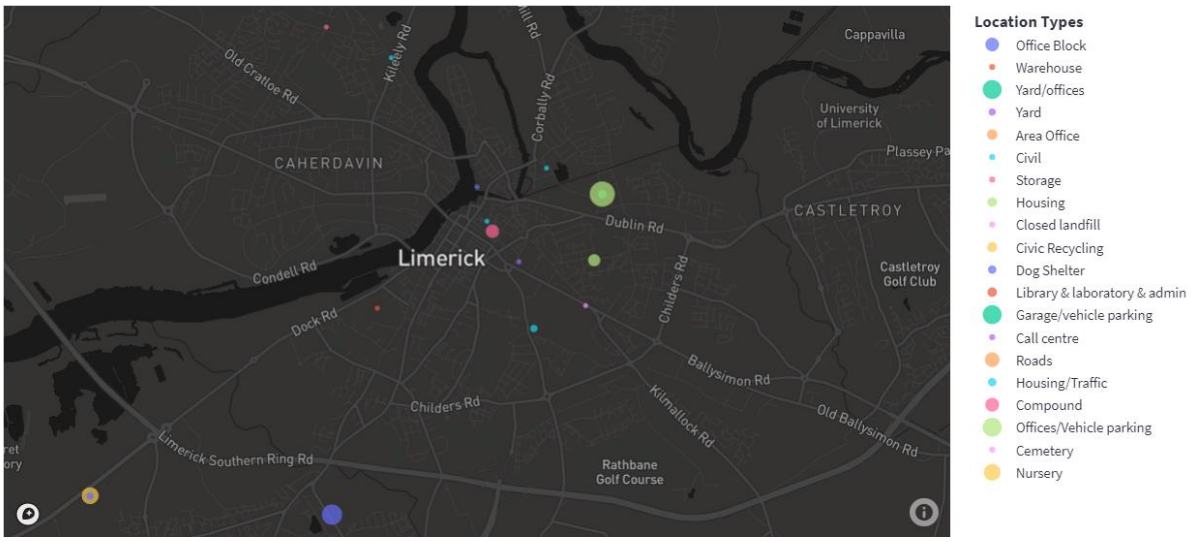

Figure 16 Locations post Filter identifying those sites with space available for EV charging to take place.

To ensure the location is capable of meeting the demand of the network, LCCC will now work with ESBN and identify the potential for deployment of suitable charging infrastructure to support the migration to EV vehicles, of which it is shown that 16 vehicles could be converted to an EV equivalent should the infrastructure, operations an contractual elements be in place. As identified in the LGMA document, the following elements must be considered:

1. Identify the location.
2. Determine the power requirements.
3. Identify an electric connection point.
4. Procure the charge points.
5. Route the cables - this may involve groundworks.
6. Install the charge point.
7. Connect the supply.

To support the transition the OGP has drawn up fixed price procurement frameworks for the supply of long and medium range battery electric passenger cars and vans for public sector bodies which may of use in the procurement of such vehicles.

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Charging Strategy

Section 12
Next Steps

12. Next Steps

The next stage of deployment is twofold:

Public Vehicles

1. Deployment of Pilot sites to develop in-house knowledge of the range of requirements and performance optimisation needed for EV deployment.
2. Creation of a detailed implementation plan to support a detailed, data driven analysis of location of charge points particularly in the city but also within the other towns identified.

Fleet Vehicles

1. Undertake the assessment for installation of the EV charge points.
2. Review the procurement and contractual route for EV acquisition.
3. The strategy is a living document and will need to be reviewed and evaluated going forward in accordance with developing national guidance and activity in this area.

12.1 Pilot Site deployment

LCCC are proposing the deployment of EV pilot sites at the following locations:

Table 9 EV pilot site locations

1	O'Callaghan Strand	Opposite The Strand Apartments
2	Dooradoyle	Dooradoyle Park, Dooradoyle Road
3	Merchants Quay	Newgate Lane, adjacent to Limerick City & County Council Offices
4	Mungret Park	Car park adjacent to playground/park
5	Castletroy Park	Car park adjacent to playground/park
6	County Hall, Dooradoyle	Car park adjacent to Limerick City & County Council Offices
7	Newcastle West	Market Yard, carpark adjacent to Scanlon's Lane
8	Kilmallock	Court House, Library and Limerick City & County Council Offices
9	Dromcollogher	Main Square
10	Bruff	Sycamore Drive adjacent to Garda Station
11	Caherconlish	R513 junction with Barrack Close, adjacent to Main Service Station
12	Patrickswell	Marian Park, Patrickswell Village
13	Doon	Monastery Road, Civic Amenity Centre

The sites proposed utilise LCCC own's land and the locations have a mixture of locations within the City and more urban contexts. This will support knowledge transfer in terms of the requirements associated with the civil undertaking, management of power and supporting physical infrastructure at these sites, as well as performance requirements and availability and utilisation of the Charge Points themselves once operational.

12.2 Implementation Plan

The Strategy has utilised a range of data sets to support the quantitative analysis regarding EV Charge point numbers as well as indicative locations at an Electoral level.

The next phase of data analysis could utilise Arup's Charge4All tool which examines locations at a more granular level, focusing on decision parameters such as but not limited to:

- Available Power
- Local parking availability and utilisation
- Environment risk factors
- Existing Electrical Infrastructure
- Socio Economic data sets
- Land utilisation

This level of analysis would then factor in contributory weightings to support local knowledge to allow for a breakdown on a street-by-street level of where the most optimum EV charge point location would be.

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Limerick Electric Vehicle
Charging Strategy

Section 13
Appendix

Appendix A

A.1 Modelling the Charge Point Requirements

Based on modelled energy and Power demand, it is possible to look at the potential number of charge points required for Charge Points in the Municipal Districts in 2025 up to and 2030. This is shown below, using Base and Consumer Transformation scenarios, identifying the demand required and reflecting the power considerations outlined earlier. However, it must be emphasised that the breakdown of the different charge types and numbers are purely for illustrative purposes only as these figures cannot be fully known until an implementation plan is undertaken. For example, 4 7kW chargers could be replaced by a 50kW charger once implementation modelling and assessment is undertaken.

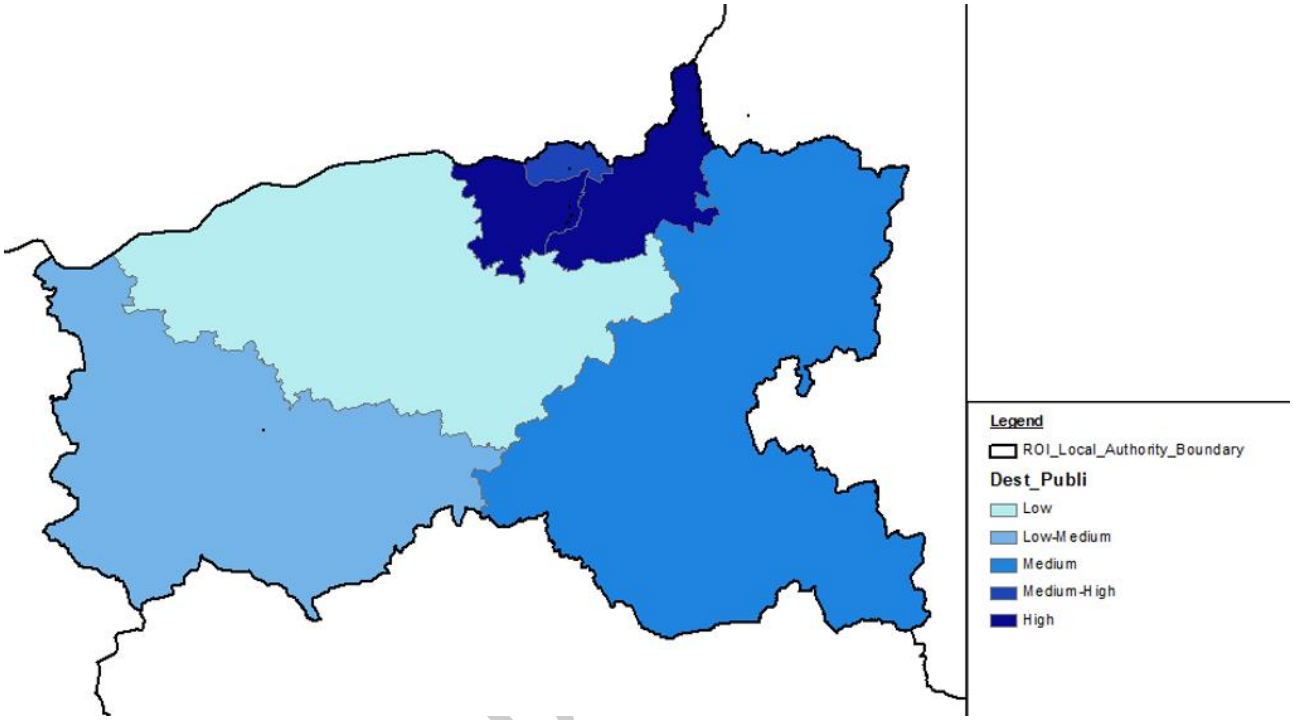


Figure 17 Destination Charge Point Demand by 2025

Table 10 Indicative Charge Point Distribution Requirements for 2025, illustrating how the power demand could be achieved through various charge points.

Area	Public Residential		Destination				
	7 kW	11 kW	7 kW	11 kW	22 kW	50 kW	100 kW
Adare-Rathkeale	3	2	7	3	3	3	3
Cappamore-Kilmallock	6	4	13	7	6	6	6
Limerick City East	8	5	17	9	8	7	7
Limerick City North	6	4	14	7	7	6	6
Limerick City West	9	6	20	10	10	8	8
Newcastle West	3	2	8	4	4	3	3
Total	58		222				

A similar activity is then undertaken to review the number of charge points required for charging in Limerick by 2030 against those same conditions.

A similar activity is then undertaken to review the number of charge points required for **public residential** charging Municipal districts in 2025 and 2030 against those same conditions.

Table 11 Indicative Charge Point Distribution Requirements for 2030 linked to how the Power could be split across Charge types.

