**Comhairle Cathrach
Bhaile Átha Cliath
Dublin City Council**

DLA Electric Vehicle Charge Point Draft Strategy

Purpose

The purpose of this report is to provide information to the members of Dublin City Council for noting that this draft strategy is going to public consultation across the 4 Dublin Local Authorities in order to further develop the current draft strategy. A revised draft will be considered by the Strategic Policy Committee in September before coming back to the full Council.

The Council are not being asked to endorse this current working draft of the strategy as further research and information gathering will take place during the public consultation and revisions may well be significant.

Included below are:

1. the current draft strategy recommendations, and

2. the proposed method of implementation and collaboration.

There is also a summary presentation attached.

This report sets out further proposals to the draft EVCP strategy for the Dublin Metropolitan Area (DMA). The proposals have been agreed by the DMA EVCP Steering Group (made up of representatives of each LA together with Smart Dublin and the CARO) and are now going to public consultation prior to incorporation into a final strategy. The Steering Group has also agreed to cooperate with each other and key stakeholders on an on-going basis to deliver an optimal solution for the region as a whole and for each LA area.

In summary, the proposals involve the Councils taking on an enablement/facilitative role but with a consistent and flexible approach to ensure future proofing and compliance with existing/future national policies as required.

The draft strategy is based on data analysis and allows for differing emphasis in the 4 Dublin LAs in relation to implementation in particular in relation to funding and resource requirements.

This public consultation will inform the draft strategy that will be brought to the SPC in September and back to the City Council.

Subsequently we will agree the resource requirement with the Department of Transport (DoT) regarding funding availability and implementation of the agreed strategy may be dependent on resources available.

1. Strategy Recommendations

The key issues that have emerged to date are as follows:

- The strategy considers the public EV charging needs for a range of vehicle types out to 2030.
- Detailed stock modelling shows that in the central case there would be 140k EVs in the Dublin region by 2030, but only 25% (35k) of these will be reliant on public charging.
- Rapid hub charging has significant benefits compared to slow on-street charging and is therefore the priority technology recommended.
- Dublin region will require between roughly 500 and 4,000 residential (public) EVCPs by 2030, depending on how many rapid hubs are deployed (as preferred by each LA).
- These results back up the strategic focus on rapid charging – ca. 50 well located 10-charger hubs could meet all residential demand, compared to thousands of on-street devices.
- To develop a comprehensive charging network that drives EV uptake, up to ca. 2,500 destination EVCPs and 166 en-route EVCPs will be needed – delivery is expected to be largely private sector led.
- Assuming a mix of technology is deployed, circa €42m capital investment will be needed by 2030, of which €24m is expected to be public funding (less if there is exclusive reliance on rapid chargers).
- The deployment approach is based on comprehensive geospatial analysis, targets key user groups and is designed to support wider mobility ambitions.
- The Local Authorities are ideally placed to have a key strategic and enabling role but should not be involved with physical infrastructure delivery or operation.
- The strategic approach is aligned with best practice in more developed EV markets.
- Evidence from other cities/regions highlights the benefits of Councils planning and coordinating deployment.
- It is recommended that the Dublin LAs collaborate and play a central strategic role in enabling a region-wide charging network.

2. Proposed method of implementation and collaboration.

The DMA EVCP Steering Group, has agreed a principle based approach to working together to provide an optimal public charging infrastructure for the region. Five key principles have been agreed and are set out below. In summary the principles are:

(i)   **Enablement**
a.   The DLAs can take a lead role to drive the adoption of EVs and the transition to electromobility in general. This may or may not be a time-bound role once targeted EV adoption levels have been achieved.
b.   The DLAs have a direct role in enabling EV uptake in terms of existing functions such as encouraging and facilitating the transition through CDPs, LAPs, CCAPs, planning conditions etc.
c.   In order to minimise the risk to the DLAs, the longer-term regional deployment model will likely be a concession type model which limits the involvement of the DLAs, but may yield a revenue share.
d.   The rollout of small scale EVCP pilots may continue in some LAs to pilot different options and meet demand from local Elected Members etc.

(ii) **Collaboration**

a.   The DLA EV Group, which has been in operation since 2019, has been very useful in terms of information and experience exchange on LA fleet and EVCPs. The Group should be continued. The DLAs will also work collaboratively with the relevant actors in the EV space (e.g. Central Govt, other LAs, CCMA, Industry and Citizen Groups) to ensure our role complements their own activities.

(iii) **Flexibility**

a.   The DLA role will require a variety of mechanisms/instruments being available to enable the transition. This flexibility is particularly important for a proposed regional EVCP procurement approach whereby each individual LA will be able to pursue its own individual objectives/policies, whilst also being supportive of the collective and common goals across the DMA.

b.   Significant implementation of EVCP infrastructure requires more flexible funding from Central Government. The existing LA EVCP grant funding scheme as provided for by SEAI is too restrictive and insufficient in amount to meet the demand of the DLA EVCP Strategy.

c.   The strategy should be reviewed on an annual basis.

(iv) **Consistency**

a.   There are synergies in having a consistent view/approach across the four DLAs, which other LAs may adopt. This will include common guidelines/specifications which deployments should acknowledge in order to ensure interoperability and a consistent user experience.

(v) **Future Proofing**

a.   The electro mobility area is a fast-changing space, hence any deployments which may be controlled by the Councils (directly, through a licence/lease/concession or other arrangement), should be deployed in enduring locations. This will avoid installation obsolescence and will not preclude different operators managing the infrastructure over time.
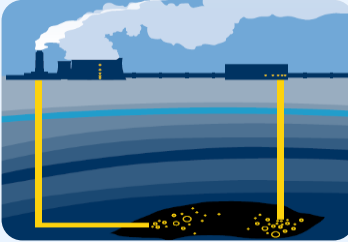
Resolution:
That Dublin City Council notes the contents of Report No. 215/2021.

Liam Bergin
Executive Manager

30th June 2021

Dublin Local Authority EV charging strategy

Summary presentation

A study for Fingal County Council, Dublin City Council, Dun Laoghaire Rathdown County Council & South Dublin County Council

