



Glasgow City Council

Public Electric Vehicle Charging Strategy and Expansion Plan

June 2023

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Executive summary

Summary

This Business Case sets out how Glasgow City Council (GCC) can invest in Electric Vehicle Charging Infrastructure (EVCI) to meet projected demand over the next three to four years. The proposed EVCI programme will enable GCC to work with other local authorities in the Glasgow City Region (GCR) and commercial suppliers to increase EVCI through this programme from an existing baseline of 354 charging devices as of March 2023, to a future network of 3,487 charging devices (based on a 2026 forecast).

This total figure includes existing (upgraded where required), new publicly accessible charge points assumed to be installed by independent providers (without any intervention from the public sector) and the strategic provision requirement of 1,803 outlined in the table below. The term 'strategic provision' is used to identify EVCI estimated to be required on top of existing and independently provided, to meet the strategic aims of this business case.

The application for funding covered by this business case therefore includes funding to support the strategic provision outlined below.

Table 0.1: Summary of Total Proposed EVCI to be Procured

	Residential AC (7kW)	Destination AC (7-22kW)	Rapid DC (50kW)	Total Future Strategic Provision	Total Strategic Provision (Existing & Future)
Existing (2023 Baseline)	0	208	20	228	
New / Future (Based on 2026 Forecast)	1,317	207	53	1,577	1,805

Source: Mott MacDonald

The estimated capital investment required to achieve the above network is summarised below.

Table 0.2: Summary of Total Proposed EVCI Capital Costs

Cost Item	Value £, 2022 prices
Existing Asset replace and update	£2,000,000
Capital Enabling Costs	£4,000,000
Capital EVI + Installation Costs	£11,800,000
Standard DNO Costs	£3,100,000
Total Capital Cost requirement	£20,900,000

Strategic Case

The Strategic case for investment is outlined in the overall GCR Summary report. The EVCI programme aligns with and helps to deliver the wider Draft Vision for Scotland's Public Electric Vehicle Charging Network 'A Network fit for the Future' (Transport Scotland, 2022), and its four key principles underpinned by the need for a 'just transition':

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- a people-focused network
- accelerating commercial investment
- coordinating with the electricity network; and
- integration with Scotland’s sustainable transport system

The Scottish Government has mandated Scottish Futures Trust (SFT) to undertake programme management of the Electric Vehicle Infrastructure Fund (EVIF), including providing the framework for local authorities to bid to the fund, and making recommendations to the Scottish Government on funding awards. SFT has developed the business case template that this document follows and stipulated key metrics to be provided in the rest of this Executive Summary.

The proposed programme of EVCI in this business case meets SFT’s strategic aims as outlined below,

Table 0.3: Meeting SFT’s Strategic Aims

SFT’s Strategic Aims	How the Approach of the EVIF Programme in this Business Case Meets Those Aims
A comprehensive network of public charge points	From 2025, the successful delivery of EVCI programmed in this business case will result in there being a comprehensive charging network throughout Glasgow. It is predicted that 99% of Glasgow’s properties without off-street parking will be within a 10-minute drive of a charge point as a result of the investment made through this business case. Five-minute walking catchments have been assumed to residential chargers where off-street parking is limited to help deliver the ‘equitable’ and ‘usable’ objectives.
Access, fairness and need	The vision of this programme is to provide a usable network, accessible for all and through the ‘Place Principle’ and ‘Community Wealth Building’ approach should ensure that rural communities are not left behind.
Leveraging private investment and approach to enabling this investment	A 20-year concession-type (‘public sector ownership with private sector operation’) contract is recommended for new and existing assets, and it is estimated that c.88% of the estimated capital cost will be secured from the private sector under the SFT assumptions.
Enabling wider sustainable transport outcomes	This EVCI programme aims to reduce private car use and integrate with the sustainable and active travel offering. The Scottish Government have published a target to reduce vehicle km by 20% by 2030. Furthermore, GCC has set a more ambitious target of reducing car vehicle kilometres by at least 30% by 2030. This business case is strategically aligned with that target through incorporating the 30% reduction into the demand forecasting and ensuring proposed locations for EVCI complement walking, cycling and public transport.

Economic Case

From the baseline data and range of forecasts analysed, low, central and high EV uptake forecasts were derived for the GCC local authority area. This data is summarised for the overall EVCI requirement across Glasgow below.

Table 0.4: GCC Forecast EVCI Requirements

	2026 Forecast Requirement			2030 Forecast Requirement		
	Low	Central	High	Low	Central	High
Residential (Slow)	821	1,317	1,645	1,386	2,153	3,086
Destination (Slow)	832	1,357	1,631	1,892	2,970	4,303
Destination (Fast)	137	224	269	312	490	711
Rapid	366	591	721	944	1,520	2,218
Total Devices	2,156	3,489	4,266	4,534	7,133	10,318

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Source: Mott MacDonald

The current charge point provision has been compared to the 2021 mid-year population estimates. The subsequent EVCI forecasts for 2026 and 2030 were then also compared to the 2021 population to derive the forecast charge points per 100,000 population. The results are shown in the table overleaf.

Table 0.5: Forecast Charge Points per 100,000 Population

	2022	2026	2030
Glasgow City Council	56	550	1,124

Source: Mott MacDonald

Department of Transport data¹ indicates that there are 3,719 PiVs registered in the GCC local authority area as of Q3 2022. This figure has been compared with the number of publicly accessible EVCI to derive the EV to charge point ratio. These figures are shown in the table below.

Table 0.6: Forecast EV to Charge Point Ratio

	Total Plug-in Vehicle Registrations (2022 Q3)	2022 EV Chargers	2022 EV to EVCI Ratio
Glasgow City Council	3,719	354	11

Source: Department of Transport

Commercial Case

Local authorities have an interest in intervening in the EVCI market, both to promote EV uptake towards Net Zero targets and to ensure a socially equitable network. They also have several strengths to bring to the market. However, it is also recognised that local authorities are not as well placed as the private sector with regards to borrowing capital and responding to the significant delivery and operating uncertainties associated with this emerging market.

SFT's guidance is that it is unlikely that local authorities will be able to access the EVIF if they choose to adopt a local authority 'owner-operator' delivery model (described as Model D within this report). The draft vision for the public EV charging network in Scotland states that further investment from the private sector is required to meet the scale and pace of EVCI expansion within Scotland.

After considering four different commercial models in terms of affordability, risk allocation, social outcomes, contestability, procurement, resources and revenue, the Commercial Case recommends a concession-based contract (either public sector ownership with private sector operation or public sector ownership with a private sector shared-risk/revenue operation). Furthermore, it is recommended that GCC work together with one or more local authorities within the GCR, however, it is acknowledged that GCC will likely seek to undertake further analysis outwith this business case study to inform their final preference.

Financial Case

The table below summarises indicative results of the SFT feasibility model under SFT standard assumptions.

¹ Vehicle Statistics Collection, Department for Transport and Driver Vehicle Licensing Agency. January 2022. Available at: [Vehicles statistics - GOV.UK \(www.gov.uk\)](https://www.gov.uk)

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Table 0.7: SFT Feasibility Model results

Funding Source	Value £, 2022 prices
Total Funding/Capital Cost requirement	£20,900,000
Indicative Private investment	£18,500,000
'Minimum' Transport Scotland Grant	£300,000
Remaining capital amount	£2,100,000

Source: Mott MacDonald

In this example, the Remaining capital amount is £2.1m which is c.10% of the total Capital Cost requirement. Due to the relatively high capital funding requirement, it may be appropriate to consider a phased approach, whereby a proportion of initial upfront capital is invested to achieve the desired spatial coverage of EVCI followed by the remaining investment to scale the infrastructure. This will ensure the realisation of community benefits are prioritised through the initial investment to ensure coverage.

Management Case and Next Steps

The next steps for GCC's EVCI programme, prior to commencing procurement are as follows:

Month/year	Key tasks
April 2023	<ul style="list-style-type: none"> • Business Case presented to the Chief Executive's Group • Initiate further discussions on commercial model and collaborative working arrangements • Submission of draft business case document to SFT for comment • Further engagement with SPEN to confirm any constraints
June 2023	<ul style="list-style-type: none"> • Complete additional analysis on alternative governance and procurement options to finalise commercial preferences • Confirm collaborative working arrangements and agree and establish Inter-Entity Agreement IEA(s) as required • Finalisation of business case • Internal approval process of the business case document within each of the eight local authorities begins
September 2023	<ul style="list-style-type: none"> • Internal approval process of the business case document within each of the eight Councils complete • Submission of final business case document to SFT for consideration • Procurement of consultancy support (if required) for procurement and development stage may be underway • Soft market testing complete
Q4 2023	<ul style="list-style-type: none"> • Development of procurement/tender documentation for suppliers • Commencement of procurement process with commercial suppliers
Q1 2024	<ul style="list-style-type: none"> • CPO partners in place • Commencement of capital works for new EVI • Existing asset replacement where required
Q2 2024	<ul style="list-style-type: none"> • Commencement of service delivery

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Month/year	Key tasks
2024 (to 2026)	<ul style="list-style-type: none"><li data-bbox="432 309 1254 371">● EVI programme in place, with installation of new EVI ongoing, and service delivery ongoing
Q2 2025	<ul style="list-style-type: none"><li data-bbox="432 394 903 421">● ChargePlace Scotland contract ends

1 Introduction

1.1 Purpose of the Report

This report presents the proposed package of publicly available electric vehicle charging infrastructure (EVCI) for Glasgow, predicted to be required to service the growth in EVs. The report should be read in conjunction with the overall GCR Summary Report which provides the overall strategic case for investment, the methodology and assumptions and sets out options and recommendations for collaborative delivery among all authorities of the Glasgow City Region (GCR):

- East Dunbartonshire
- East Renfrewshire
- Glasgow
- Inverclyde
- North Lanarkshire
- Renfrewshire
- South Lanarkshire
- West Dunbartonshire

The Scottish Government has mandated Scottish Futures Trust (SFT) to undertake programme management of the Electric Vehicle Infrastructure Fund (EVIF), including providing the framework for local authorities to bid to the fund, and making recommendations to the Scottish Government on funding awards. The purpose of this report is to enable GCC to access the EVIF.

The report describes a range of commercial delivery options for EVCI. Whilst a range of options are considered, the SFTs guidance is that authorities are not be able to access the EVIF if they choose to adopt a local authority owner operator model (described as Model D within the report). The draft vision for the Public EV Charging Network in Scotland states that further investment from the private sector is required to meet the scale and pace of EVCI expansion within Scotland. For this reason, the Financial Case included within this report uses the SFT Feasibility Model to appraise a concession contact option only.

1.2 Vehicle Types

The scope of this EVCI business case includes EVCI requirements for the following vehicle types:

- Cars
- Light Goods Vehicles (LGVs)
- Taxis
- Private Hire Vehicles (PHVs)

Charging facilities for other vehicles, for example motorcycles, Heavy Goods Vehicles (HGVs) and buses/coaches are out of scope of the EVIF.

For the purposes of this report, the following definitions are used:

- **Battery Electric Vehicle (BEV):** A vehicle powered by electricity, which is stored in a battery, and recharged by plugging into a source of electricity or by regenerative braking.

The range depends on the size of the battery, which is measured in kWh, but most new BEVs have a range of at least 200 miles based on a 50kWh battery.

Plug-in Hybrid Electric Vehicle (PHEV): A vehicle that has both a 'traditional' Internal Combustion Engine (ICE) fuelled by petrol or diesel, which is supplemented with a battery-powered electric motor. These can travel on electric-only power for up to 40 miles, depending on the size of the battery. The battery is recharged by plugging into a source of electricity or by regenerative braking.

Other types of low emission vehicles such as conventional hybrid ICE and Hydrogen Fuel Cell EV (FCEV) have been excluded from the analysis as they do not require the same EVCI. The term Plug-in Vehicle (PIV) is used throughout the report to refer to BEV and PHEV combined.

1.3 Charging Types

There are four charger types that provide power to EVs, which are categorised based on the power output of the charger. These are summarised in Table 1.1.

Table 1.1: EV Charger Types

Charger type	Output (kW)	Typical Time to Fully Recharge BEV	Examples of Location Suitability
Standard (AC)	Up to 7kW	6 to 12 hours	Residential on-street, workplace, private driveway, car parks, transport hubs.
Fast (AC)	7kW to 22kW	2 to 5 hours	Destinations including car parks, supermarkets, leisure centres, retail parks, transport hubs.
Rapid (DC)	43kW to 100kW	20 to 60 minutes	Destinations such as supermarkets, retail parks and transport hubs, or en-route journey charging like motorway services and service stations
Ultra-rapid (DC)	100kW to 350kW	15 to 30 minutes	En-route journey charging such as motorway services and service stations.

Source: Mott MacDonald

Further detail relating to vehicle types and charger type characteristics is provided in Section 2 of the GCR Summary Report.