Area	Public Residential		Destination				
	7 kW	11 kW	7 kW	11 kW	22 kW	50 kW	100 kW
Adare-Rathkeale	25	16	25	13	12	11	11
Cappamore-Kilmallock	49	31	51	26	25	22	22
Limerick City East	63	40	65	34	32	28	28
Limerick City North	51	32	52	27	25	22	22
Limerick City West	73	47	76	39	37	32	32
Newcastle West	28	18	29	15	14	12	12
Total	473		852				

A summary of the indicative and overall findings for illustrative purposes is shown below:

Table 12 Indicative Charge Point Distribution - 2030 Base Model Scenario/Consumer Transformation up to 2050

Location Type	2022	2025	2030	2035	2040	2045	2050
Home	1,098	4,085	16,559	34,077	38,867	35,886	30,994
Destination	61	222	852	1,655	1,888	1,741	1,502
Fast AC/ Slow DC	43	155	596	1,159	1,321	1,219	1,052
Fast AC/L1/L2	18	67	256	497	566	522	451
Public Residential	6	58	473	1,459	1,664	1,536	1,327
Total	1,166	4,365	17,883	37,191	42,419	39,163	33,823

These figures are purely illustrative of the type and number of charge points that may be deployed based on the power demand within the Municipal Districts.

The vast majority of these will be powered using 'Home' based chargers, that is those with access to off-street parking, and further charging supported through Business and engagement with commercial zones for Destination Charging. From a Limerick City and County perspective, they will look to support and work with relevant organisations to drive the installation public residential chargers and Destination Chargers ~~by~~ across the City and County.

A Strategic Environmental Assessment (SEA) and an Appropriate Assessment (AA) Report were undertaken to assess potential implications on next steps and deployments. The details are outlined below with a summary view being that no further screening assessment of potential significant effects of the draft LEVCS on the environment is required and that this plan does not require an AA.

ARUP

Limerick City and County Council

Limerick Electric Vehicle Charging Strategy

Strategic Environmental Assessment (SEA) Screening Report

May 2024

Strategic Environmental Assessment (SEA) Screening Report

1. Introduction

Arup in co-operation with Limerick City and County Council (referred to hereinafter as the 'LCCC') have prepared the Limerick Electric Vehicle Charging Strategy (referred to hereafter as 'the draft LEVCS'). It is understood the timeframe for the draft LEVCS is 2024-2030.

The LEVCS aims to create a strategic direction for LCCC to facilitate the deployment of Electric Vehicle (EV) charge points across the City and County.

Arup has been commissioned by the LCCC to carry out Strategic Environmental Assessment (SEA) screening of the draft LEVCS.

This report provides an analysis of the draft LEVCS and considers whether a Strategic Environmental Assessment (SEA) is required.

2. The draft LEVCS

Ireland's National Climate Action Plan 2024 includes a stated ambition that nearly 1 in 3 private cars will be an EV by 2030. This reflects activities at a European and Global level where internal combustion vehicles (ICE) will be phased out in the short to medium term. In 2022, the European Parliament and Council agreed that by 2035 all new cars and vans registered in Europe will be zero-emission. The Limerick Shannon Metropolitan Area Transport Strategy (LSMATS) recognises the shift towards sustainable mobility and Zero Emission Vehicles Ireland (ZEVI), a recently formed agency of the Department of Transport released its EV strategy for the next 3-4 years and has identified key areas of focus, including:

1. En-Route Charging;
2. Destination Charging;
3. Home Charging with off-street facility; and
4. Home Charging with no off-street facility.

LCCC, through the draft LEVCS are focused on developing an approach to assess the expected Power requirements on the network and the resulting number of Charge Points required to facilitate the uptake of EVs.

The draft LEVCS looks at identifying a pathway to Deployment linked to local, national, and international drivers in this area. The contents of the draft LEVCS include the following areas, as illustrated in Figure 18:

- International/National/Local: Assessing the Policy and International context to provide a foundation for strategic decision making.
- Demand Analysis: Using a structured approach to scenario development, undertaking a qualified and quantified data analysis to assess the projected demand and the implication on the charge point deployments.
- Fleet Transition: Assessing at a high level and against market examples, the possibilities for migration of some of the Council's vehicle assets to EV equivalents.

- Business Model Options: Presenting the range of Business model options to be considered and the impact in terms of risk and responsibilities.
- Deployment Considerations: Ensuring a tiered approach to deployment in order to ensure feasible and sustainable locations for deployment.

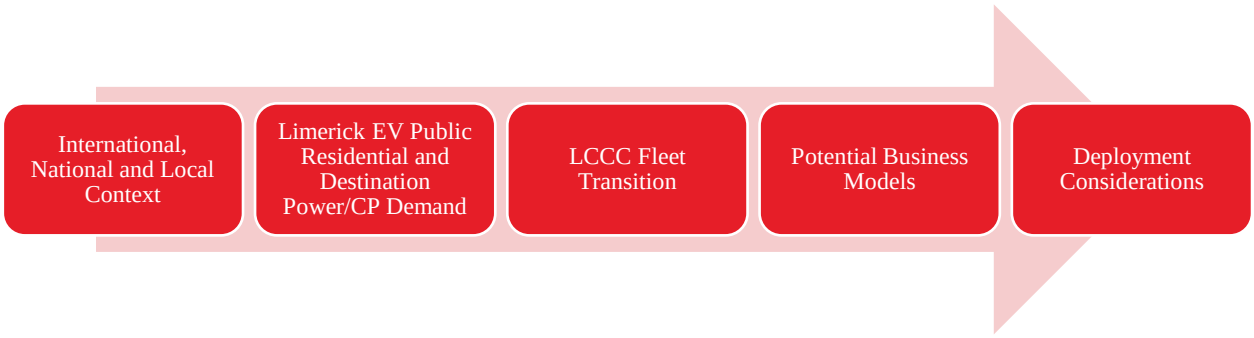


Figure 18 Considerations in Strategy development

3. Strategic Environmental Assessment

3.1 Overview

Strategic Environmental Assessment (SEA) is defined as 'the formal, systematic evaluation of the likely significant environmental effects of implementing a plan or programme before a decision is made to adopt that plan or programme.' (Department of the Environment, Community and Local Government, 2004).

The SEA process is comprised of the following steps:

- Screening: Decision on whether or not SEA of a Plan or Programme is required. This is the current stage of the SEA process to which this report relates. If it is determined that the SEA Directive applies to the Plan or Programme, then an SEA Screening assessment is carried out.

If SEA is considered to be required following Screening, the following steps are required:

- Scoping: Consultation with the defined statutory bodies on the scope and level of detail to be considered in the assessment;
- Environmental Assessment: An assessment of the likely significant impacts on the environment as a result of the Plan or Programme;
- Preparation of an Environmental Report;
- Consultation on the Plan or Programme and associated Environmental Report;
- Evaluation of the submissions and observations made on the Plan or Programme and Environmental Report; and
- Issuance of a SEA Statement identifying how environmental considerations and consultation have been integrated into the Final Plan or Programme.

This process is outlined in Figure 19.

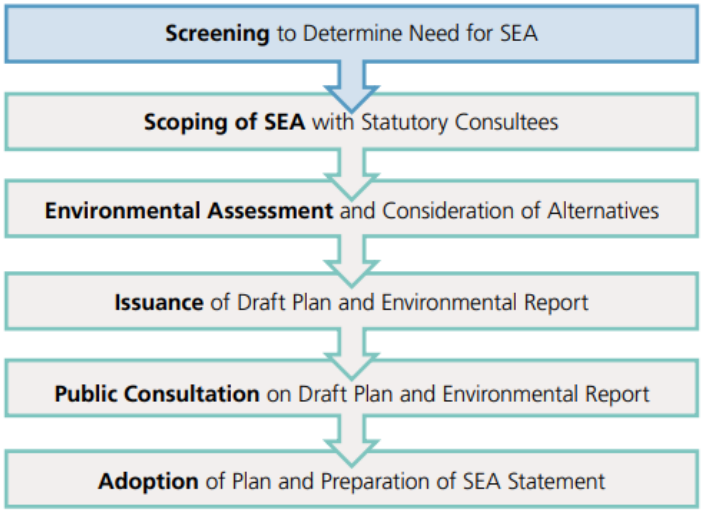


Figure 19 Screening in the overall SEA process

SEA is intended to provide the framework for influencing decision-making at an earlier stage when plans and programmes - which give rise to individual projects - are being developed. SEA should result in more sustainable development through the systematic appraisal of policy options.

4. Guidance and Legislation

4.1 Legislative Overview

The SEA Directive - Directive 2001/42/EC on the Assessment of the Effects of Certain Plans and Programmes on the Environment - requires that an environmental assessment is carried out of certain plans and programmes which are likely to have significant effects on the environment.

The objective of the SEA Directive is *'to provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans…with a view to promoting sustainable development'* (Article 1 SEA Directive 2001).

Ireland made the decision to transpose the SEA Directive into Irish law in 2004 through two separate statutory instruments or regulations, one specifically concerning specific listed town and country/land use plans (S.I. 436/2004) and one concerning all other sectors (S.I. 435/2004). The transposing regulations are as follows:

- European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations (S.I. 435/2004); and
- Planning and Development (Strategic Environmental Assessment) Regulations (S.I. 436/2004).

Both pieces of legislation were amended in 2011 through the following amendment regulations:

- European Communities (Environmental Assessment of Certain Plans and Programmes) Amendment Regulations (S.I. 200/2011); and
- Planning and Development (Strategic Environmental Assessment) Amendment Regulations (S.I. 201/2011).

The SEA Directive has also been given effect through other Irish legislation. An example being, the Planning and Development Act [PDA] 2000, as amended, which includes a specific requirement to carry out and facilitate SEA alongside the preparation of the Regional Spatial and Economic Strategies; and the Water Services Act 2007, as amended, requires that: *"The purpose for which this Act is enacted includes giving effect to so much of the following as relates to water services"* - listing specifically Directive 2001/42/EC (EPA, Good Practice Guidance on Screening, 2021).