23rd February 2021

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Celine Cluzel, Director

David Garrick, Senior Consultant

Why is the EV charging strategy needed and what is the role of Dublin Local Authorities?
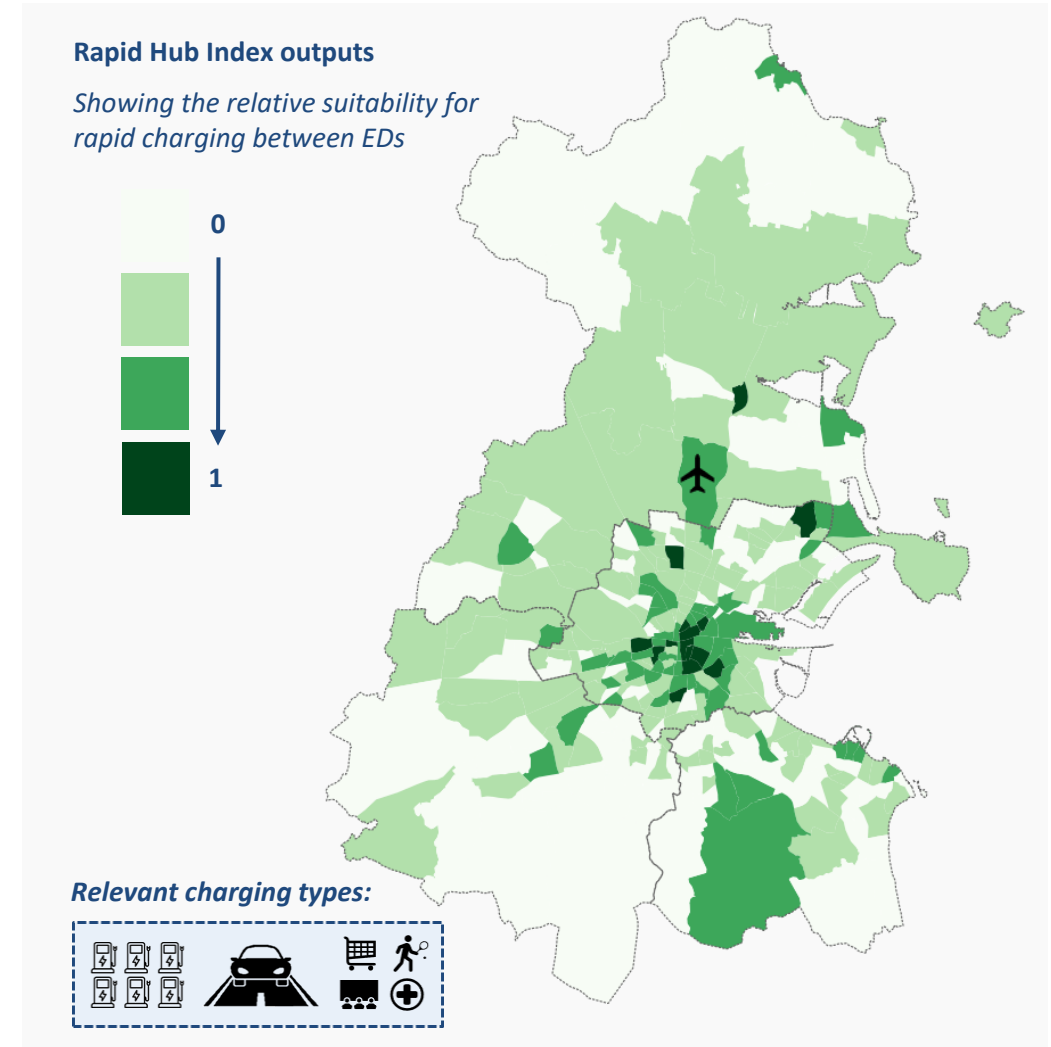
- Ireland has a target of 7% reduction in carbon emissions each year to 2030 and net zero carbon by 2050

- Transport accounts for ca. 40% of Ireland's carbon emissions – more than any other sector

- Rapid decarbonisation of transport is needed to meet climate goals, which requires a switch to electric vehicles (EVs) and significant modal shift

- Climate Action Plan targets: 100% of new cars and vans to be EVs by 2030 and 950,000 EVs on the roads

- The transition to EVs will require a comprehensive, strategic and timely rollout of charging infrastructure over the coming years

- Residents and businesses will increasingly be requesting EV charging and enquiring about the Council's plan for providing it – seen in other cities and is one factor accelerating EV charging deployment

- Dublin Local Authorities can play a key role as coordinators and regulators of EV charging deployment in the region, ensuring that:
  - the necessary EV uptake is achieved
  - charging infrastructure is aligned with wider mobility / modal shift ambitions, and decarbonisation zones
  - EV charging is accessible to and works for everyone

- *This strategy presentation sets out the region's infrastructure need and how it should be realised*

Dublin Local Authority EV charging strategy

This presentation covers:

- **Scope of the EV charging strategy**

- **How many EVs will require charging?**

- **What is the optimal approach to EV charging?**

- **How much charging will be needed?**

- **What level of funding is required?**

- **How should the network be deployed?**

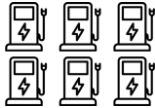- **What is the role of Local Authorities?**

Example mapping output from the strategy

Rapid Hub Index outputs

Showing the relative suitability for rapid charging between EDs

0

1

Relevant charging types:

Scope: This strategy considers the public EV charging needs for a range of vehicle types out to 2030 – it focusses on four key charging segments

Scope of strategy				

- **Geographic scope**
  - Four Dublin Local Authorities
- **Infrastructure scope**
  - Public charging
- **Strategy time horizon**
  - 2021 – 2030
- **Vehicle scope**
  - Cars, vans, taxis, mopeds and motorcycles

Type	Residential on-street charging	Residential charging hub	En-route charging	Destination charging
Use case	On-street charger near to the driver's house, **typically overnight**	Semi-centralized hubs in driver's local area, **similar to petrol refuelling**	**Along intercity routes** or **main urban roads,** quick turnaround	Charging in **car parks at the end of journey,** ad-hoc top up charging
Typical sites	Residential street pavement	Urban roads, public car park, forecourts	Service station, forecourts	Supermarkets, shopping centres
Typical charging speed	**Slow to fast (3-22kW)**	**Rapid to ultra rapid (50-150kW)**	**Rapid to ultra rapid (50-350kW)**	**Slow to rapid (3-50kW)**

Key takeaway:
- The strategy accounts for the needs of a **range of vehicl**es and the **mix of charging types** required for an effective charging network
- **Dublin LAs are well placed to have a role in the residential charging segment** – the others will have more private sector involvement

How many EVs? Detailed stock modelling shows that in the central case there would be 140k EVs in the Dublin region by 2030, but only 25% of these will be reliant on public charging

Calculating EV uptake in Dublin region

- **Starting point**
  - Actual Dublin region registered vehicle stock
- **Approach**
  - Bottom-up stock modelling
  - Split by vehicle type and size
  - Dublin-specific scrappage curves
  - Annual EV sales scenarios
- **Outputs**
  - Annual EV sales & stock
  - Breakdown by PHEV & BEV
  - Annual EV charging energy demand
- **Follow on step**
  - Calculate EVs without off-street parking that will rely on public charging

EV uptake scenario	Description	EV market share in 2030	Total EV stock in 2030	EVs as share of total vehicle stock 2030	EVs relying on public charging
Medium (central)	Realistic EV uptake based on current policy & market	65%	140k	ca. 20%	**34k**
Climate Action Plan	Meets 2030 EV targets, challenging given current policy & market	100%	222k	ca. 35%	**54k**

Key takeaway:

- There will be **140k – 222k EVs in the Dublin region by 2030** depending on the policy support, charging provision etc.
- **34k – 54k of these EVs will lack off-street parking** and be fully reliant on public charging – **these are the main targets for the strategy**

Note: off-street parking analysis completed at high resolution (Electoral Division) based on housing stock breakdown, population density and trends extracted from EE's Off-Street Parking Model for England & Wales

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Optimal approach? Rapid hub charging has significant benefits compared to slow on-street charging and is therefore the priority technology recommended

For residential charging, which comprises most of the public demand, there are two key options:

- **Rapid hub charging –** quick turnaround at semi-centralised locations, one device serves many EVs, similar to conventional refuelling – could be at forecourts, car parks, dedicated sites

- **On-street charging –** typically slow overnight charging, devices installed along residential streets (sometimes retrofitted on lampposts), one device serves small number of EVs

