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PROJECT

REPORT

South Warwickshire EV Infrastructure Strategy

24th June 2022

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Document Revisions

No.	Details	Date
1	Report outline	13th June 2022
2	Initial content	14th June 2022
3	Internal review	17th June 2022
4	Updates from internal review	17th June 2022
5	Updates from client feedback	22nd June 2022
6	Final version for distribution	24th June 2022

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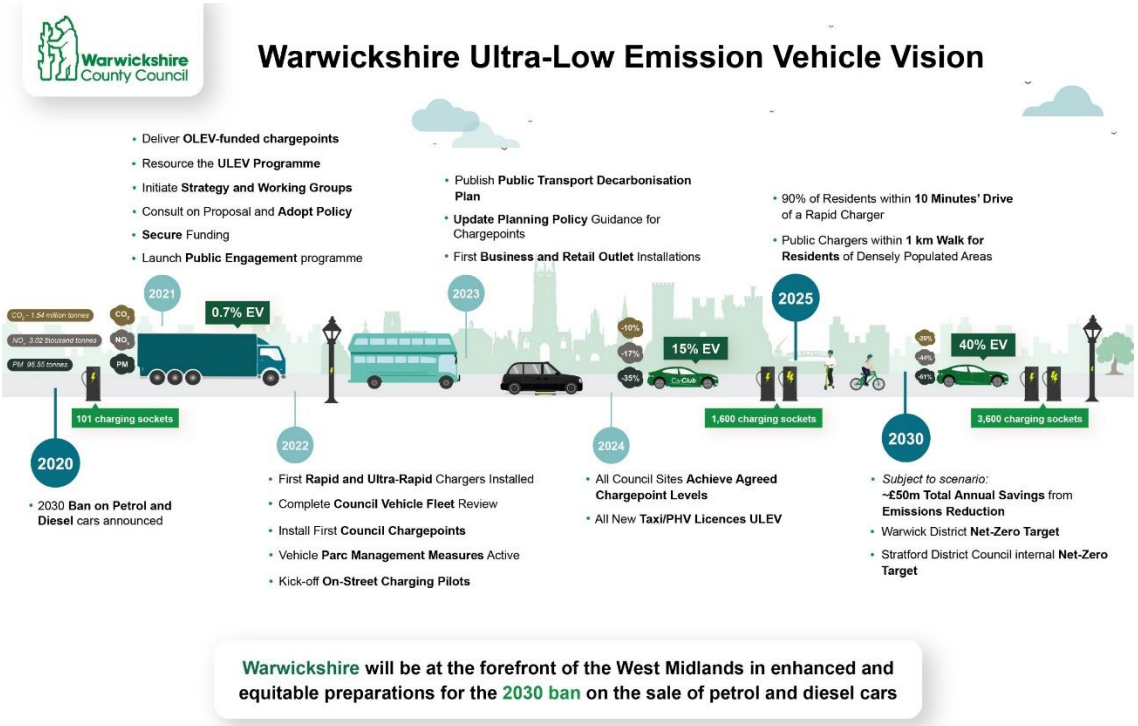
Abbreviations

AC	Alternating Current
CCTV	Closed Circuit Television
DC	Direct Current
DNO	Distribution Network Operator
EV	Electric Vehicle
GHG	Greenhouse Gas
GLA	Greater London Authority
HGV	Heavy Goods Vehicle
kW	Kilowatt
LA	Local Authority
LGVs	Light Goods Vehicle
Nox	Nitrogen Oxides
ORCS	On-Street Residential Chargepoint Scheme
OZEV	Office for Zero Emission Vehicles
PiV	Plug-in Vehicle
PM	Particulate Matter
SDC	Stratford-on- Avon District Council
TfWM	Transport for West Midlands
TRO	Traffic Regulation Order
UK	United Kingdom
ULEV	Ultra Low Emission Vehicle
VAT	Value Added Tax
WCC	Warwickshire County Council
WDC	Warwick District Council
WPD	Western Power Distribution

1 Introduction

1.1 Introduction to the project

On 8th February 2021, Cenex completed its Ultra-Low Emission Vehicle (ULEV) Strategy, Vision and Implementation Plan for Warwickshire County Council (WCC). The deliverables included a ULEV Vision (below) and recommendations for implementation:



Warwick District Council (WDC) and Stratford-on-Avon District Council (SDC) are now preparing to present their own infrastructure strategy to the upcoming cabinet meeting in early July 2022.

The WDC requested Cenex's help to develop an evidenced Infrastructure Strategy for South Warwickshire so as to determine their contribution under WCC's targeted "2030 ban" scenario.

The objectives of the study were to:

- Build upon the existing Warwickshire County Council (WCC) ULEV Strategy Report by Cenex;
- Baseline the current South Warwickshire situation;
- Forecast and project the number of Plug-in Vehicles (PiVs), infrastructure demand in the area;
- Calculate the benefits associated with the PiV uptake;
- Analyse ten priority specific council sites and estimate the future infrastructure demand;
- Suggest an approach to EV Infrastructure provision for Social Housing ;
- Provide a 3-month access to a tool to map coverage given by on- and off-street locations for chargepoint provision with effect from 1st of July 2022; and
- Outline an implementation plan to deliver the strategy.

To allow this specific piece of work to play its role within the wider tapestry of activities being carried out in Warwickshire, the West Midlands and beyond, the work was scoped as following:

Study area: This report focuses on the WDC and SDC area.

Vehicle Category: This report focuses on cars and vans. Heavier vehicles, two-wheelers, three-wheelers, as well as non-road vehicles are out of scope.

Technology: The report examines Plug-in Hybrid Electric Vehicles (PHEVs) and Battery Electric Vehicles (BEVs). These are collectively referred-to as Plug-In Vehicles (PiVs).

1.2 Navigation

Key conclusions, recommendations or takeaways are highlighted like this.

! Important notes are highlighted like this.

Case studies are highlighted like this.

2 Current Status

This section outlines and establishes the current status of each local authority area for vehicles and chargepoints

! The methodology applied to the ULEV Report for Warwickshire County Council (WCC) has been used in order to create a comparable baseline of the vehicle parc within South Warwickshire.

2.1 Vehicles

2.1.1 Vehicle parc composition

Table 1 and Figure 1 illustrate the fleet composition by vehicle type across South Warwickshire at the end of 2020. This is the latest data released by the Department for Transport and Driver and Vehicle Licensing Agency.[1] Overall UK and regional vehicle parc registrations were collected for South Warwickshire and broken down into cars, diesel cars, motorbikes, LGVs, diesel LGVs, HGVs, buses and registered ULEVs[2] [3]. For each vehicle category, a full breakdown of the vehicle type was gathered on a UK basis then extrapolated to South Warwickshire County for Cars[4], Motorbikes[5], Light Goods Vehicles (LGVs)[6], Heavy Goods Vehicles (HGVs)[7] [8] [9], Buses[10].

The data shows that cars are by far the most common vehicle type in the region, followed by LGVs.

Table 1: Table 1: Break down of the number of vehicles by type and by area

	Cars	Motorbikes	LGVs	HGVs	Buses
Stratford-on-Avon	85,428	3,911	10,521	1,152	227
Warwick	77,129	2,754	11,810	4,528	597
TOTAL: South Warwickshire	162,557	6,665	22,331	5,680	824

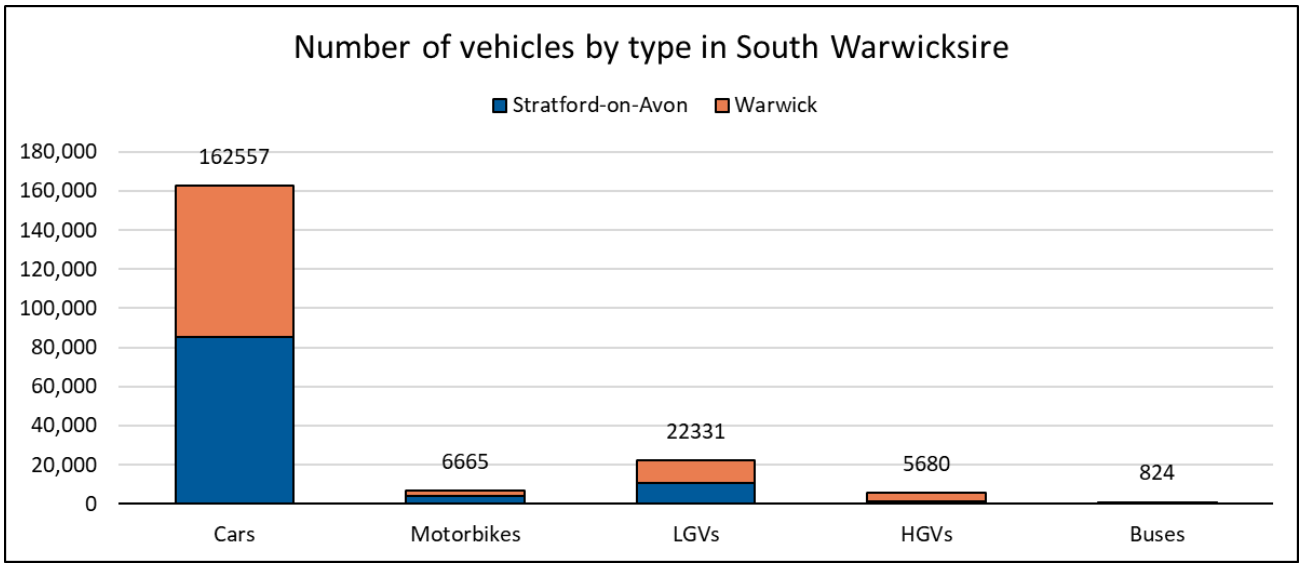


Figure 1: Vehicle parc in South Warwickshire

This strategy will be applicable to the majority of vehicles registered in South Warwickshire.

[1] https://www.gov.uk/government/statistical-data-sets/tsgb09-vehicles accessed, accessed 14th June 2022

[2] VEH0105 Gov UK
[3] VEH0132 Gov UK
[4] VEH0205 Gov UK
[5] VEH0305 Gov UK
[6] VEH0403 Gov UK
[7] VEH0506 Gov UK
[8] VEH0521 Gov UK
[9] VEH0522 Gov UK
[10] VEH0601 Gov UK

2.1.2 PiV penetration

Table 2 shows the penetration of all PiVs in Warwickshire, West Midlands and the whole of the UK for comparison.

Table 2: Breakdown of PiVs in South Warwickshire, Warwickshire, West Midlands and United Kingdom

Locations/sites	Total vehicles (Cars and vans)	Total PiVs (Cars and vans)	%PiV
United Kingdom	37,045,790	413,645	1.12%
West Midlands	3,258,182	28,157	0.86%
Warwickshire County	376,904	4,723	1.25%
Stratford-on-Avon	95,949	1,131	1.18%
Warwick	88,939	2,515	2.83%

The final column showing PiVs as a proportion of all vehicle types illustrates that the West Midlands is behind the UK in terms of EV uptake. Warwickshire as a whole is in-line with the UK average EV uptake. However, the South Warwickshire authorities are performing above and beyond the national average.

PiV uptake in South Warwickshire is above the national and regional averages.

2.2 Chargepoint infrastructure

2.2.1 Current chargepoint coverage

Data from Zap-Map[11] and the National Chargepoint Registry[12] was used to identify the total EV charging infrastructure provision for South Warwickshire.

! Chargepoint power types are categorised as standard (7 kW AC), fast (22 kW AC), rapid (43 kW AC, 50 kW DC) and ultra-rapid (150 kW DC).

A map of existing EV charging infrastructure locations across the study area is shown in Figure 2. It is observed that the public chargepoint network is not evenly distributed across the entirety of the study area. Charging deserts can be easily identified as most of the chargepoints are concentrated around central areas (Stratford on Avon, Warwick, Leamington Spa).

[11] https://www.zap-map.com/ , accessed 14th June 2022

[12] https://www.gov.uk/guidance/find-and-use-data-on-public-electric-vehicle-chargepoints, accessed 14th June 2022

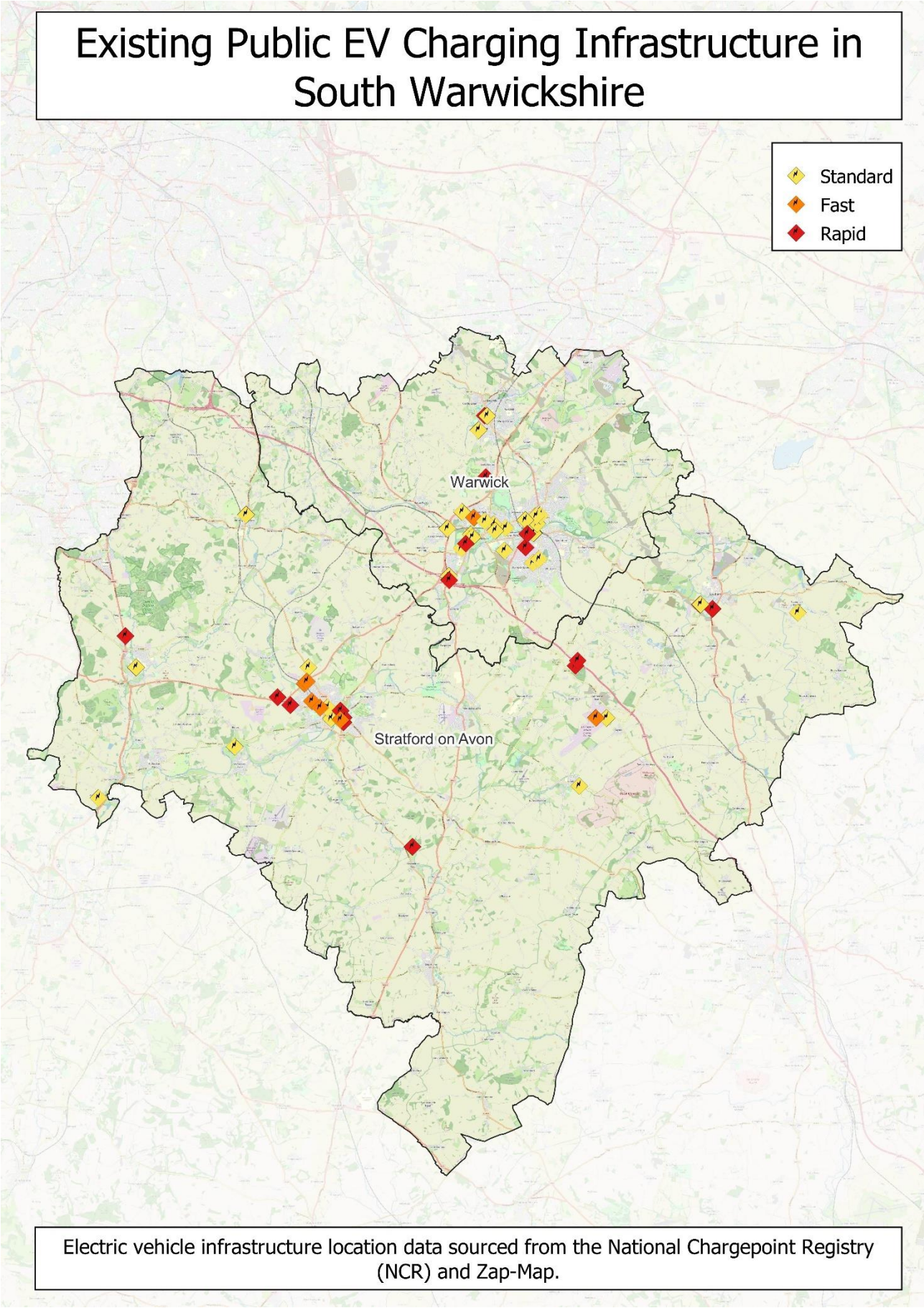


Figure 2: Existing EV charging infrastructure in South Warwickshire

As of end of May 2022, there are 209 public chargepoint sockets in South Warwickshire which is equivalent to 17.5 PiVs per public chargepoint socket. This is significantly behind other areas of the UK.

The majority of the chargepoint sockets are providing standard charging (168), as shown in Figure 3. There are 16 fast and 25 rapid charging sockets, and there are no ultra-rapid chargepoints in the area.

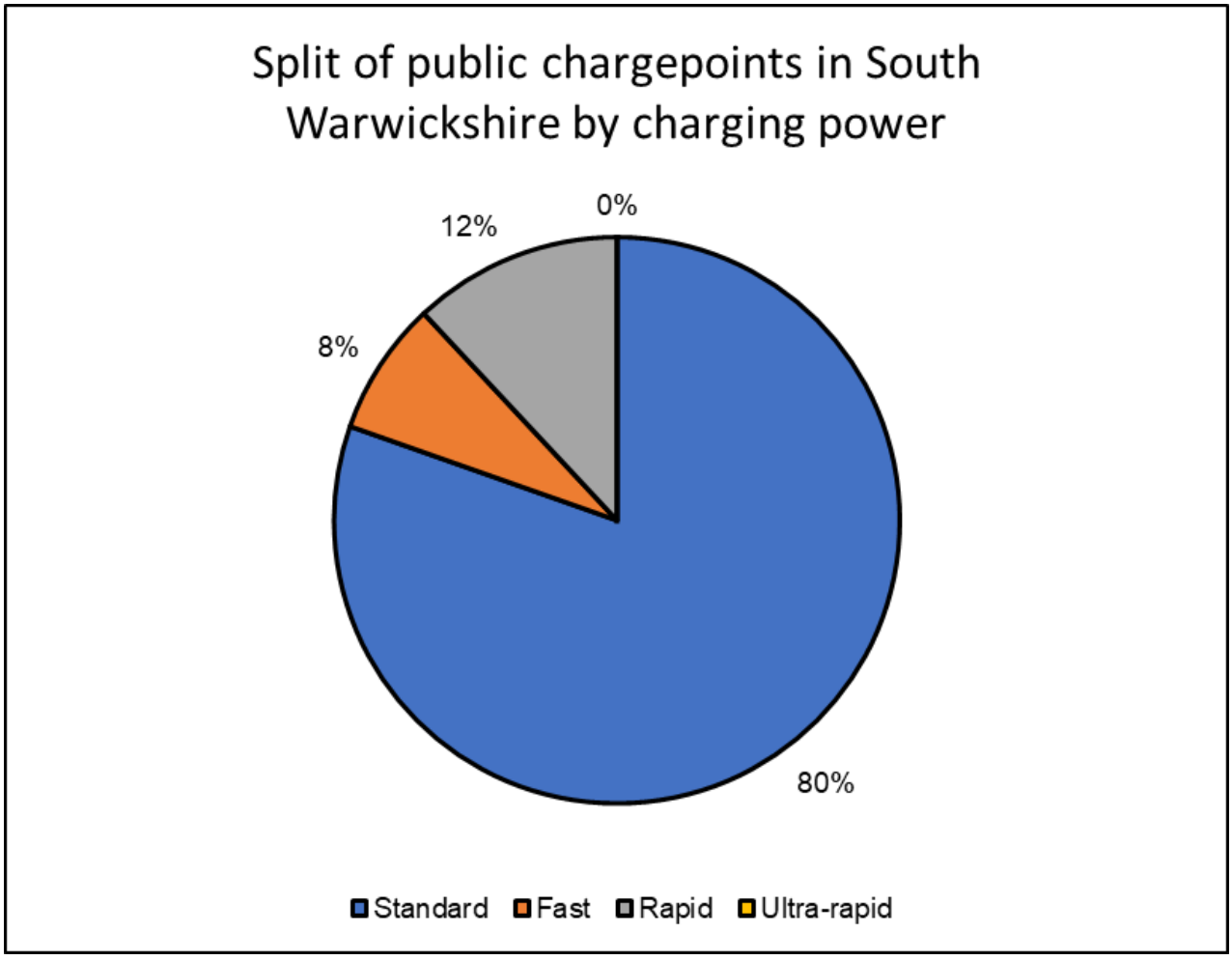


Figure 3: Proportion of existing public chargepoints in South Warwickshire that provide standard, fast, rapid and ultra-rapid charging

Public charging infrastructure provision in South Warwickshire is significantly behind comparable regions.