4.2 Guidance Documents

A number of national guidance documents on SEA were reviewed in the preparation of this SEA Screening Report, including:

- Good Practice Guidance on Screening (EPA, Good Practice Guidance on Screening, 2021).
- Development of Strategic Environmental Assessment (SEA) Methodologies for Plans and Programmes in Ireland (EPA, Development of Strategic Environmental Assessment (SEA) Methodologies for Plans and Programmes in Ireland , 2013).
- Implementation of SEA Directive (2001/42/EC): Assessment of the Effects of Certain Plans and Programmes on the Environment- Guidelines for Regional Authorities and Planning Authorities (DEHLG, 2004).
- Implementation of Directive 2001/42 on the Assessment of the Effects of Certain Plans and Programmes on the Environment (European Commission, ND)
- (Draft) SEA Resource Manual for Local and Regional Planning Authorities (EPA, SEA Resource Manual for Local and Regional Planning Authorities , 2013).
- Integrating Climatic Factors into Strategic Environmental Assessment in Ireland - A Guidance Note (EPA, 2019).
- Synthesis Report on Developing a Strategic Environmental Assessment (SEA) Methodologies for Plans and Programmes In Ireland (EPA, 2019).

5. Mandatory Requirements

Under S.I. No. 435 of 2004, plans and programmes (P/P) are defined as:

"plans and programmes" means P/P, as well as any modifications to them

(a) which are subject to preparation and/or adoption by an authority at national, regional, or local level or which are prepared by an authority for adoption, through a legislative procedure by Parliament or Government, and

(b) which are required by legislative, regulatory, or administrative provisions.

Should the plan fall under the definition of 'plans and programmes', then the requirement to carry out environmental assessment is dependent on the following:

- *which are prepared for agriculture, forestry, fisheries, energy, industry, transport, waste management, water management, telecommunications, tourism and town and country planning or land use, and which set the framework for future development consent of projects listed in Annexes I and II to the Environmental Impact Assessment Directive, or*
- *which are not directly connected with or necessary to the management of a European site but, either individually or in combination with other plans, are likely to have a significant effect on any such site.*

If these triggers are met, then an assessment of potential significant effects on the environment is required to determine the need for SEA.

A wide number of European, National and Local policies and regulations have been developed that support and direct the migration to EVs, some relevant European policies, plans and regulations include:

- European Green Deal, European Commission, 2020;
- European 'Fit for 55', European Commission, 2021;
- Alternative Fuels Infrastructure Regulation, European Commission (AFIR), 2022; and
- European Union (Energy Performance of Buildings) Regulations 2021, Government of Ireland, 2021.

Relevant national policies, plans, and regulations for the development of the draft LEVCS include:

- Climate Action Plan 2024 (CAP24), Government of Ireland, 2024;
- National Sustainable Mobility Policy, Government of Ireland, 2024;
- Renewable Transport Fuel Policy, 2023-2025;
- Climate Action and Low Carbon Development (Amendment) Bill 2021, Government of Ireland, 2021;
- National Development Plan (NDP) 2021-2030, Government of Ireland, 2021;
- Shared Island Initiative Report, Government of Ireland, 2022;
- Zero Emission Vehicles Ireland, Government of Ireland, 2022;
- Electric Vehicle Charging Infrastructure Strategy 2022-2025, Department of Transport, 2023; and
- Local Authorities Electrification of Fleet and Electric Vehicle Charging Guidance, CCMA Charging EV Working Group, 2021.

At a local level, a number of pieces of work have already been undertaken that link with the deployment and growth of Electric Vehicles. These include development of:

- Limerick 2030 Vision: An Economic and Spatial Plan for Limerick (LCCC, 2014);
- Limerick City and County Council Draft Local Authority Climate Action Plan 2024-2029;
- Limerick Development Plan 2022-2028 (LCCC, 2022);
- Colbert Quarter (Land Development Agency, 2022);
- Living Georgian City Laneways Demonstration Project (LCCC, 2020);
- Limerick Public Realm Strategy (LCCC, 2022);
- Limerick Shannon Metropolitan Area Transport Strategy (LSMATS) (National Transport Authority (NTA), 2022);
- Regional Spatial & Economic Strategy for the Southern Region (Southern Regional Assembly (SRA), 2020); and
- Limerick Shannon Metropolitan Area Strategic Plan (SRA, 2020).

Across the various Plans and Strategic perspectives, the importance of facilitating the migration to EV is highlighted, both in terms of the importance at a local level but also in aligning with the National activities in Limerick.

The CAP24 includes two Actions under the Measure 'EV Charging Infrastructure Strategy and ZEVI work programme', including:

Action TR/24/21 – Ongoing delivery of Destination Charge Point Scheme – including sports clubs and community facilities.

- Steps Necessary for Delivery of this Action:
  - Phased delivery of infrastructure across 2024 and 2025, including site selection, procurement of contractors and delivery of charging points for both Shared Island and Just Transition Fund supported schemes.
- Output:
  - Support provided for the delivery of c.150 charging points by 2025.

Action TR/24/22 - Roll out of key elements of EV Infrastructure Strategy.

- Steps Necessary for Delivery of this Action:
  - Progress enabling and grid connection works to support achievement of AFIR requirements, including en route high-powered network schemes, a national destination and neighbourhood EV charging Plan and Local Authority EV network plans.
- Outputs:
  - National Destination and Neighbourhood EV Charging Network Plan;
  - En-route scheme launched, and funding awarded for up to 170 high- powered chargers on motorway network;
  - En-route scheme launched for up to 200 chargers on the single-carriageway network; and
  - LA EV infrastructure strategies completed and published with rollout provided for LAs ready to go in 2024.

6. Assessment of applicability of SEA process

This section provides an assessment of the applicability of the SEA process based on the decision tree provided by the EPA in Guidance "Good Practice Guidance on SEA Screening"[1] (EPA, 2021). With this analysis it can be identified whether the plan is included in the SEA Directive or whether it does not require an SEA.

This assessment takes into account the information presented in Sections 2-5 in determining the SEA requirement of the draft LEVCS.

Table 13 SEA Applicability

APPLICABILITY	
Section 1: General Details and Key Information about the Plan or Programme	
Name of P/P Maker:	LCCC
Title of P/P:	Draft LEVCS
Type of Plan:	Local Authority Strategy for Electric Vehicle Charging Infrastructure

[1] EPA (2021) Good Practice Guidance on Screening. Available at: Strategic Environmental Assessment | Environmental Protection Agency (epa.ie)

APPLICABILITY	
Date:	2024-2030

Background and Context of the P/P

The draft LEVCS was developed to create a strategic direction for Limerick City and County Council to facilitate the deployment of Electric Vehicle charge points across the City and County.

Purpose of the P/P

Ireland's CAP24 has a stated ambition that nearly 1 in 3 private cars will be an electric vehicle by 2030. This reflects activities at a European and Global level where internal combustion vehicles (ICE) will be phased out in the short to medium term. In 2022 the European Parliament and Council agreed that by 2035 all new cars and vans registered in Europe will be zero-emission. The LSMATS recognises the shift towards sustainable mobility and ZEVI released its EV strategy for the next 3-4 years and has identified key areas of focus, including:

- En-Route Charging;
- Destination Charging;
- Home Charging with off-street facility; and
- Home Charging with no off-street facility.

In developing the draft LEVCS, LCCC is focused on developing an approach to assess the expected power requirements on the network and the resulting number of charge points required to facilitate the update of EVs. In particular, the draft LEVSC looks at identifying a pathway to deployment linked to local, national, and international drivers in this area.

Geographical Area Covered by the P/P

The geographical area covered by the draft LEVCS is County Limerick, which is located in the south-west of Ireland.

Content of the P/P

The contents of the draft LEVCS includes the following areas:

- **International/National/Local Policy, Regulation and Legislation** – Assessing the Policy and International context to provide a foundation for strategic decision making;
- **Demand Analysis** – Using a structured approach to scenario development, undertaking a qualified and quantified data analysis to assess the projected demand and the implication on the charge point deployments;
- **Fleet Transition** – Assessing at a high level and against market examples, the possibilities for migration of some of the Council's vehicle assets to EV equivalents;
- **Business Model Options** – Presenting the range of Business model options to be considered and the impact in terms of risk and responsibilities; and
- **Deployment Considerations -** Ensuring a tiered approach to deployment in order to ensure feasible and sustainable locations for deployment.

Section 2: Status of the P/P Maker	
• Is the P/P prepared and/or adopted by an authority at national, regional, or local level or prepared by an authority for adoption through a legislative procedure by Parliament or Government? – *Clarify who will prepare the P/P, if they are affiliated to any authority and if the P/P will be adopted through any legislative provision.*	Yes. A competent authority for the purpose of SEA is defined under S.I. No. 435 of 2004 as *'the authority which is, or the authorities which are jointly, responsible for the preparation of a plan or programme, or modification to a plan or programme'.* The draft LEVCS has been prepared by Arup in co-operation with LCCC, LCCC is an authority at local level for County Limerick.
• Is the P/P required by legislative, regulatory, or administrative provisions? – *Provide information on any legislative, regulatory, or administrative requirements. This criterion also includes P/P required to deliver administrative functions of an authority e.g., Dublin Port Company Masterplan.*	The draft LEVCS has been framed within the context of multiple EU, national, regional, and local plans, policies, and regulations. In particular, the CAP24 includes two Actions under the Measure 'EV Charging Infrastructure Strategy and ZEVI work programme'. Both include 'Steps Necessary for Delivery' and 'Outputs' of each Action, listed as follows: • **Action TR/24/21 – Ongoing delivery of Destination Charge Point Scheme – including sports clubs and community facilities.** Steps Necessary for Delivery: – Phased delivery of infrastructure across 2024 and 2025, including site selection, procurement of contractors and delivery of charging points for both Shared Island and Just Transition Fund supported schemes.