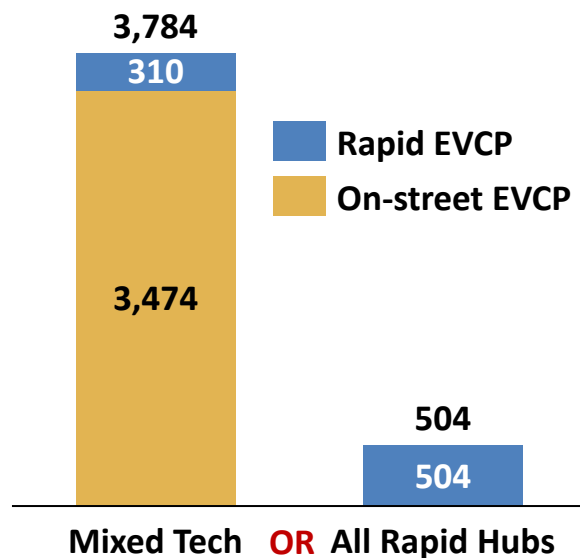| Technology	Supports behaviour change needed to reduce private cars	Alignment with sustainable user groups (taxis, car clubs)	Current business case	Future business case	Cost effectiveness in terms of € per EV served	Avoidance of street clutter	Technology maturity and improvement	Siting challenges	Current cost of charging tariff to drivers
Rapid hub charging	🟩	🟩	🟨	🟩	🟩	🟩	🟩	🟨	🟨
On-street charging	🟥	🟥	🟥	🟨	🟥	🟥	🟨	🟩	🟩

Key takeaways:

- Rapid hub charging is most **aligned with wider modal shift** and mobility ambitions, provides a **coordinated / strategic** way of deploying infrastructure and offers a **more attractive business case**

- **Rapid hub charging is the strategy's priority technology**, and on-street should only be considered if rapid hubs are not feasible

How much EV charging? by 2030 the Dublin region will need between ca. 3,200 and 6,500 public EVCPs
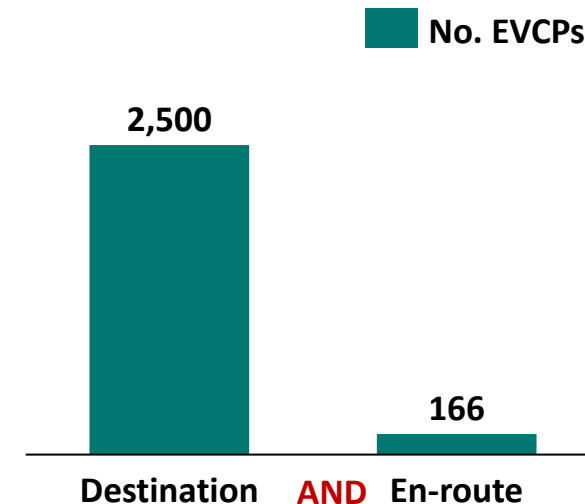
Calculating EVCP requirement

- **Starting point**
  - Projected EV uptake and charging demand
- **Approach**
  - Split geographically
  - Charging behaviour assumptions
  - 24-hour charging profiles
  - Assess no. of EVs plugged in simultaneously per hour
  - Multiple uptake and technology scenarios tested
- **Outputs**
  - EVCP requirement per Electoral Division
  - Breakdown by charging type
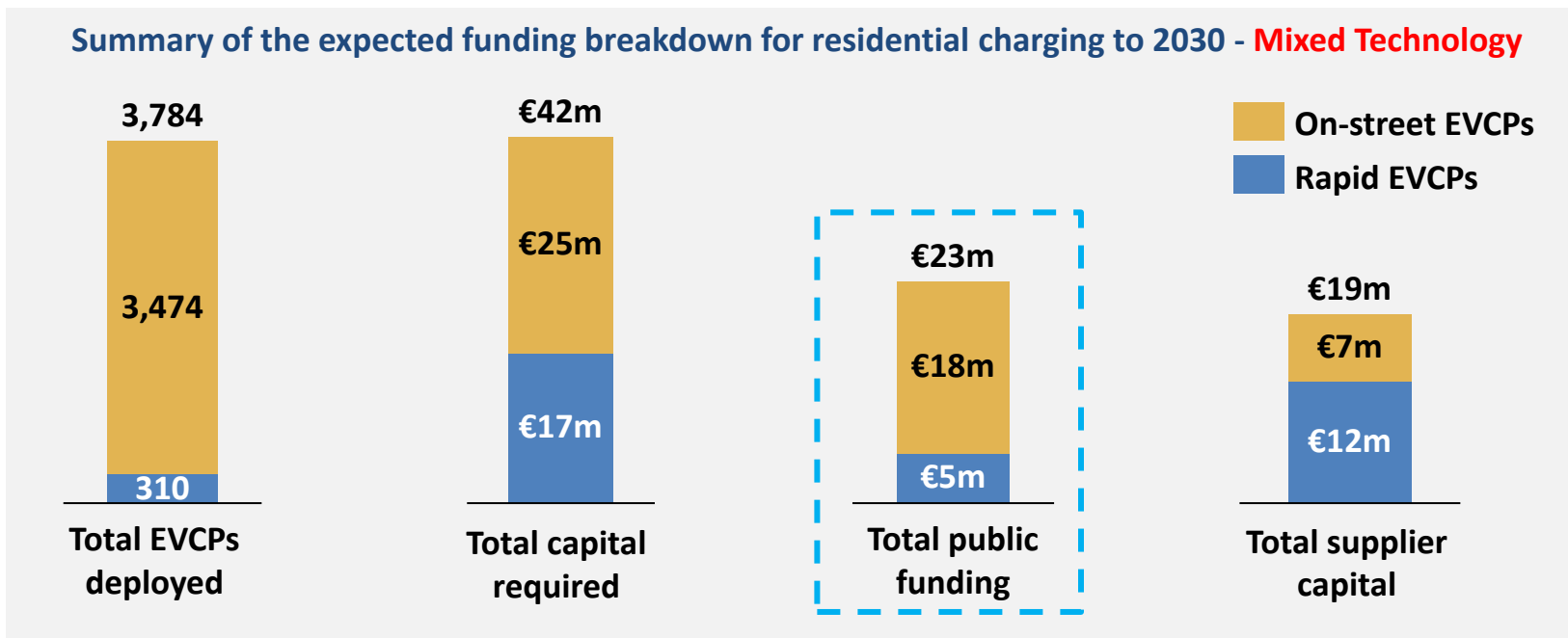
2030 residential EVCPs – Dublin region

3,784
- 310 — Rapid EVCP
- 3,474 — On-street EVCP

504
- 504

Mixed Tech OR **All Rapid Hubs**

2030 destination & en-route EVCPs – Dublin region

No. EVCPs

- 2,500 — Destination
- 166 — En-route

Destination AND **En-route**

Key takeaway:

- Dublin region will require between roughly **500 and 4,000 residential EVCPs by 2030**, depending on how many rapid hubs are deployed
- These results back up the **strategic focus on rapid charging** – ca. **50 well located 10-charger hubs could meet all residential demand**, compared to thousands of on-street devices
- To develop a comprehensive charging network that drives EV uptake, up to **ca. 2,500 destination EVCPs and 166 en-route EVCPs will be needed** - expected to be largely private sector led

Results shown are based on Medium (central) scenario. Note in reality there is some overlap between charging types, e.g. 1 EVCP could be in a destination car park in area of high residential demand

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How much funding? Assuming a mix of technology is deployed, ca. €42m capital investment will be needed by 2030, of which €23m is expected to be public funding

Summary of the expected funding breakdown for residential charging to 2030 - Mixed Technology