1.4 Structure of the Business Case

The structure of this business case follows the SFT template and is outlined below, for the sections following this introduction:

- Section 2: Background
- Section 3: Baseline position
- Section 4: Consultation and Stakeholder Engagement
- Section 5: The Strategic Case
- Section 6: The Economic Case
- Section 7: The Commercial Case
- Section 8: The Financial Case
- Section 9: The Management Case

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2 Background

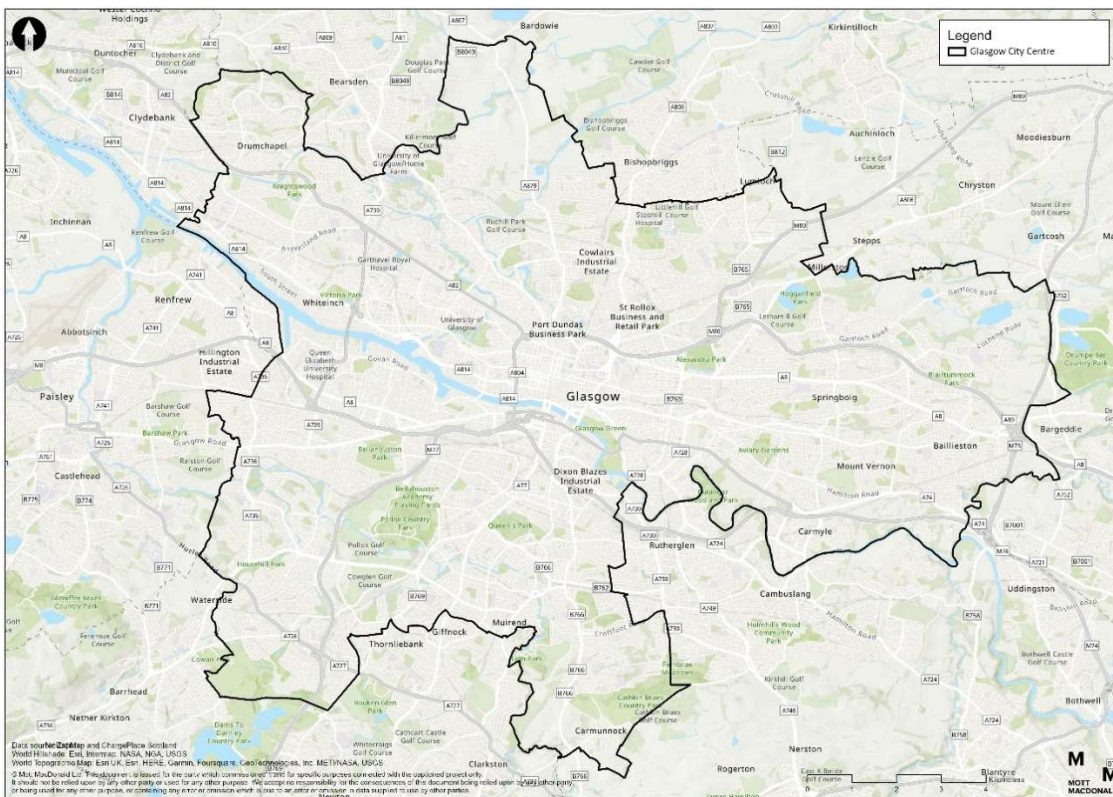
The Scottish and UK Governments policy is that no new petrol and diesel cars and vans will be sold from 2030, with all new cars and vans required to be fully zero emission by 2035². The number of plug-in cars and light goods vehicles licenced in Scotland increased from 500 in 2012 to almost 50,000 in 2022. It is therefore vital that Scotland expands the EVCI network to meet the growing demand for EVs.

This section outlines the relevant demographic data for the GCC local authority area. The data used in this section comprises of population estimates, Scottish Indices of Multiple Deprivation (SIMD), dwelling statistics from National Records, employment characteristics and local plan data. This data is used to understand the socioeconomic conditions across the GCC local authority area, informing the assessment of potential demand for future EVCI. Understanding socioeconomic context is a critical element of the strategy as population density, deprivation levels and employment all significantly influence EV ownership levels and, therefore, the demand for charging facilities across Glasgow. In particular, this data will help identify areas of opportunity – as well as potential challenges – with respect to providing an equitable network.

2.1 Study Area

Figure 2.1 illustrates the GCC study area, which is one of the eight constituent local authorities in the GCR.

Figure 2.1: Glasgow City Council Study Area



² Scottish Government. Securing a green recovery on a path to net zero: climate change plan 2018–2032 - update (2020).

Source: Map produced by: Mott MacDonald, Boundary: statistics.gov.uk

2.1.1 Population

Population characteristics can influence the uptake of EVs and therefore the need for EVCI.

Table 2.1 illustrates the mid-year 2021 population estimate distributions by age for Glasgow, Scotland and the United Kingdom.

Glasgow has a total population of 635,130³. On average, the city has a younger population when compared to both Scotland and the UK as a whole, with a higher-than-average proportion of the population aged 15-44. Glasgow's working age population is similarly higher when compared to both Scotland and the wider UK.

Table 2.1: Mid-year Population Distribution Estimates by Age, 2021

Age Cohorts	Glasgow City Council	Scotland	UK
0-14	15%	16%	17%
15-24	13%	11%	12%
25-44	35%	26%	26%
45-64	23%	27%	26%
65+	14%	20%	19%
16-64 (Working age)	71%	64%	60%

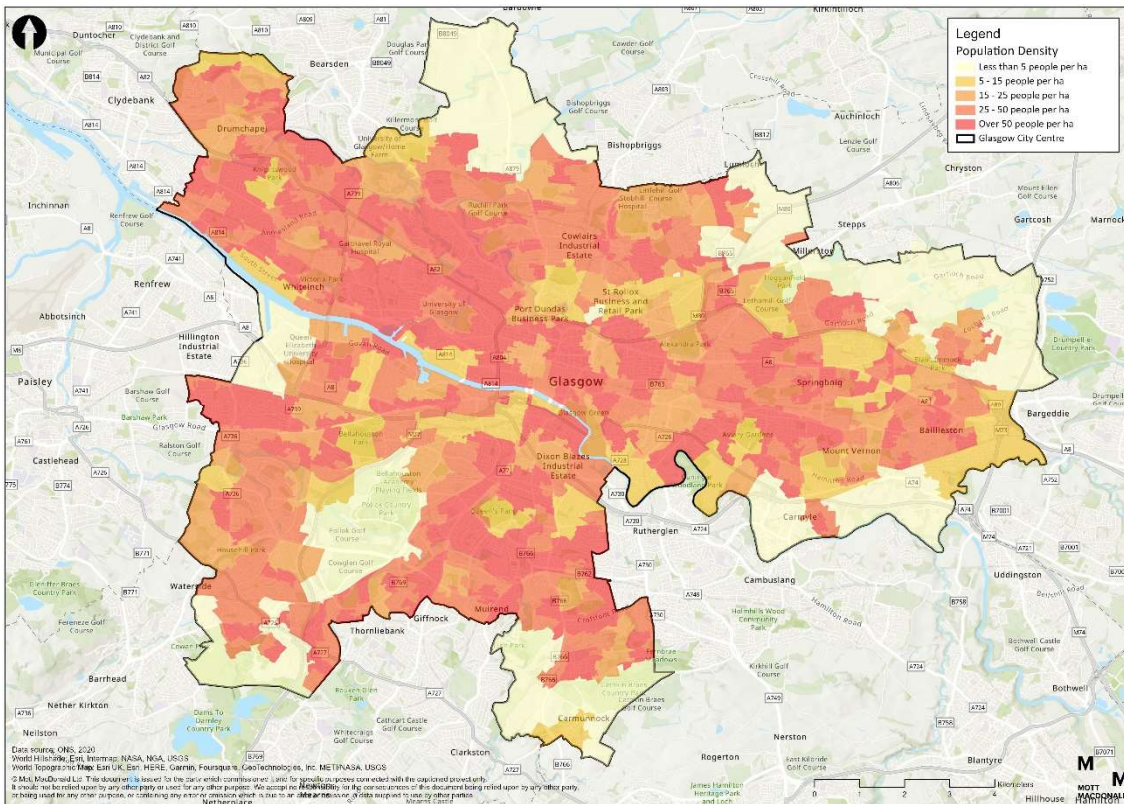
Source: Population Estimates 2021, ONS. Shading denotes where % is higher than UK average.

Figure 2.2 illustrates mid-2020 population estimates, in density per hectare (ha). Glasgow's average population density in mid-2020 was estimated at 3,640 people per square kilometre, making it the largest Scottish City based on population density.

As indicated in Figure 2.2, a large proportion of the GCC local authority area has more than 50 people per ha; denoted in this case by a dark red colour. Small concentrations of lower population density are visible towards the edges of the local authority area; particularly in the more rural parts of Glasgow adjacent to Renfrewshire, East Renfrewshire, South Lanarkshire and East Dunbartonshire.

³ Labour Market Profile - Nomis - Official Census and Labour Market Statistics (nomisweb.co.uk); Population Estimates, 2021. Office for National Statistics.

Figure 2.2: Population Density



Source: Map produced by: Mott MacDonald, Data: Population Estimates by small area, ONS, 2020

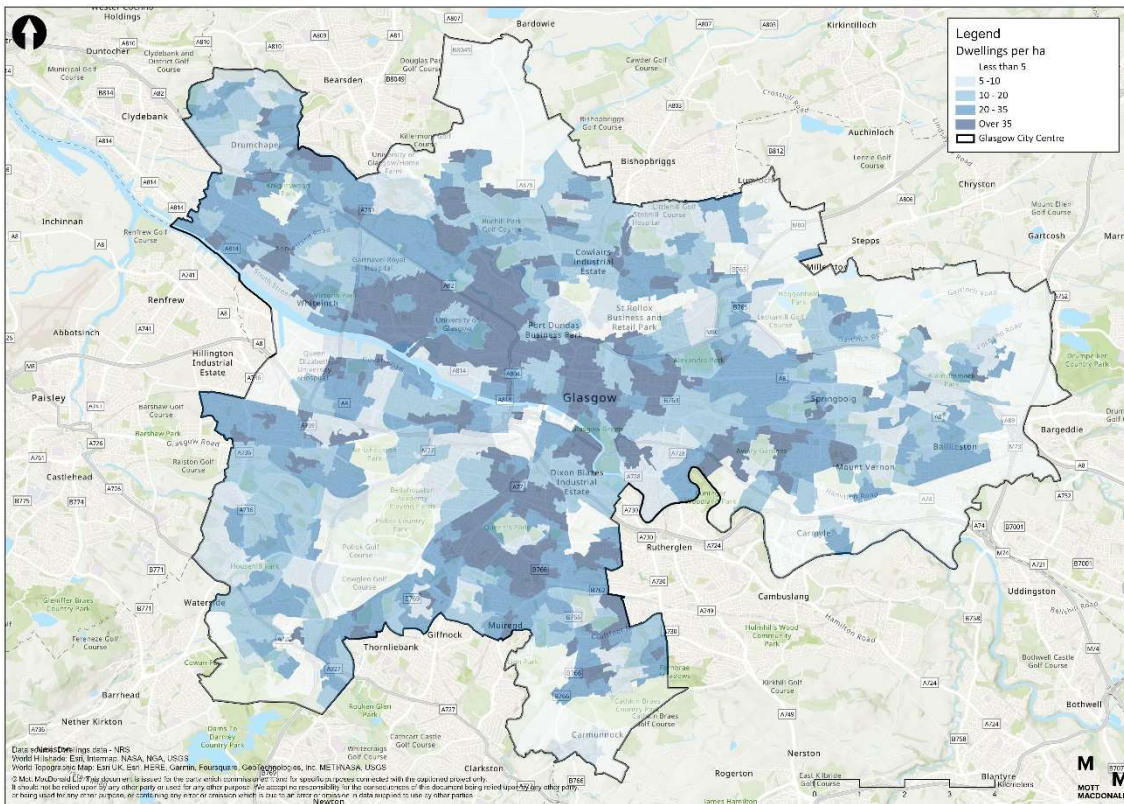
Areas with low population densities mean that EV charging sites are likely to be less commercially viable due to fewer people requiring the use of them. However, the area will still require charging facilities for those with EVs and to encourage and facilitate the wider shift to EVs.

2.1.2 Number of Dwellings

Dwelling density and access to off-street parking are both considered when assessing the future EVCI requirements. Access to off-street parking enables owners to charge vehicles at home, as opposed to relying on the publicly available charger network.

Figure 2.3 shows the number of dwellings per hectare across the GCC local authority area, with darker blues indicating higher dwelling density. The highest number of dwellings per hectare are located in the city centre, parts of southern Glasgow, and to the west and north-west of the city centre.

Figure 2.3: Number of Dwellings per Hectare



Source: Map produced by: Mott MacDonald, Data: Dwelling estimates and characteristics of dwellings, by 2011 Data Zone, NRS, 2020

Where there is a lower density of dwellings, commercial viability again becomes an issue as there is likely to be less demand for the use of EVCI. Additionally, individuals are likely to be required to travel further to access EVCI and therefore potentially less likely to use publicly available infrastructure.

Table 2.2 shows that there are approximately 320,000 dwellings in the GCC local authority area based on 2021 data⁴. Of this figure, only 34% have access to off-street parking. This figure is considerably lower than the equivalent figure for the wider GCR (49%) and suggests that there may be significantly higher *additional* demand for public charge points within Glasgow itself.

Table 2.2: Number of Dwellings and Off-Street Parking Percentage

	Number of Dwellings 2021	Percentage of dwellings with off-street parking
Glasgow City Council	319,810	34%
Glasgow City Region	858,516	49%

Source: National Records of Scotland (NRS) 2021, and Scottish House Condition Survey 2020

⁴ Number of dwellings in Scotland by council area, 2021, National Records of Scotland (NRS)

2.1.3 Scottish Indices of Multiple Deprivation (SIMD)

Equitable distribution is an important aspect of the Draft Transport Scotland vision for the public charger network. This section provides an overview of the levels of deprivation and socioeconomic disadvantage in across the GCC local authority area.

The purchase price of EVs is a significant barrier to uptake at present, meaning the socioeconomic context represents an important consideration for the future provision of charging infrastructure. Demand for EVCI may therefore increase more rapidly in higher decile zones, and so be more attractive to private sector investment. In turn, this may mean that lower decile areas are considered less attractive to the private sector and will therefore require appropriate responses or approaches to ensure that both the transition to EVs and the wider decarbonisation of transport is fair and just.