2.2.2 Distance to nearest public chargepoint

Drivers who do not have off-street parking must rely on public charging infrastructure to recharge their PiVs. The distance between their home and the nearest public chargepoint therefore has a significant impact on the convenience of owning an EV and correspondingly the likelihood to purchase or lease one in the short-term and ensuring that all residents live within a reasonable distance of a public EV chargepoint is likely to be an important prerequisite to the mass adoption of EVs.

Examination of the land area and proportion of area that is not within one kilometre of the nearest public chargepoint gives an indication of the current maturity of infrastructure provision for the population.

Figure 4 illustrates geographical locations within South Warwickshire that fall within 250m, 500m and 1km walking distance of the nearest public chargepoint. Some urban centres are well covered by

the existing network, particularly Warwick and Leamington Spa and Stratford-upon-Avon. However, 97.5% of the land area of South Warwickshire is not within one kilometre of a public chargepoint.

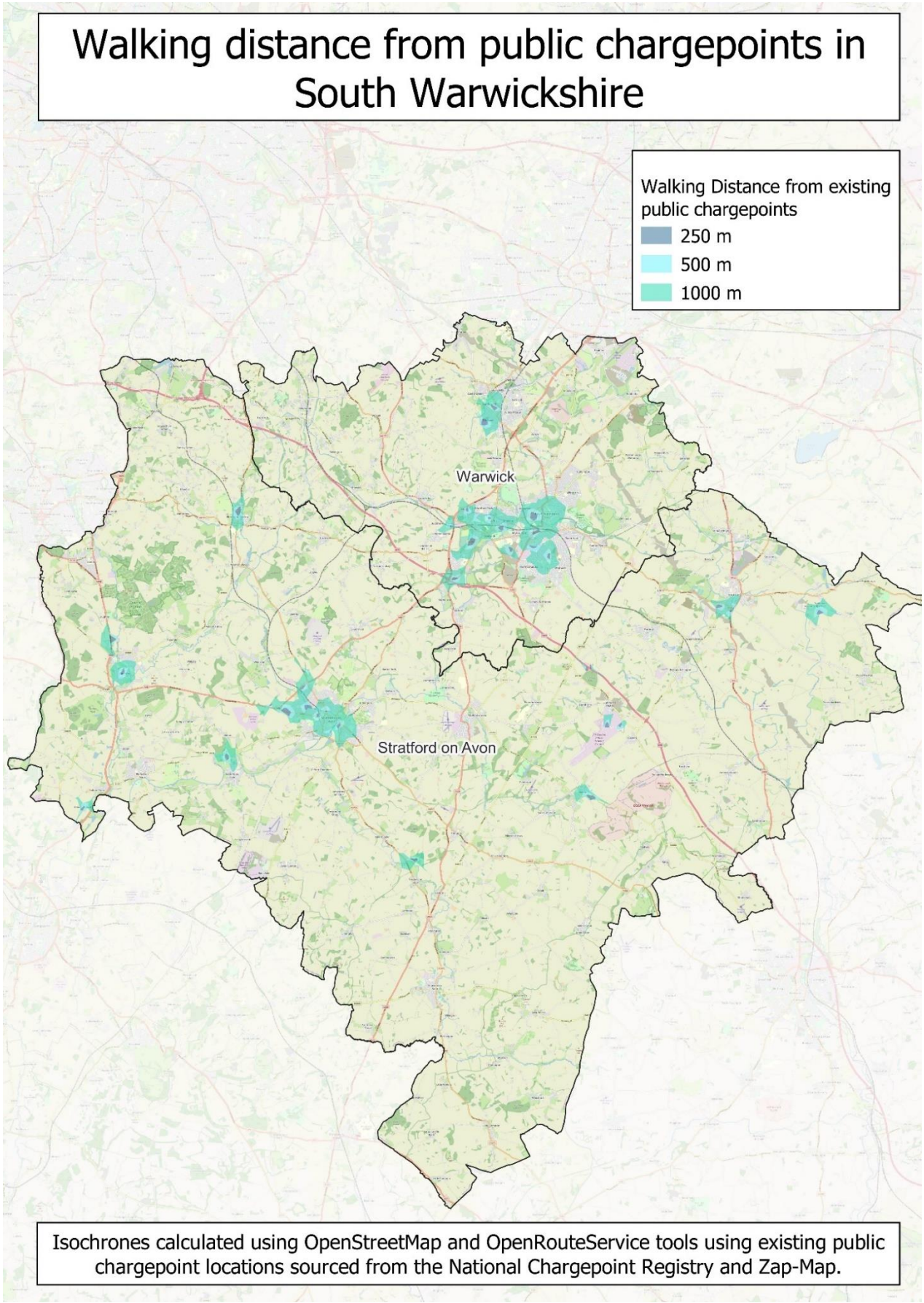


Figure 4: Map showing areas within 250 m, 500 m and 1 km walking distance of a public chargepoint in South Warwickshire

2.2.3 Drive time to nearest rapid chargepoint

The time it takes to drive to the nearest public rapid chargepoint is another important factor that may influence the uptake of EVs. For those who are unable to charge at home and who potentially live in areas that are unsuitable for public residential charging infrastructure (for instance because there is insufficient local electrical grid capacity), rapid charging is essential to ensuring that EVs are a feasible option. For residents, it is important that rapid charging is within a convenient distance of home locations in order to reduce any disruption to existing routines that could be caused should significant detours be required.

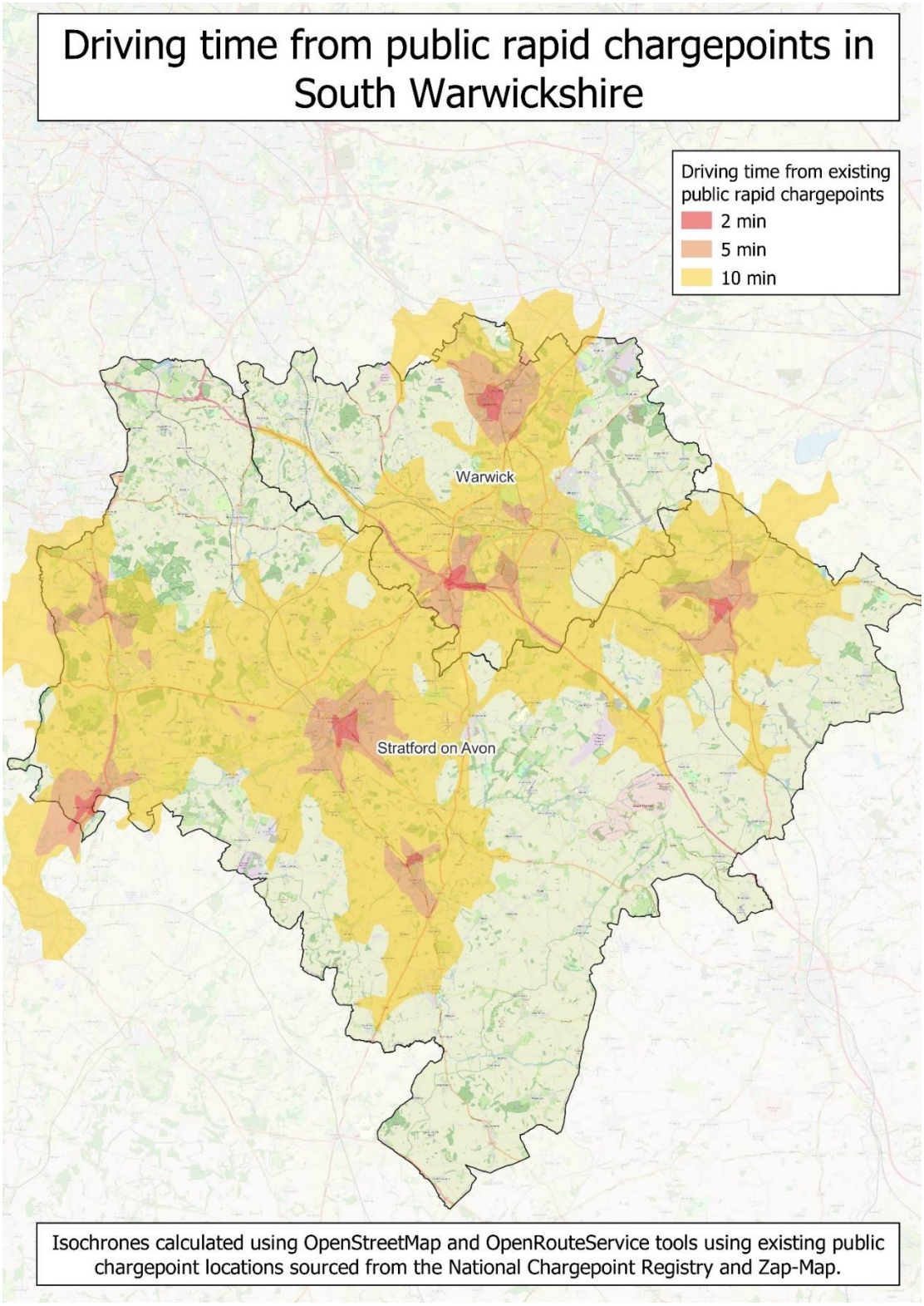


Figure 5: Map showing areas within a 2, 5 and 10 minute driving distance from existing public rapid chargepoints in South Warwickshire

Figure 5 shows the geographical area of South Warwickshire that falls within two, five-, and ten-minutes' drive of the nearest public rapid chargepoint. Areas to the South East and North West of South Warwickshire are poorly served by existing rapid charging infrastructure.

2.3 Conclusions

Examining the baselining analysis, the following conclusions can be drawn:

Vehicles – South **Warwickshire's vehicle parc is** transitioning to PiVs.

Vehicle Parc:

- Cars are by far the most common vehicle type in the region, followed by LGVs.

Current EV Penetration:

- Warwickshire County is in-line with the UK average EV uptake.
- Current EV uptake in the UK is 1.12%. EV uptake in Stratford-on-Avon District and Warwick District is 1.18% and 2.83% respectively, leading regionally and nationally.

Chargepoints – Public chargepoint network coverage is uneven between the regions and currently lags in infrastructure number.

- Current infrastructure is mostly legacy standard chargers, with very few fast chargers.
- Provision is currently 17.5 plug-in vehicles (PiVs) per charging socket.
- Current public chargepoint network coverage is very patchy.
- Around 97.5% of the study area is further than one km from the nearest public chargepoint.
- 47% of South Warwickshire is within ten minutes' drive of a rapid chargepoint.

3 Projections

This work package forecasts and projects the number of PiVs and the upcoming infrastructure demand in the area.

! A full explanation of the methodology used to estimate the EV uptake and the equivalent chargepoint infrastructure demand in South Warwickshire can be found in ULEV Report for WCC.

3.1 PiV projections

Using the WCC-agreed "2030 ban" scenario as the basis of the following projections, the uptake of PiVs (cars and vans) in South Warwickshire is projected and presented in Figure 6.

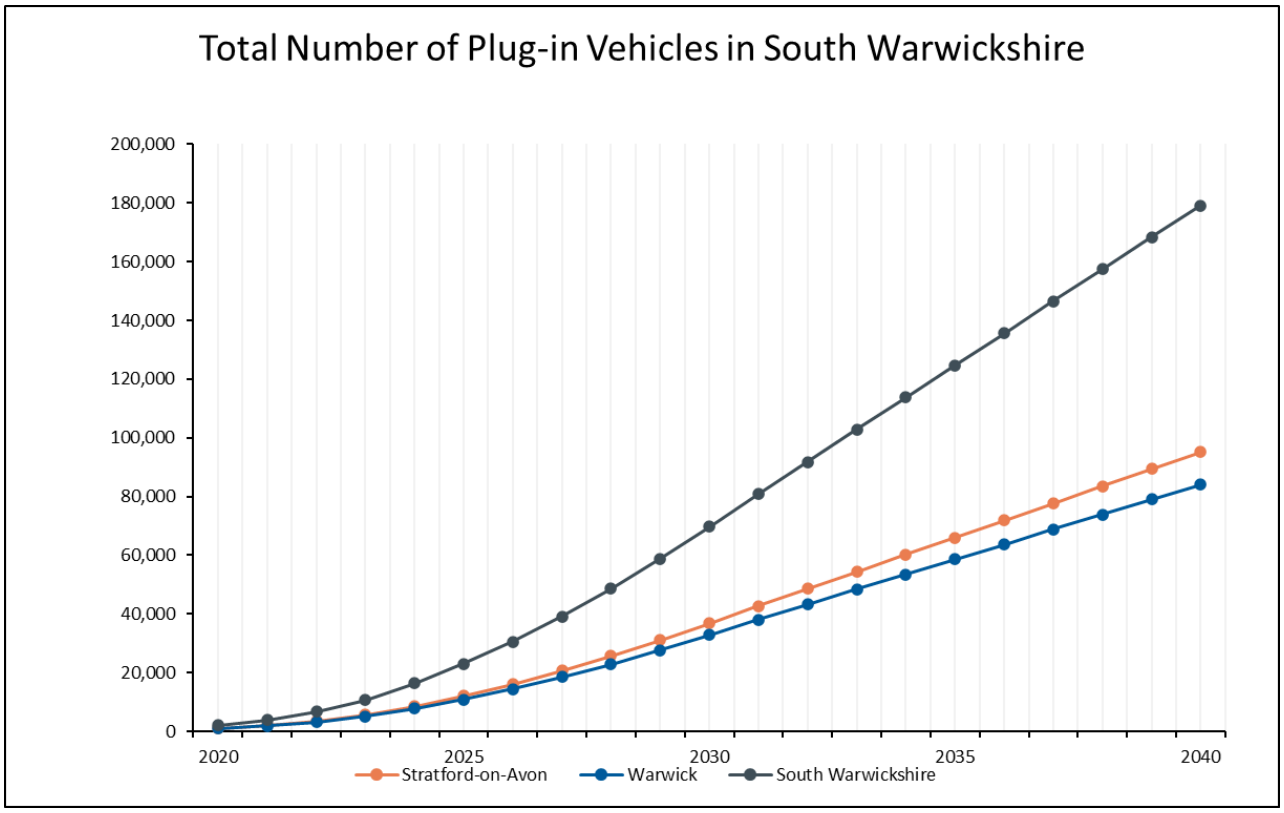


Figure 6: Projected number of PiVs in the vehicle parc in South Warwickshire

In absolute terms, the "2030 ban" scenario implies that by 2025 23,000 PiVs are projected for the area, increasing to 70,000 in 2030 and 180,000 in 2040.

A five-fold increase in PiVs is projected for South Warwickshire by 2025.

3.2 Charging infrastructure projections

The PiV uptake projections have been translated to estimate the number and type of infrastructure which will be required to service this demand, according to the original modelled assumptions (Mean annual mileage; Current and future EV battery sizes; Proportion of off-street parking available; Likely number of vehicles of different specifications; and Typical charging).

These allow the likely output by charger and charging sessions per day to be calculated, from which the volumes and type of infrastructure required to meet this demand can be evaluated.

Figure 7 shows the projected total number and types of charging sockets required to service the PiV demand in the 2030 Ban scenario.

! All infrastructure scenarios are calculated by number of sockets. Freestanding 7 kW chargers are typically fitted with two sockets, meaning that a requirement for 3,000 sockets potentially only necessitates 1,500 chargepoints.

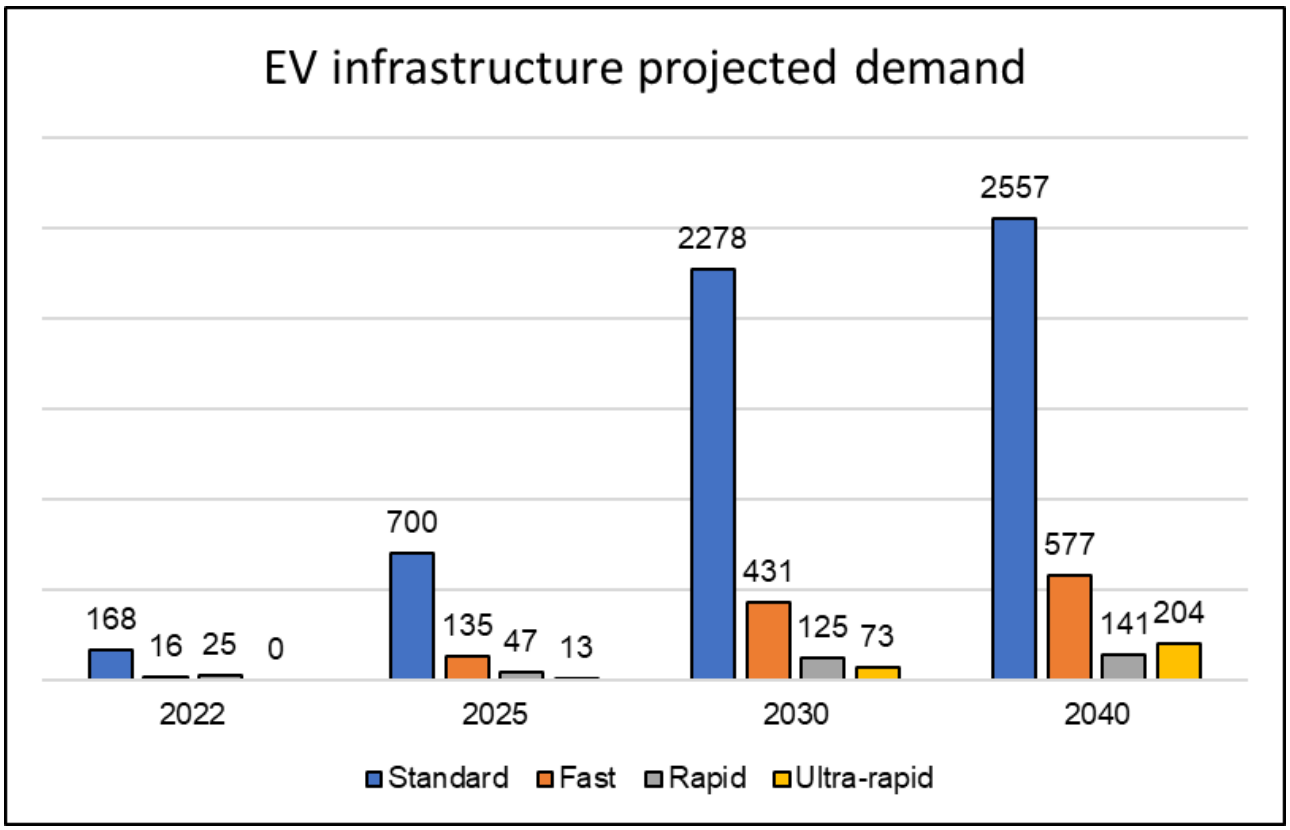


Figure 7: Projected number of sockets for PiVs in South Warwickshire

This graph shows that the "2030 Ban" scenario will require four times the number of charging sockets in 2025 than the current available. This grows to fourteen times the number by 2030 and eighteen times by 2040.