Legend:
- On-street EVCPs
- Rapid EVCPs

Total EVCPs deployed: 3,784 (3,474 on-street, 310 rapid)

Total capital required: €42m (€25m on-street, €17m rapid)

Total public funding: €23m (€18m on-street, €5m rapid)

Total supplier capital: €19m (€7m on-street, €12m rapid)

Key takeaway:

- **On-street charging business case is very challenging** – requires up to 100% funding support

- **Rapid charging business case** can be challenging but is significantly **better than on-street and improving quickly** – often 50% funding support in UK public tenders and suppliers now taking on all CAPEX risk in places

- Despite current challenges, charging infrastructure will be **needed to meet climate goals - public funding is crucial to ensuring deployment happens quickly enough**

- The recommended focus on rapid charging will **limit the funding needed** and provide the **best value for money possible**

Note: Mixed Tech shown as it is seen as more realistic future. If all demand was met with rapid hubs, the total capital investment need would be €28m

Note: Cumulative revenue from the 2021-2030 EVCP deployment is ca. €8m – in reality these many of these devices would continue generating revenue beyond 2030

How to deploy the network? The deployment approach is based on comprehensive geospatial analysis, targets key user groups and is designed to support wider mobility ambitions

Key deployment principles & alignment mobility schemes

- Comprehensive **geospatial analysis completed to identify priority deployment areas** and develop phased rollout plan

- Deployment approach is **demand-led** and focussed on **aggregating demand across relevant user groups**

- Geographic **deployment strategy aligns with taxi and car club operation** – the most future proofed user groups

- **Avoid on-street parking wherever possible** as this makes drivers less likely to give up their private car – **explicit priority is rapid hub charging**

- Stock modelling assumes a **gradual shift away from private car ownership to factor in modal shift**

- Recommend a coordinated deployment that **considers other e-mobility solutions** (e-scooters & e-bikes) and development of mobility hubs

- Recommend that EV charging rollout **aligns with wider public realm improvement** and mobility related developments such as **Park & Ride sites** being proposed – important to involve range of LA departments from early stage

Key takeaway: the strategy outlines where charging should be focussed, takes into account the region's long term mobility plans and is designed to support these with targeted deployment – evidence from elsewhere shows that this kind of demand-led deployment is crucial to delivering an effective and well utilised charging network

Role of the Councils? The Local Authorities are ideally placed to have a key strategic role but should not be involved with physical infrastructure delivery or operation

From a delivery perspective, **we do not see the Councils as physically installing / operating charging** infrastructure – we recommend they engage suppliers using best practice business models:

Typical rapid charging business models	CAPEX & ownership	OPEX & responsibility for O&M	Revenue	Contract length	Use case / maturity
Concession	Gov funding + **Supplier**	**Supplier**	Share to Council	5-10 years	Common in UK & Europe – London, Birmingham, Nottingham, Manchester etc.
Lease model	**Supplier**	**Supplier**	Share to Council	15-25 years	Suppliers are increasingly approaching Councils and landowners with offers

Key takeaway: we would recommend that the Dublin LAs:

- Take on a strategic role and use funding from central government to deliver charging through concession arrangements
- Set up a **regional procurement framework** in line with best practice approach in other markets
- Target priority rapid charging deployment areas that have been identified, leveraging high quality sites with suitable business models (will depend on site quality, funding available etc. – report contains summary of available business models)

Role of the Councils? We recommend the four Dublin Local Authorities play a central role in realising a regional charging network based on the strategic approach developed

Why should the Councils be involved in EV charging?

- To meet climate goals a **rapid transition to EVs is required**

- Significant EV charging deployment is needed to enable this

- It is crucial the rollout is delivered in a **proactive and coordinated** way to drive EV uptake while **supporting modal shift – the strategy outlines a plan to achieve this**

- **Council involvement** is needed to realise the strategy and in the tight timelines necessary

- Council involvement will ensure the network is **fully accessible**

- LAs can ensure the region's charging network is **aligned with demand**, reaches **priority user groups** and has the latest and **best practice technology offer**

- Residents and businesses will increasingly ask Councils what their plan is for EV charging provision

Best practice examples of Council led EV charging deployment

City	Hub focus	Rapid charging	Regional framework	Targeted at priority users
London	✓	✓	✓	✓
Dundee	✓	✓		✓
Birmingham	✓	✓		✓
Nottingham	✓	✓	✓	✓

Key takeaway:
- The strategic approach is **aligned with best practice** in more developed EV markets
- Evidence from other cities / regions highlights the **benefits of Councils planning and coordinating deployment**
- It is recommended that **the Dublin LAs collaborate and play a central strategic role** in developing a region-wide charging network
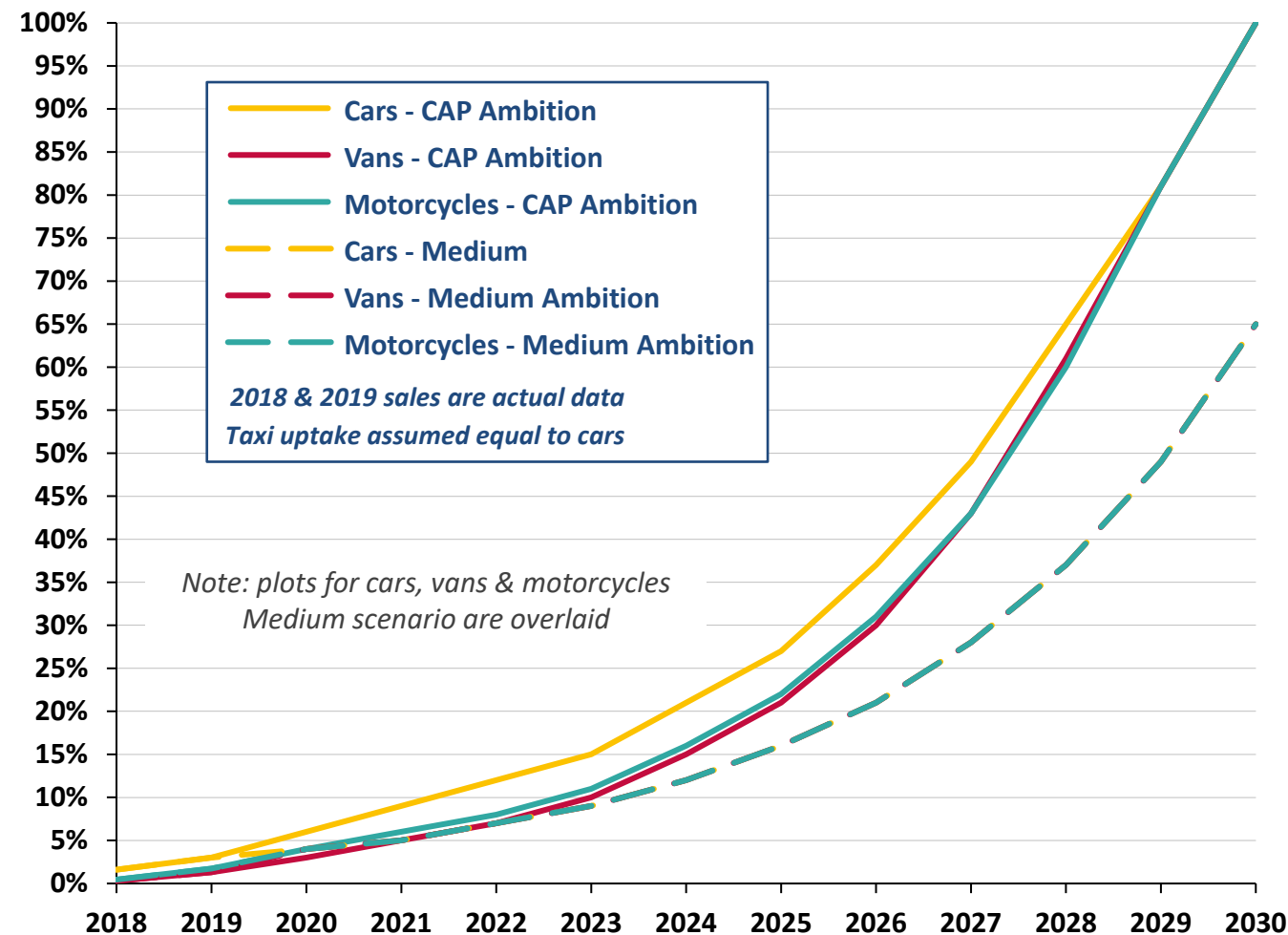
Next steps