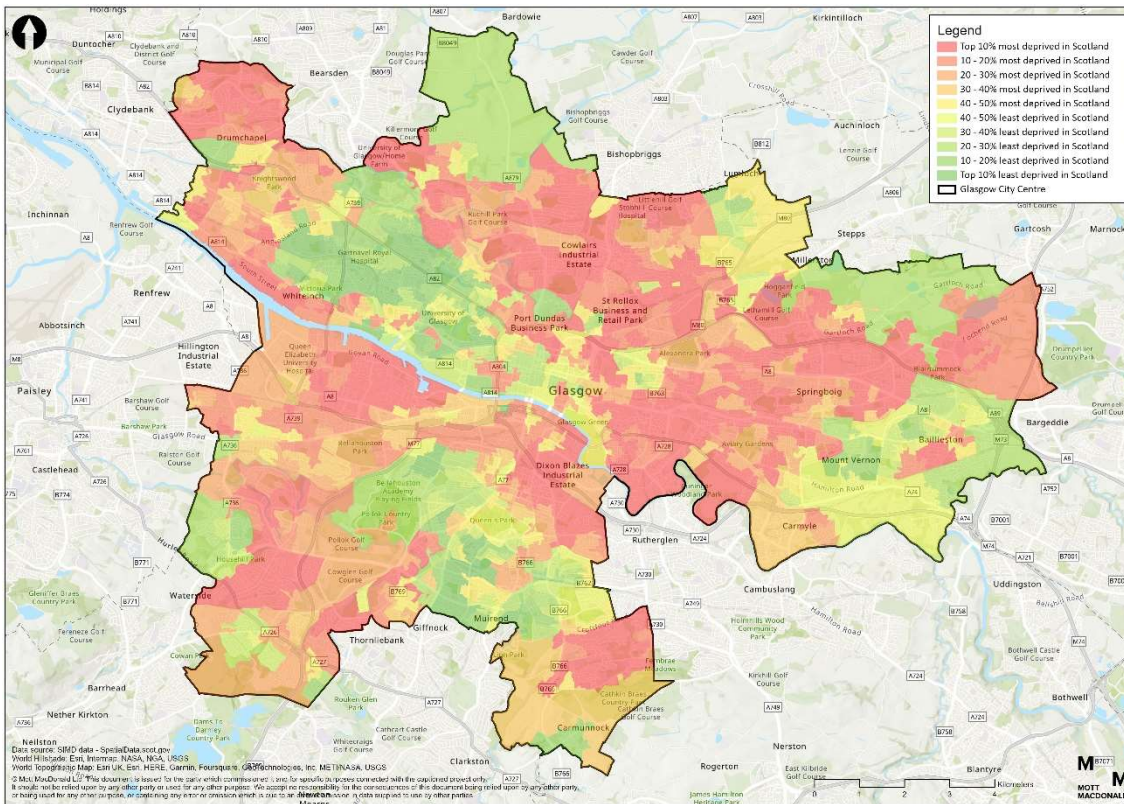
To aid understanding of deprivation and economic disadvantage, SIMD were mapped to acquire a spatial understanding of the socio-economic distribution in the study area.

Deciles are calculated by ranking the data zones from most deprived to least deprived and dividing them into 10 equal groups. Zones in decile 1 fall within the 10% most deprived zones nationally, whilst zones in decile 10 fall within the 10% least deprived of data zones nationally. The SIMD is the official measure of deprivation and combines information from the following:

- Employment Deprivation
- Education, Skills, and Training Deprivation
- Health Deprivation and Disability
- Crime
- Barriers to Housing and Services
- Living Environment Deprivation

Figure 2.4 illustrates the SIMD deciles for Glasgow in the form of a heatmap, whereby red hues signify areas that suffer from higher percentages of deprivation and green hues signify areas with lower percentages. This shows that areas to the immediate north and east such as of the city centre have a higher level of deprivation when compared to the parts of the west and south of the city.

Figure 2.4: Indices of Multiple Deprivation



Source: Map produced by: Mott MacDonald, Data: SIMD, SpatialData.scot.gov

2.1.4 Housing and Commercial Development

The Glasgow Housing Strategy⁵ is GCC’s primary strategic document for setting out the Council’s response to housing issue across the local authority. Increasing the supply and improving the *quality* of housing available to the people of Glasgow, as well as improving *access* to appropriate housing for the people of Glasgow, were identified as key delivery themes and sets out six strategic priorities in support.

The housing supply targets included within the Housing Strategy are derived from wider Clyde Plan Strategic Development Plan are as follows:

Table 2.3: Glasgow City Council Housing Supply Targets and Requirements 2024-2029

	Housing Supply Target 2024-2029	Housing Supply Requirement 2024-2029
Glasgow City Council	12,580	14,470

Source: Strategic Development Plan, Clyde Plan, 2017

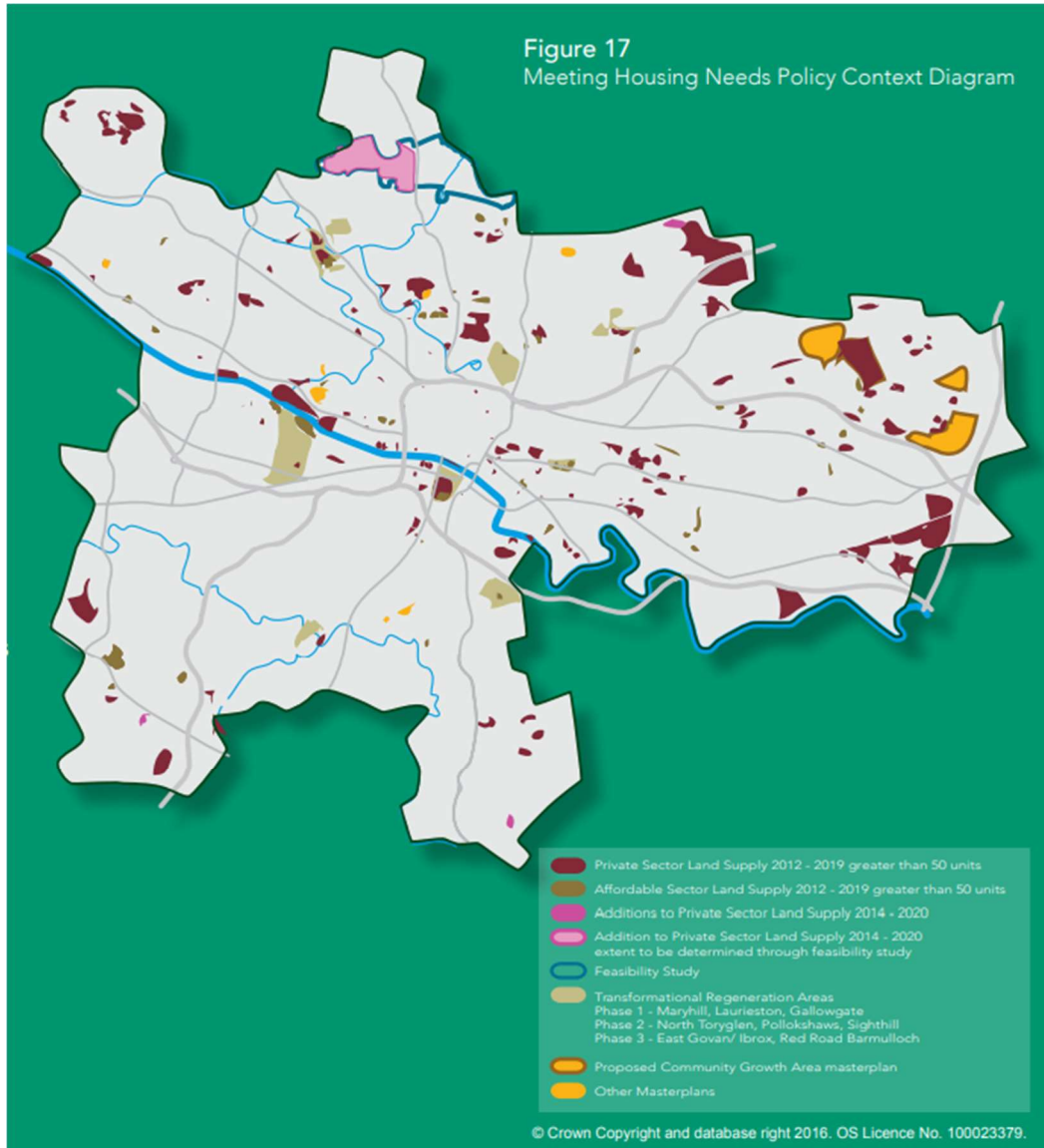
Glasgow’s Strategic Housing Investment Plan 2022/23 – 2026/27⁶ represents the delivery plan for the wider Housing Strategy, sets out the resources available for investing in housing to meet these stated targets. This includes over £480million of grant-funding that has the potential to

⁵ Glasgow Housing Strategy 2017-2022, Glasgow City Council, 2017. Available at <https://www.glasgow.gov.uk/CHttpHandler.ashx?id=4584&p=0>

⁶ Glasgow’s Strategic Housing Investment Plan 2022/23 to 2026/27, Glasgow City Council, 2021. Available at: <https://www.glasgow.gov.uk/CHttpHandler.ashx?id=44876&p=0>

deliver 6,500 new affordable homes between 2022 and 2026. An indicative plan taken from the City Development Plan and included as Figure 2.5 shows that land designated for housing has been identified across the local authority area, particularly high concentrations can be found in the north and east of the city.

Figure 2.5: Housing Needs



Source: Glasgow City Council

An understanding of housing policy helps inform the scale, and where such information is available, potential ‘hotspots’ of future EV demand. Similarly, commitments to ensuring that new developments provide sufficient charging points for EVs – as stated within the City Development Plan⁷, as well as Supplementary Guidance Note SG:11⁸ – clearly indicate the potential for the

⁷ Glasgow City Development Plan, Glasgow City Council, 2017. Available at: <https://www.glasgow.gov.uk/CHttpHandler.ashx?id=35882&p=0>

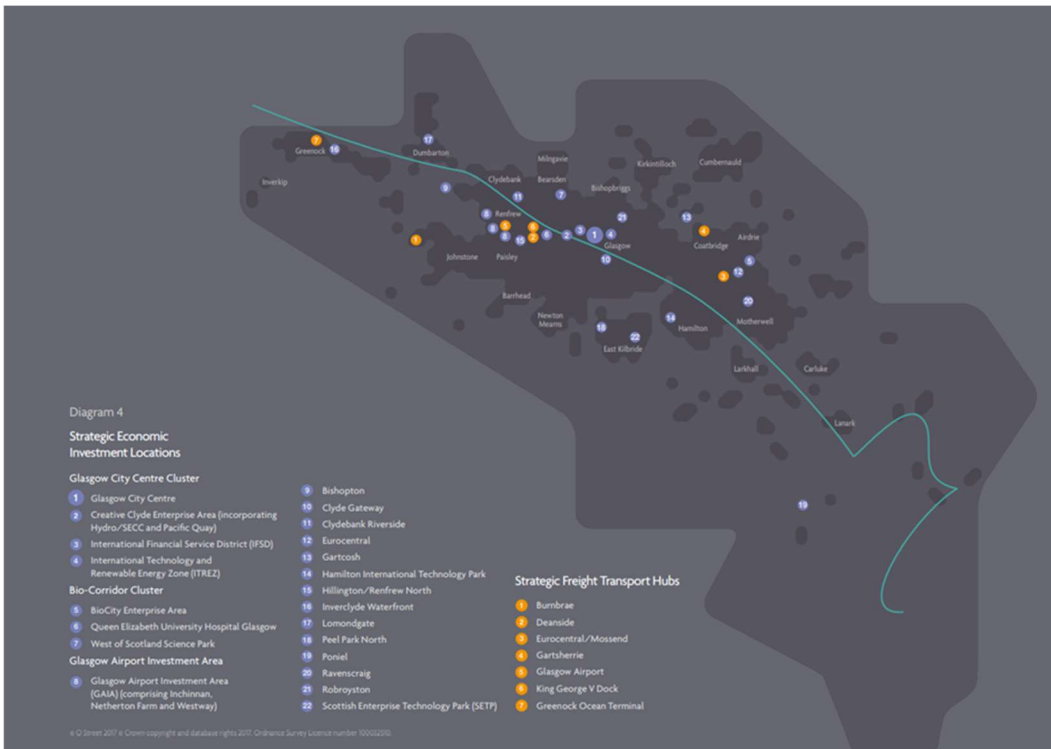
⁸ Glasgow City Development Plan Supplementary Guidance 11: Sustainable Transport, Glasgow City Council, 2017. Available at: <https://www.glasgow.gov.uk/CHttpHandler.ashx?id=36522&p=0>

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off-street provision of EVCI; thereby reducing the need for some vehicles to use the public network to fulfil their charging needs.

The Clyde Spatial Development Strategy identifies 22 Strategic Economic Investment Locations which will contribute to achieving the long-term vision of a “rebalanced low carbon economy... boosting competitiveness and tackling inequality”⁹. The identified locations are illustrated in Figure 2.6.

Figure 2.6: Clydeplan Strategic Economic Investment Locations



Source: Glasgow and the Clyde Valley Strategic Development Plan, 2017

⁹ Glasgow and the Clyde Valley Strategic Development Plan, 2017. Available at: [ApprovedPlanHighRes.pdf \(clydeplan-sdpa.gov.uk\)](#)

2.1.5 Road Network and vehicle km travelled

The EVCI requirement is based on travel patterns and vehicle km travelled within the region.

The GCC local authority area hosts 1,939km of road network, with further details provided in Table 2.4. It has the second longest total road network and the longest motorway network in the GCR.

Table 2.4: Road Network in Glasgow City Council

	Motorway and slips (km)	A Roads (km)	Local Authority Roads (km)	Total Road Network (km)
Glasgow City Council	106	2	1,831	1,939

Source: Chapter 4: Road Network | Scottish Transport Statistics 2021, Transport Scotland.

Table 2.5 shows the traffic (in km) on roads in Glasgow; information is given on Motorways, Trunk Roads, Non-Trunk A Roads and Minor Roads. GCC has the highest level of traffic (in km) in the whole of Scotland.

Table 2.5: Traffic on Major and Minor roads in Glasgow City Council, 2021 (in million vehicle kilometres)

	Motorways	Trunk A	Non-Trunk A	Minor Roads	Total
Glasgow City Council	1,162	7	582	1,007	2,758

Source: Chapter 5: Road Traffic | Scottish Transport Statistics 2021, Transport Scotland

2.1.6 Employment Characteristics

The types of jobs people have in the region can also influence the need for publicly available EVCI.

The Business Register and Employment Survey (BRES) provides an overview of the population employment occupation for Glasgow and has been provided in Table 2.6. Glasgow has a higher-than-average proportion of those employed in business administration and support services as well as within the financial and insurance sectors. Conversely, Glasgow has a lower-than-average proportion of people working in manufacturing and construction industries.

This information aids understanding of employment trends and the industry types which underpin economic activity in the region, including the vehicle types used and required for different industries (such as delivery vans, fleets etc.). Furthermore, this data gives some insight into potential commuting patterns and types of employment land which can be used to identify appropriate charging locations.