3.3 Conclusions

Examining the projections for the number of PiVs and the infrastructure demand under the 2030 ban scenario for cars and vans, the following conclusions can be drawn:

EV Uptake: Expected to rise sharply in response to ban.

- By 2025 23,000 PiVs are projected for the area, increasing to 70,000 in 2030 and 180,000 in 2040.

Infrastructure: Required to increase significantly in response to the rising EV uptake.

- The 2030 Ban scenario represents a significant step-change in the number and rate of charging socket provision in response to rising PiV uptake.
- By 2025, around 900 sockets are projected to be needed, rising to 2,900 in 2030 and 3,500 in 2040.
- The vast majority of these are standard 7 kW charging sockets, which provide the most efficient, convenient and practical route to support the electrification of cars and vans.

4 Benefits

This section calculates the wider environmental, air quality and social benefits of the EV uptake scenario.

! The same methodology as applied to the ULEV Report for WCC has been used in order to calculate the environmental and air quality benefits of the EV uptake in South Warwickshire.

4.1 CO_2, NOx and PM emissions reductions

The results of the emissions reduction calculations are presented in Table 3.

Table 3: CO_2, NOx, PM reduction vs 2020 figures in South Warwickshire

	2025	2030	2035	2040
CO2	-0.8%	-10.6%	-24%	-36.9%
NO_X	-11%	-34%	-56%	-86%
PM	-10%	-34%	-57%	-75%

The forecast emissions reductions for each scenario are evaluated against the figures for 2020 and show that EVs can significantly reduce local pollutant and GHG emissions.

The absolute projected CO2, NO_X and PM figures are displayed in Figure 8, Figure 9, Figure 10.

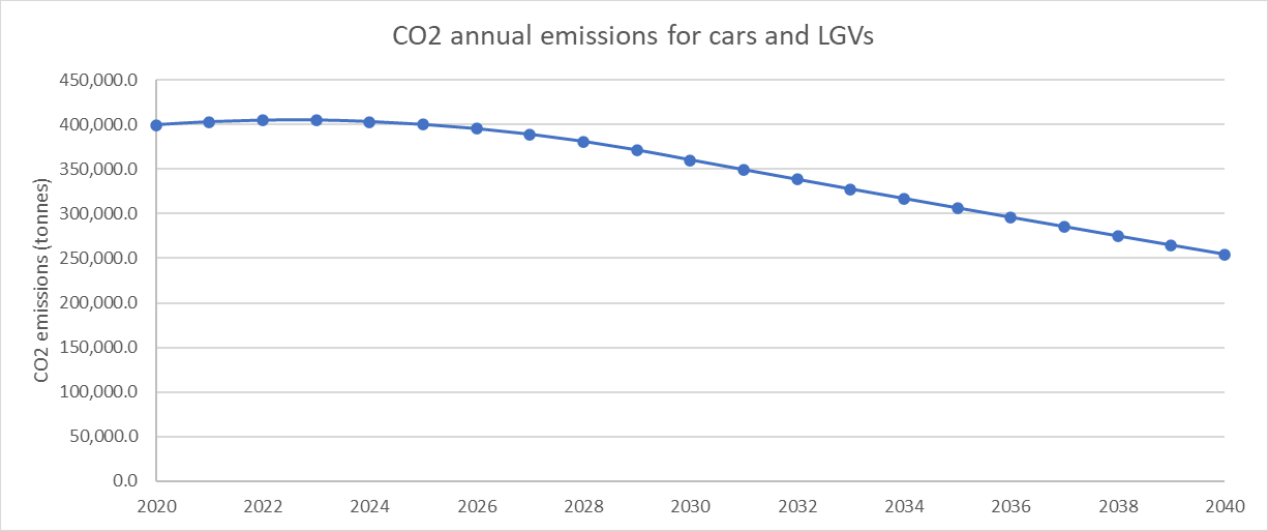


Figure 8: Projected annual CO2 emissions for cars and LGVs in South Warwickshire

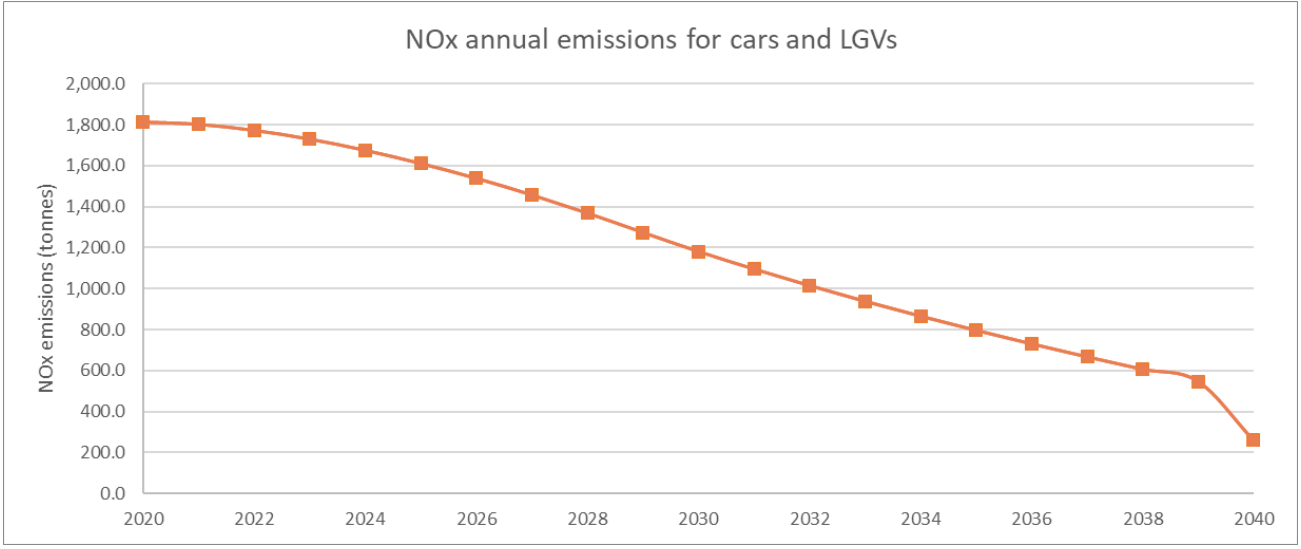


Figure 9: Projected annual NOx emissions for cars and LGVs in South Warwickshire

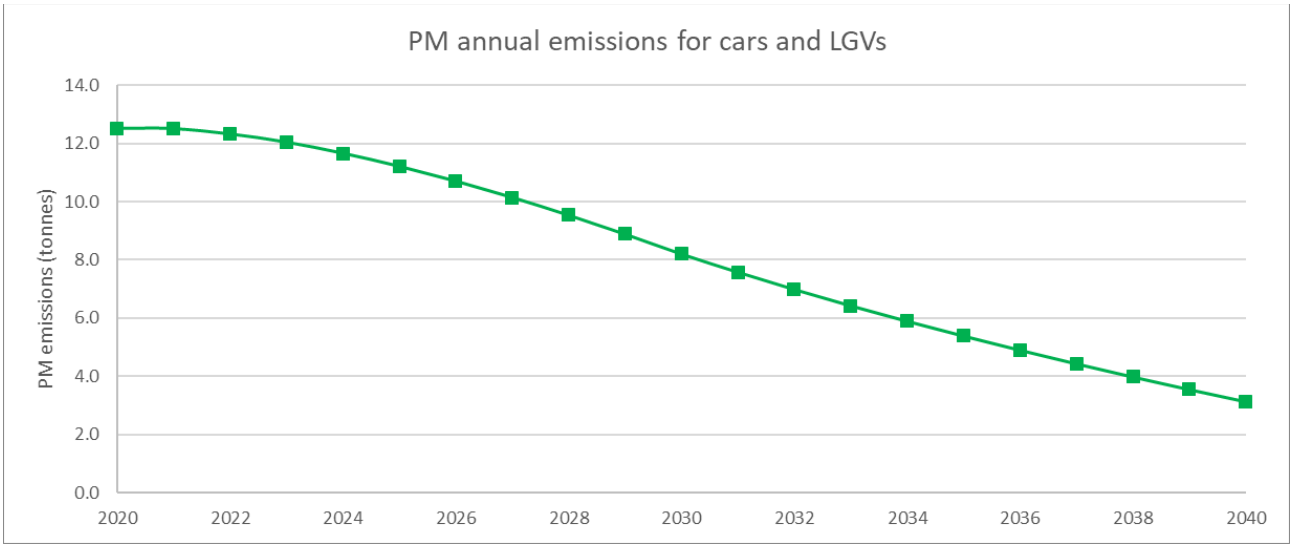


Figure 10: Projected annual PM emissions for cars and LGVs in South Warwickshire

Reductions in NO_X and PM are projected by 2025, with CO_2 starting to reduce significantly in the 2030s and the proportion of PiVs in the vehicle parc increases.

4.2 Damage costs mitigated due to emissions

Known damage costs for each emission have been applied to the emissions savings projected by each scenario to estimate and monetise the social benefits of these emissions savings. These assumptions account for inflation and are the agreed DfT figures for the year 2022[13].

Table 4: Projected annual costs mitigated in South Warwickshire

	CO_2 Annual Cost Saving	NO_X Annual Cost Saving	PM Annual Cost Saving	Total Annual Cost Saving
2025	£852,605	£652,309	£26,068	£ 1,530,982
2030	£3,199,885	£1,040,481	£43,567	£ 4,283,933
2040	£3,431,012	£3,869,395	£31,992	£ 7,332,400

It is beyond the scope of this strategy to undertake a detailed air quality damage cost assessment. However, the estimates provided here show that the monetised social benefits of reducing emissions through EV uptake can be significant, especially as the values accumulative year-on-year. These results are indicative based on average damage cost values and costs will vary depending on factors such as whether emissions occur in an urban or rural location. Therefore, a scheme which reduces emissions in a dense urban area will have a greater monetary value than a similar scheme in a sparsely populated rural area.

More precise, local appraisals could be undertaken as part of business case analysis to support investment in targeted local measures to promote EV uptake. This would indicate the significant social benefits associated with reducing emissions.

[13] https://www.gov.uk/government/publications/tag-data-book, accessed on 14th June 2022

4.3 Conclusions

Examining the projected benefits, the following conclusions can be drawn:

Emissions Reduction: Significant reductions possible if the Ban scenario projections are achieved

- In the 2030 Ban scenario, a 0.8% reduction in CO2, 11% in NOX and 10% reduction in PM is projected by 2025 and has the potential to reach a 37% reduction in CO2, 86% in NOx and 75% in PM by 2040 compared with the 2020 levels.

Mitigated Damage Costs: The monetised social benefits of reducing emissions through EV uptake can be significant

- Total annual cost mitigations of up to £3.4m and £7.3m are available from emissions reduction by 2025 and by 2040 respectively.

5 Implementation

Section 3 (page 17) has presented the PiV uptake and infrastructure deployment figures for South Warwickshire to target in the coming years. South Warwickshire's approach must fit with the WCC County strategy and the overarching Transport for West Midlands regional strategy.

Therefore, this section outlines a targeted strategy that South Warwickshire should take to address the charging deserts and ensure equitable access to public charging. Whilst this will not fully deliver the total number of chargepoints projected to be needed (Table 5), it will ensure that South Warwickshire has a well-defined role within the wider public and private deployment activities and presents a starting point for action.

Table 5: Recommended charging socket deployment targets in South Warwickshire

	2025	2030	2040
Standard	700	2278	2557
Fast	135	431	577
Rapid	47	125	141
Ultra-rapid	13	73	204

To achieve this, key South Warwickshire car parks and social housing are examined and evaluated in the section that follows.

5.1 Car park analysis

Ten car parks across Warwick and Stratford-upon-Avon districts were put forward by council representatives for charging infrastructure demand analysis in 2025, 2030, 2035 and 2040 accounting for the PiV uptake curve discussed in Section 3.1 (page 17). A model was constructed to calculate the number of active chargepoints needed at each site

The list of the 10 priority car parks is:

- St Peters Multi-Storey Car Park, Leamington Spa
- Abbey Fields Car Park, Kenilworth
- New Street Car Park, Warwick
- Chandos Street, Leamington Spa
- St Nicholas Park, Warwick
- Stratford Leisure Centre Car Park
- Stratford Recreation Ground Car Park
- Saxon Fields Car Park, Bidford-on-Avon
- Wood Street Car Park, Southam
- Telegraph Street Car Park, Shipston-on-Stour

Figure 11 shows a map with the ten priority carparks against the current available public chargepoint infrastructure.

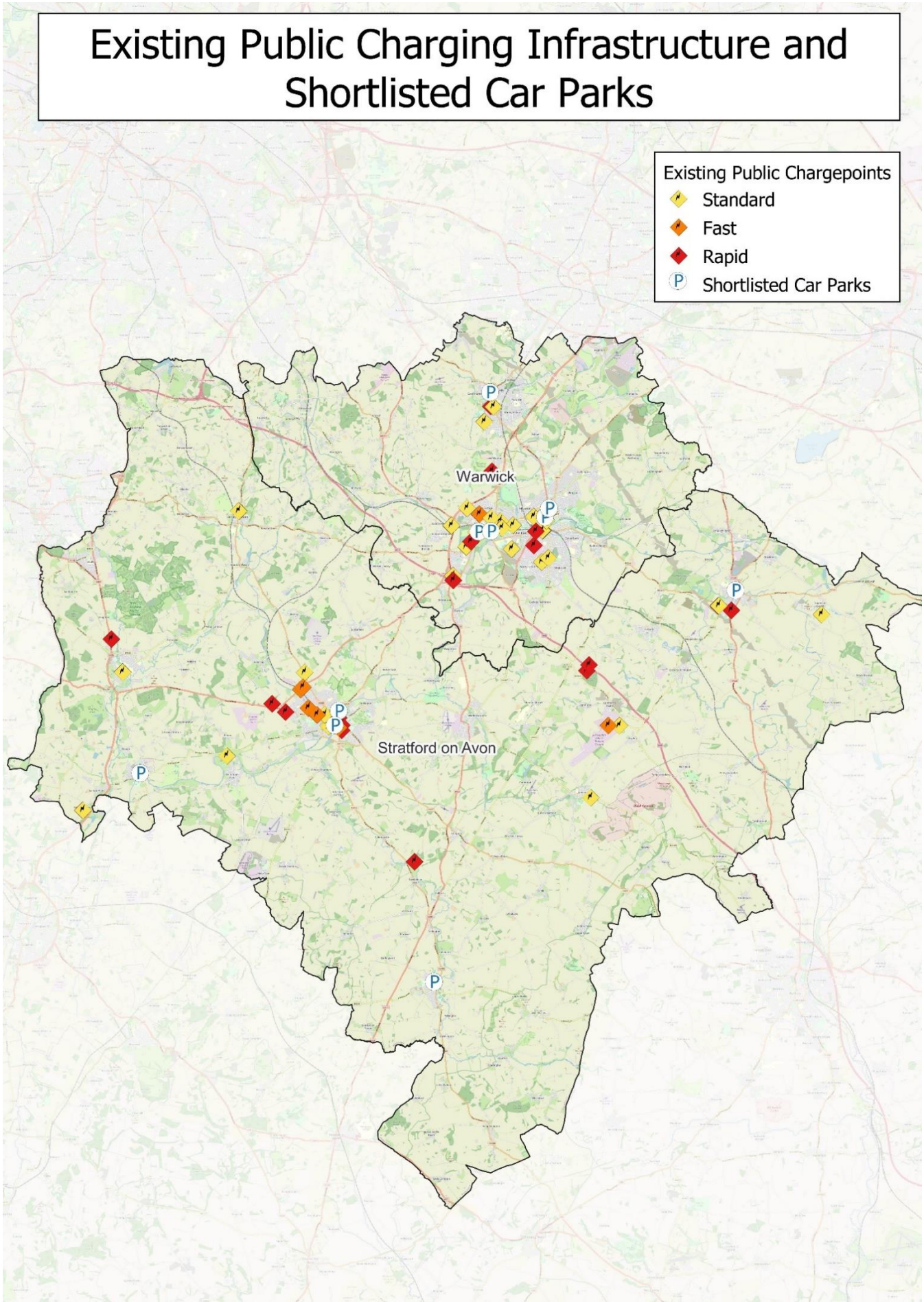


Figure 11: Map showing the ten priority car parks and the current available public chargepoint infrastructure in South Warwickshire

5.1.1 Results

The methodology described in Appendix A: Methodology of car park analysis (page 36) was applied to all 10 car parks proposed by the council to estimate their future infrastructure demand.

Table 6 shows the total number of users across all 10 car parks that are projected to require a charge and the volume of infrastructure required modelled at five-year intervals from 2025 to 2040. It breaks the EV charging infrastructure projections down by chargepoint type and presents this in terms of number of sockets and chargepoints. The results for each individual car park can be found in Appendix B: Analysis of each individual priority car park (page 39).

Table 6: Total EV chargepoint users, and chargepoints and charging sockets required across all 10 car parks from 2025 to 2040.

Users per day				
	2025	2030	2035	2040
Standard	17.17	57.57	102.86	142.55
Fast	65.32	219.04	400.64	555.20
Rapid	22.28	74.73	133.53	185.04
Total	104.77	351.34	637.02	882.79

Chargepoints required (sockets)				
	2025	2030	2035	2040
Standard	15	32	52	72
Fast	12	25	41	54
Rapid	7	8	11	13
Total	34	65	104	139

Chargepoints required (chargepoints)				
	2025	2030	2035	2040
Standard	12	20	30	38
Fast	10	15	23	29
Rapid	7	8	11	13
Total	29	43	64	80

By 2025 there could be around 100 EV users charging at these 10 car parks per day, rising to nearly 900 per day by 2040. A total of 80 chargepoints, of which around a half will be standard chargepoints, will be required by 2040 to support this level of utilisation. If this were deployed, this accounts for around 10% of the projected chargepoint need in South Warwickshire.

The tables below show the total cumulative capital costs, and annual operating costs, net revenue and margin for the required infrastructure shown in Table 6 for all 10 car parks according to each of the business models discussed in Appendix A: Methodology of car park analysis (page 36).

! Note that the margin is simply the balance of the annual revenue and operating costs and does not account for the time-value of money.

The cumulative capital investment needed to deliver charging infrastructure across all 10 sites is around £510k in 2030, rising to over £912k by 2040, split between the parties according to the operating model. The annual margin is projected to be between £98k and £460k by 2030, depending on the operating model, rising to between £242k and £1.15m by 2040.