APPLICABILITY	
	Output: – Support provided for the delivery of c.150 charging points by 2025. • **Action TR/24/22 - Roll out of key elements of EV Infrastructure Strategy.** Steps Necessary for Delivery: – Progress enabling and grid connection works to support achievement of AFIR requirements, including en route high-powered network schemes, a national destination and neighbourhood EV charging Plan and Local Authority EV network plans. Outputs: – National Destination and Neighbourhood EV Charging Network Plan; – En-route scheme launched, and funding awarded for up to 170 high- powered chargers on motorway network; – En-route scheme launched for up to 200 chargers on the single-carriageway network; and – LA EV infrastructure strategies completed and published with rollout provided for LAs ready to go in 2024. The CAP 24 is a statutory Plan and thus, it is considered that the P/P is required by legislative provisions.
Section 3: Nature of the P/P	
• Is the P/P prepared for agriculture, forestry, fisheries, energy, industry, transport, waste management, water management, telecommunications, tourism, town and country planning or land use? – *Clarify if the P/P falls under any of these categories. This should be considered broadly such that. Energy may be interpreted to include grid, petroleum industry, electricity, renewables.*	Yes. The draft LEVCS is a plan for the transport and energy sectors.
• Does the P/P provide a framework for the development consent for projects listed in the EIA Directive? – *This is a fundamental question in the applicability stage. The interpretation of this statement should include any P/P which includes full or partial rules, limits or other criteria that would be used in development management; P/P that set legal requirements or are binding rules; P/P that have goals or targets; P/P that commence the process of optioneering for locations or technology or modes etc.* – *If there is any doubt regarding the applicability of this statement, the P/P should move forward to Stage 2 and consideration of screening criteria.*	No. According to the European Commission 'Guidance on the implementation of Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment,' this would "normally mean that the plan or programme contains criteria or conditions which guide the way the consenting authority decides an application for development consent. Such criteria could place limits on the type of activity or development which is to be permitted in a given area; or they could contain conditions which must be met by the applicant if permission is to be granted; or they could be designed to preserve certain characteristics of the area concerned (such as the mixture of land uses which promotes the economic vitality of the area)." Projects arising from the draft LEVCS are not considered to have potential to provide a framework for the development consent for projects listed in the EIA Directive. The nature of the construction works will involve standard routine construction methodologies, that are not complex in nature. Groundwork will tie into existing infrastructure and occur in the existing urban environments. Construction will also be short-term and small scale. Refer to AA Screening for further details. For example, development potential within the draft LEVCS relates to EV charging infrastructure in Co. Limerick. The types of charge points under consideration in the draft LEVCS include: 1. Home charge points: Charge points associated with off-street parking/driveways (detached and semi-detached bungalows and houses).

APPLICABILITY	
	The home location is typically associated with 3 kilowatt (kW) and 7kW longer). 3kW chargers are easy to 'install' whereas 7kW chargers need a dedicated charge plug-in point (commonly observed with new builds). 2. Destination charge points: Charge points associated with attractions, such as supermarkets, shopping centres and work. The installation of charging points at destinations will allow people to charge their vehicles while out of home. Charger ratings will typically range between 7kW and 150kW, with dwell times expected to be between 1 hour and 8 hours, dependant on the attraction. 3. Public Residential charge points: Charge points associated with on-street deployment or similar, meeting the needs for those who cannot charge at home due to limited off-street parking access. This will provide access to charging point to people without one at home. These charge points are likely to be a mix of slow/medium typically but depend on the type of capacity available and will include higher ones such as 50kW DC where needed. Examples of these charge points would include typical charge point infrastructure as well as the potential for the use of innovative solutions linked to lighting and other options. All would require dedicated EV bays on-street or in car parks close to residential housing. 4. En-Route charge points: The provision of high-powered public charging points on the key national road network will enable motorists to fast-charge their vehicles at locations such as service stations etc. Chargers that are Ultra-fast and above are the closest charging equivalent to the ICE vehicle petrol/diesel refuelling. These charge points are most appropriately placed at fuel courts and service stations in close proximity to the Strategic Road Network (SRN)/Highway. Dwelling times are expected to be less than 1 hour. rated charge points due to the long dwell times overnight (10 hours or Ultimately, it is determined that the draft LEVCS does not define criteria or conditions which would guide the way a consenting authority determines an application for development consent of projects listed in the EIA Directive. Therefore, any potential development arising from the draft LEVCS is not considered to have potential to provide a framework for the development consent for projects listed in the EIA Directive
• Is the P/P likely to have a significant effect on a Natura 2000 site which leads to a requirement for Article 6 or 7 assessments?	No. The draft LEVCS is not considered to have the potential to significantly effect a Natura 2000 site. Refer to AA Screening for further information.
Section 4: Exemptions	
• Is the sole purpose of the P/P to serve national defence or civil emergency or is it a financial/budget P/P or is it co-financed by the current SF/RDF programme? – *Clarify if the P/P relates to any of the exemptions. If it is of this type, no SEA is required.*	No. The draft LEVCS has been developed to create a strategic direction for LCCC to facilitate the deployment of Electric Vehicle charge points across the City and County.
Section 5: Conclusions	
• Summarise the relevant information informing the assessment and the main reasons the P/P does or does not fall within the scope of the SEA Directive. • <u>Does fall within scope:</u>	In summary, the draft LEVCS: • Is being developed by LCCC, a LA for County Limerick; • Is considered as having potential to be required by legislative provisions;

APPLICABILITY	
1. The plan does apply to one or more of the sectors in the SEA Directive and does provide a framework for development consent of projects requiring EIA AND/OR The plan is likely to have a significant effect on a Natura 2000 site and, therefore, requires an assessment under Article 6(3) of the Habitats Directive. SEA is therefore required. 2. There is uncertainty about the nature of the P/P and whether it may give rise to significant effects on the environment. The plan cannot be screened out for SEA or AA and requires a more detailed screening assessment. • Does NOT fall within scope: 3. The plan does not apply to any of the sectors in the SEA Directive and does not provide a framework for development consent of projects requiring EIA, AND The plan is not likely to have a significant effect on a Natura 2000 site and therefore does not require an assessment under Article 6(3) of the Habitats Directive. SEA is therefore not required. • For outcome 1 the plan maker should advise that they will move forward to SEA scoping. For outcome 2 the P/P should move to Stage 2 Screening. For outcome 3 the applicability template should be completed and kept on file.	• Is a plan for the transport sector; • The draft LEVCS is found to apply to one or more of the sectors in the SEA Directive, however, is not considered to set a framework for development consent for projects listed in the EIA Directive; and • The draft LEVCS is not considered to have the potential to significantly effect a Natura 2000 site. On this basis, no further screening assessment of potential significant effects of the draft LEVCS on the environment is required. The applicability template should be kept on file.

7. Conclusion

As previously discussed, the draft LEVCS was developed to create a strategic direction for LCCC to facilitate the deployment of EV charge points across the City and County.

In developing the draft Strategy, LCCC is focused on developing an approach to assess the expected Power requirements on the network and the resulting number of Charge Points required to facilitate the update of EVs. In particular, the draft LEVCS looks at identifying a pathway to Deployment linked to local, national, and international drivers in this area.

This section summarises the conclusions of the applicability of the SEA process based on the decision tree provided by the EPA in Guidance “Good Practice Guidance on SEA Screening”:

- The draft LEVCS has been prepared by Arup in co-operation with LCCC, LCCC is the LA for the County Limerick;
- It is considered that the P/P is required by legislative provisions;
- The draft LEVCS is a P/P for the transport and energy sectors;
- The draft LEVCS applies to one or more of the sectors in the SEA Directive, however, is not considered to set a framework for development consent for projects listed in the EIA Directive; and
- The draft LEVCS is not considered to have the potential to significantly effect a Natura 2000 site. Refer to AA Screening for further information.

On this basis, no further screening assessment of potential significant effects of the draft LEVCS on the environment is required.

It is considered that the draft LEVCS does not require SEA. Under Section 9 of S.I. No. 435/2004 as amended, as soon as practicable after making a SEA determination, the competent authority shall make a copy of its decision, including, as appropriate, the reasons for not requiring an environmental assessment, available for public inspection at the offices of the competent authority during office hours, and notify its decision to the EPA.

8. References

EPA. (2003). Synthesis Report on Developing A Strategic Environmental Assessment (SEA) Methodologies for Plans and Programmes In Ireland. EPA.

EPA. (2013). Development of Strategic Environmental Assessment (SEA) Methodologies for Plans and Programmes in Ireland. EPA.

EPA. (2013). SEA Resource Manual for Local and Regional Planning Authorities. EPA.

EPA. (2021). Good Practice Guidance on Screening. Environmental Protection Agency, Ireland.

EPA. (2021). Good Practice Guidance on SEA Screening. EPA.

Scott, P. M. (2001). Development of Strategic Environmental Assessment (SEA) Methodologies for Plans and Programmes in Ireland. EPA.

ARUP

Limerick City and County Council

Limerick Electric Vehicle Charging Strategy

AA Screening Report

May 2024

AA Screening Report

1. Introduction

1.1 Overview

This Appropriate Assessment (AA) Screening report has been prepared by Ove Arup and Partners Ireland Ltd (Arup) on behalf of Limerick City and County Council (LCCC) in connection with the draft Limerick Electric Vehicle Charging Strategy (LEVCS), hereafter referred to as the 'draft Plan.'

Article 6(3) of the Habitats Directive requires that any plan or project, which is not directly connected with, or necessary to the management of a European site, but would be likely to have a significant effect, either alone or in-combination with other plans or projects, should be subject to an AA.

1.2 Report Aim

This AA Screening report has been prepared to provide information for the 'public authority' regarding the potential for 'Likely Significant Effects' (LSE) of the draft Plan, on European sites within the Zone of Influence (ZoI) of the draft Plan.

The draft Plan covers LCCC to facilitate the strategic direction for the deployment of electric vehicle charge points across the city and county.

1.3 Limerick Electric Vehicle Charging Strategy Background

Ireland's National Climate Action Plan has a stated ambition that nearly 1 in 3 private cars will be an electric vehicle by 2030. This reflects activities at a European and global level where internal combustion vehicles (ICE) will be phased out in the short to medium term. In 2022 the European Parliament and European Council agreed that by 2035, all new cars and vans registered in Europe will be zero-emission. The Limerick Shannon Metropolitan Area Transport Strategy (LSMATS) recognises the shift towards sustainable mobility and Zero Emission Vehicles Ireland (ZEVI), a recently formed agency of the Department of Transport released its EV strategy. LCCC is focused on developing an approach to assess shift towards sustainable mobility.

1.4 Legislative Context

The Habitats Directive on the conservation of natural habitats and wild fauna and flora (92/43/EEC) (the 'Habitats Directive' provides the legal protection for habitats and species, with Articles 3 to 9 providing legislation protection to the EU wide network of sites known as the Natura 2000 site network. Natura 2000 is a network of protected sites which comprises Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) (referred to as European sites within this report). SACs are protected sites designated under the Habitats Directive. They are high quality sites that contribute significantly to the conservation of a large range of habitats and species.

Articles 6(3) and 6(4) of the Habitats Directive set out the decision-making tests for plans and projects likely to affect European sites. Article 6(3) establishes the requirement for AA whilst Article 6(4) sets out the Alternative Solutions, Imperative Reasons of Overriding Public Interest (IROPI) and compensatory measures where Likely Significant Effects (LSE) on European sites cannot be excluded.