Table 2.6: Glasgow City Council Employment Characteristics

	Glasgow (No.)	Glasgow (%)	Scotland (%)	Great Britain (%)
Soc 2020 Major Group 1-3	171,600	54	49	52
1 Managers, Directors And Senior Officials	23,400	7.3	8.2	11
2 Professional Occupations	88,000	28	26	26
Soc 2020 Major Group 4-5	60,200	19	15	15
4 Administrative & Secretarial Occupations	58,000	18	19	19
5 Skilled Trades Occupations	38,400	12	10	10
Soc 2020 Major Group 6-7	19,600	6.1	8.8	8.6

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	Glasgow (No.)	Glasgow (%)	Scotland (%)	Great Britain (%)
6 Caring, Leisure And Other Service Occupations	39,100	12	17	15
7 Sales And Customer Service Occupations	17,900	5.6	8.6	8
Soc 2020 Major Group 8-9	21,200	6.6	8	6.5
8 Process Plant & Machine Operatives	49,000	15	16	15
9 Elementary Occupation	18,400	5.8	5.7	5.5

Source: ONS Annual Population Survey

2.1.7 Tourism

Glasgow is a popular tourist destination and the City Council's Tourism and Visitor Plan to 2023¹⁰ set plans to help achieve three million overnight visits per year by 2023 and an associated spend of £771 million.

A number of key Glasgow tourist attractions fell within the top visitor attractions for the wider region and have been included in Table 2.7. Tourist attractions located within the GCC local authority area are indicated in green.

Table 2.7: Top Visitor Attractions and Visitor Numbers, 2019

Attraction	Visitors
Kelvingrove Art Gallery and Museum	1,832,097
Riverside Museum	1,364,739
Rouken Glen Park	1,024,347
Chatelherault Country Park	677,254
Mugdock Country Park	639,620
Hunterian Art Gallery	60,320
Pollok House	57,099
The Clydeside Distillery	34,997
RSPB Lochwinnoch Nature Reserve	26,217
Tenement House	23,456

Source: VisitScotland

Kelvingrove Art Gallery and Museum is the top visitor attraction within the region, with a footfall of almost two million visitors recorded in 2019. With a large number of tourists travelling into Glasgow, publicly accessible EVCI is desirable to enable visitors to charge their vehicles for their onward journeys.

¹⁰ Glasgow Tourism and Visitor Plan to 2023 [glasgow-tourism-plan.pdf](https://www.glasgow-tourism-plan.pdf) (glasgowtourismandvisitorplan.com)

3 Baseline Position in Glasgow

This section outlines existing EV ownership in Glasgow, in addition to existing publicly accessible EVCI within the region; both council and independently provided.

3.1 Existing Electric Vehicle Ownership

The Department for Transport (DfT) VEH01 statistical dataset¹¹ was utilised to analyse the existing number of registered EVs within the study area. As of 2022 Q3, a total of 57,687 cars and LGVs PiVs were registered in Scotland. Within this, there were approximately 23,235 cars and LGVs PiVs registered in the Glasgow City Region consisting of 14,536 BEVs and 8,699 PHEVs.

For the GCC local authority area specifically, there were approximately 3,719 registered cars and LGVs PiVs in 2022 Q3, as shown below in Table 3.1.

Table 3.1: Registered Plug-in Vehicles per 100,000 Population

	Total Plug-in Vehicle Registrations (2022 Q3)	Plug-in Vehicles per 100,000 Population (2022 Q3 based on Mid-2021 Population Estimates)	Plug-in Vehicles per 100,000 Population (2026 based on Mid-2021 Population Estimates)	Plug-in Vehicles per 100,000 Population (2030 based on Mid-2021 Population Estimates)
Glasgow City Council	3,719	586	3,212	7,659

Source: Department for Transport Vehicle Statistics and Mid-Year Population Estimates for Scotland, 2021

3.2 Existing Electric Vehicle Charging Infrastructure

The publicly available EVCI in Glasgow comprises a mix of council-owned infrastructure at 89 locations (228 devices) and independently provided infrastructure at a further 73 locations (126 devices), as summarised in Table 3.2. Please note that this also includes 'Pipeline' EVCI as provided by GCC.

Table 3.2: Glasgow Existing EVCI Devices

	Destination 7kW	Destination 22kW	Rapid 50kW	Ultra-Rapid 50kW+	Total
Council Provided	134	74	19	1	228
Independently Provided	67	21	25	13	126
Total	201	95	44	14	354

Source: Glasgow City Council, ChargePlace Scotland, DfT National Chargepoint Registry

The total number of EVCI compared to the number of PiV within the local authority areas is shown in Table 3.3. It is noted that each device may provide more than one charging socket, although it is not always possible to charge two vehicles simultaneously.

¹¹ Vehicle Statistics Collection, Department for Transport and Driver Vehicle Licensing Agency. January 2022. Available at: [Vehicles statistics - GOV.UK \(www.gov.uk\)](https://www.gov.uk)

Table 3.3: Glasgow City EVs (2022 baseline) Compared to EVCI

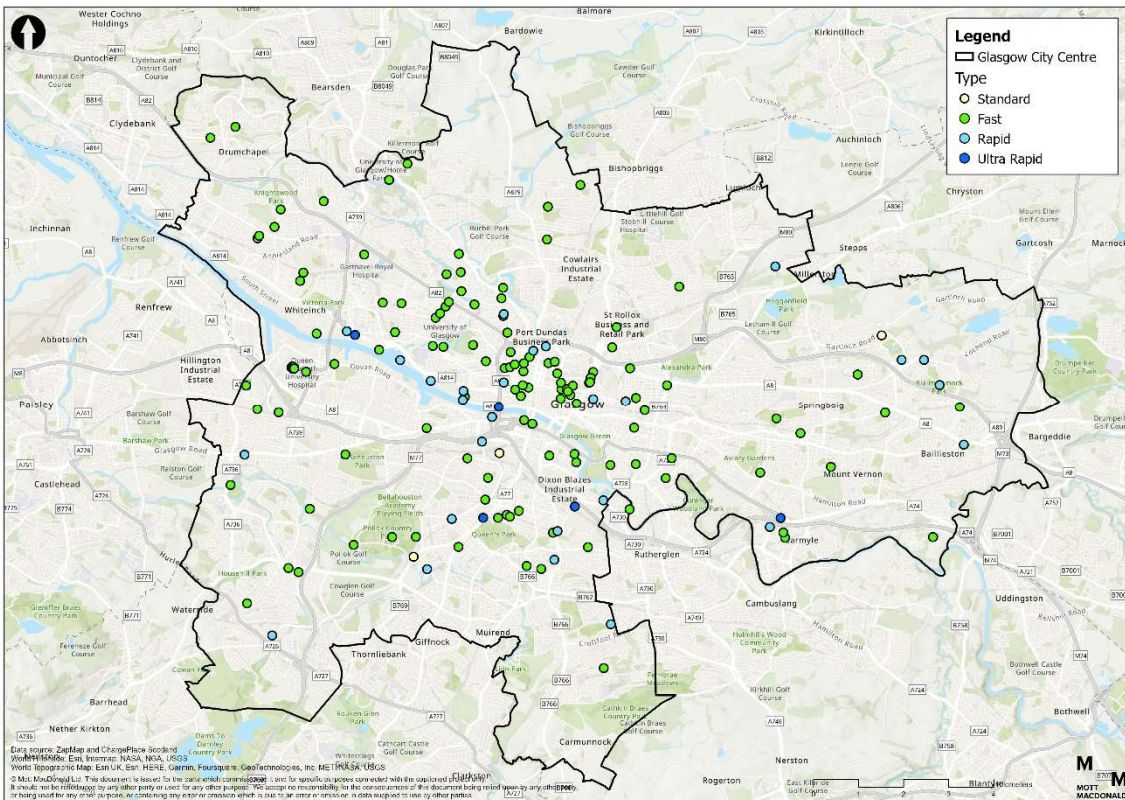
	Total Plug-in Vehicle Registrations (2022 Q3)	2022 EV Chargers	EV to EVCI Ratio
Glasgow City Council	3,719	354	11

Source: Department of Transport

There is no preferred ratio of EVCI to EVs within the UK, and the ratio is dependent on the type of infrastructure and location. The International Energy Association recommended a European ratio of 10 to 1 charging connection. However, this target may overestimate the potential requirements as in Norway (where EV adoption is among the highest in the world) the ratio is 34 EVs per charger, and UK-wide is 21¹².

Figure 3.1 shows the current distribution of publicly accessible EVCI locations (both Council and independently provided) across the GCC local authority area. It should be noted that this assessment does not take consider any private charging infrastructure that may be used domestically (i.e. household charging), fleet charging infrastructure, or infrastructure located in staff-only car parks.

Figure 3.1: Glasgow City Council EVCI – EVCI Locations by Type



Source: Map : Mott MacDonald, Data: Glasgow City Council, ChargePlace Scotland, DfT National Chargepoint Registry

¹² International Energy Agency, 2022. Global EV Outlook 2022, Trends in Charging Infrastructure. Available at: <https://www.iea.org/reports/global-ev-outlook-2022/trends-in-charging-infrastructure>

3.3 Current Approach to Service Delivery

GCC are currently the main provider of EVCI within the local authority area, with the majority of chargers in the city connected to the Charge Place Scotland network. As such, users can register for an RFID to access chargers and can also do so via the mobile app.

As illustrated in Table 3.2, GCC are currently responsible for the provision of around two-thirds of all publicly accessible charging devices in Glasgow. The remaining 36% (n=126) are independently provided at a broad range of commercial premises.

In addition to the publicly available charge points listed above, a small number of EV chargers were made available for use through the Agile Streets Project between October 2021 and May 2022. This initiative was funded by the Department for Business, Energy and Industrial Strategy (BEIS), and temporarily installed 11 Connected Kerb EV chargers at specific locations in Glasgow. The project targeted residential areas with no access to off-street parking and was intended to demonstrate the use of a smart metering system.

3.4 Revenue and Operations

Previous grant-based funding streams administered by the Energy Savings Trust and Transport Scotland encouraged local authorities to apply to install publicly accessible EVCI. These schemes such as the Local Authority Installation Programme (LAIP) and the Switched on Towns and Cities Challenge Fund increased the number of publicly accessible EVCI, with the onus placed on local authorities to apply for funding to provide charging infrastructure until EVCI became commercially viable. There is now a transition underway, with a recognition that now the private sector is better placed to deliver EVCI following the launch of the EVIF fund with a key focus on leveraging private sector investment.

3.4.1 Tariff

GCC's Electric Vehicle Charge Point Policy¹³ approved in February 2020 stated a clear intention for the Council to initially lead the provision of EVCI in Glasgow. A public sector-led approach would allow the establishment of a fair and equitable EVCI network for the benefit of the City and its residents without the imposition of 'excessive' tariffs which could compromise the potential uptake and adoption of EVs.

However, in April 2021, the Council agreed that a tariff should be applied. In January 2023, a paper providing an update on the introduction of a tariff was presented to GCC's Environment and Liveable Neighbourhoods City Policy Committee, with an agreed tariff subsequently implemented on 11 April 2023. Key features of GCC's tariff are as follows:

- A £1.00 connection fee will be applied for every session at all charging units
- A rate of £0.40 per kWh electricity consumption at all "Standard Charging Units" of 7kw or 22kW
- A rate of £0.70 per kWh electricity consumption at all "Rapid Charging Units" of 50kW or above
- A fixed overstay fee of £40.00 for connecting to a Charging Unit beyond the maximum allowed duration. These are aligned to Parking restrictions and are:
 - 1hr at any Rapid Charger
 - 2 hrs at a Standard Charger on street in the City Centre

¹³ Glasgow City Council Electric Vehicle Charge Point Policy, Glasgow City Council. 2020. Available at: [viewSelectedDocument.asp\(glasgow.gov.uk\)](http://viewSelectedDocument.asp(glasgow.gov.uk))

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- 3 hrs at a Standard Charger on street in the rest of the city
- 4 hrs at a Standard Charger in a council family car park

Following an initial 6-month review, GCC intends to review its tariff on an annual basis (or more frequently should external market conditions or city demand change sufficiently).

3.4.2 Warranty Arrangements

GCC currently have arrangements with two separate contractors (Swarco and Siemens/Yunex) to provide warranty, maintenance and data cover on charger units.

4 Consultation and Stakeholder Engagement

Consultation and stakeholder engagement has taken place through targeted sessions with members of the Council as well as a public-facing survey. The overarching stakeholder engagement methodology is described in the GCR Summary Report with specific detail covering activities across GCC in the section below. The surveys provided useful insights that enabled the demand modelling in the Economic Case to be tailored to the Glasgow City Region.

4.1 Stakeholder Engagement

Engagement with GCC council officers began in December 2022 and allowed the study team to quickly develop an understanding of the current EVCI landscape across Glasgow.

Engagement has been undertaken both on an ad-hoc basis, as well as through structured workshops; further detail on which has been provided in Section 4.1.1.

4.1.1 Baseline Workshop

The first stakeholder workshop took place on 19 December 2022 with 17 GCC officers in attendance. This session was used as an opportunity to provide GCC with an overview of the study (including background and outputs on the previous 'Phase 1' study), as well as an opportunity to confirm the current EVCI 'baseline' position across the GCC study area.

Specifically, the study team:

- Detailed our current understanding of the scale and location of EVCI provision and discussed future EVCI sites likely to be progressed
- Confirmed up-to-date information on EVCI use (including EVCI utilisation and warranty)
- Confirmed that all relevant policy had been identified and captured
- Confirmed key assumptions with GCC officers present

GCC provided useful information around the opportunities – such as recent work assessing the potential for Mobility Hubs across the city (and potential alignment with a future EV strategy) – as well as the likely challenges (e.g. significantly lower car ownership in Glasgow compared to neighbouring local authorities) facing the future provision of EVCI. GCC emphasised the utmost importance of aligning any future provision with wider GCC transport policy and in particular, the key policy goal of a 30% reduction in vehicle kilometres by 2030.