Own and Operate

Capital Cost (cumulative)				
	2025	2030	2035	2040
Standard	-£ 98,108	-£ 163,513	-£ 245,269	-£ 310,674
Fast	-£ 84,030	-£ 126,045	-£ 193,269	-£ 243,686
Rapid	-£ 192,871	-£ 220,423	-£ 303,082	-£ 358,188
Total	-£ 375,008	-£ 509,981	-£ 741,620	-£ 912,548

Operating Cost (per annum)				
	2025	2030	2035	2040
Standard	-£ 9,016	-£ 15,027	-£ 22,540	-£ 28,551
Fast	-£ 7,513	-£ 11,270	-£ 17,281	-£ 21,789
Rapid	-£ 3,509	-£ 4,011	-£ 5,515	-£ 6,517
Total	-£ 20,039	-£ 30,307	-£ 45,335	-£ 56,856

Net Revenue (per annum)				
	2025	2030	2035	2040
Standard	£ 83,647	£ 280,508	£ 501,216	£ 694,586
Fast	£ 30,761	£ 103,158	£ 184,323	£ 255,436
Rapid	£ 31,532	£ 105,742	£ 188,941	£ 261,834
Total	£ 145,940	£ 489,407	£ 874,480	£ 1,211,856

Margin (per annum)				
	2025	2030	2035	2040
Standard	£ 74,631	£ 265,482	£ 478,676	£ 666,036
Fast	£ 23,248	£ 91,888	£ 167,043	£ 233,647
Rapid	£ 28,023	£ 101,731	£ 183,426	£ 255,317
Total	£ 125,901	£ 459,100	£ 829,145	£ 1,155,000

External Operator

Capital Cost (cumulative)				
	2025	2030	2035	2040
Standard	-£ 98,108	-£ 163,513	-£ 245,269	-£ 310,674
Fast	-£ 84,030	-£ 126,045	-£ 193,269	-£ 243,686
Rapid	-£ 192,871	-£ 220,423	-£ 303,082	-£ 358,188
Total	-£ 375,008	-£ 509,981	-£ 741,620	-£ 912,548

Operating Cost (per annum)				
	2025	2030	2035	2040
Standard	-£ 1,200	-£ 2,000	-£ 3,000	-£ 3,800
Fast	-£ 1,000	-£ 1,500	-£ 2,300	-£ 2,900
Rapid	-£ 700	-£ 800	-£ 1,100	-£ 1,300
Total	-£ 2,900	-£ 4,300	-£ 6,400	-£ 8,000

Net Revenue (per annum)				
	2025	2030	2035	2040
Standard	£ 75,282	£ 252,457	£ 451,094	£ 625,128
Fast	£ 27,685	£ 92,842	£ 165,891	£ 229,892
Rapid	£ 28,379	£ 95,167	£ 170,046	£ 235,651
Total	£ 131,346	£ 440,467	£ 787,032	£ 1,090,671

Margin (per annum)				
	2025	2030	2035	2040
Standard	£ 74,082	£ 250,457	£ 448,094	£ 621,328
Fast	£ 26,685	£ 91,342	£ 163,591	£ 226,992
Rapid	£ 27,679	£ 94,367	£ 168,946	£ 234,351
Total	£ 128,446	£ 436,167	£ 780,632	£ 1,082,671

Concession Model

Capital Cost (cumulative)				
	2025	2030	2035	2040
Standard	-£ 60,089	-£ 100,148	-£ 150,222	-£ 190,281
Fast	-£ 50,074	-£ 75,111	-£ 115,170	-£ 145,214
Rapid	-£ 30,397	-£ 34,739	-£ 47,766	-£ 56,451
Total	-£ 140,559	-£ 209,998	-£ 313,158	-£ 391,947

Operating Cost (per annum)				
	2025	2030	2035	2040
Standard	£ -	£ -	£ -	£ -
Fast	£ -	£ -	£ -	£ -
Rapid	£ -	£ -	£ -	£ -
Total	£ -	£ -	£ -	£ -

Net Revenue (per annum)				
	2025	2030	2035	2040
Standard	£ 25,094	£ 84,152	£ 150,365	£ 208,376
Fast	£ 9,228	£ 30,947	£ 55,297	£ 76,631
Rapid	£ 9,460	£ 31,722	£ 56,682	£ 78,550
Total	£ 43,782	£ 146,822	£ 262,344	£ 363,557

Margin (per annum)				
	2025	2030	2035	2040
Standard	£ 25,094	£ 84,152	£ 150,365	£ 208,376
Fast	£ 9,228	£ 30,947	£ 55,297	£ 76,631
Rapid	£ 9,460	£ 31,722	£ 56,682	£ 78,550
Total	£ 43,782	£ 146,822	£ 262,344	£ 363,557

Lease Model

Capital Cost (cumulative)				
	2025	2030	2035	2040
Standard	£ -	£ -	£ -	£ -
Fast	£ -	£ -	£ -	£ -
Rapid	£ -	£ -	£ -	£ -
Total	£ -	£ -	£ -	£ -

Operating Cost (per annum)				
	2025	2030	2035	2040
Standard	£ -	£ -	£ -	£ -
Fast	£ -	£ -	£ -	£ -
Rapid	£ -	£ -	£ -	£ -
Total	£ -	£ -	£ -	£ -

Net Revenue (per annum)				
	2025	2030	2035	2040
Standard	£ 16,729	£ 56,102	£ 100,243	£ 138,917
Fast	£ 6,152	£ 20,632	£ 36,865	£ 51,087
Rapid	£ 6,306	£ 21,148	£ 37,788	£ 52,367
Total	£ 29,188	£ 97,881	£ 174,896	£ 242,371

Margin (per annum)				
	2025	2030	2035	2040
Standard	£ 16,729	£ 56,102	£ 100,243	£ 138,917
Fast	£ 6,152	£ 20,632	£ 36,865	£ 51,087
Rapid	£ 6,306	£ 21,148	£ 37,788	£ 52,367
Total	£ 29,188	£ 97,881	£ 174,896	£ 242,371

5.2 Social housing EV infrastructure strategic approach

People living in social housing dwellings are significantly less likely to have access to a private driveway, making it difficult to install home charging solutions, and likely to be less affluent, making it more difficult to drive a PiV. At the same time, these communities have the most to gain from the clean transport revolution due to being disproportionately exposed to the highest levels of toxic exhaust emissions and suffering significantly poorer air quality.

Furthermore, these residents are not specifically targeted by either the TfWM or WCC EV Infrastructure strategies.

WDC owns and operates directly all the social houses in the district while SADC sold their housing stock back in 1996 and the social housing is all owned by various Housing Associations. As shown in Figure 12, only 11% of social housing dwellings in Warwick are within a 5 minute walk of existing public chargepoints and shortlisted car parks in Section 5.1 (page 22).

! Note that no data was available to perform the same analysis for SADC social housing dwellings.

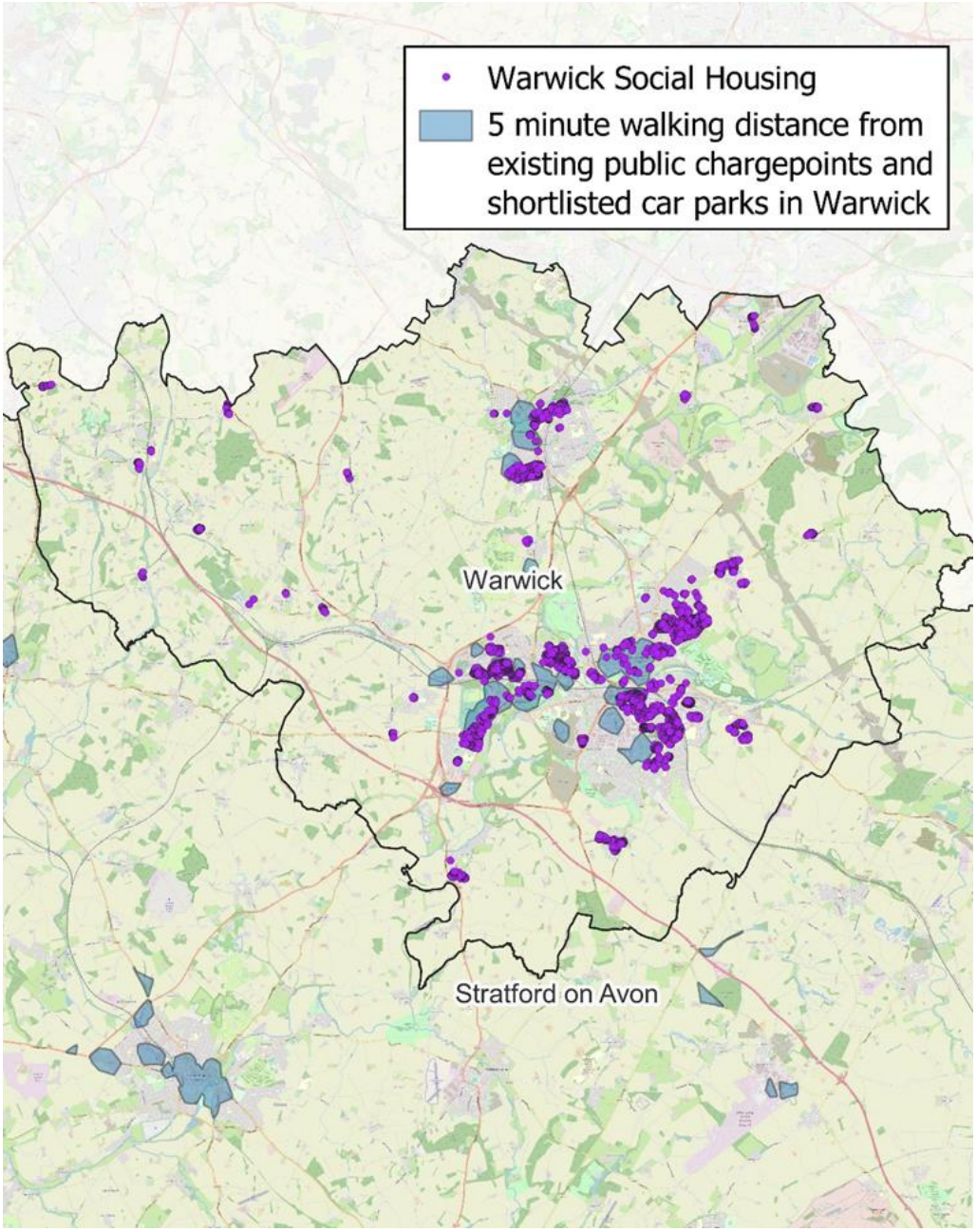


Figure 12: Map showing social houses within a 5 walking distance from existing public rapid chargepoints and shortlisted carparks in Warwick District Council

The inclusion of the community in this process is important and will require that they have access to charging infrastructure. Public EV charging stations may help reduce the EV adoption barriers affecting these populations. EV charging does not by itself benefit historically underserved communities, but it is a critically important barrier that must be overcome for the potential benefits to be realised.

The viability of business models depends on the utilisation of the chargers, so the market naturally tends to deploy higher-powered charging into areas with heavier EV adoption which tend to be wealthier neighbourhoods. Where there is no public intervention, this has led to significant inequities in public charger access. Without public intervention and investment, less affluent neighbourhoods where social houses are located have the potential to be further excluded as the region moves towards electrification.

Therefore, special consideration is recommended for how South Warwickshire deploys chargepoints, to reduce barriers to uptake for PiVs for the residents in these dwellings

5.2.1 Current building regulation and available grants

Current building regulations and central Government funding support a just transition to PiVs. WDC and SADC should promote the existing building regulation, apply for grants and communicate available fund opportunities for existing and future social housing developments to relevant stakeholders.

Existing developments

The Government offers grants to support the wider use of electric and hybrid vehicles via the Office of Zero Emission Vehicles (OZEV). Housing associations, local authorities who own social houses, and people living in social houses have access to a range of grants and funding streams to reduce the cost of installing EV smart chargepoints.

Below is a short summary of a few the main funding sources that South Warwickshire should explore:

- EV infrastructure grant for residential car parks[14]: The grant is open to public authorities and Housing Associations. The grant supports the provision of chargepoints and future chargepoint locations for installation at a later date. A minimum of 5 parking spaces must be provisioned with charging infrastructure, at least one of which must have a working chargepoint. Each grant application can be for up to a maximum of £30,000.
- EV chargepoint grant for landlords[15]: The EV chargepoint grant for landlords gives financial support to landlords and other entities to buy and install electric vehicle (EV) chargepoints at residential or commercial properties in the UK. The grant amount given is per chargepoint socket installed. It provides up to 75% of the cost towards the purchase and installation of a chargepoint socket, limited to £350 per grant. Landlords can receive up to 200 grants a year for residential properties.
- EV chargepoint grant for flat owner-occupiers and people living in rented properties[16]: This scheme is open to homeowners who live in flats and people in rental accommodation. The EV chargepoint grant provides a 75% contribution to the cost of one chargepoint and its installation. A grant cap is set at £350 (including VAT) per installation. The main requirement is that a person owns, leases or has ordered a qualifying vehicle and has dedicated off-street parking at their property. Map showing social houses within a 5-minute walking distance from existing public chargepoints and shortlisted carparks in Warwick District Council

[14] https://www.gov.uk/government/publications/ev-infrastructure-grant-for-residential-car-parks-customer-guidance , accessed 15th June 2022

[15] https://www.gov.uk/government/publications/ev-chargepoint-grant-for-landlords-customer-guidance/ev-chargepoint-grant-for-landlords-customer-guidance , accessed 15th June 2022

[16] https://www.gov.uk/government/publications/ev-chargepoint-grant-for-flat-owner-occupiers-and-people-living-in-rented-properties-customer-guidance , accessed 15th June 2022

- On-Street Residential Chargepoint Scheme[17]: Local authorities across the UK are invited to submit applications to the On-Street Residential Chargepoint Scheme (ORCS) and the £10 million local EV Infrastructure fund pilot. The purpose of the scheme is to increase the availability of on-street chargepoints in residential streets where off-street parking is not available, thereby ensuring that on-street parking is not a barrier to realising the benefits of owning an EV.

It is recommended that South Warwickshire make use of the whole range of funds to provide EV charging infrastructure for its social housing residents in particular.

London Borough of Lambeth[18]
The London Borough of Lambeth has worked with Connected Kerb to demonstrate how affordable and accessible public EV charging infrastructure can be deployed to tackle EV inequality. The project – lauded as the first-of-its-kind – is to act as a blueprint that can be adopted at scale by other boroughs, councils, and cities across Britain to deliver an inclusive and equitable EV transition. It is to deliver 22 on-street EV chargers across 11 council estates in the borough to provide easy access to public charging even for those without off-street parking. It forms part of the council's wider strategy to work with multiple charge point operators to install more than 200 charge points by the end of 2022, with the aim of ensuring every household with no access to off-street parking is within a five-minute walk of their nearest charge point.

A demand-driven model for on-street chargepoint infrastructure installation similar to the Dutch model would be beneficial to address inequalities. This model mostly relies on electric vehicle drivers' requests to determine future chargers' locations. Once a location has been found and approved, the city assigns the charging station implementation to a pre-determined operator. This approach is particularly well suited for early phases of charging infrastructure roll-out, as it guarantees a minimum utilization which can reassure investors and can fit well within the social housing strategy. London councils are now adopting the same approach. If one lives in London and do not have access to off-street parking, then can contact their borough and suggest that an on-street electric vehicle charge point is delivered near their home.[19]

Amsterdam's demand driven charging infrastructure model[20]
In Amsterdam, electric drivers make a request online for expansion of the public charging network. An energy utility company (Nuon) and an installation contractor (Heijmans) check that the request meets the requirements and whether a new charge point is needed in the area concerned. Their considerations include the walking distance to the nearest existing or planned available charge location, the occupancy rate of the nearest charge locations, previous requests which have been turned down. Amsterdam City Council will ultimately decide whether a new location will be installed.

[17] https://www.gov.uk/government/publications/grants-for-local-authorities-to-provide-residential-on-street-chargepoints/grants-to-provide-residential-on-street-chargepoints-for-plug-in-electric-vehicles-guidance-for-local-authorities , accessed 15th June 2022

[18] https://theenergyst.com/charging-project-in-lambeth-addresses-ev-inequality/ , accessed 15th June 2022

[19] https://www.londoncouncils.gov.uk/our-key-themes/transport/electric-vehicle-charging/suggest-location-ev-charge-point , accessed 15th June 2022

[20] https://www.interregeurope.eu/policylearning/good-practices/item/1699/amsterdam-s-demand-driven-charging-infrastructure/, accessed 22nd Nov 2021.

If a new charge point is going to be installed, Nuon will draw up an installation plan in consultation with the grid operator and the relevant city district. As the road authority, Amsterdam Council will formally give permission for the installation plan and publish its decision in the Staatscourant after which a six-week period to challenge or amend the decision starts. The location and the plan are published online on a map and communicated to electric drivers in the area. The contractor will request connection to the network from the grid operator. Amsterdam Council instructs the installation of the charge point and the design of the location. Following a soil survey, the grid operator will allocate the connection to Nuon and release the location for installation, they can now start planning the work. The contractor will install the charge point, set up the location and connect it to network.
The result of this demand-driven approach results to high utilisation rates, addresses concerns about charging availability and has proven more effective than placing chargers at key strategic location such as shopping areas.[21]

- Local electric vehicle infrastructure (LEVI) pilot funding[22]: This scheme aims to further support the roll-out of electric vehicle (EV) charging infrastructure across England. It is open to local authorities in England. LEVI supports the transition to EV use in a local area, with a particular focus on provision for those without off-street parking aims to provide improvements in accessible EV charging provision that would not otherwise be met by current or planned EV chargepoint infrastructure.
- Social Housing Decarbonisation Fund - Wave 2[23]: This funding will be for use by local authorities, combined authorities and registered providers of social housing (including housing associations) to improve the energy performance of their social homes. It will support the installation of energy performance measures in social homes in England aiming to deliver warm, energy-efficient homes, reduce carbon emissions, tackle fuel poverty and improve the comfort, health and well-being of social housing tenants. Provision for chargepoint infrastructure in social houses could be included in the application to enable the implementation of decarbonisation measures beyond the home.

Recent developments

On 22nd November 2021, the Government[24] announced that new building regulations would be introduced in England requiring new homes and buildings, as well as those undergoing major renovation, to install electric vehicle charge points. Every new home, including those created from a change of use, with associated parking must have an EV chargepoint and all residential buildings undergoing major renovation, which will have more than 10 parking spaces after the renovation is complete, are to have at least one electric vehicle charge point for each dwelling with associated parking and cable routes in all spaces without charge points. That being said all future social housing developments and those undergoing major renovations are abide by the law to make provision for chargepoint infrastructure. On 15th June 2022, the new requirements of the building regulations came into force.

South Warwickshire could stretch beyond the Government proposed changes to the English Buildings Regulations and increase the minimum standards on the quantity of EV charging points to be provided in new developments in their planning requirements. In order to ensure that new developments reach these standards consistently across the region it is vital to provide planning officers and developers with clear and concise information on best practice and the quality and quantity standards for chargepoint infrastructure expected across the county.

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[21] https://d1nyezh1ys8wfo.cloudfront.net/static/PDFs/Uber_Spark_report.pdf?uclick_id=090b0737-1c9d-4902-9624-bc3618366cf6, accessed 22nd Nov 2021.