The Habitats Directive has been transposed into Irish law by the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011) (as amended), and by Part XAB of the Planning and Development Act, 2000 (as amended). In the context of the draft Plan, the governing legislation is principally the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No 477/2011) as amended by S.I. 293/2021 (hereafter referred to as the Habitats Regulations).

1.5 Relationship with the Strategic Environmentalist Assessment (SEA) Directive

In the preparation of this AA Screening report, the approach has been conducted in parallel with the requirements of the Strategic Environmentalist Assessment (SEA) Directive process (2001/42/EC as transposed into Irish law). Article 3.2(b) of the SEA Directive expressly links to AA. The SEA process requires that an environmental report be prepared to accompany a draft plan for public consultation. Following the consultation period, the plan may be finalised in its issue form. To facilitate an informed assessment under both processes, it is necessary to consider both the draft and final versions of the plan.

1.6 Requirement for this Report

The Draft National En-Route Electric Vehicle Charging Network Plan (NEEVCNP) states that all future EV Charging plans and/or projects are to subject to Screening for AA. Pursuant to Regulation 42A of the Birds and Natural Habitats Regulations (as amended), prior to the adoption of a plan and/or project, a Screening for AA must be carried out to establish the potential for likely significant effects. This report fulfils that requirement.

1.7 Report Structure

The report is structured below:

- Section 2 provides an overview of the draft Plan;
- Section 3 outlines the AA process and provides important definitions;
- Section 4 outlines the guidance, data and methodology used to inform the assessment;
- Section 5 sets out the European sites under consideration;
- Section 6 details the assessment for effects and screening; and
- Section 7 provides a summary and conclusion.

2. The Draft Plan

2.1 Overview

LCCC, through the draft Plan, is focused on developing an approach to assess the expected power requirements on the electric vehicle charging network and the resulting number of charge points required to facilitate the update of EVs.

The draft Plan aims to identify pathways to deployment linked to local, national, and international drivers within the defined area of the draft Plan. The contents of the draft Plan include the following and defined in Figure 20:

- **International/National/Local**: Assessing the Policy and International context to provide a foundation for strategic decision making.
- **Demand Analysis**: Using a structured approach to scenario development, undertaking a qualified and quantified data analysis to assess the projected demand and the implication on the charge point deployments.
- **Fleet Transition**: Assessing at a high level and against market examples, the possibilities for migration of some of the Council's vehicle assets to EV equivalents.

- **Business Model Options**: Presenting the range of Business model options to be considered and the impact in terms of risk and responsibilities; and
- **Deployment Considerations**: Ensuring a tiered approach to deployment in order to ensure feasible and sustainable locations for deployment.

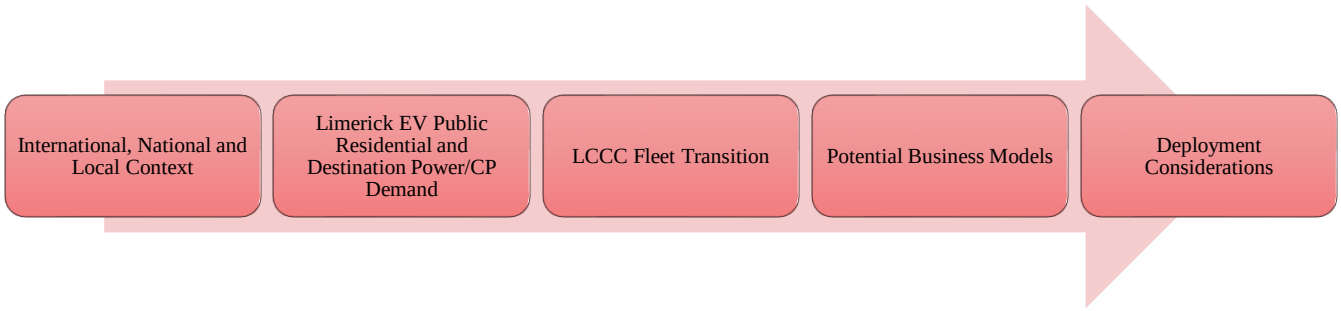


Figure 20 Considerations in Strategy Development

2.2 Draft Plan Objectives

Within the draft Plan a total of four elements have been identified which could be considered as objectives. These are not clearly identified as a discrete set of objectives however, given that the wording within the draft Plan for the potential for development it has been determined that an AA screening is required. All other material in the plan is introductory, expositional in nature or is non-relevant technical detail such as modelling and analysis of need. These objectives are given sequential numbering in this report, but this is solely for the purposes of this assessment.

2.2.1 Components of Draft Plan Objectives

Of the four elements identified as objectives within the draft Plan, Objective 1 is designed to result in the physical development of charging points at 13 locations. Physical development is assumed to contain relevant construction works to facilitate Objective 1's delivery. Construction will be short-term and localised. In addition, ground works will tie into existing infrastructure.

Objectives 2, 3 and 4 relate to the collation of data, information and production of relevant implementation plan, assessments, and reviews of existing infrastructure. The delivery of these objectives will be carried out through desktop study and communications between relevant stakeholders.

2.3 Timeframe

It is understood the timeframe for the draft Plan is 2024-2030.

2.4 Geographic Area

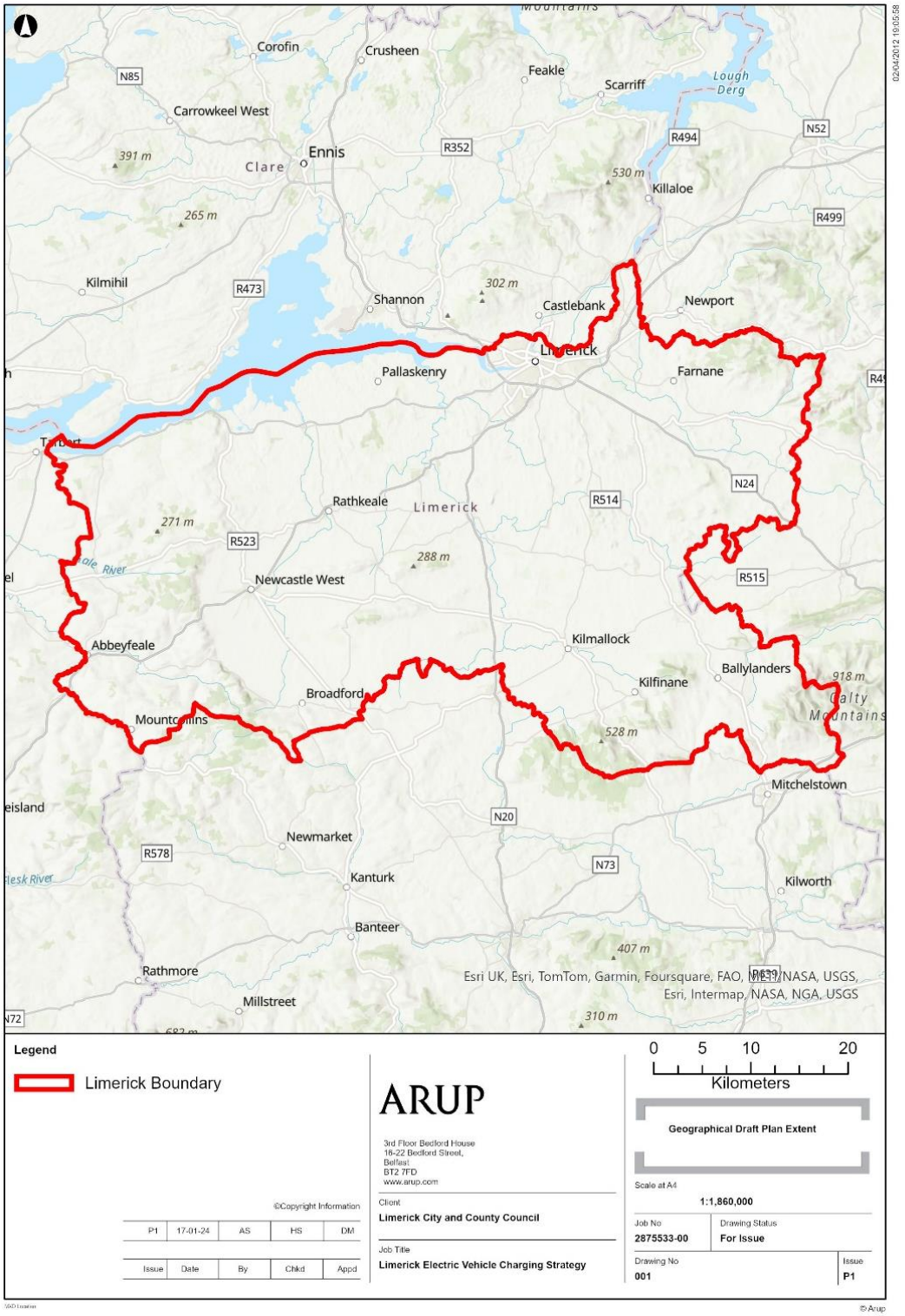


Figure 21 Draft plan geographical extent

The draft Plan covers Limerick City and County. This boundary is shown in below Figure 21.

3. Appropriate Assessment Process

3.1 Appropriate Assessment Stages

The AA process involves a number of steps and tests that need to be applied in sequential order.

An important aspect of the process is that the outcome at each successive stage determines whether a further stage in the process is required. First of all, a plan or project must be screened to identify whether the potential for likely significant effects on a European site(s) exists. If that possibility cannot be excluded, an Appropriate Assessment is to be undertaken prior to any consent being granted. Consent shall not be granted if it cannot be concluded that there will be no adverse effects on the integrity of European sites. Article 6(4) allows for consent to be granted in particular and exceptional circumstances, even if adverse effects may arise.

Screening for AA, for which this report provides the relevant information, is the first step in this process. This is required to establish, on the basis of objective information, whether the draft Plan, individually or in-combination with other plans or projects, has the potential for LSE on a European site.

The Screening for AA must include a final determination by the public authority as to whether or not a proposed plan/project would adversely affect the integrity of a European site. In order to reach a final determination, the public authority must undertake examination, analysis and evaluation, followed by findings, conclusions, and a final determination.