4.1.2 Commercial Workshops

The study team conducted three Commercial Workshops with GCC. This included an initial introductory workshop held on 9th January 2023 with GCC Council Officers from legal, financial and procurement services. The basis for the four commercial models was presented and their strengths and weaknesses discussed. Potential procurement preferences were also explored. The presentation slides were circulated to attendees for further consideration after the meeting.

A second 'focused' session with senior representatives from GCC was undertaken on 6th February 2023 to explore model preferences in greater detail.

A final workshop was held with officers on 17th March to discuss GCC's 'preferred' model to be included within the financial, commercial and management cases of the outline business case.

Additionally, the potential for, and attitudes towards, joint procurement and contract management were explored in more detail.

4.2 Survey

A public-facing survey ran during December 2022 with questions focused on gauging insights into public attitudes, preferences and perceptions around EVCI. Links to the survey were shared by GCC on social media and were circulated to all Community Councils in Glasgow. Survey links were also sent to Sustainable Glasgow Board Members in early December, covering organisations such as the Glasgow Universities, Glasgow Chamber of Commerce, Scottish Enterprise, SPT and more.

4.2.1 Survey Results

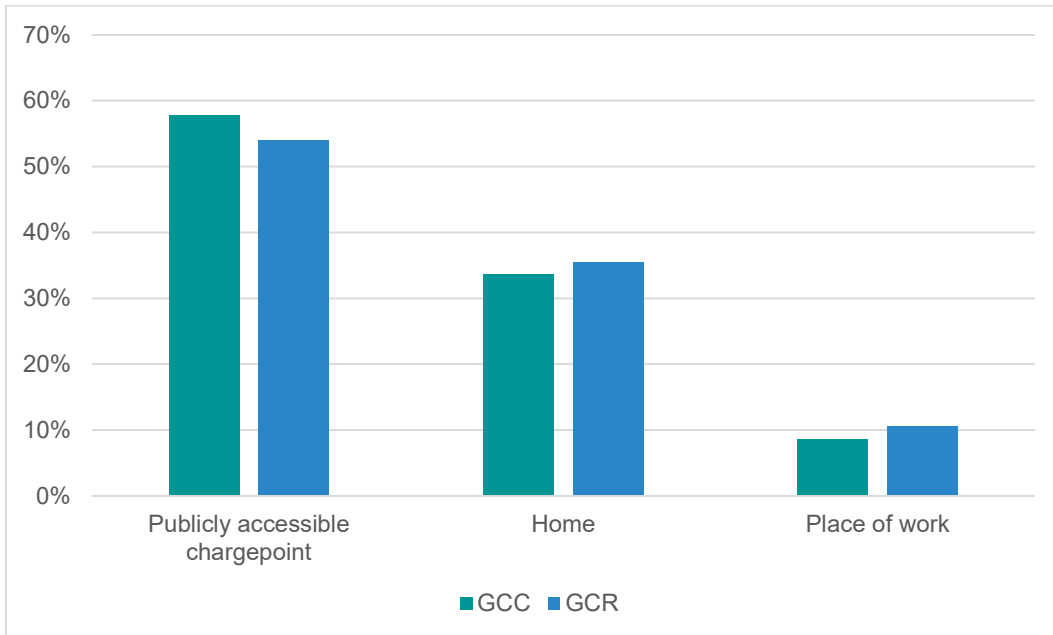
This section details the analysis undertaken on the survey results. The methodology for the survey, as well as results for all local authorities, can be found in the GCR Summary Report. The total number of respondents for the GCC local authority area was 270.

4.2.1.1 Current situation

- Close to 80 of respondents in the GCC local authority area (n=212) currently have access to a car. Of this group, 65% of have access to an electric vehicle (of which 84% are BEVs).
- 56% of respondents have access to off-street parking however, only 10% stated that they would be willing to walk more than 10 minutes to a charge point if they were unable to charge at home.
- Overall, current EV owners are more likely to travel further to a charge point than those who do not currently own EVs. Half of EV owners stated that they would be willing to travel up to 10 minutes whereas this falls to just 10% for those without an EV.
- When asked about what has prevented respondents from using a charge point or made their experience more difficult, the most common issue raised was “Faults” (22%).

Figure 4.1 shows that the majority of respondents normally charge their car at publicly accessible charge points.

Figure 4.1: Which of the following best describes where you normally charge your vehicle?



Source: Mott MacDonald Survey, 2022

4.2.1.2 EVCI Preferences

Survey respondents were asked a number of key questions to gauge EVCI preferences, including their typical weekly car mileage. The data in Table 4.1 indicates that shorter distances were most commonly reported, with a quarter of all respondents reporting between 0 and 50 miles as their typical weekly mileage, and a further 20% reporting between 51 and 100 miles. Close to 80% of respondents reported travelling up to 200 miles in a typical week.

A smaller proportion reported travelling in excess of 200 miles on a weekly basis, with 8% and 14% reporting between 201 and 250 miles and over 251 miles respectively.

Table 4.1: What is your typical weekly car mileage?

Distance Travelled	Number of Respondents	Percentage (%)
0 - 50 miles	53	25%
51 - 100 miles	43	20%
101 - 150 miles	36	17%
151 - 200 miles	33	16%
201 - 250 miles	17	8%
251+ miles	30	14%

Source: Mott MacDonald Survey, 2022

Table 4.2 shows that in Glasgow, the main reason for not planning to buy or lease an EV in future is due to a lack of charging infrastructure (34%) followed by prohibitive costs associated with EVs (19%). Glasgow is one of only two GCR local authorities (the other being Inverclyde) where a lack of charging infrastructure was given as the primary reason for not planning to buy or lease an EV. Respondents in North Lanarkshire, South Lanarkshire, Renfrewshire, East Renfrewshire and East Dunbartonshire all clearly cited prohibitive costs as the primary barrier,

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with the most common response in West Dunbartonshire being issues with EV range. This suggests that there is greater potential to encourage more people to switch to EVs by introducing more charging infrastructure throughout Glasgow.

Table 4.2: Why do you not plan to buy or lease an EV in future?

Reason	Percentage (%)
There is not enough charging infrastructure	34%
Electric vehicles are too expensive	19%
Electric vehicles take too long to charge	11%
The range of electric vehicles are too low	10%
I don't know enough about electric vehicles	8%
The cost to charge an electric vehicle is too high	6%
Other	12%

Source: Mott MacDonald Survey, 2022

Figure 4.2 includes a word cloud illustrating the key reasons for buying or leasing an EV amongst survey respondents in Glasgow.

Figure 4.2: Reasons for buying or leasing an Electric Vehicle

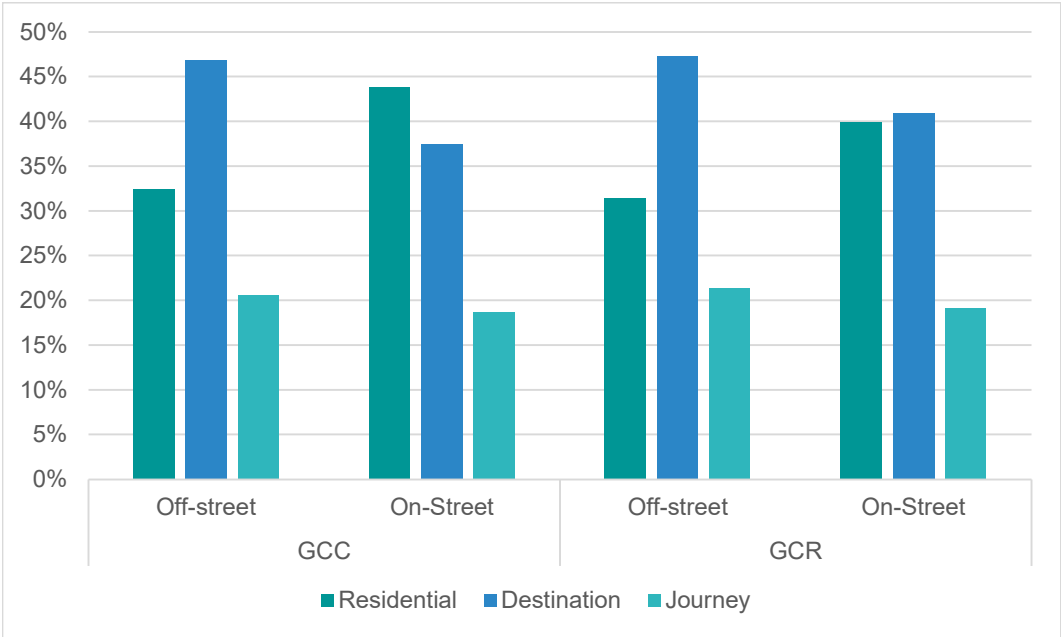


Source: Mott MacDonald Survey, 2022

Figure 4.3 shows the locations where those who own or have access to a BEV would like to see more chargers in their areas. Responses are based on whether the respondent has access to off-street or on-street parking.

This shows that 47% of respondents with off-street parking would like to see more destination chargers which aligns with the corresponding GCR average. Those without off-street parking stated a preference for more residential charging (44%). This includes on-street, at charging hubs or near active travel facilities and is higher than the corresponding figure for the wider GCR.

Figure 4.3: Preference for additional EV charging locations amongst BEV users - Glasgow and GCR

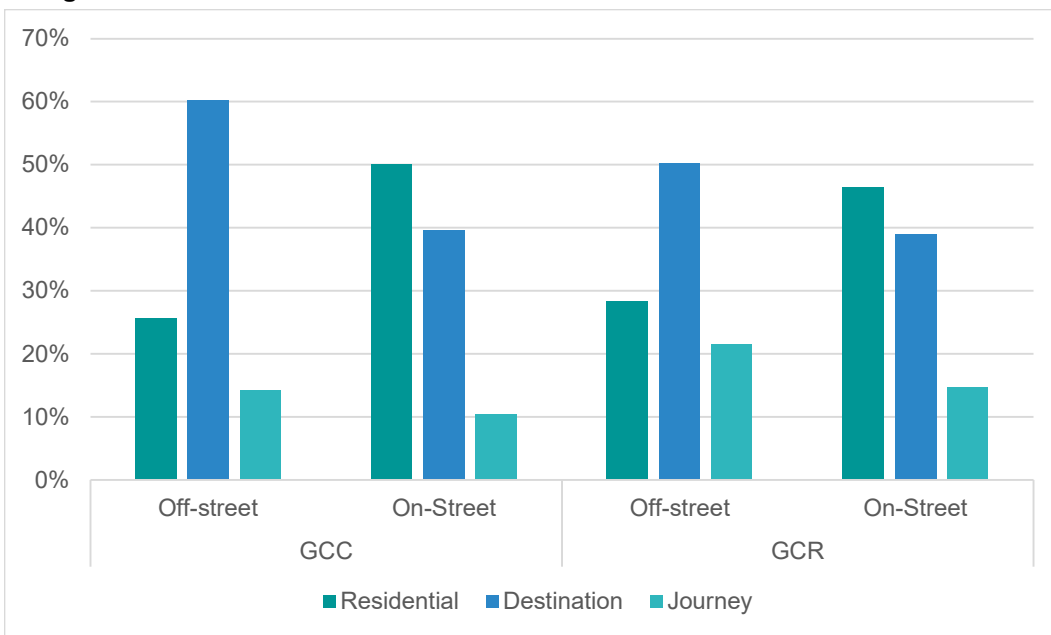


Source: Mott MacDonald Survey, 2022

Figure 4.4 shows the locations where those who own or have access to a PHEV would like to see more chargers in their areas. Responses are again based on whether the respondent has access to off-street or on-street parking.

Similar to the responses from those with access to BEVs, 60% of respondents with off-street parking would like to see more destination chargers; again aligning with the corresponding GCR average. Those without off-street parking stated a preference for more residential charging (50%), including on-street, at charging hubs or near active travel facilities and is again higher than the corresponding figure for the wider GCR.

Figure 4.4: Preference for additional EV charging locations amongst PHEV users - Glasgow and GCR



Source: Mott MacDonald Survey, 2022

5 The Strategic Case

The overall strategic case is described in the overall GCR Summary Report, with findings specific to GCC described below.

5.1 Policy Context

5.1.1 National Policy and Strategy

The Scottish Government has set legally binding climate targets to realise net-zero by 2045 and has committed to phase out the need for petrol and diesel cars and vans by 2030 as part of the Scottish Government's Climate Change Plan¹⁴.

Electric vehicles have an important role in supporting the net zero transition as part of the future transport system, alongside public transport and active travel. National policy highlights the need for long-term strategies and guidance for transport and infrastructure, which are provided by the National Transport Strategy 2 (NTS2)¹⁵ and National Planning Framework 3 (NPF3)¹⁶ respectively. Further details of relevant national policy and strategy are provided in Section 4 of the GCR Summary Report.

5.2 Local Policy

The **Glasgow Transport Strategy**¹⁷ provides a framework for investment and decision-making on transport issues up to 2030, with ambitious requirements to both achieve net-zero and reduce car kms by at least 30% by 2030 (Policy 8). The strategy recognises the inevitable need for some to use their car for specific journeys however cars that we do use should be low emission. The strategy recognises the need for a fair and just transition across Glasgow's transport network, with clear support identified for accelerating EV uptake and providing additional EVCI to facilitate the decarbonisation of transport in the city (Policy 103).

Spatial requirements have also been considered with regards to new EVCI, with clear requirements that new infrastructure should not take up pavement space which may limit street space and potentially create hazards for pedestrians (Policy 50).

As part of the wider Transport Strategy, on-street parking to be reduced throughout the city enabling road space reallocation towards active modes as well as the reallocation of parking spaces to sustainable transport modes, this may impact location of EV charging infrastructure (Policy 11, 82 and 94). Policy 93 suggests exploration of emission-based resident parking charges to encourage private car owners to switch to low emission vehicles.