[22] https://www.gov.uk/guidance/apply-for-local-electric-vehicle-infrastructure-levi-pilot-funding, accessed 15th June 2022

[23] https://www.gov.uk/government/publications/social-housing-decarbonisation-fund-wave-2 , accessed 15th June 2022

[24] https://www.gov.uk/government/news/pm-to-announce-electric-vehicle-revolution , accessed 15th June 2022

Middleton Park Avenue, Leeds City Council[25]
The £40m project of Middleton Park Avenue is one of the largest being undertaken as part of Leeds City Council's Housing Growth Programme and will be made up of 60 two-bed, 38 three-bed, two four-bed properties and four bungalows.
The council houses will be equipped with an underground district heating system to provide the properties with energy-efficient heating and hot water, supporting the council's commitment to tackling the climate emergency through new energy-efficient, affordable housing options. In addition, each property will have off-street parking and an electrical vehicle charging point.
The London Plan 2021, GLA[26]
The London Plan (Policy T6.1) is calling for 20% of car parking spaces in new build developments to have ready-to-use chargers. The remaining 80% must be ready for them to be installed at a later date.

5.2.2 Community car clubs

Another way to ensure that households in social houses are not 'left behind' by the EV transition is the introduction of community car clubs.

Car clubs are membership schemes that provide access to pay-as-you-drive vehicles, typically on an hourly or daily basis. Vehicles are usually parked in dedicated parking spaces (the back-to-base model) and are accessed via a smart card or key. Scheme operators cover running costs such as insurance, tax, fuel, cleaning and servicing. Members typically pay an annual fee to join the scheme and a per hour or mile charge to hire a vehicle. Relatively few schemes use EVs and those that do often have funding from the public sector or vehicle manufacturers.[27]

Community engagement and relationship building to develop a sense of ownership are key to ensuring the success of EV car share schemes in low-income neighbourhoods and may help reduce incidents of vandalism. Car sharing and EVs may be new concepts for residents, so education and provision of information is important. This process should start as early as possible and continue until the site is live.

Vehicles need to be in locations where they offer a reasonable level of security, be suitable for installation of chargepoints and ideally demand will be high enough to make the scheme financially viable. Assess the visibility, footfall, traffic flows and CCTV coverage when reviewing potential sites and consider implementing additional security features. Research undertaken in the UK found that using visible, high traffic areas can help reduce vandalism of assets.[28]

There are two business models for the deployment of car clubs in social houses: franchise and concession model.

Franchise Model

This model is often used in a community car club scheme, where the assets are purchased and owned by the local community. A third-party operator provides the platform for bookings, payment, insurance, and other running requirements as a franchise – with an annual payment to cover costs. Responsibility for maintenance of the vehicle, communications and marketing remains with the community organisation. It is rare for a local authority to run a franchise model directly, but they may support a local community organisation with funding.

[25] https://news.leeds.gov.uk/news/work-begins-on-gbp-40m-new-affordable-council-housing-development-in-leeds , accessed 15th June 2022

[26] https://www.london.gov.uk/what-we-do/planning/london-plan/new-london-plan/london-plan-2021 , accessed 15th June 2022

[27] https://inclusivev.eu/research-results , accessed 15th June 2022

[28] https://www.northants.police.uk/cp/crime-prevention/vandalism/car-protection-damage , accessed 15th June 2022

CoMoUK[29] can provide advice, support, and share best practice for the set-up and continued management of community car clubs.

This option works well in social housing areas where the financial sustainability of the car club may be challenging to maintain for regular operators, though regular grant funding can be found to support its operation from a community perspective.

As the scheme is run by the community, local investment and acceptance of these schemes is already high. This can help reduce the risk of vandalism and/or misuse of the vehicles.

As this model is run by a local community group there is no obligation from the LA for financial support, though this may be something they want to consider if the car club operations and locations match with the LAs objectives. However, as the LA has little to no financial investment in the scheme, they also have little control (or often none) over the operations, location, and how the scheme is run.

Ore Valley, Fife
Ore Valley Housing Association in Fife looked at transport options for a more sustainable form of travel for their local community, and realised the potential of zero emission, shared mobility transport.
The housing association set up an e-car club, to help local residents save money, and improve local air quality. Ore Valley already had two public chargepoints in place, which made it easier to set up a 10 vehicle e-car club.
The car club was established in partnership with Enterprise Car Club, utilising the Enterprise app and booking system and the cars are available at five locations across Fife, creating a network of EVs for the local community. Users can use their phone or bank card to access the vehicles, and Enterprise experts are available 24/7 to help.

Concession Model

When local authorities seek to invite a car club operator to the area, there is a balance on the level of control, restrictions, and influence they can expect. This will depend on the amount of support offered to the car club operator. This can be in the form of funding for the service or support in kind (i.e., covering the fee traffic regulation orders (TROs)), waiving rent for parking locations, community engagement and marketing support, funding EV infrastructure.

LAs can utilise this model to have operators deploy vehicles in less attractive locations like social houses - matching the aims of their scheme e.g., to provide zero emission travel to underserved residents - that would otherwise not be considered by the operators. In order to make the tender sufficiently attractive financial incentives and/or contracts in more attractive locations for operators could be included in the tender.

The procurement contract may include:

- The length of the contract;
- Size of the scheme/number of bays provided by the authority;
- Who pays for the traffic regulation order (TRO) and the lining and signage of the bays;
- If there is any charge for using the bays/permit fees;
- How future bays will be agreed upon and allocated;
- Reporting requirements;
- Procedures for flexibility (including withdrawal of service);
- Maintenance requirements and responsibility for the vehicles; and
- Sustainability and inclusivity requirements (e.g., mandate on the number of low or zero emission vehicles, areas to be covered, accessibility services)

A balance is needed when considering what restrictions or requirements are stipulated from either side. No matter the stipulations, the operations need to be financially sustainable and the area attractive for car club operators.

[29] https://como.org.uk/ , accessed 15th June 2022

This option works well where an operator is not already present, and the business case is unproved or in a challenging area (rural, low population density). By providing financial incentives, and support with engagement and marketing this can help reduce the risk to operators, encouraging them to apply to operate in the region.

Through the tender the LA can ensure control over some parts of the operations within the region to ensure the scheme matches with the LAs objectives and priorities. However, operators will expect a certain level of freedom and if the tender is too restricting this could discourage them from applying.

EV Car Club in Nottingham, UK

Nottingham City Council and Enterprise Car Club have an ambition to expand car club locations into lower income neighbourhoods traditionally not serviced by new shared mobility modes.

The aim of the project was to test whether deploying an electric car club vehicle without a dedicated parking bay or chargepoint was a viable solution for the car club provider, potential users, and the local authority.

The project applied behaviour change techniques to help the local authority and the car club provider understand the complex barriers and drivers that lead to modal shift, and how these elements should be considered when planning and implementing a low carbon transport solution.

By working with influential representatives to foster ownership and anchor the car club into the community's culture, Cenex increased interest in, and support for, the car club throughout the community. The first car location was launched and showed excellent usage in the first few weeks. In the second location knowledge of the car club grew and some potential local champions have been identified. Cenex facilitated the development of strong relationships between the stakeholders.

The project demonstrates the value of using community engagement as a tool for promoting modal shift and supporting alternative models of deployment for EV car clubs.

6 Recommendations

The public sector is a key actor in the transition to a low carbon future as they can invest for the long-term and have a mandate to make society fairer and greener and they can set out bold and holistic visions for the future and directly implement them.

Warwickshire County Council's vision is to be at the forefront of the West Midlands with enhanced and equitable preparations for the 2030 ban on the sale of petrol and diesel car.

South Warwickshire should ensure a fair transition to EVs by contributing to WCC vision and steering public chargepoint development towards locations where private sector is unlikely to deliver. South Warwickshire should use their best endeavours to enable adequate, convenient and equitable public chargepoint provision in the region. Cenex highly recommends that South Warwickshire should pursue a strategy based on two principles:

- Providing standard and fast (i.e. not rapid) chargepoint infrastructure in council carparks near to residential areas; and
- Enabling a geographical and socially inclusive transition to EVs by addressing the social housing chargepoint infrastructure

6.1.1 Equipping council car parks with near-home charging

Charging in public car parks can be a valuable resource for users charging their vehicles while visiting other amenities in the local area but can also have great value for local residents without access to a private driveway or garage where they can charge from their home power supply. This dual use helps to maximise usage of the chargers and supports the business case for charger deployment. South Warwickshire therefore have an opportunity to make a large contribution to the public EV charging network by introducing EV charging into their own public car parks.

Where car parks are in areas with low levels of off-street parking, local residents and businesses should be encouraged to use the long-stay chargepoints overnight, which could bring additional revenue into the business case. Early installation of public charging infrastructure would be beneficial to enable potential early private vehicle adopters of EVs without private parking to transition to an electric vehicle more easily.

Those car parks with high existing usage, high traffic flow, proximity to residents with on-street parking, proximity to major distribution network infrastructure and farness from existing public chargepoint infrastructure should be considered as the highest priority car parks for the rollout of EV charging infrastructure.

Analysis showed that in the 10 priority car parks, by 2025 there could be around 100 EV users charging at these 10 car parks per day, rising to nearly 900 per day by 2040. A total of 80 chargepoints, of which around a half will be standard chargepoints, will be required by 2040 to support this level of utilisation.

The cumulative capital investment needed to deliver charging infrastructure across all 10 sites is around £510k in 2030, rising to over £912k by 2040, split between the parties according to the operating model. The annual margin is projected to be between £98k and £460k by 2030, depending on the operating model, rising to between £242k and £1.15m by 2040. It is appreciated that high upfront investment is needed to cover the infrastructure demand in these car parks but a range of funding sources are available through ORCS and the LEVI Fund.

Whilst higher-powered chargepoints are typically more financially self-sustaining, it is recommended that South Warwickshire should only directly deploy low-powered chargepoints, as these are not appealing for private investment. Concessions for rapid chargepoint deployment could be let alongside these to capture some of the potential revenue.

For Warwickshire, the Distribution Network Operator (DNO), Western Power Distribution (WPD), should be contacted as soon as the ideal car park locations are identified (ideally before tendering for a chargepoint supplier) to obtain low voltage grid maps and provide information on where and what is intended to be installed. This is usually done via a new connections or project form downloadable from the DNO's website. Where many sites within a geographic region are being

considered, DNOs offer a 'feasibility' service where they will review the available capacity and upgrade costs for proposed infrastructure at each site.

WPD have made available two online maps that help identify potential locations where installation of EV charging infrastructure may not require significant distribution network reinforcement. These maps include:

- Grid capacity heatmap, showing location and headroom of distribution network assets down to the primary substation level[30]; and
- Electric Vehicle Capacity Map, providing a red-amber-green rating for all substations relating to their suitability for EV charging infrastructure connection[31].

6.1.2 Addressing social housing chargepoint infrastructure

EV charging does not by itself benefit historically underserved communities but it is a critically important barrier that must be overcome for the potential benefits to be realised. The inclusion of marginalized populations in this process is important and will require that they have access to charging infrastructure. Public EV charging stations may help reduce the EV adoption barriers affecting these populations. These public charger access disparities are more pronounced in areas with a higher proportion of no access to a private driveway, where they are critical for EV operation due to a lower likelihood of residential charger access.

While the WDC and SADC are limited in the actions they can take to support low-income households living in social houses with the purchase of EVs, action can be taken to ensure equitable access to EV charging. Hence directing a larger portion of the funding to underserved communities and further government involvement in filling the public charger access gap can be crucial in achieving widespread and equitable EV adoption and to ensure that historically underserved communities are not left out.

WDC owns and operates directly all the social houses in the district while SADC sold their housing stock and the social housing is owned by various Housing Associations. It should be ensured that there are no social housing dwellings in the region left behind, regardless of who owns and operate them.

Without some sort of public involvement, chargers will tend to be deployed in more affluent areas where EV ownership is higher. Whilst making equity the focus of policy is likely to be more challenging in the short-term, it is recommended because it will yield better opportunities and outcomes in the long-term. Community involvement is essential for the equitable approach, which is based upon a direct assessment of their needs and ongoing engagement with them to develop solutions. Thus, public acceptance of the chargepoint infrastructure can be achieved and potential barriers like vandalism, misuse/illegal use and charging behaviour misuse can be avoided.

As a minimum, South Warwickshire councils should communicate existing regulation and grants for off-street parking in existing and future developments to relevant stakeholders. Beyond that, they could target the social housing areas with the On-Street Residential Chargepoint Scheme and Social Housing Decarbonisation Fund. The councils could go above and beyond by stretching the Governments proposed changes to the English Buildings Regulations and increase the minimum standards on the quantity of EV charging points to be provided in new social housing developments in their planning requirements. Lastly, setting up electric car clubs and the chargers needed to power them is a valuable measure to improve social inclusion.

[30] https://www.westernpower.co.uk/our-network/network-capacity-map/ , accessed on 14th June 2022

[31] https://www.westernpower.co.uk/smarter-networks/electric-vehicles/ev-capacity-map accessed on 14th June 2022

Appendix A: Methodology of car park analysis

The model takes the inputs listed below and calculates the projected number of EV users requiring a charge at each car park over the next 20 years, the number and type of chargepoints required to meet this demand, and the costs and revenues for installing and operating the chargepoints according to four different ownership models.

The subsections below describe the inputs required to the model.

EV Uptake Scenario

The EV uptake projections for the 2030 Ban (See Section 3.1, page 17) were used to determine the likely proportion of visitors with an EV at each car park.

EV Uplift

There is a general industry assumption that providing EV charging infrastructure at a site will encourage a greater proportion of EVs to visit, compared to an alternative site without the same charging opportunities. In order to account for this, an additional uplift was assumed for all sites as the installation of infrastructure is likely to increase driver confidence to make the switch to an EV.

Number of Parking Bays

This data was provided by the council.

Car Park Turnover

The number of vehicles that use the car park each day was derived from data provided by the council. Where this data was not available, a similar utilisation was assumed for car parks of similar size.

Car Park Usage

Car parks are considered to have three potential use cases: hub, short-stay, long-stay. These determine the type of chargepoints that should be installed. The proportion of parking spaces belonging to each use case was determined by the ticket data provided by the council according to the categories in Table 7.

Table 7: Determining use cases from car parking tickets.

Use Case	Ticket
Hub	< 1 hour
Short-stay	1 – 4 hours
Long-stay	> 4 hours

Where parking ticket data was not available, a similar use case was assumed for car parks of similar size.

Chargepoint Usage Behaviour

Chargepoint usage behaviour is assumed using data on the usage of public-funded standard[32], fast[33] and rapid[34] chargepoints collected by the UK Government Office for Zero Emission Vehicles (OZEV). The average charge duration for standard, fast and rapid charging infrastructure are shown in Table

[32] Electric Chargepoint Analysis 2017: Public Sector Fasts , accessed on 14th June 2022

[33] Electric Chargepoint Analysis 2017: Public Sector Fasts , accessed on 14th June 2022

[34] Electric Chargepoint Analysis 2017: Local Authority Rapids (revised) , accessed on 14th June 2022

8, with one adjustment to account for the particular parking behaviours when providing chargepoints for residents who do not have off-street parking.

The average charge duration for standard charging has been increased from the national average of 5.12 hours to 9 hours to account for the fact that those without off-street parking may be plugged in overnight and commuters will be plugged in for the length of an average working day.

The amount of time elapsing between charging events has been assumed, based on the likely use-case of the chargepoint. For example, rapid chargers are more likely to be installed in high-turnover car parks, where EV users unplug their vehicle promptly once they have received a full charge. In comparison, standard and fast chargepoints are more likely to be installed in car parks where EV users may be away from their vehicle and therefore not be able to return as soon as their vehicle is fully charged.

This allows the total duration of each charging event to be calculated.

Table 8: Assumed average usage behaviours for standard, fast and rapid chargepoints.

Chargepoint type	Average charge duration (hours)	Time between charges (hours)	Total duration (hours)
Standard (7 kW)	9.00	2.00	11.00
Fast (22 kW)	1.17	1.00	2.17
Rapid (50 kW)	0.64	0.50	1.14

The Zap-Map Annual Survey 2019[35] was used as a source of evidence to estimate how likely any given user is to utilise EV charging infrastructure upon visiting a site with a chargepoint installed. This is necessary because it is not reasonable to assume that every EV user will want to charge every time they visit a site with a chargepoint. The key outputs of Cenex's analysis of the data are shown in Table 9.

Table 9: Survey responses to question "How often do you use public chargepoints?" from Zap-Map Annual Survey 2019, interpreted and analysed to infer the proportion of EV users using public charging infrastructure every day.

Charging frequency	% of all survey responses	Assumed uses per day	% of responses to question
Few times a day	1%	2	1%
Once per day	4%	1	4%
Few times per week	18%	0.4	19%
Once a week	14%	0.142	15%
Few times a month	21%	0.095	22%
Once a month	16%	0.033	17%
Less than once a month	20%	0.015	21%
Weighted % using public infrastructure per day			19%

This analysis indicates that given the opportunity, 19% of EV users are likely to use public charging infrastructure on a given day. This proportion was applied to each site.

Infrastructure ownership models

There are four common ownership models for public EV charging infrastructure that will be compared in this sub-section. In each ownership model, elements of the capital cost, operating cost and revenue are shared differently between the landowner and chargepoint provider.

[35] Further information available online., accessed on 14th June 2022

A summary of the proportion of cost incurred and revenue retained by the landowner in different ownerships models is shown in Table 10.

Table 10: Example of proportion of costs incurred and revenue retained by landowner across ownership models

Ownership Model	Hardware	Groundworks	Back-office	Electricity	Maintenance	Revenue
Own and Operate	100%	100%	100%	100%	100%	100%
External Operator	100%	100%	0%	100%	100%	90%
Lease	0%	0%	0%	0%	0%	20%
Concession	0%	100%	0%	0%	0%	30%

When making decisions on chargepoint ownership models, it is important to also consider the non-financial implications of each model. Whilst the most obvious distinctions between each ownership model are in how costs and revenue are shared, there is also a variable share in the contractual control over how the chargepoints are operated. In most cases, the greater the investment made by an external supplier(s), the greater the control of the supplier(s). In turn, this means that the landowner will have less control over the quality and type of service(s) provided to EV users on their site which, in a worst-case scenario, could create a negative perception of the landowner that they cannot easily address.

From a public sector perspective, the key benefit of taking EV charging infrastructure into public ownership is that the local authority can manage the infrastructure as a service to residents. Without the need to generate significant profit for shareholders, public sector chargepoint owners can set competitive usage tariffs that further incentivise EV uptake. This also means that EV charging infrastructure can be distributed fairly across all demographics, in the knowledge that short-term losses potentially incurred by chargepoints installed in areas of lower EV adoption are likely to be covered by surplus made by those installed in areas of higher EV adoption. Whilst public intervention can have benefits across all types of EV charging infrastructure, it is arguably most urgently needed in areas where private sector investment is unlikely to be forthcoming. The greatest example of such an area is residential on-street charging infrastructure, for which the business case is often weak when compared with rapid charging in high footfall destinations.

Regardless of the ownership model pursued, contractual terms should be sought that ensure both financial and reputational risk are fairly distributed and that the level of service to EV users is maintained to the satisfaction of the landowner.