3.2 Definitions

3.2.1 European Sites

European sites, as defined under the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. 477/2011) (as amended) are part of the Natura 2000 network and include those designated as SACs, candidate SACs (cSACs), SPAs or proposed SPAs (pSPAs). These are sometimes referred to as Natura 2000 sites.

SACs are selected for the conservation of Annex I[2] habitats (including priority types which are in danger of disappearance) and Annex II[3] species (other than birds).

SPAs are selected for the conservation of Annex I birds and all migratory birds and their habitats.

The Annex habitats and species, for which each site is selected, are termed the Qualifying Interests (QI) for SACs and termed Special Conservation Interests (SCI) for SPAs of each site.

3.2.2 Conservation Objective

Conservation Objectives (COs) for the European sites are defined for the relevant QIs and SCIs. In its most general sense, a CO is the specification of the overall target for the species and/or habitat types for which a site is designated in order for it to contribute to maintaining or reaching favourable conservation status[4].

3.2.3 Source-Pathway-Receptor Model

The Source-Pathway-Receptor model is used to assess where a potential effect may result by examining the source, its pathway, and the receptor. As per guidance from the OPR[5] these can be defined as follows:

- **Source**: The origin of a potential effect which may include characteristics of a plan or project that have the potential to result in effects e.g., direct impacts such as loss of habitat;

[2] Annex I habitats are habitats shoes conservation requires the designation of Special Areas of Conservation
[3] Annex II species are animal and plant species whose conservation requires the designation of Special Areas of Conservation
[4] Commission Note on Setting Conservation Objectives for Natura 2000 Sites (November 2012) European Commission, Doc. Hab.12-04/06. Accessed at: http://ec.europa.eu/environment/nature/natura2000/management/docs/commission_note/commission_note2_EN.pdf
[5] OPR (2021) Appropriate Assessment Screening for Development Management. OPR Practice Note PN01

- **Pathway**: How the potential effect may occur on the source. These are identifiable through linkages that may occur through the plan or project and European sites e.g., direct pathways such as physical proximity, hydrological connections, or indirect pathways such as disturbance to migrating species; and
- **Receptor**: The European site network and respective QIs/SCIs, their ecological condition, and sensitivities e.g., freshwater pearl mussel is sensitive to siltation in water.

3.2.4 Zone of Influence

A Zone of Influence (ZoI) within any assessment of projects and/or plans considers the area over which ecological features may be affected by biophysical changes as a result of the proposed plan/project and associated activities.

4. Methodology

4.1 Guidance

The following guidance was used in carrying out the Assessment:

- Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities (Department of Environment, Heritage and Local Government, 2010 revision);
- Appropriate Assessment under Article 6 of the Habitats Directive; Guidance for Planning Authorities. Circular National Parks and Wildlife Service (NPWS) 1/10 and PSSP 2/10;
- Assessment of plans and projects in relation to Natura 2000 Sites: Methodical guidance on Article 6(3) and (4) of the Habitats Directive 92/43/EEC (European Commission Environment Directorate-General, 2021);
- Communication from the Commission on the precautionary principle. European Commission (2000);
- Guidance Document on Article 6(4) of the Habitats Directive 92/43/EEC (European Commission, 2007);
- Guidelines for Good Practice Appropriate Assessment of Plans under Article 6(3) Habitats Directive (International Workshop on Assessment of Plans under the Habitats Directive, 2011);
- Managing Natura 2000 Sites: The Provision of Article 6 of the Habitats Directive 92/43/EEC (EC Environment Directorate-General, 2019);
- Office of the Planning Regulator Practice Note PN01 - Appropriate Assessment Screening for Development Management (OPR, 2021); and
- Strict Protection of Animal Species Guidance for Public authorities on the Application of Articles 12 and 16 of the EU Habitats Directive to development/works undertaken by or on behalf of a Public authority (NPWS 2021);

The requirements for Screening for AA, and AA, for European sites, are set out in Regulation 42A of the European Communities (Birds and Natural Habitats) Regulations, with numerous relevant rulings and opinions issues in both Irish and EU courts. AA is a process required under Article 6(3) of the EU Habitats Directive as transposed by the aforementioned Regulations as stated within Section 1.4.

4.2 Data Sources

The ecological data reviewed to inform this report comprises:

- Environmental Protection Agency (EPA) Map Viewer[6];
- Birds Directive Article 12 web tool[7];
- NPWS (2023) Conservation Objectives Series[8];
- NPWS (2023) SAC and SPA Datasheets[9];
- NPWS Designations web viewer[10];
- NPWS Protected Sites in Ireland[11];
- NPWS The Status of EU Protected Habitats and Species in Ireland Web Viewer[12];
- The Status of EU Protected Habitats and Species in Ireland. Volume 1: Summary Overview. Unpublished NPWS report[13]. NPWS (2019);
- The Status of EU Protected Habitats and Species in Ireland. Volume 2: Habitat Assessments. Unpublished NPWS report[14]. Edited by: Deirdre Lynn and Fionnuala O'Neil. NPWS (2019); and
- The Status of EU Protected Habitats and Species in Ireland. Volume 3: Species Assessments. Unpublished NPWS report[15] (2019). Edited by: Deirdre Lynn and Fionnuala O'Neill (2020).

4.3 Methodology

In line with the relevant guidance and case law, this stage of the AA consists of the below steps:

1. **Impact Prediction:** Identify the aspects of the draft Plan likely to affect the COs of European sites. The more general classification of impacts can include direct and indirect effects; short and long-term effects; construction, operational and decommissioning effects; and isolated, interactive and cumulative effects. A Source-Pathway-Receptor model has been used to identify the zone of influence. This also includes transboundary considerations.
2. **Assessment of Effects:** The actions of the draft Plan are assessed as to whether they are likely to result in adverse effects on the integrity of European sites. This requires understanding of relevant QIs/SCIs and associated COs.

[6] EPA Map Viewer accessed at https://gis.epa.ie/EPAMaps/ accessed December 2023
[7] Article 12 of the Birds Directive Web tool accessed at https://nature-art12.eionet.europa.eu/article12/ accessed November 2023
[8] NPWS Conservation objectives accessed at Conservation Objectives | National Parks & Wildlife Service (npws.ie) accessed January 2024
[9] NPWS SAC and SPA Datasheets accessed at https://www.npws.ie/maps-and-data/designated-site-data/sac-and-spa-datasheets-downloads accessed December 2023
[10] NPWS Designations web viewer accessed at https://dahg.maps.arcgis.com/apps/webappviewer/index.html?id=8f7060450de3485fa1c1085536d477ba accessed December 2023
[11] NPWS Protected sites accessed at https://www.npws.ie/protected-sites accessed December 2023
[12] NPWS The Status of EU Protected Habitats and Species in Ireland web viewer accessed at https://storymaps.arcgis.com/collections/1a721520030d404f899d658d5b6e159a accessed December 2023
[13] The Status of EU Protected Habitats and Species in Ireland: Volume 1 Summary Overview accessed at https://www.npws.ie/sites/default/files/publications/pdf/NPWS_2019_Vol1_Summary_Article17.pdf September 2023
[14] The Status of EU Protected Habitats and Species in Ireland. Volume 2: Habitat Assessments. Unpublished NPWS report https://www.npws.ie/sites/default/files/publications/pdf/NPWS_2019_Vol2_Habitats_Article17.pdf September 2023
[15] The Status of EU Protected Habitats and Species in Ireland. Volume 3: Species Assessments. Unpublished NPWS report accessed at https://www.npws.ie/sites/default/files/publications/pdf/NPWS_2019_Vol3_Species_Article17.pdf September 2023

4.3.1 Impact Prediction: Identifying the Zone of Influence

The ZoI is established using the source-pathway-receptor framework and takes into consideration the national scale of the draft Plan. A source-pathway-receptor model should be applied to individual ecological receptors on a case-by-case basis rather than applying a one-size fits-all buffer distance. For example, there is the potential that a QI of a European site (e.g., freshwater species) could be adversely affected by changes in water quality of distances significant distances away from the source and conversely the scale and location of plan boundary might mean that potential for effects may be of significantly less distance than the indicative 15km suggested in the Department's 2010 Guidance[16]which recognises that pathways may travel more than the 15km suggested.

The principle for establishing ZoI, as outlined in the 2021 OPR Practice Note PN01[5], applies equally to a plan level AA and so the source-pathway-receptor model has been used in this report.

5. European Sites Under Consideration

5.1 European Site Network

The European site network as stated in Section 3 is the network of protected sites in Ireland. There are 441 SACs and 167 SPAs (inclusive of proposed SPAs) sites in the Republic of Ireland.

Six SPAs and 13 SACs are located within County Limerick. The QIs and SCIs of each site is protected by a suite of COs. COs can be accessed on www.npws.ie and have been considered as part of the screening process, but for the purposes of brevity, these have not been reproduced.

5.2 Source: Draft Plan Proposals

The draft Plan focuses on developing an approach to assess the expected power requirements on the network and the resulting number of charge points required to facilitate the update of EVs. As previously mentioned in Section 2.2 there were four Objectives identified within the 'Next Steps' section of the draft Plan. These are listed as follows:

1. Deployment of pilot sites to develop in-house knowledge of the range of requirements and performance optimisation needed for EV deployment;
2. Creation of a detailed implementation plan to support a detailed, data driven analysis of location of charge points particularly in the city but also within the other towns identified;
3. Undertake the assessment for installation of the EV charge points; and
4. Review the procurement and contractual route for EV acquisition.

In consideration of the nature of the works that would be required to fulfil Objectives 2, 3 and 4, it has been determined that these are largely desk-based activities with no potential for any on-site works. The source for effect associated with these is therefore considered to be negligible given the desk-based nature of associated actions.

However, in consideration of Objective 1, it is deemed to require physical development at 13 locations for the deployment of pilot EV charging points. The 13 locations have been included within Section 12.1 of the draft Plan. These locations are shown in Appendix B.1.

[16] Department of Environment, Heritage and Local Government (DEHLG) (2010) Appropriate Assessment of Plans and Projects in Ireland Guidance for Planning Authorities.