In 2019, GCC declared a climate and ecological emergency and in 2020 produced **Glasgow's Climate Plan**¹⁸ in response. This plan highlights 5 key themes which present actions to help

¹⁴ Securing a green recovery on a path to net zero: climate change plan 2018–2032, Scottish Government, Update 2020. Available at: <https://www.gov.scot/publications/securing-green-recovery-path-net-zero-update-climate-change-plan-20182032>

¹⁵ National Transport Strategy 2, Transport Scotland, 2020. Available at: [National Transport Strategy 2 | Transport Scotland](#)

¹⁶ National Planning Framework 3, Scottish Government. 2014. Available at: [National Planning Framework 3 - gov.scot \(www.gov.scot\)](#)

¹⁷ Glasgow Transport Strategy: Final Policy Framework, Glasgow City Council. 2022. Available at: [Glasgow Transport Strategy - Policy Framework 2022](#)

¹⁸ Glasgow's Climate Plan, Glasgow City Council Available at: [CHttpHandler.ashx \(glasgow.gov.uk\)](#)

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achieve Glasgow's ambition to become Net Zero by 2030. Within this, the role of EVs in reducing transport emissions is recognised and it outlines an action to expand EVCI across the city for commercial, residential and visitors use. Glasgow's aim is to help people move towards electric vehicles rather than internal combustion engines.

Glasgow also introduced plans for Scotland's first **Low Emission Zone (LEZ)**¹⁹. Phase 2 of the LEZ is planned to come into force in June 2023 and will mean that any vehicle entering the city centre will be required to meet emission standards or face a penalty charge. Fully electric vehicles will not face charges and are considered LEZ-compliant.

GCC has produced an **Electric Vehicle Charge Point Policy**²⁰ outlining a range of supporting measures for EVCI and encouraging further uptake of EVs, through car clubs, private use and businesses. There is further commitment for additional charging infrastructure and enforcement of parking restrictions on EV charging bays.

Complimenting this policy are new guidelines adopted in the Council's updated planning policy (Supplementary Guidance 11, Section 7) set out in the **City Development Plan**²¹ which set out requirements for charge point installation in new developments. Specifically, the provision of 'passive' EV spaces (i.e. parking spaces that can easily be converted to 'active' EV charging points) in 100% of parking spaces in new developments.

The Council has also developed the **Liveable Neighbourhoods Toolkit**²² to help communities improve their local areas to make them healthier, more accessible and safer. A key aim is to prioritise pedestrians, cyclists and public transport within communities as well as enhancing public spaces and integrating green infrastructure to help move towards their ambition of 20-minute neighbourhoods.

Glasgow's Active Travel Strategy²³ similarly recognises the importance of active travel in reducing transport emissions and helping to achieve Net Zero therefore aims to make it the first choice for journeys around Glasgow.

The **Glasgow City Centre Transport Plan (CCTP)**²⁴ aims to encourage a shift to more sustainable modes of transport and – in line with the wider Glasgow Transport Strategy – seeks to reallocate road space for active travel and green infrastructure as well as reduce private car use in the city centre in order to support Glasgow's ambition to be carbon neutral by 2030. The city aims to decarbonise vehicles and encourages organisations that required travel by car and EV users with driveways to install charging infrastructure, making public chargers more available to those with no charging alternative.

In summary, we acknowledge that much of GCC's current transport policy aspirations work towards achieving the ambitious targets of net-zero status by 2030 and the 30% reduction in car kilometres by the same date. This study acknowledges the importance of the measures set out across the local policy sphere in achieving these outcomes, and in particular the need to align with the sustainable transport hierarchy. This study will therefore seek to develop an EVCI

¹⁹ Glasgow Low Emission Zone Available at: [CHttpHandler.ashx \(glasgow.gov.uk\)](CHttpHandler.ashx(glasgow.gov.uk))

²⁰ Glasgow City Council Electric Vehicle Charge Point Policy, Glasgow City Council. 2020. Available at: [viewSelectedDocument.asp \(glasgow.gov.uk\)](viewSelectedDocument.asp(glasgow.gov.uk))

²¹ Glasgow City Development Plan Supplementary Guidance 11: Sustainable Transport, Glasgow City Council, 2017. Available at: <https://www.glasgow.gov.uk/CHttpHandler.ashx?id=36522&p=0>

²² Liveable Neighbourhoods Toolkit, Glasgow City Council, 2022. Available at: [Liveable Neighbourhoods \(arcgis.com\)](Liveable Neighbourhoods(arcgis.com))

²³ Glasgow Active Travel Strategy, Glasgow City Council, 2022. Available at: [CHttpHandler.ashx \(glasgow.gov.uk\)](CHttpHandler.ashx(glasgow.gov.uk))

²⁴ City Centre Transport Plan, Glasgow City Council, 2022. Available at: <City Centre Transport Plan - Glasgow City Council>

strategy that both considers and aligns with these aspirations, and ultimately helps to reduce the overall emissions and meet Net Zero targets.

5.3 Vision, Outcomes and Priorities

The vision for EVCI in Glasgow is based primarily on the Council's Electric Vehicle Charge Point Policy (detailed in Section 5.2 above) and is reinforced by the wider sustainability and transport policy arena.

It acknowledges that local authorities must demonstrate leadership regarding sustainable transport and for EVCI, envisages an equitable approach with provisions in place to ensure that EV users have a consistent, affordable and accessible charging network. It sets out a clear commitment to support the operation, maintenance, expansion and improvement of the publicly available charge point network within the City at a rate that is both manageable and accommodates the rise in uptake of EVs.

Ultimately for Glasgow, the Council clearly considers that enabling greater EV use is a potentially major solution to meeting the demand for low emission personal fleet vehicles, but crucially, it must not detract from wider commitments to challenging the current model of personal vehicle ownership that have dominated transport in the city in previous decades.

6 The Economic Case

This section sets out the economic case for investment including the scale of EVCI likely to be required, the preferred charge point mix, and proposed locations. For the interim submission of this report, high-level costs and analysis of the proposed network have been included in the corresponding Section of the GCR Summary Report which describes the methodology and assumptions used.

6.1 EVCI Requirements

6.1.1 Forecasting Results

The number of charge points required to support the forecast EV demand in across the GCC local authority area is shown in Table 6.1. The methodology and assumptions used to generate the forecasts, including charger preference, are provided in the overall GCR Summary Report.

Table 6.1: GCC Forecast EVCI Requirements

	2026 Forecast Requirement			2030 Forecast Requirement		
	Low	Central	High	Low	Central	High
Residential (Slow)	821	1,317	1,645	1,386	2,153	3,086
Destination (Slow)	832	1,357	1,631	1,892	2,970	4,303
Destination (Fast)	137	224	269	312	490	711
Rapid	366	591	721	944	1,520	2,218
Total Devices	2,156	3,489	4,266	4,534	7,133	10,318

Source: Mott MacDonald

The **central** forecast has been selected for as the basis for this business case as it provides the most balanced uptake forecast.

6.1.2 Future Strategic Provision

As described in Section 3.2, there are 354 publicly available charge points across the GCC local authority area. This study assumes that the private sector will install EVCI at strategic locations across the city (e.g. major supermarkets, petrol stations) and that this will be undertaken without intervention from the public sector (independently provided).

Taking these two factors into consideration, the total future strategic provision requirement has been identified in Table 6.2. The term 'Strategic provision' is used to define where Council intervention (for example through a concession contract) is likely to be required to provide EVCI needed to meet the strategic targets of this business case. The total strategic provision represents the total EVCI which would be included within a concession contract, made up of existing council owned assets and the estimated future strategic provision.

The methodology for assessing the level of independent provision is outlined in the corresponding section of the GCR Summary Report. As outlined in SFT guidance, only requirements to 2026 are included within the application for funding.

Table 6.2: GCC EVCI Requirements Summary

	Independently Provided			Strategic Provision			
	Total estimated requirement in 2026 (central scenario)	Existing (2022)	Future Provision (2026)	Total Independent Provision (2026)	Existing (Council Provided) (2022)	Future Provision (2026)	Total Strategic Provision (2026)
Residential 7kW	1,317	0	0	0	0	1,317	1,317
Destination 7kW	1,357	67	949	1,016	134	207	341
Destination 22kW	224	21	129	150	74	0	74
Rapid 50kW	591	38	480	518	20	53	73
Total	3,489	126	1,558	1,684	228	1,577	1,805

Source: Mott MacDonald

Please note that the proposed strategic provision set out in Table 6.2 is based on the results of the Electric Charging Optimum Solution (ECOS) tool and will likely be subject to refinement with both local authority stakeholders as well as EVCI providers.

6.2 Site Identification

This section outlines the locations of public sector EVCI identified as part of the analysis using a 2026 forecast. The remaining difference between the identified and total requirement (as set out in Table 6.2) are assumed to be met through future provision by independent providers at locations such as service stations, supermarkets, and retail parks.

Locations have been refined as part consideration given to the following criteria:

- Scottish Index of Multiple Deprivation (SIMD)
- Council Land Ownership data
- Bus routes
- Active travel routes
- Public transport interchanges
- Trunk roads
- Conservation areas
- Placemaking criteria

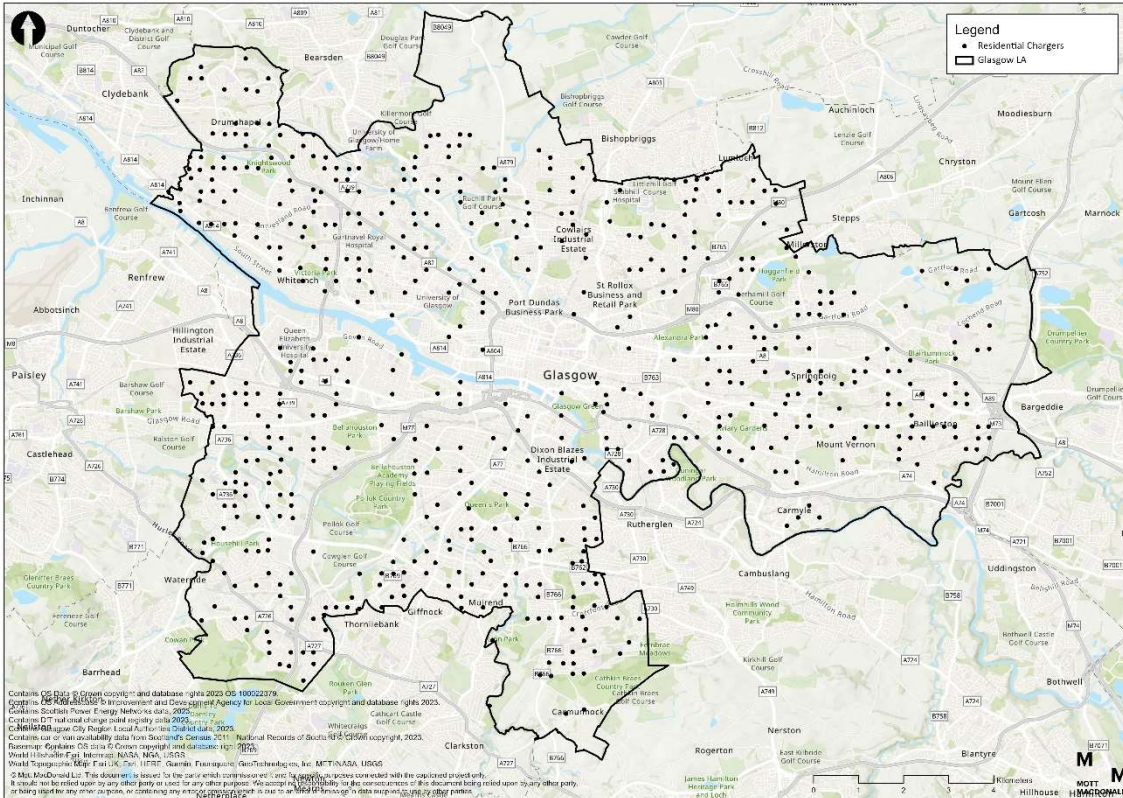
In addition, consideration has also been given to a number of focused criteria specific to GCC's policy aspirations and future transport agenda. For both residential and destination charger locations, this has included:

- Relevant information derived from a previous **Mobility Hub** study
- Relevant information from the ongoing **Streetspace Allocation Framework**
- Relevant criteria derived from GCC policy e.g. Glasgow's **Low Emission Zone**

6.2.1 Residential Chargers

The proposed locations for residential chargers identified by the ECOS tool are illustrated in Figure 6.1. Detailed information on the methodology and assumptions used are provided in the GCR Summary Report.

Figure 6.1: Glasgow City Council Proposed Residential EV Charger Locations



Source: Map produced by: Mott MacDonald, Boundary: statistics.gov.uk, Data produced by ECOS Tool

The proposed locations are provisional and will be subject to further refinement through discussions with local authority officers, SPEN and charge point operators.

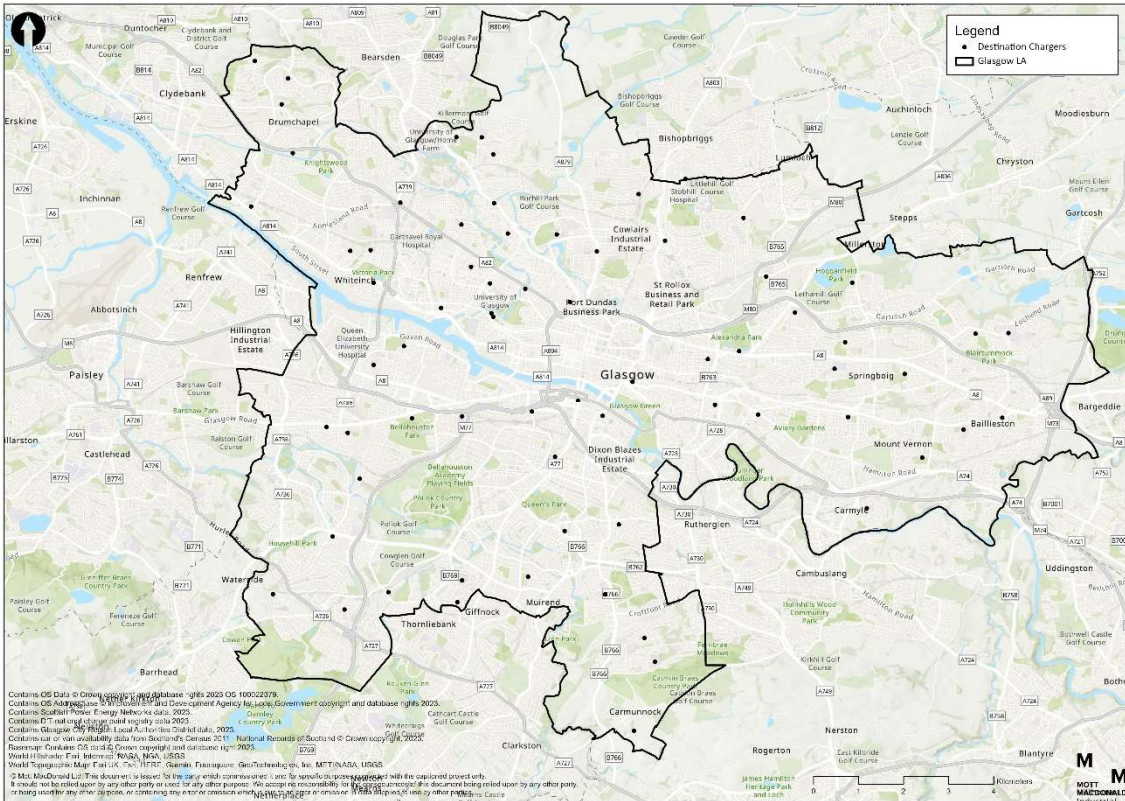
Note that for Glasgow, although 1,317 residential charge points have been identified within the forecast (see Table 6.1), the model has ‘capped’ the number of potential residential charging locations at 611 as the model has effectively ‘optimised’ the local authority area to the degree that no other locations are required. Therefore, the model has assigned multiple charge points to each of the potential residential charger locations.