A qualitative comparison of the ownership models regarding their suitability for specific charging infrastructure applications and for elements of financial and operational considerations that should be made when planning an EV infrastructure network can be found in the Warwickshire County Council (WCC) ULEV Strategy Report by Cenex.

Appendix B: Analysis of each individual priority car park

St Peter's Multi-Storey, Leamington Spa

Users per day	2025	2030	2035	2040
Standard	0.79	2.66	4.75	6.59
Fast	3.27	10.97	19.61	27.17
Rapid	0.89	2.99	5.35	7.41
Total	4.96	16.63	29.71	41.17

Chargepoints required (sockets)	2025	2030	2035	2040
Standard	1	2	3	4
Fast	1	1	2	3
Rapid	1	1	1	1
Total	3	4	6	8

Chargepoints required (chargepoints)	2025	2030	2035	2040
Standard	1	1	2	2
Fast	1	1	1	2
Rapid	1	1	1	1
Total	3	3	4	5

Own and Operate

Capital Cost (cumulative)	2025	2030	2035	2040
Standard	-£ 8,176	-£ 8,176	-£ 16,351	-£ 16,351
Fast	-£ 8,403	-£ 8,403	-£ 8,403	-£ 16,806
Rapid	-£ 27,553	-£ 27,553	-£ 27,553	-£ 27,553
Total	-£ 44,132	-£ 44,132	-£ 52,307	-£ 60,710

Operating Cost (per annum)	2025	2030	2035	2040
Standard	-£ 751	-£ 751	-£ 1,503	-£ 1,503
Fast	-£ 751	-£ 751	-£ 751	-£ 1,503
Rapid	-£ 501	-£ 501	-£ 501	-£ 501
Total	-£ 2,004	-£ 2,004	-£ 2,755	-£ 3,507

Net Revenue (per annum)	2025	2030	2035	2040
Standard	£ 3,866	£ 12,964	£ 23,164	£ 32,101
Fast	£ 1,541	£ 5,168	£ 9,235	£ 12,798
Rapid	£ 1,263	£ 4,235	£ 7,568	£ 10,487
Total	£ 6,670	£ 22,368	£ 39,967	£ 55,386

Margin (per annum)	2025	2030	2035	2040
Standard	£ 3,115	£ 12,213	£ 21,662	£ 30,598
Fast	£ 790	£ 4,417	£ 8,484	£ 11,295
Rapid	£ 762	£ 3,734	£ 7,066	£ 9,986
Total	£ 4,666	£ 20,364	£ 37,212	£ 51,880

External Operator

Capital Cost (cumulative)	2025	2030	2035	2040
Standard	-£ 8,176	-£ 8,176	-£ 16,351	-£ 16,351
Fast	-£ 8,403	-£ 8,403	-£ 8,403	-£ 16,806
Rapid	-£ 27,553	-£ 27,553	-£ 27,553	-£ 27,553
Total	-£ 44,132	-£ 44,132	-£ 52,307	-£ 60,710

Operating Cost (per annum)	2025	2030	2035	2040
Standard	-£ 100	-£ 100	-£ 200	-£ 200
Fast	-£ 100	-£ 100	-£ 100	-£ 200
Rapid	-£ 100	-£ 100	-£ 100	-£ 100
Total	-£ 300	-£ 300	-£ 400	-£ 500

Net Revenue (per annum)	2025	2030	2035	2040
Standard	£ 3,479	£ 11,668	£ 20,848	£ 28,891
Fast	£ 1,387	£ 4,652	£ 8,312	£ 11,518
Rapid	£ 1,137	£ 3,812	£ 6,811	£ 9,438
Total	£ 6,003	£ 20,131	£ 35,970	£ 49,848

Margin (per annum)	2025	2030	2035	2040
Standard	£ 3,379	£ 11,568	£ 20,648	£ 28,691
Fast	£ 1,287	£ 4,552	£ 8,212	£ 11,318
Rapid	£ 1,037	£ 3,712	£ 6,711	£ 9,338
Total	£ 5,703	£ 19,831	£ 35,570	£ 49,348

Concession Model

Capital Cost (cumulative)	2025	2030	2035	2040
Standard	-£ 5,007	-£ 5,007	-£ 10,015	-£ 10,015
Fast	-£ 5,007	-£ 5,007	-£ 5,007	-£ 10,015
Rapid	-£ 4,342	-£ 4,342	-£ 4,342	-£ 4,342
Total	-£ 14,357	-£ 14,357	-£ 19,365	-£ 24,372

Operating Cost (per annum)	2025	2030	2035	2040
Standard	£ -	£ -	£ -	£ -
Fast	£ -	£ -	£ -	£ -
Rapid	£ -	£ -	£ -	£ -
Total	£ -	£ -	£ -	£ -

Net Revenue (per annum)	2025	2030	2035	2040
Standard	£ 1,160	£ 3,889	£ 6,949	£ 9,630
Fast	£ 462	£ 1,551	£ 2,771	£ 3,839
Rapid	£ 379	£ 1,271	£ 2,270	£ 3,146
Total	£ 2,001	£ 6,710	£ 11,990	£ 16,616

Margin (per annum)	2025	2030	2035	2040
Standard	£ 1,160	£ 3,889	£ 6,949	£ 9,630
Fast	£ 462	£ 1,551	£ 2,771	£ 3,839
Rapid	£ 379	£ 1,271	£ 2,270	£ 3,146
Total	£ 2,001	£ 6,710	£ 11,990	£ 16,616

Lease Model

Capital Cost (cumulative)	2025	2030	2035	2040
Standard	£ -	£ -	£ -	£ -
Fast	£ -	£ -	£ -	£ -
Rapid	£ -	£ -	£ -	£ -
Total	£ -	£ -	£ -	£ -

Operating Cost (per annum)	2025	2030	2035	2040
Standard	£ -	£ -	£ -	£ -
Fast	£ -	£ -	£ -	£ -
Rapid	£ -	£ -	£ -	£ -
Total	£ -	£ -	£ -	£ -

Net Revenue (per annum)	2025	2030	2035	2040
Standard	£ 3,848	£ 12,903	£ 23,055	£ 31,950
Fast	£ 661	£ 2,217	£ 3,961	£ 5,490
Rapid	£ -	£ -	£ -	£ -
Total	£ 4,509	£ 15,120	£ 27,016	£ 37,439

Margin (per annum)	2025	2030	2035	2040
Standard	£ 3,848	£ 12,903	£ 23,055	£ 31,950
Fast	£ 661	£ 2,217	£ 3,961	£ 5,490
Rapid	£ -	£ -	£ -	£ -
Total	£ 4,509	£ 15,120	£ 27,016	£ 37,439

Abbey Fields Car Park, Kenilworth

Users per day	2025	2030	2035	2040
Standard	0.12	0.40	0.71	0.98
Fast	11.72	39.30	70.22	97.31
Rapid	0.00	0.00	0.00	0.00
Total	11.84	39.70	70.93	98.29

Chargepoints required (sockets)	2025	2030	2035	2040
Standard	1	1	1	1
Fast	2	4	7	9
Rapid	0	0	0	0
Total	3	5	8	10

Chargepoints required (chargepoints)	2025	2030	2035	2040
Standard	1	1	1	1
Fast	1	2	4	5
Rapid	0	0	0	0
Total	2	3	5	6

Own and Operate

Capital Cost (cumulative)	2025	2030	2035	2040
Standard	-£ 8,176	-£ 8,176	-£ 8,176	-£ 8,176
Fast	-£ 8,403	-£ 16,806	-£ 33,612	-£ 42,015
Rapid	£ -	£ -	£ -	£ -
Total	-£ 16,579	-£ 24,982	-£ 41,788	-£ 50,191

Operating Cost (per annum)	2025	2030	2035	2040
Standard	-£ 751	-£ 751	-£ 751	-£ 751
Fast	-£ 751	-£ 1,503	-£ 3,005	-£ 3,757
Rapid	£ -	£ -	£ -	£ -
Total	-£ 1,503	-£ 2,254	-£ 3,757	-£ 4,508

Net Revenue (per annum)	2025	2030	2035	2040
Standard	£ 577	£ 1,934	£ 3,456	£ 4,790
Fast	£ 5,519	£ 18,508	£ 33,070	£ 45,828
Rapid	£ -	£ -	£ -	£ -
Total	£ 6,096	£ 20,442	£ 36,526	£ 50,618

Margin (per annum)	2025	2030	2035	2040
Standard	-£ 175	£ 1,183	£ 2,705	£ 4,038
Fast	£ 4,768	£ 17,005	£ 30,065	£ 42,072
Rapid	£ -	£ -	£ -	£ -
Total	£ 4,593	£ 18,188	£ 32,770	£ 46,110

External Operator

Capital Cost (cumulative)	2025	2030	2035	2040
Standard	-£ 8,176	-£ 8,176	-£ 8,176	-£ 8,176
Fast	-£ 8,403	-£ 16,806	-£ 33,612	-£ 42,015
Rapid	£ -	£ -	£ -	£ -
Total	-£ 16,579	-£ 24,982	-£ 41,788	-£ 50,191

Operating Cost (per annum)	2025	2030	2035	2040
Standard	-£ 100	-£ 100	-£ 100	-£ 100
Fast	-£ 100	-£ 200	-£ 400	-£ 500
Rapid	£ -	£ -	£ -	£ -
Total	-£ 200	-£ 300	-£ 500	-£ 600

Net Revenue (per annum)	2025	2030	2035	2040
Standard	£ 519	£ 1,741	£ 3,111	£ 4,311
Fast	£ 4,967	£ 16,657	£ 29,763	£ 41,246
Rapid	£ -	£ -	£ -	£ -
Total	£ 5,486	£ 18,398	£ 32,874	£ 45,556

Margin (per annum)	2025	2030	2035	2040
Standard	£ 419	£ 1,641	£ 3,011	£ 4,211
Fast	£ 4,867	£ 16,457	£ 29,363	£ 40,746
Rapid	£ -	£ -	£ -	£ -
Total	£ 5,286	£ 18,098	£ 32,374	£ 44,956

Concession Model

Capital Cost (cumulative)	2025	2030	2035	2040
Standard	-£ 5,007	-£ 5,007	-£ 5,007	-£ 5,007
Fast	-£ 5,007	-£ 10,015	-£ 20,030	-£ 25,037
Rapid	£ -	£ -	£ -	£ -
Total	-£ 10,015	-£ 15,022	-£ 25,037	-£ 30,044

Operating Cost (per annum)	2025	2030	2035	2040
Standard	£ -	£ -	£ -	£ -
Fast	£ -	£ -	£ -	£ -
Rapid	£ -	£ -	£ -	£ -
Total	£ -	£ -	£ -	£ -

Net Revenue (per annum)	2025	2030	2035	2040
Standard	£ 173	£ 580	£ 1,037	£ 1,437
Fast	£ 1,656	£ 5,552	£ 9,921	£ 13,749
Rapid	£ -	£ -	£ -	£ -
Total	£ 1,829	£ 6,133	£ 10,958	£ 15,185

Margin (per annum)	2025	2030	2035	2040
Standard	£ 173	£ 580	£ 1,037	£ 1,437
Fast	£ 1,656	£ 5,552	£ 9,921	£ 13,749
Rapid	£ -	£ -	£ -	£ -
Total	£ 1,829	£ 6,133	£ 10,958	£ 15,185

Lease Model

Capital Cost (cumulative)	2025	2030	2035	2040
Standard	£ -	£ -	£ -	£ -
Fast	£ -	£ -	£ -	£ -
Rapid	£ -	£ -	£ -	£ -
Total	£ -	£ -	£ -	£ -

Operating Cost (per annum)	2025	2030	2035	2040
Standard	£ -	£ -	£ -	£ -
Fast	£ -	£ -	£ -	£ -
Rapid	£ -	£ -	£ -	£ -
Total	£ -	£ -	£ -	£ -

Net Revenue (per annum)	2025	2030	2035	2040
Standard	£ 115	£ 387	£ 691	£ 958
Fast	£ 1,104	£ 3,702	£ 6,614	£ 9,166
Rapid	£ -	£ -	£ -	£ -
Total	£ 1,219	£ 4,088	£ 7,305	£ 10,124

Margin (per annum)	2025	2030	2035	2040
Standard	£ 115	£ 387	£ 691	£ 958
Fast	£ 1,104	£ 3,702	£ 6,614	£ 9,166
Rapid	£ -	£ -	£ -	£ -
Total	£ 1,219	£ 4,088	£ 7,305	£ 10,124

New Street Car Park, Warwick

Users per day	2025	2030	2035	2040
Standard	0.28	0.93	1.67	2.31
Fast	1.85	6.19	11.06	15.32
Rapid	1.32	4.44	7.93	10.99
Total	3.45	11.56	20.65	28.62

Chargepoints required (sockets)	2025	2030	2035	2040
Standard	1	1	1	2
Fast	1	1	2	2
Rapid	1	1	1	1
Total	3	3	4	5

Chargepoints required (chargepoints)	2025	2030	2035	2040
Standard	1	1	1	1
Fast	1	1	1	1
Rapid	1	1	1	1
Total	3	3	3	3

Own and Operate

Capital Cost (cumulative)	2025	2030	2035	2040
Standard	-£ 8,176	-£ 8,176	-£ 8,176	-£ 8,176
Fast	-£ 8,403	-£ 8,403	-£ 8,403	-£ 8,403
Rapid	-£ 27,553	-£ 27,553	-£ 27,553	-£ 27,553
Total	-£ 44,132	-£ 44,132	-£ 44,132	-£ 44,132

Operating Cost (per annum)	2025	2030	2035	2040
Standard	-£ 751	-£ 751	-£ 751	-£ 751
Fast	-£ 751	-£ 751	-£ 751	-£ 751
Rapid	-£ 501	-£ 501	-£ 501	-£ 501
Total	-£ 2,004	-£ 2,004	-£ 2,004	-£ 2,004

Net Revenue (per annum)	2025	2030	2035	2040
Standard	£ 1,357	£ 4,551	£ 8,132	£ 11,270
Fast	£ 869	£ 2,914	£ 5,207	£ 7,216
Rapid	£ 1,872	£ 6,278	£ 11,217	£ 15,545
Total	£ 4,098	£ 13,743	£ 24,557	£ 34,031

Margin (per annum)	2025	2030	2035	2040
Standard	£ 606	£ 3,800	£ 7,381	£ 10,518
Fast	£ 118	£ 2,163	£ 4,456	£ 6,465
Rapid	£ 1,371	£ 5,776	£ 10,716	£ 15,044
Total	£ 2,094	£ 11,739	£ 22,553	£ 32,027

External Operator

Capital Cost (cumulative)	2025	2030	2035	2040
Standard	-£ 8,176	-£ 8,176	-£ 8,176	-£ 8,176
Fast	-£ 8,403	-£ 8,403	-£ 8,403	-£ 8,403
Rapid	-£ 27,553	-£ 27,553	-£ 27,553	-£ 27,553
Total	-£ 44,132	-£ 44,132	-£ 44,132	-£ 44,132

Operating Cost (per annum)	2025	2030	2035	2040
Standard	-£ 100	-£ 100	-£ 100	-£ 100
Fast	-£ 100	-£ 100	-£ 100	-£ 100
Rapid	-£ 100	-£ 100	-£ 100	-£ 100
Total	-£ 300	-£ 300	-£ 300	-£ 300

Net Revenue (per annum)	2025	2030	2035	2040
Standard	£ 1,221	£ 4,096	£ 7,319	£ 10,143
Fast	£ 782	£ 2,623	£ 4,686	£ 6,494
Rapid	£ 1,685	£ 5,650	£ 10,096	£ 13,990
Total	£ 3,688	£ 12,369	£ 22,101	£ 30,628

Margin (per annum)	2025	2030	2035	2040
Standard	£ 1,121	£ 3,996	£ 7,219	£ 10,043
Fast	£ 682	£ 2,523	£ 4,586	£ 6,394
Rapid	£ 1,585	£ 5,550	£ 9,996	£ 13,890
Total	£ 3,388	£ 12,069	£ 21,801	£ 30,328

Concession Model

Capital Cost (cumulative)	2025	2030	2035	2040
Standard	-£ 5,007	-£ 5,007	-£ 5,007	-£ 5,007
Fast	-£ 5,007	-£ 5,007	-£ 5,007	-£ 5,007
Rapid	-£ 4,342	-£ 4,342	-£ 4,342	-£ 4,342
Total	-£ 14,357	-£ 14,357	-£ 14,357	-£ 14,357

Operating Cost (per annum)	2025	2030	2035	2040
Standard	£ -	£ -	£ -	£ -
Fast	£ -	£ -	£ -	£ -
Rapid	£ -	£ -	£ -	£ -
Total	£ -	£ -	£ -	£ -

Net Revenue (per annum)	2025	2030	2035	2040
Standard	£ 407	£ 1,365	£ 2,440	£ 3,381
Fast	£ 261	£ 874	£ 1,562	£ 2,165
Rapid	£ 562	£ 1,883	£ 3,365	£ 4,663
Total	£ 1,229	£ 4,123	£ 7,367	£ 10,209

Margin (per annum)	2025	2030	2035	2040
Standard	£ 407	£ 1,365	£ 2,440	£ 3,381
Fast	£ 261	£ 874	£ 1,562	£ 2,165
Rapid	£ 562	£ 1,883	£ 3,365	£ 4,663
Total	£ 1,229	£ 4,123	£ 7,367	£ 10,209

Lease Model

Capital Cost (cumulative)	2025	2030	2035	2040
Standard	£ -	£ -	£ -	£ -
Fast	£ -	£ -	£ -	£ -
Rapid	£ -	£ -	£ -	£ -
Total	£ -	£ -	£ -	£ -

Operating Cost (per annum)	2025	2030	2035	2040
Standard	£ -	£ -	£ -	£ -
Fast	£ -	£ -	£ -	£ -
Rapid	£ -	£ -	£ -	£ -
Total	£ -	£ -	£ -	£ -

Net Revenue (per annum)	2025	2030	2035	2040
Standard	£ 271	£ 910	£ 1,626	£ 2,254
Fast	£ 174	£ 583	£ 1,041	£ 1,443
Rapid	£ 374	£ 1,256	£ 2,243	£ 3,109
Total	£ 820	£ 2,749	£ 4,911	£ 6,806

Margin (per annum)	2025	2030	2035	2040
Standard	£ 271	£ 910	£ 1,626	£ 2,254
Fast	£ 174	£ 583	£ 1,041	£ 1,443
Rapid	£ 374	£ 1,256	£ 2,243	£ 3,109
Total	£ 820	£ 2,749	£ 4,911	£ 6,806

Chandos Street, Leamington Spa

Users per day	2025	2030	2035	2040
Standard	0.28	0.93	1.67	2.31
Fast	1.85	6.19	11.06	15.32
Rapid	1.32	4.44	7.93	10.99
Total	3.45	11.56	20.65	28.62

Chargepoints required (sockets)	2025	2030	2035	2040
Standard	1	1	1	2
Fast	1	1	2	2
Rapid	1	1	1	1
Total	3	3	4	5

Chargepoints required (chargepoints)	2025	2030	2035	2040
Standard	1	1	1	1
Fast	1	1	1	1
Rapid	1	1	1	1
Total	3	3	3	3