- Gain approval for publication of the Dublin Local Authority EV charging strategy report from DLA Chief Executives

- Seek a meeting with the Department of Environment Climate & Communications to discuss funding models and potential pilot schemes

- Engage with the CCMA and Department of Environment Climate & Communications regarding regulation and providing relevant guidance through County Development Plans for rollout of charging infrastructure on non-LA sites

  - support this with workshops bringing together local stakeholders to ensure compliance with climate change targets including the establishment of decarbonisation zones

- Engage with councillors and strategic policy committees regarding the EV charging strategy

- If funding is secured, commence procurement process based on preferred models outlined

Appendix

EV uptake scenarios – assumed annual EV sales percentages

Legend:
- Cars - CAP Ambition
- Vans - CAP Ambition
- Motorcycles - CAP Ambition
- Cars - Medium
- Vans - Medium Ambition
- Motorcycles - Medium Ambition

2018 & 2019 sales are actual data
Taxi uptake assumed equal to cars

Note: plots for cars, vans & motorcycles Medium scenario are overlaid

Explanation of EV uptake scenarios

CAP Ambition scenario:

- 100% of sales in 2030 are EVs, in line with the CAP target
- Dublin region EV stock meets Dublin region's share of the 950,000 EV CAP target (based on scaling according to Dublin vs Ireland stock size)
- Van and motorcycle sales lag cars to reflect less mature markets and lower public awareness – gap vs cars gradually closes out to 2030
- There are question marks over how achievable this uptake scenario is → **CAP Ambition is not central case in strategy**

Medium scenario:

- EV sales do not reach the 100% CAP target by 2030, but do achieve strong market growth in the period considered
- EV sales grow based on trends seen in leading countries (Norway, Sweden, Iceland) from the point at which they were at similar stage to Ireland currently (ca. 3% sales)
- Vans and motorcycles sales share remains in line with cars out to 2030 – assumed achievable due to the lower absolute sales vs CAP Ambition, meaning that supply constraints have less of an impact
- This scenario is considered an impressive but more achievable trajectory → **Medium is the central case in strategy**

The volume of charging infrastructure required to support the projected EV stock has been assessed based on two deployment approaches

Annual EVCP requirements out to 2030 shown in Appendix 1

On-street EVCPs
Rapid hub EVCPs

2 residential charging approaches were tested:

- **Rapid hubs** – all residential charging demand met with rapid EVCPs offering quick turnaround charging at semi centralized location. This reflects a future where vehicle recharging is similar to the conventional refuelling model

- **Mixed Technology** – rapid charging is deployed to meet residential demand in areas ranking in the top 50% for rapid hub suitability[1]. Slow-fast on-street charging, likely to be used overnight, used in remaining areas. This is less preferrable as rapid charging is the priority technology for this strategy.

		2025 EVCP requirement			2030 EVCP requirement		
		Residential	**En-route**	**Destination**	**Residential**	**En-route**	**Destination**
Rapid hubs	Dublin City	65	19	280	247	55	1,065
	South Dublin	23	13	149	85	38	560
	Fingal	23	14	157	86	41	589
	DLR	23	11	135	85	33	509
	Total in Medium scenario	**133**	**57**	**722**	**504**	**166**	**2,723**
Mixed technology	Dublin City	329 + 47	19	243	1,280 + 176	55	918
	South Dublin	176 + 12	13	129	685 + 47	38	481
	Fingal	169 + 13	14	110	658 + 49	41	514
	DLR	219 + 10	11	110	850 + 38	33	411
	Total in Medium scenario	**893 + 82**	**57**	**592**	**3,474 + 310**	**166**	**2,324**
	Total in CAP Ambition scenario for comparison	1,402 + 127	92	1,001	5,545 + 494	265	3,724

- The table above summarises the volume of EVCPs required to support and drive EV uptake in the Dublin region, split by charging type and LA

- Based on Curtailed Medium uptake and a Mixed Technology approach, by 2030 the Dublin region is projected to require 3,474 slow-fast on-street EVCPs and 300 rapid EVCPs to meet the residential charging demand – this is the market sector in which the Councils' role in deployment is likely to be most significant

- The table highlights that rapid charging offers the most efficient way of providing EV charging – in the rapid hub approach a total of ca. 500 rapid devices would be needed by 2030, which is significantly less than the volume of infrastructure that would need to be installed in the Mixed Technology approach

1. See rapid hub index assessment on slide 15.
Note: in the early stages of deployment, it is envisaged that rapid hub EVCPs may not be in genuine hubs, but rather installed 1 or 2 at a time.

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Summary of business model assumptions used to assess the Dublin region residential charging business case out to 2030

Rapid concession arrangement	Upfront costs			Ongoing costs			Revenue share to Council
	Hardware	Installation	Ground & Grid	Back office	Electricity	Maintenance	
2021-2025	50% funding, 50% supplier			Supplier pays			10%
2026-2030	25% funding, 75% supplier			Supplier pays			10%

Fast on-street concession arrangement	Upfront costs			Ongoing costs			Revenue share to Council
	Hardware	Installation	Ground & Grid	Back office	Electricity	Maintenance	
2021-2025	75% funding, 25% supplier			Supplier pays			0%
2026-2030	50% funding, 50% supplier			Supplier pays			10%