Accordingly, we suggest a more minimal provision at each site initially, ensuring coverage of the full local authority area. From there, the continued provision can be based on a demand-led approach.

6.2.2 Destination Chargers

The proposed locations for destination chargers identified by the ECOS tool are illustrated in Figure 6.2. Detailed information on the methodology and assumptions used are provided in the GCR Summary Report.

Figure 6.2: Glasgow City Council Proposed Destination Charger Locations



Source: Map produced by: Mott MacDonald, Boundary: statistics.gov.uk, Data produced by ECOS Tool

A total of 70 potential destination charging sites have been identified across the GCC local authority area.

6.3 Grid Capacity Assessment

As part of the process to identify suitable charging locations, the ECOS tool utilises data provided by SPEN to assess likely grid capacity to support future EVCI. This has been achieved by comparing the maximum load against the firm capacity of each substation within the study area.

The capacity of the substation has then been assessed against the total power draw of proposed EVCI for both the residential and destination charging analysis. A new maximum load for the primary substation has then been derived, identifying those substations which may lack sufficient capacity and would therefore require potential upgrades.

Within the GCC local authority area, two primary substations were identified as having limited capacity with less than 2MVA, which could potentially require upgrades to support the proposed charging provision identified in the analysis. These are indicated in Table 6.3. However, further discussion with Scottish Power Energy networks (SPEN) is required as part of the next stage of the project.

Table 6.3: Primary Substations with Potentially Limited Capacity

Substation	Current Spare Capacity (MVA)	Spare Capacity Inc. Proposed Chargers (MVA)
Kelvinside	1.56	1.18

Substation	Current Spare Capacity (MVA)	Spare Capacity Inc. Proposed Chargers (MVA)
Old Dumbarton Road	2.03	1.79

Source: Mott MacDonald and Scottish Power Energy Networks

Correspondence has been held with SPEN, along with a meeting held on the 9th March 2023 where it was confirmed that the data used in our analysis was the most appropriate publicly available data set. SPEN are aware of planned developments which may impact on future grid capacity, but they are not able to supply this information. In addition, they have access to more detailed datasets to understand the localised power grid opportunities and constraints. It was agreed that a list of proposed locations would be provided to SPEN following finalisation of the draft business case and they would respond with any potential constraints resulting from grid capacity.

Grid Assessment Disclaimer:

The potential number of EVCI that the primary substation could support is only an approximation, and no forecasting assessment was carried out on the potential future maximum load for other purposes such as residential developments or industrial uses. In addition, while a primary substation may theoretically accommodate additional load, the local grid infrastructure in the vicinity may require upgrades to support the proposed locations to provide sufficient power to a charging site.

Any future developments such as housing schemes or new National Grid connections have not been considered for the potential impact on the grid capacity. Therefore, ongoing engagement with SPEN is highly recommended throughout the infrastructure planning phases to ensure aspirations are aligned. Where constraints have been identified in the analysis, this information will be shared with SPEN to ensure clarity.

6.4 Alignment with the Agreed Vision

Alignment of the proposed EVCI network with the agreed vision is discussed in the overall Glasgow City Region EVCI Phase 2 Summary Report. For Glasgow City this analysis reveals that:

- 100% of properties are located within a ten-minute drive of a proposed charger.
- The proposed charger network is spread across SIMD decile zones, indicating it is not focussed on areas with low deprivation.
- The proposed network supports the transport hierarchy through ensuring chargers are provided in close proximity to active travel and public transport as potential mobility hubs.

6.5 Potential Ultra-Rapid Sites

Ultra-Rapid charging is not a focus of the EVIF as it is assumed that this type of charging will be provided by the private sector independently, due to the high cost barriers for installation and associated increased risks. Alternatively, ultra-rapid charging could form part of a different funding stream, for example similar to the RAPID Charging fund available in England and Wales²⁵. However, some initial analysis has been undertaken to enable local authorities within the Glasgow City Region to consider as part of their wider EVCI Strategy.

²⁵ Rapid charging fund - GOV.UK (www.gov.uk)

Discussions with CPOs reveal that Ultra-Rapid charging is considered suitable at sites with the following characteristics:

- Close proximity and easy access to the trunk road network or major A roads.
- High volume of pass-by traffic.
- Other site uses such as fast food, coffee shops and toilets.
- Well-lit locations with good passive security.

Examples include motorway service stations or large charging hubs.

Based on these characteristics potential locations have been mapped based on the availability of land, represented as Council owned car parks and derelict or vacant land located within 1 km of the Trunk Road network. This analysis is intended to be used as a starting point only and further analysis can be undertaken by individual local authorities to determine site suitability, especially around available grid capacity.

The analysis for Glasgow City revealed several options meeting these criteria. The following council car parks were found to be within 1km of the trunk road network:

- Burnside Street
- Cadogan Square
- Cambridge Street
- Cathedral
- Charing Cross
- Concert Square
- Duke Street
- Dundasvale
- Glasgow Cross
- Newton Street
- SEC

In addition, there were a number of sites identified from the derelict and vacant land register within GCC as shown in Table 6.4.

Table 6.4: Number of Identified Derelict or Vacant Land Sites near Trunk Roads

	Under 1	Over 1
Derelict	65	57
Vacant Land	61	153

Source: Mott MacDonald and Glasgow City Council

It must be noted that while these above sites met the high-level criteria of being within a 1km distance of the trunk road network, there are a number of additional factors to consider before a site could be identified as suitable for ultra-rapid charging infrastructure. In addition, some of the council car parks identified could have charging infrastructure proposed. Therefore, further analysis is recommended to determine which sites could be attractive to a CPO.

7 The Commercial Case

This section summarises the commercial models presented in Section 7 of the overarching GCR Summary Report and focusses on the commercial preferences expressed by GCC through commercial workshop sessions, taking into account that EVIF funding is only available for commercial models which involve private sector funding. This reflects the Public EV Charging Network in Scotland vision, which states that further investment from the private sector is required to meet the scale and pace of EVCI expansion within Scotland.

7.1 Recap of Potential Commercial Models

The EVCI network the local authority chooses to implement will incur capital and operating costs as well as generate operating revenue. The commercial model determines how these costs and revenues are distributed across public and private sector parties.

On that basis, there are a minimum of three potential commercial models to consider, as follows:

- Fully private-sector-led model
- Fully public-sector-led model
- Some form of public-private partnership hybrid

Table 7.1 identifies four main commercial models to consider, which include the first two of the above models plus two types of hybrid models.

Table 7.1: Commercial Model Options

	A – Privately owned and operated	B – Privately operated only	C – Privately operated with risk share	D – Public sector owned and operated
Approach	Private sector ownership and operation of network	Public sector ownership with private sector operation	Public sector ownership with private sector shared risk/revenue operation	Public sector ownership and operation of network
Existing and new EVCI asset ownership	Private	Public (concession model)	Public (concession model)	Public
Loss making assets	Bundled with profit-making assets	Bundled with profit-making assets	Bundled with profit-making assets	Public
Operator	Private	Private	Private	Public
Risk to LA	No	No	Yes	Yes
Revenue stream to LA	No	No	Yes	Yes
Tariff setting	Private	Private / Public	Private / Public	Public
EVIF eligibility	Yes	Yes	Yes	No

Source: Mott MacDonald

Some observations from this table are as follows:

- Model A assumes that the private sector would own and operate all existing and new assets, giving them greatest control over tariff setting and charger locations.

- Model D assumes that the public sector would own and operate all existing and new assets, giving them full control over tariff setting and charger locations.
- Model B assumes that the public sector would ultimately own all existing and new assets, but that the network would be leased via a concession model to a private sector operator who receives all revenue but assumes all asset and operating risk.
- Model C is the same as Model B, except that the public sector also enters into a risk and revenue sharing agreement with the operator (as part of the terms of the concession), receiving a level of income for assuming a level of operating risk.

It is also noted from this table that EVIF funding is only available for models which involve private sector funding. This reflects the Public EV Charging Network in Scotland vision, which states that further investment from the private sector is required to meet the scale and pace of EVCI expansion within Scotland. This discounts Model D as a path to securing EVIF funding, but the model is nonetheless included in the assessment for the sake of completeness.

Further details and examples of each model are provided in the GCR Summary Report.

7.2 Feedback from Commercial Workshop Sessions

The study team conducted three Commercial Workshops with GCC. This included an initial introductory workshop held on 9th January 2023 with GCC Council Officers from legal, financial and procurement services. The basis for the four commercial models was presented and their strengths and weaknesses discussed. Potential procurement preferences were also explored. The presentation slides were circulated to attendees for further consideration after the meeting.

A second 'focused' session with senior representatives from GCC was undertaken on 6th February 2023 to explore model preferences in greater detail.

A final workshop was held with officers on 17th March to discuss GCC's 'preferred' model to be included within the financial, commercial and management cases of the outline business case. Additionally, the potential for, and attitudes towards, joint procurement and contract management were explored in more detail. These are described in the following sections.

7.3 Commercial Model Preferences

7.3.1 Model Preferences

As part of the final workshop discussions, GCC officers agreed that one of the concession models (either B or C), should form the basis of this business case report in the absence of an agreed collective preference. GCC stated that further work outwith this business case study would be undertaken before finalising their preferred choice of commercial model.

7.3.2 Model Scoring

After the discussion about model preferences, Mott MacDonald presented GCC officers with a model scoring assessment, where each model is scored on a scale of 1 to 3 against the seven assessment objectives described in Section 7.1.3 of the GCR Summary Report. The following table provides examples of what, in each case, constitutes a low score and a high score.

Table 7.2: Commercial Model Assessment Criteria

Objective	Description	Low score example	High score example
Affordability	Ensuring that a scheme's public sector capital investment demand falls within local authority capital access limits	Models which maximise capital investment burden to local authority, e.g. model D	Models which minimise capital investment burden to local authority, e.g. model A
Risk allocation	Ensuring that scheme risks are allocated to parties best placed to manage them and able to offset against scheme reward	Models which assign high-resource / high-reward risks to public sector, e.g. model D	Models which assign high-resource / high-reward risks to private sector, e.g. model A
Social outcomes	Allowing the local authority a level of control to ensure the equitable distribution and pricing of charge points	Models which release charge point location and pricing control to private sector, e.g. model A	Models which retain charge point location and pricing control with public sector, e.g. model D
Contestability	Stimulating a competitive market that avoids private sector monopoly conditions or public sector over-regulation	Models which grant long-term full infrastructure ownership to either sector, e.g. models A or D	Models which limit competition enhancing assets to private sector, e.g. model B
Procurement	Preference for models which can be procured through standard channels to reduce implementation time and resource	Models with greatest level of public-private partnership, e.g. model C	Models with least level of public-private partnership, e.g. models A or D
Resources	Preference for models which can be delivered within the constraints of local authority back office resourcing	Models requiring greatest local authority back-office resource commitment, e.g. model D	Models requiring least local authority back-office resource commitment, e.g. model A
Revenue	Preference for models which can increase net revenue stream to local authority	Models least likely to return a long-term profit to the local authority, e.g. model A	Models most likely to return a long-term profit to the local authority, e.g. model D

Source: Mott MacDonald

The objectives have also been weighted on a scale of 1 to 3 to reflect local GCC priorities.

The following table shows the model weighting and scoring result presented to GCC in the second commercial workshop meeting. This was based on the table being pre-populated by Mott MacDonald according to the above scoring criteria, and the objectives weighted on the following basis:

- Affordability, social outcomes and risk allocation are given the highest weightings because the model:
 - Must be affordable to the Council
 - Should not expose the Council to unmitigated risk, and
 - Must meet the Councils' vision of providing a fair and equitable network, and
- Contestability, procurement, resources and revenue are given lower weightings as, though these are important objectives, they are of a lower priority.

Table 7.3: Commercial Model Scoring – GCC Weighted Results

Objective	Agreed weighting	A – Privately owned and operated	B – Privately operated only	C – Privately operated with risk share	D – Public sector owned and operated
Affordability	3	3	2	2	1
Risk allocation	3	3	3	2	1
Social outcomes	3	1	3	3	3
Contestability	2	1	3	3	2
Procurement	1	2	2	1	3
Resources	1	3	3	2	1
Revenue	1	1	1	2	3
Weighted avg score		2.07	2.57	2.29	1.86
Normalised score		0.81	1.00	0.89	0.72

Source: Mott MacDonald

GCC officers noted the outcome of this scoring exercise, which corresponds with their concession model preference noted above.

7.4 Procurement Preferences

GCC officers stated that they would not rule out a joint procurement approach with other GCR authorities, but ultimately, a preferred approach will only be identified by GCC through further assessment outwith this business case study.

7.5 Summary

Through commercial workshops, GCC officers agreed that one of the concession models (either B or C), should form the basis of this business case report in the absence of an agreed collective preference.