5.3 Pathway: Potential Pathways for Effect

The key potential pathways for effect on European sites include:

- **Water pollution** – direct impacts from contaminated run-off or accidental spills which have the potential to lead to direct mortality of flora or fauna for which the EU site is designated or cascading up trophic levels to qualifying features. Mortality rates are dependent on the QIs of the receiving site and the volume of material.
- **Noise and vibration** – direct disturbance to species for which the site is designated. This may lead to a reduction in area which species are able to utilise, or the abandonment of nests in the case of breeding birds. Disturbance may also indirectly lead to higher mortality or reduced breeding success if species are spending more time foraging or unable to gather higher quality food for themselves or for young. Noise and vibration disturbance also has potential to impact fish migration and movement.

The potential pathways are limited to the construction phase which will be temporary in nature.

5.4 Receptors: European Sites under Consideration

The EU sites under consideration for the draft Plan have been assessed through the likelihood for LSE through construction activities as a result of Objective 1 and via the pathways identified i.e., potential water pollution and/or temporary noise and vibration. Due to the nature of the source and pathways this limits the ZoI to EU sites in direct proximity to the 13 locations for which EV charging points will be installed. The ZoI of the draft Plan has been established through the consideration of the source-pathway-receptor method. Lists of the EU sites under consideration with their associated QIs and SCIs can be found in A.2, A.3 and A.4.

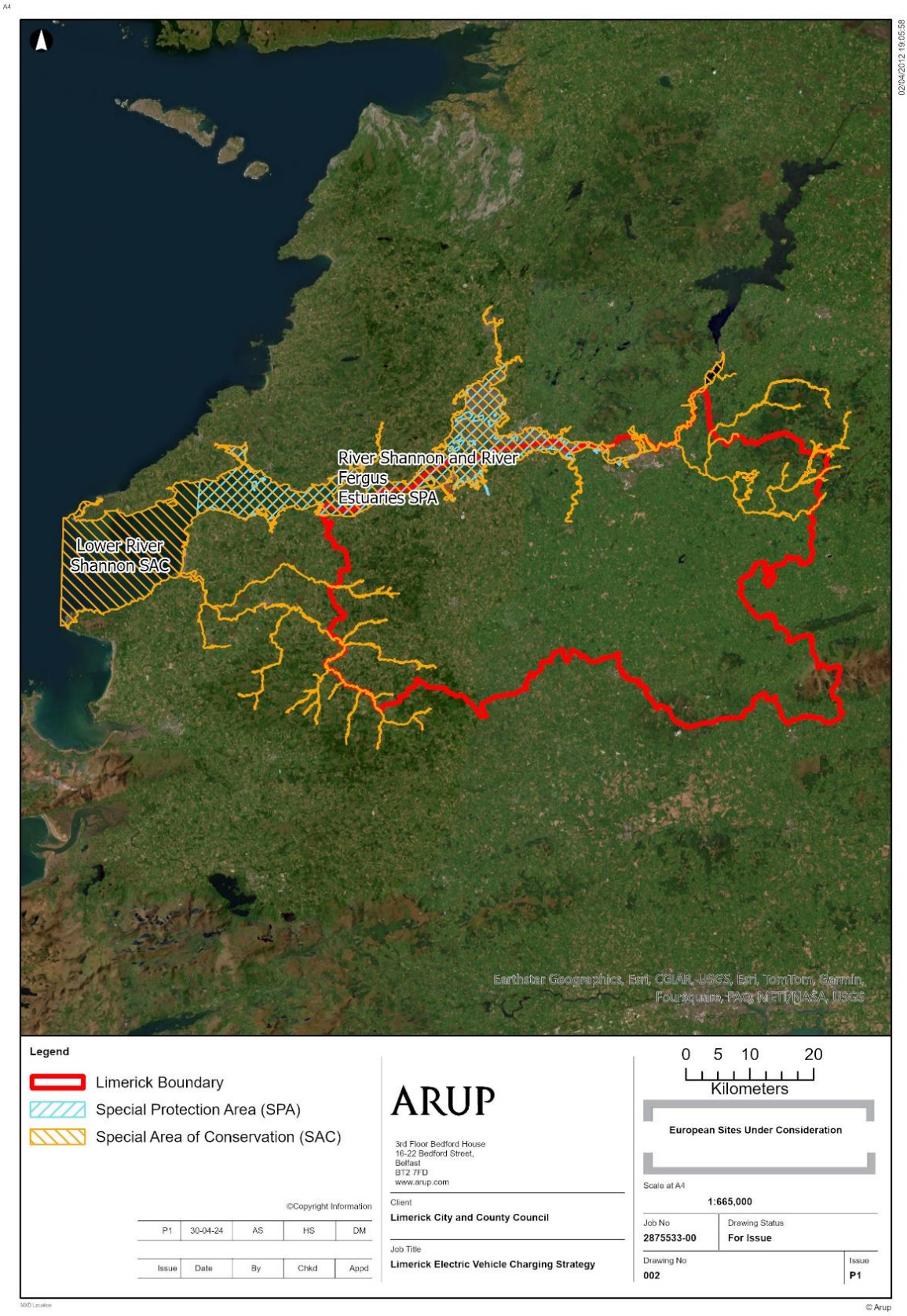


Figure 22 EU Sites within ZoI

6. Consideration of LSE on European Sites

6.1 Overview

The process of screening for AA focuses on any interactions between the European site conservation objectives and the effects of implementing the draft Plan objectives.

The potential ZoI of the draft Plan would be expected to be limited to the areas shown in Figure 22. It is possible that these areas may overlap or be within proximity to European sites, through direct or indirect connectivity through hydrological connectivity and proximity to physical developments.

6.1.1 Screening Assessment

Table 1 provides a high-level summary of the draft Plan Objectives, an assessment for LSE and a screening assessment outcome.

Table 14 Screening Assessment Summary Table

Objective/Goal/Action (choose as applicable)	Assessment for LSE	Screening Assessment Outcome
1. Deployment of Pilot sites to develop in-house knowledge of the range of requirements and performance optimisation needed for EV deployment	**Pathway: Water pollution** Physical developments are proposed at 13 locations (Section 5.2). As shown in Appendix A.1, there are three locations in close proximity (less than 50m) to a European site (Lower River Shannon SAC): • City Hall • O'Callaghan Strand; and • Merchants Quay. The EV location proposed in Patrickswell is approximately 300m from a watercourse (EPA name: Islandduane). This watercourse travels 7.4km to reach Lower River Shannon SAC and a further 600m to the River Shannon and River Fergus Estuaries SPA. However, given the distance and dilution factor with multiple (five) tributaries joining the watercourse before it reached the SAC this is considered weak and ineffective hydrological connection. No hydrological connectivity was associated with the remaining eight locations. The nature of the construction works will involve standard routine construction methodologies, that are not complex in nature. Groundwork will tie into existing infrastructure and occur in the existing urban environments. Construction will also be short-term and small scale. Best practice construction practices, such as CIRIA Good Practice[17] will also be implemented throughout the construction phase by the appointed contractor which include pollution prevention control measures to control surface water runoff. These measures are a standard operating procedure and are not included to protect any European site. Due to the nature of the proposed works, a significant source of pollutants is unlikely and consequently, significant impacts arising from emissions to water to the QIs of the Lower River Shannon SAC and River Shannon and River Fergus Estuaries SPA are not anticipated.	Screened Out
	Pathway: Noise and Vibration Physical developments are proposed at 13 locations (Section 5.2). As shown in Appendix A.1, there are two locations in considerable proximity (less than 50m) to a European site (Lower River Shannon SAC).	

[17] Ciria, (2010) Environmental good practice on site guide (fifth edition)

Objective/Goal/Action (choose as applicable)	Assessment for LSE	Screening Assessment Outcome
	Temporary noise may be generated through construction activities such as ground works. There is a weak pathway for effects through proximity at these proposed locations. • City Hall • O'Callaghan Strand; and • Merchants Quay. The nature of the construction works will involve standard routine construction methodologies, that are not complex in nature. Groundwork will tie into existing infrastructure and occur in the existing urban environments. Construction will also be short-term and small scale. Any potential vibration generating activities will be controlled by the implementation of best construction practice. These measures are not included to protect any European site. Of the three proposed locations the QIs of the Lower River Shannon SAC include: • Atlantic salmon *(Salmo salar);* • brook lamprey *(Lampetra planeri);* • common bottlenose dolphin *(Tursiops truncatus);* • European otter *(Lutra lutra);* • freshwater pearl mussel *(Margaritifera margaritifera);* • river lamprey *(Lampetra fluviatilis);* and • sea lamprey *(Petromyzon marinus).* Species susceptible to temporary noise and vibration disturbance are likely use the area very intermittently and infrequently. The surroundings areas are suboptimal due to the extent of the urban environment and suitability of aquatic habitats. However, QIs that could be passing through (most likely otter) are unlikely to become disturbed due to the scale and nature of construction and it is considered likely that they will be habituated to the background levels of noise that currently emanate from these urban areas. Despite the presence of a pathway noise from construction, it is not considered a substantial source for LSE due to the nature of the construction works as mentioned above. The remaining ten locations are considered sufficiently distance from European sites, with no viable pathway for effect.	
2. Creation of a detailed implementation plan to support a detailed, data driven analysis of location of charge points particularly in the city but also within the other towns identified	No source or pathway for effect as discussed in section 5.2	Screened Out
3. Undertake the assessment for installation of the EV charge points	No source or pathway for effect as discussed in section 5.2	Screened Out
4. Review the procurement and contractual route for EV acquisition	No source or pathway for effect as discussed in section 5.2	Screened Out

7. Summary and Conclusion

7.1 Summary

The draft Plan focuses on developing an approach to assess the expected power requirements on the network and the resulting number of charge points required to facilitate the update of EVs. It covers the area of Limerick County and City.

A potential source for effect was identified within the draft Plan: Objective 1 encompasses physical development at 13 locations for the installations of EV charging points.

Pathways for effect exists through water pollution and noise.

Three locations are located in proximity to a European site (the Lower River Shannon SAC and River Shannon and River Fergus Estuaries SPA) and has been identified as the potential receptor for LSE.

Due to the nature of the proposed works, a significant source of pollutants from either noise or contaminants are considered to be unlikely to occur and consequently would not result in significant impacts to the conservation objectives to the Lower River Shannon SAC.

7.2 Conclusion

The objectives for the draft Plan were assessed for the potential for likely significant effects on European sites.

Given absence of effects associated with the draft Plan, it is considered that there is no possibility LSEs arising from in-combination effects.