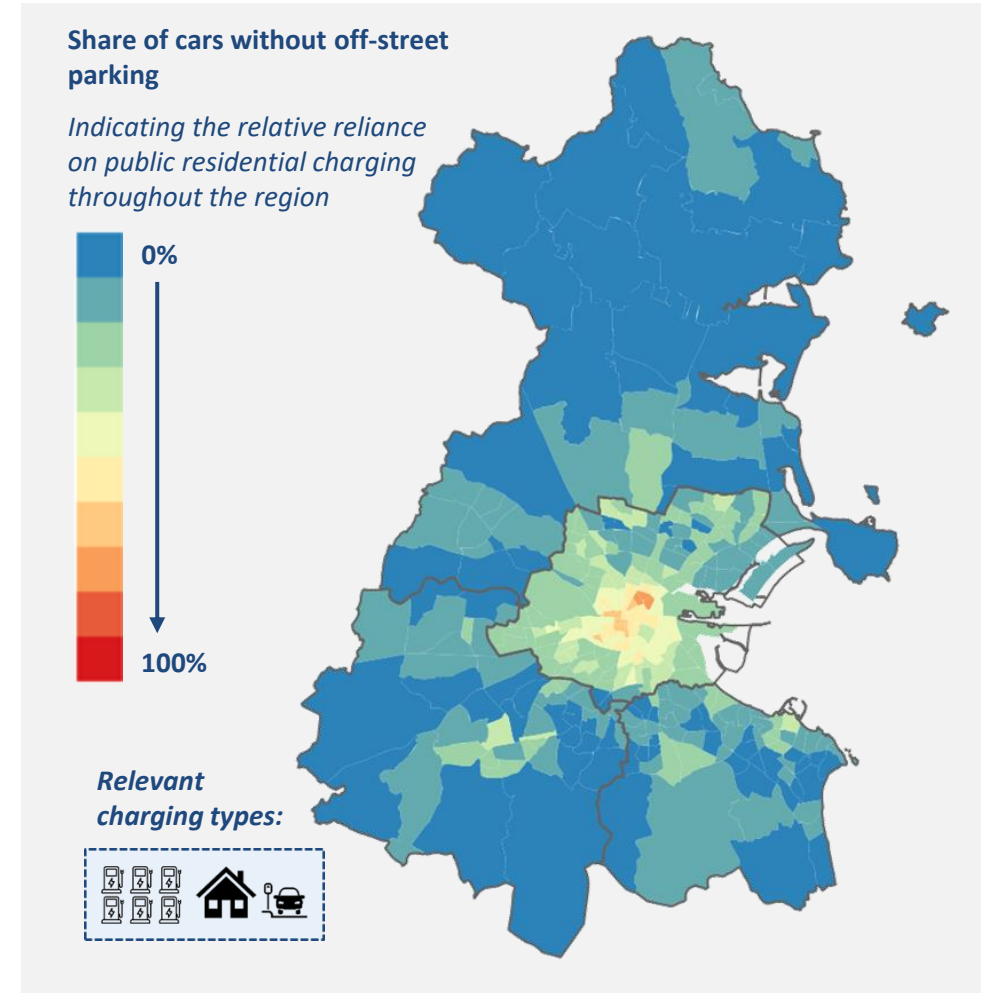| **Slow on-street** concession arrangement	Upfront costs			Ongoing costs			Revenue share to Council
	Hardware	Installation	Ground & Grid	Back office	Electricity	Maintenance	
2021-2025	100% funding			Supplier pays			0%
2026-2030	75% funding, 25% supplier			Supplier pays			10%

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Geospatial analysis of several datasets was used to develop the recommended EV charging deployment approach

Summary of the datasets analysed in the deployment strategy development

- **Off-street parking availability:** share of private vehicles without access to off-street parking infers reliance on public charging in an area. This was analysed based on detailed housing stock data, population density and trends from Element Energy's Off-street Parking Model

- **Amenities:** proven to attract drivers to EVCPs – analysis shows that the number of amenities in close proximity to a rapid EVCP correlates to usage

- **Taxi ranks:** Taxis are a key EV user group and align with modal shift ambitions. Proximity to taxi ranks is proven to drive EVCP utilisation as EV uptake increases

- **Car club locations:** Car clubs (as with taxis) are a key user group that align with modal shift and a move away from private cars. Factoring in car club operations to siting will maximise usage of this group as electric shared car stock grows

- **Traffic flow:** areas / roads with high traffic flow are attractive locations for en-route charging based on expected high future throughput of EVs

- **Public land availability:** areas with high availability of public land may offer more opportunities for rapid hub sites in the future

- **Car parks:** these represent crucial potential sites for EVCPs across different charging types: residential, en-route, destination. Areas with high density of car parks are likely to have promising EVCP deployment opportunities.

- **Forecourts:** these represent important strategic locations for en-route charging in urban areas and along major roads
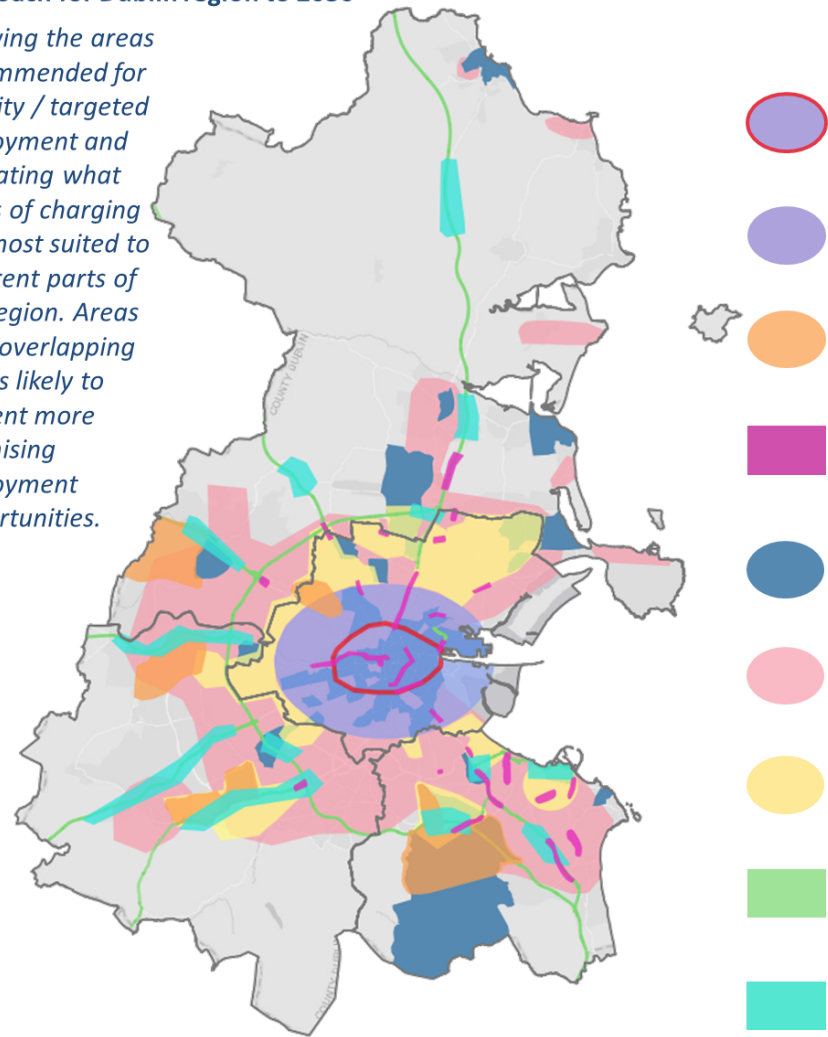

Share of cars without off-street parking

Indicating the relative reliance on public residential charging throughout the region

0%

100%

Relevant charging types:

Priority deployment areas identified through the various mapping outputs are combined to build an overarching infrastructure rollout approach for the region

Overarching recommended deployment approach for Dublin region to 2030

Showing the areas recommended for priority / targeted deployment and indicating what types of charging are most suited to different parts of the region. Areas with overlapping layers likely to present more promising deployment opportunities.