The possibility of joint procurement was also explored with GCC officers; considering both a joint procurement approach with other GCR authorities, as well as an early-lead single-authority procurement route, which could then be adopted by other GCR authorities.

In both of these cases, it should be noted that GCC intend to undertake further work outside of this business case study before finalising their preferred approaches.

8 The Financial Case

The objective of the Financial Case is to identify the financial requirement to bring about the wider benefits outlined in the Strategic and Economic Cases. Whilst non-monetisable benefits are included in the Economic Case to offset costs to produce a Net Present Value, the actual costs of delivery need to be accounted for with options for funding and financing identified. The draft vision for the Public Electric Vehicle Charging Network in Scotland states that further investment from the private sector is required to meet the scale and pace of EVCI expansion within Scotland. For this reason, the Financial Case uses the SFT Feasibility Model to appraise a concession contact option only.

8.1 Funding Sources

Regardless of the preferred commercial option (as discussed in the Commercial Case), there are principally three sources of potential funding used to mobilise the construction phase of the EVCI;

- Grant funding from the Scottish Government
- Local Authority contributions
- Operator investment from a private sector operator or a local authority

For operator-led investment, financing will be required to cover the timing mismatch between up front capital costs and long-term operator receipts. Private sector financing is likely to be central to this business case as affordability constraints will make it challenging for the public sector to finance the extensive implementation of charge points that the strategic and economic cases outline. With private investment the infrastructure requirements can be met, and thus meet the objectives of the Scottish Government, SFT and Glasgow City Region Councils.

It is therefore important to structure this investment opportunity in a way that is attractive to private investors, ensuring that there is a suitable return on the investment that mitigates risks in an emerging market. Based on initial discussion with private sector suppliers, we expect the opportunity put forward by Glasgow City Region authorities for investment in EVCI will be of interest, though further market engagement is recommended prior to procurement.

The quantities and profile of spending by funding source are all set out in the next section of this Financial Case.

8.2 Capital cost requirement

All figures and charts have been calculated using the 'SFT EVI Feasibility Model v4.1', referenced henceforth as the 'SFT Feasibility Model', spreadsheet model provided²⁶. All inputs have been discussed with colleagues at SFT and are deemed appropriate for this analysis, and consistent with the approach they expect to see in all model applications.

The results of the SFT Feasibility Model are largely driven by two kinds of key input; the technical inputs, which comprises of the charger requirements, the cost of installing and maintaining the chargers and electricity provided to form an income stream, and the financial inputs, which are made up of local, regional and national figures, optimised to provide the best reflection of the circumstances of each scenario. The total Capital Cost requirement indicates the full value required to deliver the number of chargers in this business case and is the key

²⁶ SFT Feasibility Model provided by Scottish Futures Trust (SFT) for use on all Pathfinder projects.

figure in the financial case. The table below shows a breakdown of the Capital Cost requirement.

Table 8.1: Capital Cost Breakdown

Cost Item	Value £, 2022 prices
Existing Asset replace and update	£2,000,000
Capital Enabling Costs	£4,000,000
Capital EVI + Installation Costs	£11,800,000
Standard DNO Costs	£3,100,000
Total Capital Cost requirement	£20,900,000

Source: Mott MacDonald

As previously noted, there are three funding sources outlined for delivering this scheme; operator investment, central government grant funding, and Local Authority contributions.

8.3 Financial Viability of Service/Concession Type Contracts

8.3.1 Core feasibility test

For this business case, as part of the SFT feasibility assessment, a particular set of assumptions are used as standard to assess the affordability and feasibility of the scheme put forward. These are:

- A private sector Charge Point Operator (CPO) would invest a capital amount such that they would make a return of 15% on that initial investment.
- All revenue would be received by, and costs borne by the CPO.
- Transport Scotland, through the EVIF will award a minimum grant of £300k for any Local Authority that applies with a business case that aligns with the Transport Scotland and SFT strategy. Any further grant above this minimum will be assessed following the initial stages of the procurement phase when the true value of the private sector investment is known.
- The Remaining capital amount required to deliver the scheme would need to be assessed and funded through other measures, including further private sector investment, Local Authority contribution or national grant funding.

It is key to note that these assumptions, particularly the desired return on investment from the CPO, are indicative only. They are intended to produce a set of results that are comparable across all local authorities. It is expected that the contributions from bidding CPOs will be different, and therefore the remaining capital amount will be different in all cases.

The table below summarises indicative results of the SFT feasibility model under these specific assumptions.

Table 8.2: SFT Feasibility Model results

Funding Source	Value £, 2022 prices
Indicative Private investment	£18,500,000
'Minimum' Transport Scotland Grant	£300,000
Remaining capital amount	£2,100,000
Total Funding/Capital Cost requirement	£20,900,000

Source: Mott MacDonald

In this example, the Remaining capital amount is £2.1m which is c.10% of the total Capital Cost requirement. Due to the relatively high capital funding requirement, it may be appropriate to consider a phased approach, whereby a proportion of initial upfront capital is invested to achieve the desired spatial coverage of EVCI followed by the remaining investment to scale the infrastructure. This will ensure the realisation of community benefits are prioritised through the initial investment to ensure coverage.

8.3.2 Sensitivity test

The financial results above are based on a scenario where private operators receive an IRR of 15%. However, this is an assumption as internal investment criteria for private operators is not information that is, or can be, known with certainty. Therefore, this sensitivity test considers the impact of the financial results if private operators require an IRR of 20%.

Table 8.3: Sensitivity Test - SFT Feasibility Model Results

Funding Source	Value £, 2022 prices
Indicative Private investment	£14,800,000
Minimum Transport Scotland Grant	£300,000
Remaining capital amount	£5,800,000
Total Capital Cost requirement	£20,900,000

Source: Mott MacDonald

In the scenario where a higher IRR is applied, this results in an initial lower private investment leading to a higher Remaining capital investment required of £5.8m. This Remaining capital investment will need to be covered by a combination of national grant funding and local authority contributions.

8.4 Next steps

Financial considerations for future attention include:

- Once all EVIF applications have been received, SFT and Transport Scotland will consider the mechanisms through which they might allocate funding. This will inform the approach to procurement with two possible options set out below:
 - Market led procurement, with no initial subsidy: whereby CPOs are committed to deliver all sites within an authority. They are to submit an amount they would be willing to invest and therefore also an amount they would require as subsidy in a competitive process. The competition element would drive investment amount to be higher, and therefore minimise public contribution.
 - Capped grant: a maximum subsidy is agreed between Transport Scotland and the authority following a review of all submitted business cases. CPOs can bid against what they believe is affordable with the stated level of subsidy. Where a CPO plans to deliver all of the infrastructure, they have the ability to ‘bid back’ against the subsidy amount. The competition element would drive CPOs to use as little of the subsidy as possible and therefore minimise the public contribution.
- SFT and Transport Scotland are currently in the process of determining their preferred approach to procurement. Once this has been established, they will communicate this to all Local Authorities and suggest the way forward.

9 The Management Case

The overall Management Case is outlined in the GCR Summary report. An individual summary for GCC is provided below.

9.1 Governance and Management

GCC officers stated that they would not rule out a joint governance and management with local authorities within the GCR, however, this would likely only be confirmed following further assessment outwith this business case study. Discussions as part of this study were limited to exploring the potential for a joint approach; either in conjunction with other GCR local authorities or as an early-lead single-authority procurement route which could then be adopted by other GCR authorities.

The EVIF programme is designed to achieve the benefits of collaboration and it is recommended that local authorities work together to agree a form of collaborative governance and management. Should GCC eventually opt for joint governance and management with other local authorities within the region, there are three principal options which should be considered for project/programme management of the EVCI roll-out:

1. Option 1: Setting up a delivery team which is given the terms of reference and governance structure to allow them to operate as an arms-length delivery organisation on behalf of all eight local authorities. Such a team would be delegated funding, and would manage development, delivery, and operation of the new EVCI network and the CPO partner(s).
2. Option 2: Each Council operating separately from a financial and management perspective with the allocated funding used to pay for the EVCI planned for their area in this business case. While the financing and management issues (e.g. responding to local people and monitoring maintenance requirements) would be divided, a Steering Group or Programme Board would still provide coordination between the Councils and ensure economies of scale are exploited and the same standards maintained. Procurement could still be joint, and the same CPO partner(s) could deliver across all eight Council areas but be paid through the eight organisations.
3. Option 3: A mix of Option 1 and 2 whereby some local authorities within the GCR form a combined delivery team and some local authorities operate independently.

Option 1 would:

- Ensure more consistency;
- Provide more efficiencies and economies of scale; and
- Consolidate skills;

However, it would also:

- Require revenue-sharing and payment-sharing to be organised, which could be complex;
- Require provision for liabilities to be correctly apportioned; and
- Be affected by differences in approach, politics, and governance between authorities.

Option 2 is more complex in the long run; however, it is easier to set up and mobilise in the short-term. Given the rapid timescales required to deliver the EVCI planned in this business case, Option 2 may be more attractive to some local authorities.

The preferred governance model of the Council is likely to be driven to a large extent by how far they wish to jointly procure EVCI with other GCR authorities.

It is recommended GCC continue to work with the other local authorities within the Glasgow City Region to agree the most appropriate working arrangements and set out an Inter-Entity Agreement (IEA) as a precursor to a formal Memorandum of Understanding (MoU) covering governance and management of the EVCI programme. Further details are provided in the overall summary GCR report.

9.1.1 Programme delivery

To ensure efficient and effective management, it is recommended GCC divide delivery of the EVI programme into the following stages:

- Stage 1 – Business Case (almost complete). Development of this business case document, overseen by Officers at GCR and Council.
- Stage 2 – Confirmation of collaborative working arrangements. Further discussion and agreement on preferred commercial delivery option(s) and collaborative working arrangements.
- Stage 3 – Approval Process. Approval of proposed delivery model and working arrangements by Executive Teams and Cabinets.
- Stage 4 – Procurement & Development. The further development of this business case and the procurement strategy, including identification of a (or some) CPO partner(s), soft market testing, official procurement process and developing the governance required to achieve the required Council approvals. Senior management, procurement, legal and financial representatives will also be involved as required.
- Stage 5 – Monitoring & Delivery of the capital works and commercial operation. Overseeing contract awards and monitoring contractual delivery, including ensuring CPO partners deliver to time and budget, dealing with problems and issues, and reporting on progress.

9.1.2 Required Resources

The proposed governance and management require technical, procurement, legal, management and administrative support. Existing resources and specialist capability varies across the local authorities within the region. External Consultants may be required to assist the teams in the local authorities to develop, deliver, or operate the EVCI roll-out. GCR used the Scotland Excel Framework to procure support to develop this business case on behalf of the eight local authorities, and it is anticipated that the same approach would be used if additional specialist support was required.

At the time of writing, it is not possible to provide an estimate of costs as final costs will depend on the commercial model adopted, procurement routes used and the need for any external consultancy support. However, Transport Scotland has allocated £80,000 funding per local authority in the 2023/2024 financial year (in addition to any funding rolled over from 2022/2023) to progress next stages and procurement. There is a significant risk that this level of funding may not be sufficient to cover procurement costs if each local authority undertakes procurement separately. Collaborative working is therefore recommended to achieve efficiencies and economies of scale.

Once the concession contract is in place (assuming Council adopt this model) it is assumed any management costs for the local authority will be funded by the CPO partner. This would represent an annual recurring cost; collaborative procurement between multiple local authorities would deliver economies of scale which would reduce this charge.

9.1.3 Approvals

GCC has its own internal approvals process to approve this business case and then agree the proposed governance and management structure, procurement approach and sign-off of any funding and financing plans. This includes the need to present papers for approval to committees and Cabinets (or equivalent). In addition, GCR will also progress this business case through their own Cabinet, although this approval will be subject to approval of the individual local authority reports to maintain local democratic oversight.

Expected key approval timescales are as follows, although timeframes may vary:

- GCR will present this overall summary report to the Chief Executives Group in late April and Cabinet in May.
- Further discussion on proposed collaborative working arrangements is required to enable local authorities to finalise their individual papers to be submitted for their own approval process. This will require further engagement with Chief Executives and relevant officers. It is expected this process will begin in April and take two-three months from receipt of this business case.
- Each of the local authorities will then take papers through their Executive Leadership Team (or equivalent) then to their own Cabinets (City Administration Committee in the case of GCC) for approval. This process is expected to start in July and will most likely also take two-three months.
- Each of the Councils may also need to take the final procurement documentation through the same approval processes. This includes the use of PINs, if used (as recommended). Timescales for this are not currently known, as legal advice may be required during the process.

9.2 Timetable and Next Steps

The timescales for this EVCI programme are subject to discussion but are expected to be:

Month/year	Key tasks
April 2023	<ul style="list-style-type: none"> • Business Case presented to the Chief Executive's Group • Initiate further discussions on commercial model and collaborative working arrangements • Submission of draft business case document to SFT for comment • Further engagement with SPEN to confirm any constraints
June 2023	<ul style="list-style-type: none"> • Confirm collaborative working arrangements and agree and establish Inter-Entity Agreement IEA(s) as required • Finalisation of business case • Internal approval process of the business case document within each of the eight local authorities begins
September 2023	<ul style="list-style-type: none"> • Internal approval process of the business case document within each of the eight Councils complete • Submission of final business case document to SFT for consideration • Procurement of consultancy support (if required) for procurement and development stage may be underway • Soft market testing complete

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Month/year	Key tasks
Q4 2023	<ul style="list-style-type: none">• Development of procurement/tender documentation for suppliers• Commencement of procurement process with commercial suppliers
Q1 2024	<ul style="list-style-type: none">• CPO partners in place• Commencement of capital works for new EVCI• Existing asset replacement where required
Q2 2024	<ul style="list-style-type: none">• Commencement of service delivery
2024 (to 2026)	<ul style="list-style-type: none">• EVI programme in place, with installation of new EVI ongoing, and service delivery ongoing
Q2 2025	<ul style="list-style-type: none">• ChargePlace Scotland contract ends

9.3 Risk Management and Mitigation

A risk register and suggested mitigation is provided in the overall Summary Report. All risks are considered relevant to GCC.

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