Following an examination, analysis and evaluation of the best available information, and applying the precautionary principle, it can be concluded that the possibility of any significant effects on any European sites, whether arising from the plan alone or in combination with other plans and projects, can be excluded, for the reasons set out in Section 6 above. In reaching this conclusion, the nature of the plan and its potential relationship with all European sites within the ZoI, and their conservation objectives, have been fully considered.

Therefore, it is the professional opinion of the authors of this report that this plan does not require an AA.

Appendix A

Tables

A.1 Proposed Locations of Pilot EV Charging Sites in Relation to EU Sites

Pilot EV Charging Sites	Description of Location	Nearest EU Site	Approximate Distance (km) From EU site to EV Charging site
O'Callaghan Strand	Adjacent to Strandville Gardens junction	Lower River Shannon SAC	0.01
Merchants Quay	LCCC buildings	Lower River Shannon SAC	0.03
County Hall	Car park adjacent to Limerick City & County Council Offices	Lower River Shannon SAC	0.05
Dooradoyle	Dooradoyle Park, Dooradoyle Road	Lower River Shannon SAC	1.1
Mungret	Car Park adjacent to playground/park	River Shannon and River Fergus Estuaries SPA	1.8
Doon	South of St. Fintans CBS School	Lower River Shannon SAC	2.0
Bruff	South of church before Croom Road	Glen Bog SAC	3.0
Patrickswell	Marian Park, Patrickswell Village	Lower River Shannon SAC	3.7
Newcastle West	Market Place carpark adjacent to Scanlon's Lane	Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA	4.7
Caherconlish	Adjacent to Main Service Station	Lower River Shannon SAC	4.8
Dromcolliher	Main Square	Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA	6.4
Castletroy	Car Park adjacent to playground/park	Lower River Shannon SAC	7.8
Kilmallock	Outside Library	Ballyhoura Mountains SAC	8.7

Locations are approximate as exact locations is not available in draft Plan.

A.2 SACs (Habitats) Under Consideration

Site Code	Site Name	Hab Code	Habitat Name
IE0002165	Lower River Shannon SAC	1110	Sandbanks which are slightly covered by sea water all the time
IE0002165	Lower River Shannon SAC	1130	Estuaries
IE0002165	Lower River Shannon SAC	1140	Mudflats and sandflats not covered by seawater at low tide
IE0002165	Lower River Shannon SAC	1150	Coastal lagoons
IE0002165	Lower River Shannon SAC	1160	Large shallow inlets and bays
IE0002165	Lower River Shannon SAC	1170	Reefs
IE0002165	Lower River Shannon SAC	1220	Perennial vegetation of stony banks
IE0002165	Lower River Shannon SAC	1230	Vegetated sea cliffs of the Atlantic and Baltic Coasts
IE0002165	Lower River Shannon SAC	1310	Salicornia and other annuals colonizing mud and sand
IE0002165	Lower River Shannon SAC	1330	Atlantic salt meadows *(Glauco-Puccinellietalia maritimae)*
IE0002165	Lower River Shannon SAC	1410	Mediterranean salt meadows *(Juncetalia maritimi)*
IE0002165	Lower River Shannon SAC	3260	Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation
IE0002165	Lower River Shannon SAC	6410	Molinia meadows on calcareous, peaty or clayey-silt-laden soils *(Molinion caeruleae)*
IE0002165	Lower River Shannon SAC	91E0	Alluvial forests with Alnus glutinosa and Fraxinus excelsior *(Alno-Padion, Alnion incanae, Salicion albae)*

A.3 SACs (Species) Under Consideration

Site Code	Site Name	Species Code	Species Name (Latin)
IE0002165	Lower River Shannon SAC	1029	*Margaritifera margaritifera*
IE0002165	Lower River Shannon SAC	1095	*Petromyzon marinus*
IE0002165	Lower River Shannon SAC	1096	*Lampetra planeri*
IE0002165	Lower River Shannon SAC	1099	*Lampetra fluviatilis*
IE0002165	Lower River Shannon SAC	1106	*Salmo salar*
IE0002165	Lower River Shannon SAC	1349	*Tursiops truncatus*
IE0002165	Lower River Shannon SAC	1355	*Lutra lutra*
IE0002170	Blackwater River (Cork/Waterford) SAC	1029	*Margaritifera margaritifera*

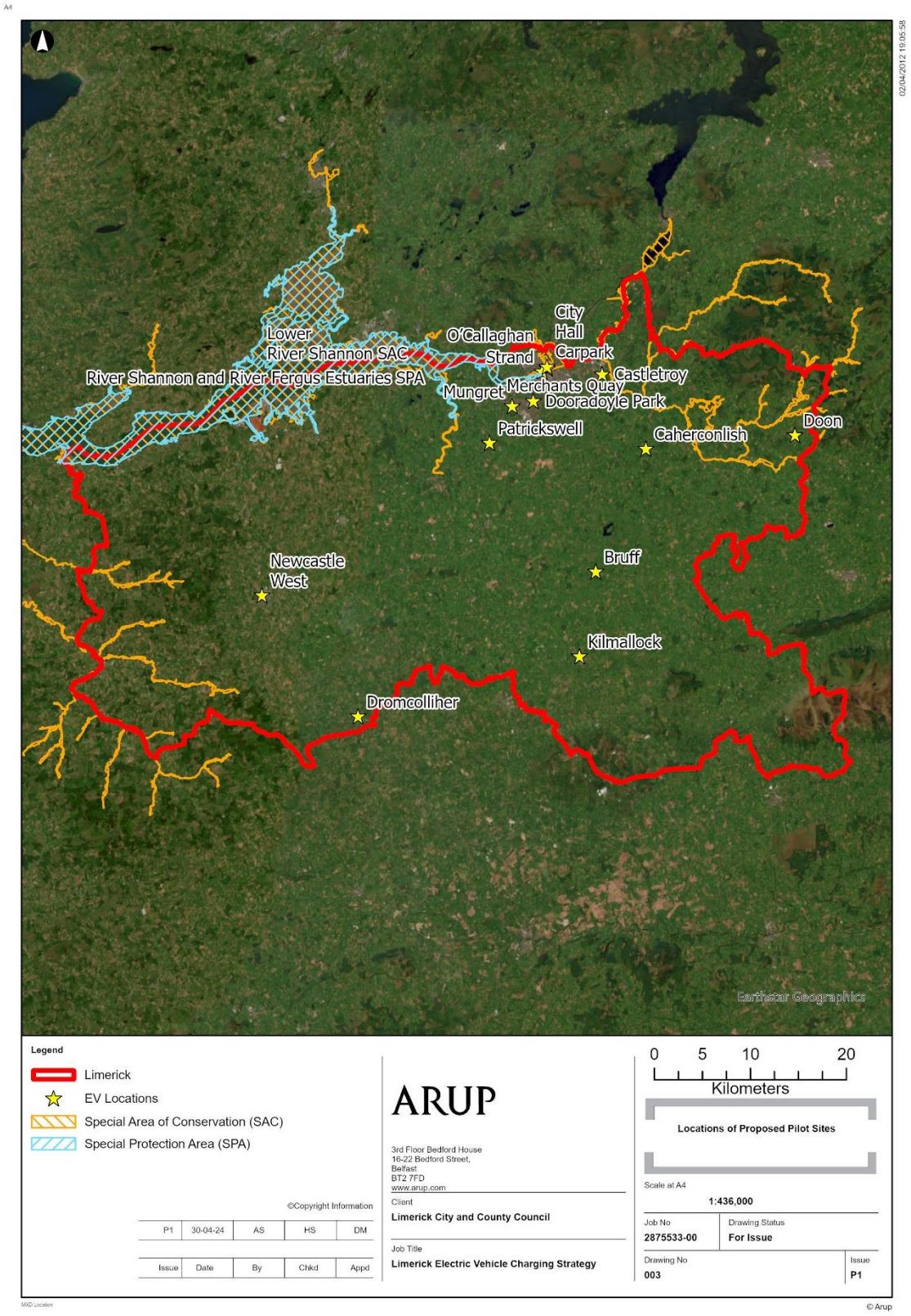
A.4 SPAs (Bird Species) Under Consideration

Site Code	Site Name	Species Code	Species Name (Latin)
IE0004077	River Shannon and River Fergus Estuaries SPA	A054	*Anas acuta*
IE0004077	River Shannon and River Fergus Estuaries SPA	A056	*Anas clypeata*
IE0004077	River Shannon and River Fergus Estuaries SPA	A052	*Anas crecca*
IE0004077	River Shannon and River Fergus Estuaries SPA	A050	*Anas penelope*
IE0004077	River Shannon and River Fergus Estuaries SPA	A062	*Aythya marila*
IE0004077	River Shannon and River Fergus Estuaries SPA	A046	*Branta bernicla hrota*
IE0004077	River Shannon and River Fergus Estuaries SPA	A149	*Calidris alpina*
IE0004077	River Shannon and River Fergus Estuaries SPA	A143	*Calidris canutus*
IE0004077	River Shannon and River Fergus Estuaries SPA	A137	*Charadrius hiaticula*
IE0004077	River Shannon and River Fergus Estuaries SPA	A179	*Chroicocephalus ridibundus*
IE0004077	River Shannon and River Fergus Estuaries SPA	A038	*Cygnus cygnus*
IE0004077	River Shannon and River Fergus Estuaries SPA	A157	*Limosa lapponica*
IE0004077	River Shannon and River Fergus Estuaries SPA	A156	*Limosa limosa*
IE0004077	River Shannon and River Fergus Estuaries SPA	A160	*Numenius arquata*
IE0004077	River Shannon and River Fergus Estuaries SPA	A017	*Phalacrocorax carbo*
IE0004077	River Shannon and River Fergus Estuaries SPA	A140	*Pluvialis apricaria*
IE0004077	River Shannon and River Fergus Estuaries SPA	A141	*Pluvialis squatarola*
IE0004077	River Shannon and River Fergus Estuaries SPA	A048	*Tadorna tadorna*
IE0004077	River Shannon and River Fergus Estuaries SPA	A164	*Tringa nebularia*
IE0004077	River Shannon and River Fergus Estuaries SPA	A162	*Tringa totanus*
IE0004077	River Shannon and River Fergus Estuaries SPA	A142	*Vanellus vanellus*

Appendix B

Maps

B.1 Proposed Locations of Pilot EV Charging Sites in Relation to EU Sites



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