Own and Operate

Capital Cost (cumulative)	2025	2030	2035	2040
Standard	-£ 8,176	-£ 8,176	-£ 16,351	-£ 24,527
Fast	-£ 8,403	-£ 16,806	-£ 25,209	-£ 33,612
Rapid	-£ 27,553	-£ 27,553	-£ 55,106	-£ 82,659
Total	-£ 44,132	-£ 52,535	-£ 96,666	-£ 140,798

Operating Cost (per annum)	2025	2030	2035	2040
Standard	-£ 751	-£ 751	-£ 1,503	-£ 2,254
Fast	-£ 751	-£ 1,503	-£ 2,254	-£ 3,005
Rapid	-£ 501	-£ 501	-£ 1,003	-£ 1,504
Total	-£ 2,004	-£ 2,755	-£ 4,759	-£ 6,763

Net Revenue (per annum)	2025	2030	2035	2040
Standard	£ 5,806	£ 19,472	£ 34,792	£ 48,215
Fast	£ 3,998	£ 13,409	£ 23,959	£ 33,202
Rapid	£ 7,377	£ 24,738	£ 44,203	£ 61,256
Total	£ 17,182	£ 57,619	£ 102,954	£ 142,674

Margin (per annum)	2025	2030	2035	2040
Standard	£ 5,055	£ 18,720	£ 33,290	£ 45,961
Fast	£ 3,247	£ 11,906	£ 21,705	£ 30,197
Rapid	£ 6,876	£ 24,237	£ 43,200	£ 59,752
Total	£ 15,178	£ 54,863	£ 98,195	£ 135,911

External Operator

Capital Cost (cumulative)	2025	2030	2035	2040
Standard	-£ 8,176	-£ 8,176	-£ 16,351	-£ 24,527
Fast	-£ 8,403	-£ 16,806	-£ 25,209	-£ 33,612
Rapid	-£ 27,553	-£ 27,553	-£ 55,106	-£ 82,659
Total	-£ 44,132	-£ 52,535	-£ 96,666	-£ 140,798

Operating Cost (per annum)	2025	2030	2035	2040
Standard	-£ 100	-£ 100	-£ 200	-£ 300
Fast	-£ 100	-£ 200	-£ 300	-£ 400
Rapid	-£ 100	-£ 100	-£ 200	-£ 300
Total	-£ 300	-£ 400	-£ 700	-£ 1,000

Net Revenue (per annum)	2025	2030	2035	2040
Standard	£ 5,226	£ 17,525	£ 31,313	£ 43,394
Fast	£ 3,599	£ 12,068	£ 21,563	£ 29,882
Rapid	£ 6,639	£ 22,264	£ 39,782	£ 55,130
Total	£ 15,464	£ 51,857	£ 92,659	£ 128,407

Margin (per annum)	2025	2030	2035	2040
Standard	£ 5,126	£ 17,425	£ 31,113	£ 43,094
Fast	£ 3,499	£ 11,868	£ 21,263	£ 29,482
Rapid	£ 6,539	£ 22,164	£ 39,582	£ 54,830
Total	£ 15,164	£ 51,457	£ 91,959	£ 127,407

Concession Model

Capital Cost (cumulative)	2025	2030	2035	2040
Standard	-£ 5,007	-£ 5,007	-£ 10,015	-£ 15,022
Fast	-£ 5,007	-£ 10,015	-£ 15,022	-£ 20,030
Rapid	-£ 4,342	-£ 4,342	-£ 8,685	-£ 13,027
Total	-£ 14,357	-£ 19,365	-£ 33,722	-£ 48,079

Operating Cost (per annum)	2025	2030	2035	2040
Standard	£ -	£ -	£ -	£ -
Fast	£ -	£ -	£ -	£ -
Rapid	£ -	£ -	£ -	£ -
Total	£ -	£ -	£ -	£ -

Net Revenue (per annum)	2025	2030	2035	2040
Standard	£ 1,742	£ 5,842	£ 10,438	£ 14,465
Fast	£ 1,200	£ 4,023	£ 7,188	£ 9,961
Rapid	£ 2,213	£ 7,421	£ 13,261	£ 18,377
Total	£ 5,155	£ 17,286	£ 30,886	£ 42,802

Margin (per annum)	2025	2030	2035	2040
Standard	£ 1,742	£ 5,842	£ 10,438	£ 14,465
Fast	£ 1,200	£ 4,023	£ 7,188	£ 9,961
Rapid	£ 2,213	£ 7,421	£ 13,261	£ 18,377
Total	£ 5,155	£ 17,286	£ 30,886	£ 42,802

Lease Model

Capital Cost (cumulative)	2025	2030	2035	2040
Standard	£ -	£ -	£ -	£ -
Fast	£ -	£ -	£ -	£ -
Rapid	£ -	£ -	£ -	£ -
Total	£ -	£ -	£ -	£ -

Operating Cost (per annum)	2025	2030	2035	2040
Standard	£ -	£ -	£ -	£ -
Fast	£ -	£ -	£ -	£ -
Rapid	£ -	£ -	£ -	£ -
Total	£ -	£ -	£ -	£ -

Net Revenue (per annum)	2025	2030	2035	2040
Standard	£ 1,161	£ 3,894	£ 6,958	£ 9,643
Fast	£ 800	£ 2,682	£ 4,792	£ 6,640
Rapid	£ 1,475	£ 4,948	£ 8,841	£ 12,251
Total	£ 3,436	£ 11,524	£ 20,591	£ 28,535

Margin (per annum)	2025	2030	2035	2040
Standard	£ 1,161	£ 3,894	£ 6,958	£ 9,643
Fast	£ 800	£ 2,682	£ 4,792	£ 6,640
Rapid	£ 1,475	£ 4,948	£ 8,841	£ 12,251
Total	£ 3,436	£ 11,524	£ 20,591	£ 28,535

St Nicholas Park, Warwick

Users per day	2025	2030	2035	2040
Standard	0.49	1.65	2.96	4.10
Fast	4.14	13.89	24.83	34.40
Rapid	0.30	0.99	1.77	2.46
Total	4.93	16.54	29.55	40.96

Chargepoints required (sockets)	2025	2030	2035	2040
Standard	1	1	2	2
Fast	1	2	3	4
Rapid	1	1	1	1
Total	3	4	6	7

Chargepoints required (chargepoints)	2025	2030	2035	2040
Standard	1	1	1	1
Fast	1	1	2	2
Rapid	1	1	1	1
Total	3	3	4	4

Own and Operate

Capital Cost (cumulative)	2025	2030	2035	2040
Standard	-£ 8,176	-£ 8,176	-£ 8,176	-£ 8,176
Fast	-£ 8,403	-£ 8,403	-£ 16,806	-£ 16,806
Rapid	-£ 27,553	-£ 27,553	-£ 27,553	-£ 27,553
Total	-£ 44,132	-£ 44,132	-£ 52,535	-£ 52,535

Operating Cost (per annum)	2025	2030	2035	2040
Standard	-£ 751	-£ 751	-£ 751	-£ 751
Fast	-£ 751	-£ 751	-£ 1,503	-£ 1,503
Rapid	-£ 501	-£ 501	-£ 501	-£ 501
Total	-£ 2,004	-£ 2,004	-£ 2,755	-£ 2,755

Net Revenue (per annum)	2025	2030	2035	2040
Standard	£ 2,403	£ 8,060	£ 14,401	£ 19,957
Fast	£ 1,951	£ 6,543	£ 11,691	£ 16,202
Rapid	£ 419	£ 1,404	£ 2,509	£ 3,477
Total	£ 4,773	£ 16,007	£ 28,601	£ 39,636

Margin (per annum)	2025	2030	2035	2040
Standard	£ 1,652	£ 7,308	£ 13,650	£ 19,205
Fast	£ 1,200	£ 5,792	£ 10,189	£ 14,699
Rapid	-£ 83	£ 903	£ 2,008	£ 2,976
Total	£ 2,769	£ 14,003	£ 25,846	£ 36,881

External Operator

Capital Cost (cumulative)	2025	2030	2035	2040
Standard	-£ 8,176	-£ 8,176	-£ 8,176	-£ 8,176
Fast	-£ 8,403	-£ 8,403	-£ 16,806	-£ 16,806
Rapid	-£ 27,553	-£ 27,553	-£ 27,553	-£ 27,553
Total	-£ 44,132	-£ 44,132	-£ 52,535	-£ 52,535

Operating Cost (per annum)	2025	2030	2035	2040
Standard	-£ 100	-£ 100	-£ 100	-£ 100
Fast	-£ 100	-£ 100	-£ 200	-£ 200
Rapid	-£ 100	-£ 100	-£ 100	-£ 100
Total	-£ 300	-£ 300	-£ 400	-£ 400

Net Revenue (per annum)	2025	2030	2035	2040
Standard	£ 2,163	£ 7,254	£ 12,961	£ 17,961
Fast	£ 1,756	£ 5,889	£ 10,522	£ 14,582
Rapid	£ 377	£ 1,264	£ 2,258	£ 3,129
Total	£ 4,296	£ 14,406	£ 25,741	£ 35,672

Margin (per annum)	2025	2030	2035	2040
Standard	£ 2,063	£ 7,154	£ 12,861	£ 17,861
Fast	£ 1,656	£ 5,789	£ 10,322	£ 14,382
Rapid	£ 277	£ 1,164	£ 2,158	£ 3,029
Total	£ 3,996	£ 14,106	£ 25,341	£ 35,272

Concession Model

Capital Cost (cumulative)	2025	2030	2035	2040
Standard	-£ 5,007	-£ 5,007	-£ 5,007	-£ 5,007
Fast	-£ 5,007	-£ 5,007	-£ 10,015	-£ 10,015
Rapid	-£ 4,342	-£ 4,342	-£ 4,342	-£ 4,342
Total	-£ 14,357	-£ 14,357	-£ 19,365	-£ 19,365

Operating Cost (per annum)	2025	2030	2035	2040
Standard	£ -	£ -	£ -	£ -
Fast	£ -	£ -	£ -	£ -
Rapid	£ -	£ -	£ -	£ -
Total	£ -	£ -	£ -	£ -

Net Revenue (per annum)	2025	2030	2035	2040
Standard	£ 721	£ 2,418	£ 4,320	£ 5,987
Fast	£ 585	£ 1,963	£ 3,507	£ 4,861
Rapid	£ 126	£ 421	£ 753	£ 1,043
Total	£ 1,432	£ 4,802	£ 8,580	£ 11,891

Margin (per annum)	2025	2030	2035	2040
Standard	£ 721	£ 2,418	£ 4,320	£ 5,987
Fast	£ 585	£ 1,963	£ 3,507	£ 4,861
Rapid	£ 126	£ 421	£ 753	£ 1,043
Total	£ 1,432	£ 4,802	£ 8,580	£ 11,891

Lease Model

Capital Cost (cumulative)	2025	2030	2035	2040
Standard	£ -	£ -	£ -	£ -
Fast	£ -	£ -	£ -	£ -
Rapid	£ -	£ -	£ -	£ -
Total	£ -	£ -	£ -	£ -

Operating Cost (per annum)	2025	2030	2035	2040
Standard	£ -	£ -	£ -	£ -
Fast	£ -	£ -	£ -	£ -
Rapid	£ -	£ -	£ -	£ -
Total	£ -	£ -	£ -	£ -

Net Revenue (per annum)	2025	2030	2035	2040
Standard	£ 481	£ 1,612	£ 2,880	£ 3,991
Fast	£ 390	£ 1,309	£ 2,338	£ 3,240
Rapid	£ 84	£ 281	£ 502	£ 695
Total	£ 955	£ 3,201	£ 5,720	£ 7,927

Margin (per annum)	2025	2030	2035	2040
Standard	£ 481	£ 1,612	£ 2,880	£ 3,991
Fast	£ 390	£ 1,309	£ 2,338	£ 3,240
Rapid	£ 84	£ 281	£ 502	£ 695
Total	£ 955	£ 3,201	£ 5,720	£ 7,927

Stratford Leisure Centre Car Park

Users per day	2025	2030	2035	2040
Standard	9.55	32.01	57.20	79.26
Fast	16.97	56.91	101.68	140.91
Rapid	0.00	0.00	0.00	0.00
Total	26.52	88.92	158.88	220.18

Chargepoints required (sockets)	2025	2030	2035	2040
Standard	5	15	27	37
Fast	2	6	10	13
Rapid	0	0	0	0
Total	7	21	37	50

Chargepoints required (chargepoints)	2025	2030	2035	2040
Standard	3	8	14	19
Fast	1	3	5	7
Rapid	0	0	0	0
Total	4	11	19	26

Own and Operate

Capital Cost (cumulative)	2025	2030	2035	2040
Standard	-£ 24,527	-£ 65,405	-£ 114,459	-£ 155,337
Fast	-£ 8,403	-£ 15,022	-£ 25,037	-£ 35,052
Rapid	£ -	£ -	£ -	£ -
Total	-£ 32,930	-£ 80,427	-£ 139,496	-£ 190,389

Operating Cost (per annum)	2025	2030	2035	2040
Standard	-£ 2,254	-£ 6,011	-£ 10,519	-£ 14,275
Fast	-£ 751	-£ 2,254	-£ 3,757	-£ 5,259
Rapid	£ -	£ -	£ -	£ -
Total	-£ 3,005	-£ 8,265	-£ 14,275	-£ 19,535

Net Revenue (per annum)	2025	2030	2035	2040
Standard	£ 46,513	£ 155,981	£ 278,708	£ 386,235
Fast	£ 7,992	£ 26,801	£ 47,888	£ 66,363
Rapid	£ -	£ -	£ -	£ -
Total	£ 54,505	£ 182,781	£ 326,596	£ 452,598

Margin (per annum)	2025	2030	2035	2040
Standard	£ 44,259	£ 149,970	£ 268,190	£ 371,959
Fast	£ 7,241	£ 24,547	£ 44,131	£ 61,104
Rapid	£ -	£ -	£ -	£ -
Total	£ 51,500	£ 174,517	£ 312,321	£ 433,063

External Operator

Capital Cost (cumulative)	2025	2030	2035	2040
Standard	-£ 24,527	-£ 65,405	-£ 114,459	-£ 155,337
Fast	-£ 8,403	-£ 15,022	-£ 25,037	-£ 35,052
Rapid	£ -	£ -	£ -	£ -
Total	-£ 32,930	-£ 80,427	-£ 139,496	-£ 190,389

Operating Cost (per annum)	2025	2030	2035	2040
Standard	-£ 300	-£ 800	-£ 1,400	-£ 1,900
Fast	-£ 100	-£ 300	-£ 500	-£ 700
Rapid	£ -	£ -	£ -	£ -
Total	-£ 400	-£ 1,100	-£ 1,900	-£ 2,600

Net Revenue (per annum)	2025	2030	2035	2040
Standard	£ 41,862	£ 140,383	£ 250,837	£ 347,611
Fast	£ 7,193	£ 24,121	£ 43,099	£ 59,727
Rapid	£ -	£ -	£ -	£ -
Total	£ 49,054	£ 164,503	£ 293,937	£ 407,338

Margin (per annum)	2025	2030	2035	2040
Standard	£ 41,562	£ 139,583	£ 249,437	£ 345,711
Fast	£ 7,093	£ 23,821	£ 42,599	£ 59,027
Rapid	£ -	£ -	£ -	£ -
Total	£ 48,654	£ 163,403	£ 292,037	£ 404,738

Concession Model

Capital Cost (cumulative)	2025	2030	2035	2040
Standard	-£ 15,022	-£ 40,059	-£ 70,104	-£ 95,141
Fast	-£ 5,007	-£ 15,022	-£ 25,037	-£ 35,052
Rapid	£ -	£ -	£ -	£ -
Total	-£ 20,030	-£ 55,081	-£ 95,141	-£ 130,192

Operating Cost (per annum)	2025	2030	2035	2040
Standard	£ -	£ -	£ -	£ -
Fast	£ -	£ -	£ -	£ -
Rapid	£ -	£ -	£ -	£ -
Total	£ -	£ -	£ -	£ -

Net Revenue (per annum)	2025	2030	2035	2040
Standard	£ 13,954	£ 46,794	£ 83,612	£ 115,870
Fast	£ 2,398	£ 8,040	£ 14,366	£ 19,909
Rapid	£ -	£ -	£ -	£ -
Total	£ 16,351	£ 54,834	£ 97,979	£ 135,779

Margin (per annum)	2025	2030	2035	2040
Standard	£ 13,954	£ 46,794	£ 83,612	£ 115,870
Fast	£ 2,398	£ 8,040	£ 14,366	£ 19,909
Rapid	£ -	£ -	£ -	£ -
Total	£ 16,351	£ 54,834	£ 97,979	£ 135,779

Lease Model

Capital Cost (cumulative)	2025	2030	2035	2040
Standard	£ -	£ -	£ -	£ -
Fast	£ -	-£ 15,022	-£ 25,037	-£ 35,052
Rapid	£ -	£ -	£ -	£ -
Total	£ -	-£ 15,022	-£ 25,037	-£ 35,052

Operating Cost (per annum)	2025	2030	2035	2040
Standard	£ -	£ -	£ -	£ -
Fast	£ -	£ -	£ -	£ -
Rapid	£ -	£ -	£ -	£ -
Total	£ -	£ -	£ -	£ -

Net Revenue (per annum)	2025	2030	2035	2040
Standard	£ 9,303	£ 31,196	£ 55,742	£ 77,247
Fast	£ 1,598	£ 5,360	£ 9,578	£ 13,273
Rapid	£ -	£ -	£ -	£ -
Total	£ 10,901	£ 36,556	£ 65,319	£ 90,520

Margin (per annum)	2025	2030	2035	2040
Standard	£ 9,303	£ 31,196	£ 55,742	£ 77,247
Fast	£ 1,598	£ 5,360	£ 9,578	£ 13,273
Rapid	£ -	£ -	£ -	£ -
Total	£ 10,901	£ 36,556	£ 65,319	£ 90,520

Stratford Recreation Ground Car Park

Own and Operate

Users per day	2025	2030	2035	2040
Standard	3.95	13.24	23.66	32.78
Fast	7.02	23.54	42.06	58.28
Rapid	0.00	0.00	0.00	0.00
Total	10.97	36.78	65.71	91.07

Chargepoints required (sockets)	2041.37	2030	2035	2040
Standard	2	7	11	16
Fast	1	3	4	6
Rapid	0	0	0	0
Total	3	10	15	22

Chargepoints required (chargepoints)	2025	2030	2035	2040
Standard	1	4	6	8
Fast	1	2	2	3
Rapid	0	0	0	0
Total	2	6	8	11

Capital Cost (cumulative)	2025	2030	2035	2040
Standard	-£ 8,176	-£ 32,703	-£ 49,054	-£ 65,405
Fast	-£ 8,403	-£ 16,806	-£ 16,806	-£ 25,209
Rapid	£ -	£ -	£ -	£ -
Total	-£ 16,579	-£ 49,508	-£ 65,860	-£ 90,614

Operating Cost (per annum)	2025	2030	2035	2040
Standard	-£ 751	-£ 3,005	-£ 4,508	-£ 6,011
Fast	-£ 100	£ -	£ -	£ -
Rapid	£ -	£ -	£ -	£ -
Total	-£ 851	-£ 3,005	-£ 4,508	-£ 6,011