	Definition	Key user groups
	Rapid hub charging for multiple user groups within Canal Cordon	Residents without private parking, taxis, car clubs, commuters
	High public charging reliance – rapid hub charging recommended	Residents without private parking, taxis, car clubs, commuters
	High absolute public charging demand	Residents without private parking
	Priority areas for rapid en-route feasibility assessment	Residents without private parking, taxis, car clubs, commuters
	Rapid hub deployment potential to be investigated	Residents without private parking, taxis, car clubs, commuters
	Destination charging opportunities	Residents without private parking
	Medium public charging reliance	Residents without private parking
	Rapid en-route charging along major roads and arterial routes	Taxis, car clubs, commuters
	Potential rapid en-route forecourts site opportunities	Taxis, car clubs, commuters

Key deployment principles which underpin the approach developed

- **Rapid (hub) charging is the preferred model** and should always be the first-choice solution

- **Slow on-street EVCPs should only be used as a second-choice option** where there is a definite need, but rapid charging is not possible. This is partly due to their potential for inhibiting modal shift by making residents less likely to move away from private cars.

- **Charging infrastructure siting should be demand-led** and where possible aim to **aggregate demand across user groups**, with a particular focus on vehicle types that align with longer term modal shift ambitions such as e-taxis and car clubs.

- **EVCP deployment should leverage a range of location types** in order to develop a comprehensive charging network in a timely manner, including private car parks, en-route forecourts, and "low hanging fruit" opportunities such as Council-owned car parks
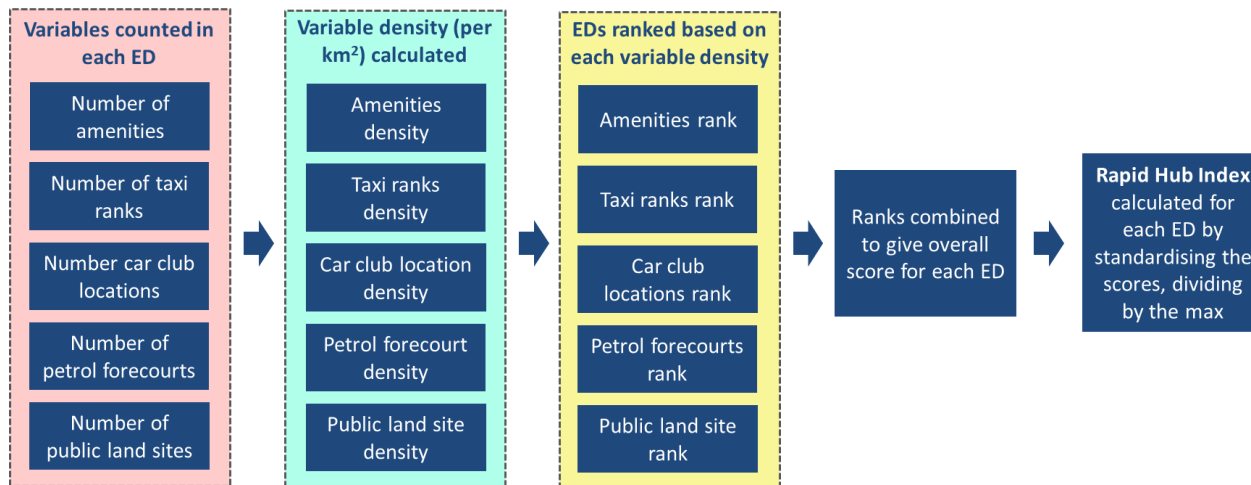
Note: it is not envisaged that the LAs will lead all the deployment activities highlighted

Note: the full report contains a deployment approach out to 2025 as well as the 2030 version shown, to guide a phased network development

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A rapid charging suitability test was developed to assess which areas in the Dublin region may represent the most promising opportunities for rapid EVCP deployment

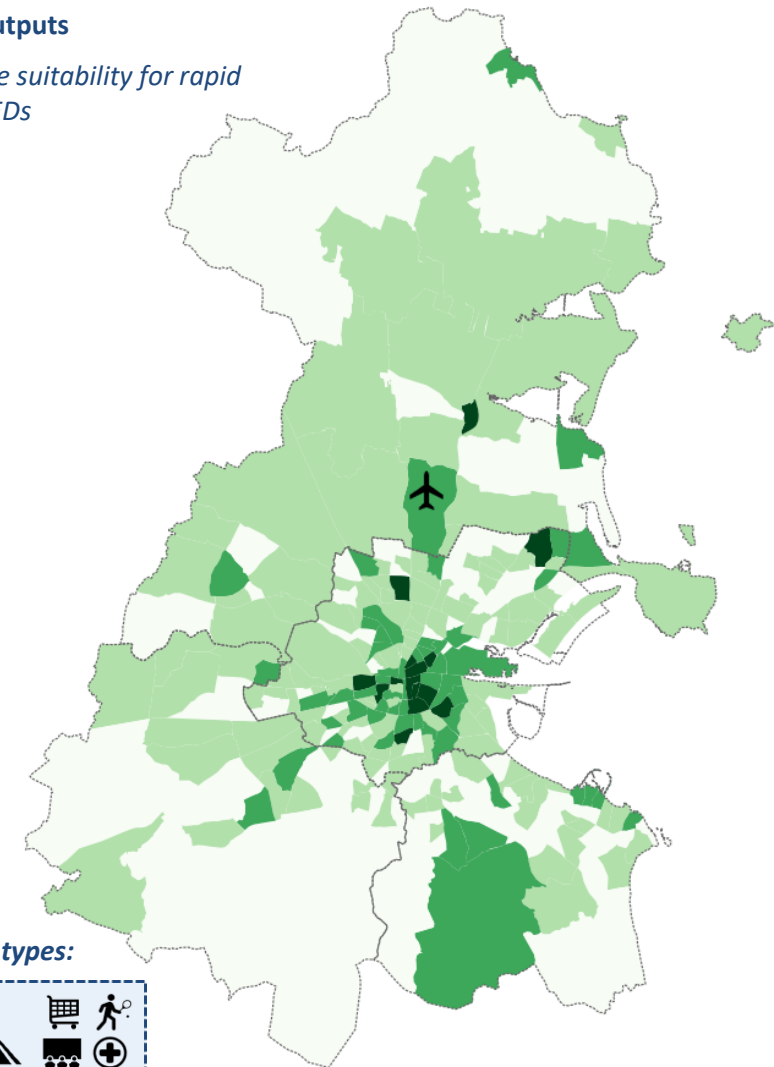## Overview of the rapid hub suitability test carried out for the Dublin region

- The analysis process above derived a Rapid Hub Index score between 0 and 1

- A higher score infers an ED is more suited to rapid charging deployment, based on potential future demand, alignment with key user groups, and siting opportunities

- The areas most suited to rapid charging are clustered in Dublin city and many sit within the Canal Cordon - the main driver for this is the high volume of car club locations and taxi ranks in which the potential for aggregating demand across different user groups

- These urban areas also score highly on the availability of amenities which are shown to be useful for attracting drivers to chargers

- *The Rapid Hub Index scores were used to inform the EVCP requirement analysis – in the Mixed Technology scenario, the top scoring 50% of EDs are assumed to use rapid charging to meet their residential demand*

Rapid Hub Index analysis process

Variables counted in each ED	Variable density (per km²) calculated	EDs ranked based on each variable density		
Number of amenities	Amenities density	Amenities rank		
Number of taxi ranks	Taxi ranks density	Taxi ranks rank	Ranks combined to give overall score for each ED	**Rapid Hub Index** calculated for each ED by standardising the scores, dividing by the max
Number car club locations	Car club location density	Car club locations rank		
Number of petrol forecourts	Petrol forecourt density	Petrol forecourts rank		
Number of public land sites	Public land site density	Public land site rank		

Rapid Hub Index analysis process

Rapid Hub Index outputs

Showing the relative suitability for rapid charging between EDs

0

1

Relevant charging types:

Note: the Rapid Hub Index test is only designed to show relative suitability between areas and highlight areas worth investigating further.

To support the delivery of the EV charging strategy, a series of next step and policy recommendations have been put together

Category	Local Authority next step recommendation
Procurement & Council role	The 4 LAs should agree on the role they wish to play in the deployment of infrastructure. Key part of this will be agreeing on preferred business models (note that concession approach assumed in modelling work and is suited to large, regional deployment)
	Allocate resource to procurement process set up a procurement framework for charging infrastructure that all 4 LAs can use. It is recommended that this is split into a rapid charging framework and slow-fast charging framework (best practice seen in London).
Site identification and deployment	Councils should use the first 6 months to start assessing low hanging fruit deployment opportunities in high priority areas.
	Engage with ESB Networks as early as possible regarding grid constraint issues and opportunities throughout the Dublin region, and establish effective communication channels to be used throughout the deployment.
	The Councils should develop a system for collecting, tracking, and mapping resident EVCP requests. SEAI could assist on this.
Integration with national & local strategy	The four LAs should engage with central government and aim to secure the projected budget needed to the rollout Dublin region's charging infrastructure by applying to the Climate Action Fund.
	Engage with Council representatives for all relevant mobility and development schemes in early-stage planning work, plus colleagues in relevant departments (Planning, Highways, Housing etc.)
Dissemination & communications	Engage with wide range of stakeholders including local businesses, landowners, forecourt operators, charging network operators, taxi drivers, car club operators, residents etc.

Selection of policy recommendations to address gaps identified

- Develop an EVCP grant aimed at residents in apartment blocks / estates with shared parking which landlords and management companies can access

- Develop an EVCP funding scheme which supports the deployment of 50kW+ charge points, which LAs can bid for and use to facilitate large scale infrastructure rollout

- The Government should:
  - Develop the national EV strategy included in the 2020 Programme for Government as soon as possible
  - Provide LAs with outstanding County and City development plan guidance as matter of urgency (as per LEV Taskforce Phase 2 report)
  - Do the necessary work to exempt specified EV charging infrastructure from the requirement to obtain planning under the existing Planning and Development Regulations 2001 (as per LEV Taskforce Phase 2 report)

- Support development of data sharing process between SEAI and LAs to allow geographic EV and EVCP grant distribution information to inform and plan EV infrastructure rollout

Note: this only shows a selection of the recommendations made, a more comprehensive list is found in the main strategy report

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Risk assessment for the Dublin region EV charging strategy (1/2)

Risk no.	Category	Risk in the 2021-2030 timeframe	Key impacts of risk	How strategy accounts for risk	Likelihood	Impact	Overall risk
1	EVCP & EV market	**Scalable on-street solution is slow to emerge** meaning on-street charging remains expensive / challenging to rollout. Could be impacted by COVID delaying technology trials	• Significant on-street deployment delayed • On-street deployment expensive where it is still installed • Wide scale on-street deployment not possible	• Considers both on-street and rapid hub approaches to residential charging, and recommends rapid EVCPs deployed where possible • Options for destination / rapid en-route charging highlighted, which would provide charging for those in areas waiting for on-street residential deployment	🟨	🟥	🟥
2		**EV uptake is slower** than expected	• Reduced charging demand • Higher investment may be needed to stimulate market (depending on reason for slow uptake)	• Uptake accounts for short term slow down due to COVID • Aggregating demand across user groups maximises EV uptake that does take place	🟨	🟨	🟨
3		**Plug-in hybrids sell better than expected** compared to fully electric vehicles	• Reduced rapid EVCP need	• Strategy considers multiple charging technology futures, including all on-street, all rapid, and mixed technology	🟩	🟨	🟨
4		**Plug & Charge technology is slow to develop** and does not become a standard solution by 2030	• PAYG must be offered for longer than planned	• Technology roadmap advises ensuring PAYG offered until Plug & Charge available	🟨	🟩	🟩
5	Deployment	There is only a **small volume of suitable publicly owned sites** for rapid hub development	• More on-street rapid deployment will be needed • Increasingly reliant on private site rapid hubs	• Strategy highlights forecourts that would make attractive hub sites as well as private car parks that could be leveraged	🟨	🟥	🟥
6		There is resistance to using Kerbside space for EV charging	• Limits residential charging deployment potential	• It is expected that in next few years, low profile chargers that are submerged in pavement when not in use will become market leader – limited space impact	🟨	🟩	🟩
7		DUoS grid cost structure is not reviewed and updated, meaning deploying hubs of 3 or more 22kW EVCPs remains commercially unviable	• Limits deployment of fast 22kW chargers • Less diverse charging network	• Strategy favours rapid charging where it is viable • On-street deployment assumed to shift to smart enabled charging hubs that will require lower grid connection per charger	🟨	🟨	🟨

DUoS = Distribution Use of System

Risk assessment for the Dublin region EV charging strategy (2/2)

Risk no.	Category	Risk in the 2021-2030 timeframe	Key impacts of risk	How strategy accounts for risk	Likelihood	Impact	Overall risk
8	Mobility trends & COVID	**Urban areas start to become pedestrianised** as part of a wider shift to sustainable forms of transport, and in order to reduce air pollution in the city	• Stranded assets • Wasted investment	• Deployment considers most sustainable user groups to future proof (e.g. taxi, car clubs) where possible • Rapid hubs recommended for areas most likely to be pedestrianised (lower cost per EV served)	🟩	🟥	🟨
9		There is a **shift away from private car ownership** as part of a wider shift to a more sustainable transport system	• Reduced charging demand • Underutilised / stranded assets • Worse return on investment	• Short-medium term deployment focussed on areas with multiple user groups, not just private cars	🟩	🟥	🟨
10		Some **public car parks start to be closed** in city centre, to aid the trend away from private car use and as a knock-on effect of COVID	• Stranded assets • Wasted investment	• Recommended that private sector encouraged to deploy rapid charging on their sites in city centre • Identifies forecourt sites that could be leveraged	🟨	🟩	🟨
11		There is **less commuting** as a whole as more people choose to work from home, and within this there is a **reduction in car commuting**	• Reduced charging demand in city centres • Underutilised assets	• Multiple user groups available for city centre EVCPS, not just commuters	🟨	🟩	🟨
12		There is **decrease in commuting by train, tram and bus** due to COVID-19, leading to an **increase in car commuting** as people switch modes	• Increased charging demand • More EVCP investment needed	• Residential deployment to be targeted at priority areas in early years • Includes scenario which considers very ambitious uptake (CAP Ambition)	🟨	🟨	🟨
13		The **car market continues to be constrained** due to COVID-19 for years to come, as further lockdown periods are imposed	• Reduced charging demand while market constrained • Slower investment needed	• Stock size held constant in first 2 years of strategy to reflect limited turnover	🟨	🟨	🟨
14	Policy & funding	There is **less public funding available for EV infrastructure than expected** over the coming decade	• Lower EVCP volumes possible • Funding must be more targeted – high quality sites, multiple user groups etc.	• Key focus of strategy is on deploying well utilised rapid hubs, which represent best value for money • Coordinated hub approach is the goal for both on-street + rapid, which helps reduce costs	🟩	🟥	🟨