Net Revenue (per annum)	2025	2030	2035	2040
Standard	£ 19,238	£ 64,514	£ 115,275	£ 159,748
Fast	£ 3,305	£ 11,085	£ 19,807	£ 27,448
Rapid	£ -	£ -	£ -	£ -
Total	£ 22,543	£ 75,599	£ 135,081	£ 187,196

Margin (per annum)	2025	2030	2035	2040
Standard	£ 18,487	£ 61,509	£ 110,767	£ 153,737
Fast	£ 3,205	£ 11,085	£ 19,807	£ 27,448
Rapid	£ -	£ -	£ -	£ -
Total	£ 21,692	£ 72,594	£ 130,573	£ 181,185

External Operator

Capital Cost (cumulative)	2025	2030	2035	2040
Standard	-£ 8,176	-£ 32,703	-£ 49,054	-£ 65,405
Fast	-£ 8,403	-£ 16,806	-£ 16,806	-£ 25,209
Rapid	£ -	£ -	£ -	£ -
Total	-£ 16,579	-£ 49,508	-£ 65,860	-£ 90,614

Operating Cost (per annum)	2025	2030	2035	2040
Standard	-£ 100	-£ 400	-£ 600	-£ 800
Fast	-£ 100	£ -	£ -	£ -
Rapid	£ -	£ -	£ -	£ -
Total	-£ 200	-£ 400	-£ 600	-£ 800

Net Revenue (per annum)	2025	2030	2035	2040
Standard	£ 17,314	£ 58,063	£ 103,747	£ 143,773
Fast	£ 2,975	£ 9,976	£ 17,826	£ 24,703
Rapid	£ -	£ -	£ -	£ -
Total	£ 20,289	£ 68,039	£ 121,573	£ 168,476

Margin (per annum)	2025	2030	2035	2040
Standard	£ 17,214	£ 57,663	£ 103,147	£ 142,973
Fast	£ 2,875	£ 9,976	£ 17,826	£ 24,703
Rapid	£ -	£ -	£ -	£ -
Total	£ 20,089	£ 67,639	£ 120,973	£ 167,676

Concession Model

Capital Cost (cumulative)	2025	2030	2035	2040
Standard	-£ 5,007	-£ 20,030	-£ 30,044	-£ 40,059
Fast	-£ 5,007	-£ 10,015	-£ 10,015	-£ 15,022
Rapid	£ -	£ -	£ -	£ -
Total	-£ 10,015	-£ 30,044	-£ 40,059	-£ 55,081

Operating Cost (per annum)	2025	2030	2035	2040
Standard	£ -	£ -	£ -	£ -
Fast	£ -	£ -	£ -	£ -
Rapid	£ -	£ -	£ -	£ -
Total	£ -	£ -	£ -	£ -

Net Revenue (per annum)	2025	2030	2035	2040
Standard	£ 5,771	£ 19,354	£ 34,582	£ 47,924
Fast	£ 992	£ 3,325	£ 5,942	£ 8,234
Rapid	£ -	£ -	£ -	£ -
Total	£ 6,763	£ 22,680	£ 40,524	£ 56,159

Margin (per annum)	2025	2030	2035	2040
Standard	£ 5,771	£ 19,354	£ 34,582	£ 47,924
Fast	£ 992	£ 3,325	£ 5,942	£ 8,234
Rapid	£ -	£ -	£ -	£ -
Total	£ 6,763	£ 22,680	£ 40,524	£ 56,159

Lease Model

Capital Cost (cumulative)

	2025	2030	2035	2040
Standard	£ -	£ -	£ -	£ -
Fast	£ -	£ -	£ -	£ -
Rapid	£ -	£ -	£ -	£ -
Total	£ -	£ -	£ -	£ -

Operating Cost (per annum)

	2025	2030	2035	2040
Standard	£ -	£ -	£ -	£ -
Fast	£ -	£ -	£ -	£ -
Rapid	£ -	£ -	£ -	£ -
Total	£ -	£ -	£ -	£ -

Net Revenue (per annum)

	2025	2030	2035	2040
Standard	£ 3,848	£ 12,903	£ 23,055	£ 31,950
Fast	£ 661	£ 2,217	£ 3,961	£ 5,490
Rapid	£ -	£ -	£ -	£ -
Total	£ 4,509	£ 15,120	£ 27,016	£ 37,439

Margin (per annum)

	2025	2030	2035	2040
Standard	£ 3,848	£ 12,903	£ 23,055	£ 31,950
Fast	£ 661	£ 2,217	£ 3,961	£ 5,490
Rapid	£ -	£ -	£ -	£ -
Total	£ 4,509	£ 15,120	£ 27,016	£ 37,439

Saxon Fields Car Park, Bidford on Avon

Users per day

	2025	2030	2035	2040
Standard	0.32	1.09	1.95	2.70
Fast	2.60	8.72	24.83	34.40
Rapid	3.57	11.99	21.42	29.68
Total	6.50	21.79	48.19	66.78

Chargepoints required (sockets)

	2025	2030	2035	2040
Standard	1	1	1	2
Fast	1	1	2	2
Rapid	1	1	2	2
Total	3	3	5	6

Chargepoints required (chargepoints)

	2025	2030	2035	2040
Standard	1	1	1	1
Fast	1	1	1	1
Rapid	1	1	2	2
Total	3	3	4	4

Own and Operate

Capital Cost (cumulative)	2025	2030	2035	2040
Standard	-£ 8,176	-£ 8,176	-£ 8,176	-£ 8,176
Fast	-£ 8,403	-£ 8,403	-£ 8,403	-£ 8,403
Rapid	-£ 27,553	-£ 27,553	-£ 55,106	-£ 55,106
Total	-£ 44,132	-£ 44,132	-£ 71,684	-£ 71,684

Operating Cost (per annum)	2025	2030	2035	2040
Standard	-£ 751	-£ 751	-£ 751	-£ 751
Fast	-£ 751	-£ 751	-£ 751	-£ 751
Rapid	-£ 501	-£ 501	-£ 1,003	-£ 1,003
Total	-£ 2,004	-£ 2,004	-£ 2,505	-£ 2,505

Net Revenue (per annum)	2025	2030	2035	2040
Standard	£ 1,583	£ 5,310	£ 9,488	£ 13,148
Fast	£ 1,224	£ 4,106	£ 7,336	£ 10,166
Rapid	£ 5,058	£ 16,961	£ 30,306	£ 41,999
Total	£ 7,865	£ 26,376	£ 47,130	£ 65,313

Margin (per annum)	2025	2030	2035	2040
Standard	£ 832	£ 4,558	£ 8,736	£ 12,397
Fast	£ 473	£ 3,354	£ 6,584	£ 9,415
Rapid	£ 4,556	£ 16,460	£ 29,304	£ 40,996
Total	£ 5,861	£ 24,372	£ 44,624	£ 62,807

External Operator

Capital Cost (cumulative)	2025	2030	2035	2040
Standard	-£ 8,176	-£ 8,176	-£ 8,176	-£ 8,176
Fast	-£ 8,403	-£ 8,403	-£ 8,403	-£ 8,403
Rapid	-£ 27,553	-£ 27,553	-£ 55,106	-£ 55,106
Total	-£ 44,132	-£ 44,132	-£ 71,684	-£ 71,684

Operating Cost (per annum)	2025	2030	2035	2040
Standard	-£ 100	-£ 100	-£ 100	-£ 100
Fast	-£ 100	-£ 100	-£ 100	-£ 100
Rapid	-£ 100	-£ 100	-£ 200	-£ 200
Total	-£ 300	-£ 300	-£ 400	-£ 400

Net Revenue (per annum)	2025	2030	2035	2040
Standard	£ 1,425	£ 4,779	£ 8,539	£ 11,833
Fast	£ 1,102	£ 3,695	£ 6,602	£ 9,149
Rapid	£ 4,552	£ 15,265	£ 27,276	£ 37,799
Total	£ 7,079	£ 23,739	£ 42,417	£ 58,781

Margin (per annum)	2025	2030	2035	2040
Standard	£ 1,325	£ 4,679	£ 8,439	£ 11,733
Fast	£ 1,002	£ 3,595	£ 6,502	£ 9,049
Rapid	£ 4,452	£ 15,165	£ 27,076	£ 37,599
Total	£ 6,779	£ 23,439	£ 42,017	£ 58,381

Concession Model

Capital Cost (cumulative)	2025	2030	2035	2040
Standard	-£ 5,007	-£ 5,007	-£ 5,007	-£ 5,007
Fast	-£ 5,007	-£ 5,007	-£ 5,007	-£ 5,007
Rapid	-£ 4,342	-£ 4,342	-£ 8,685	-£ 8,685
Total	-£ 14,357	-£ 14,357	-£ 18,700	-£ 18,700

Operating Cost (per annum)	2025	2030	2035	2040
Standard	£ -	£ -	£ -	£ -
Fast	£ -	£ -	£ -	£ -
Rapid	£ -	£ -	£ -	£ -
Total	£ -	£ -	£ -	£ -

Net Revenue (per annum)	2025	2030	2035	2040
Standard	£ 475	£ 1,593	£ 2,846	£ 3,944
Fast	£ 367	£ 1,232	£ 2,201	£ 3,050
Rapid	£ 1,517	£ 5,088	£ 9,092	£ 12,600
Total	£ 2,360	£ 7,913	£ 14,139	£ 19,594

Margin (per annum)	2025	2030	2035	2040
Standard	£ 475	£ 1,593	£ 2,846	£ 3,944
Fast	£ 367	£ 1,232	£ 2,201	£ 3,050
Rapid	£ 1,517	£ 5,088	£ 9,092	£ 12,600
Total	£ 2,360	£ 7,913	£ 14,139	£ 19,594

Lease Model

Capital Cost (cumulative)	2025	2030	2035	2040
Standard	£ -	£ -	£ -	£ -
Fast	£ -	£ -	£ -	£ -
Rapid	£ -	£ -	£ -	£ -
Total	£ -	£ -	£ -	£ -

Operating Cost (per annum)	2025	2030	2035	2040
Standard	£ -	£ -	£ -	£ -
Fast	£ -	£ -	£ -	£ -
Rapid	£ -	£ -	£ -	£ -
Total	£ -	£ -	£ -	£ -

Net Revenue (per annum)	2025	2030	2035	2040
Standard	£ 317	£ 1,062	£ 1,898	£ 2,630
Fast	£ 245	£ 821	£ 1,467	£ 2,033
Rapid	£ 1,012	£ 3,392	£ 6,061	£ 8,400
Total	£ 1,573	£ 5,275	£ 9,426	£ 13,063

Margin (per annum)	2025	2030	2035	2040
Standard	£ 317	£ 1,062	£ 1,898	£ 2,630
Fast	£ 245	£ 821	£ 1,467	£ 2,033
Rapid	£ 1,012	£ 3,392	£ 6,061	£ 8,400
Total	£ 1,573	£ 5,275	£ 9,426	£ 13,063

Wood Street Car Park, Southam

Own and Operate

Users per day	2025	2030	2035	2040
Standard	0.33	1.11	1.99	2.76
Fast	5.18	17.36	31.02	42.98
Rapid	1.13	3.78	6.76	9.37
Total	6.64	22.25	39.76	55.11

Chargepoints required (sockets)	2025	2030	2035	2040
Standard	1	1	1	2
Fast	1	2	3	4
Rapid	1	1	1	1
Total	3	4	5	7

Chargepoints required (chargepoints)	2025	2030	2035	2040
Standard	1	1	1	1
Fast	1	1	2	2
Rapid	1	1	1	1
Total	3	3	4	4

Capital Cost (cumulative)	2025	2030	2035	2040
Standard	-£ 8,176	-£ 8,176	-£ 8,176	-£ 8,176
Fast	-£ 8,403	-£ 8,403	-£ 16,806	-£ 16,806
Rapid	-£ 27,553	-£ 27,553	-£ 27,553	-£ 27,553
Total	-£ 44,132	-£ 44,132	-£ 52,535	-£ 52,535

Operating Cost (per annum)	2025	2030	2035	2040
Standard	-£ 751	-£ 751	-£ 751	-£ 751
Fast	-£ 751	-£ 751	-£ 1,503	-£ 1,503
Rapid	-£ 501	-£ 501	-£ 501	-£ 501
Total	-£ 2,004	-£ 2,004	-£ 2,755	-£ 2,755

Net Revenue (per annum)	2025	2030	2035	2040
Standard	£ 1,617	£ 5,422	£ 9,688	£ 13,426
Fast	£ 2,438	£ 8,175	£ 14,607	£ 20,242
Rapid	£ 1,596	£ 5,353	£ 9,565	£ 13,256
Total	£ 5,651	£ 18,950	£ 33,861	£ 46,924

Margin (per annum)	2025	2030	2035	2040
Standard	£ 865	£ 4,671	£ 8,937	£ 12,674
Fast	£ 1,686	£ 7,424	£ 13,104	£ 18,740
Rapid	£ 1,095	£ 4,852	£ 9,064	£ 12,754
Total	£ 3,647	£ 16,946	£ 31,105	£ 44,169

External Operator

Capital Cost (cumulative)	2025	2030	2035	2040
Standard	-£ 8,176	-£ 8,176	-£ 8,176	-£ 8,176
Fast	-£ 8,403	-£ 8,403	-£ 16,806	-£ 16,806
Rapid	-£ 27,553	-£ 27,553	-£ 27,553	-£ 27,553
Total	-£ 44,132	-£ 44,132	-£ 52,535	-£ 52,535

Operating Cost (per annum)	2025	2030	2035	2040
Standard	-£ 100	-£ 100	-£ 100	-£ 100
Fast	-£ 100	-£ 100	-£ 200	-£ 200
Rapid	-£ 100	-£ 100	-£ 100	-£ 100
Total	-£ 300	-£ 300	-£ 400	-£ 400

Net Revenue (per annum)	2025	2030	2035	2040
Standard	£ 1,455	£ 4,880	£ 8,719	£ 12,083
Fast	£ 2,194	£ 7,357	£ 13,146	£ 18,218
Rapid	£ 1,437	£ 4,818	£ 8,609	£ 11,930
Total	£ 5,086	£ 17,055	£ 30,474	£ 42,232

Margin (per annum)	2025	2030	2035	2040
Standard	£ 1,355	£ 4,780	£ 8,619	£ 11,983
Fast	£ 2,094	£ 7,257	£ 12,946	£ 18,018
Rapid	£ 1,337	£ 4,718	£ 8,509	£ 11,830
Total	£ 4,786	£ 16,755	£ 30,074	£ 41,832

Concession Model

Capital Cost (cumulative)	2025	2030	2035	2040
Standard	-£ 5,007	-£ 5,007	-£ 5,007	-£ 5,007
Fast	-£ 5,007	-£ 5,007	-£ 10,015	-£ 10,015
Rapid	-£ 4,342	-£ 4,342	-£ 4,342	-£ 4,342
Total	-£ 14,357	-£ 14,357	-£ 19,365	-£ 19,365

Operating Cost (per annum)	2025	2030	2035	2040
Standard	£ -	£ -	£ -	£ -
Fast	£ -	£ -	£ -	£ -
Rapid	£ -	£ -	£ -	£ -
Total	£ -	£ -	£ -	£ -

Net Revenue (per annum)	2025	2030	2035	2040
Standard	£ 485	£ 1,627	£ 2,906	£ 4,028
Fast	£ 731	£ 2,452	£ 4,382	£ 6,073
Rapid	£ 479	£ 1,606	£ 2,870	£ 3,977
Total	£ 1,695	£ 5,685	£ 10,158	£ 14,077

Margin (per annum)	2025	2030	2035	2040
Standard	£ 485	£ 1,627	£ 2,906	£ 4,028
Fast	£ 731	£ 2,452	£ 4,382	£ 6,073
Rapid	£ 479	£ 1,606	£ 2,870	£ 3,977
Total	£ 1,695	£ 5,685	£ 10,158	£ 14,077

Lease Model

Capital Cost (cumulative)	2025	2030	2035	2040
Standard	£ -	£ -	£ -	£ -
Fast	£ -	£ -	£ -	£ -
Rapid	£ -	£ -	£ -	£ -
Total	£ -	£ -	£ -	£ -

Operating Cost (per annum)	2025	2030	2035	2040
Standard	£ -	£ -	£ -	£ -
Fast	£ -	£ -	£ -	£ -
Rapid	£ -	£ -	£ -	£ -
Total	£ -	£ -	£ -	£ -

Net Revenue (per annum)	2025	2030	2035	2040
Standard	£ 323	£ 1,084	£ 1,938	£ 2,685
Fast	£ 488	£ 1,635	£ 2,921	£ 4,048
Rapid	£ 319	£ 1,071	£ 1,913	£ 2,651
Total	£ 1,130	£ 3,790	£ 6,772	£ 9,385

Margin (per annum)	2025	2030	2035	2040
Standard	£ 323	£ 1,084	£ 1,938	£ 2,685
Fast	£ 488	£ 1,635	£ 2,921	£ 4,048
Rapid	£ 319	£ 1,071	£ 1,913	£ 2,651
Total	£ 1,130	£ 3,790	£ 6,772	£ 9,385

Telegraph Street Car Park, Shipston-on-Stour

Users per day	2025	2030	2035	2040
Standard	0.14	0.47	0.84	1.17
Fast	4.08	13.69	24.47	33.91
Rapid	9.86	33.05	59.06	81.85
Total	14.08	47.22	84.37	116.92

Chargepoints required (sockets)	2025	2030	2035	2040
Standard	1	1	1	1
Fast	1	2	3	4
Rapid	1	2	3	4
Total	3	5	7	9

Chargepoints required (chargepoints)	2025	2030	2035	2040
Standard	1	1	1	1
Fast	1	1	2	2
Rapid	1	2	3	4
Total	3	4	6	7

Own and Operate

Capital Cost (cumulative)	2025	2030	2035	2040
Standard	-£ 8,176	-£ 8,176	-£ 8,176	-£ 8,176
Fast	-£ 8,403	-£ 8,403	-£ 16,806	-£ 16,806
Rapid	-£ 27,553	-£ 55,106	-£ 82,659	-£ 110,212
Total	-£ 44,132	-£ 71,684	-£ 107,640	-£ 135,193

Operating Cost (per annum)	2025	2030	2035	2040
Standard	-£ 751	-£ 751	-£ 751	-£ 751
Fast	-£ 751	-£ 751	-£ 1,503	-£ 1,503
Rapid	-£ 501	-£ 1,003	-£ 1,504	-£ 2,005
Total	-£ 2,004	-£ 2,505	-£ 3,758	-£ 4,259

Net Revenue (per annum)	2025	2030	2035	2040
Standard	£ 686	£ 2,301	£ 4,111	£ 5,697
Fast	£ 1,923	£ 6,449	£ 11,523	£ 15,969
Rapid	£ 13,947	£ 46,772	£ 83,572	£ 115,815
Total	£ 16,556	£ 55,522	£ 99,207	£ 137,481

Margin (per annum)	2025	2030	2035	2040
Standard	-£ 65	£ 1,550	£ 3,360	£ 4,946
Fast	£ 1,172	£ 5,698	£ 10,021	£ 14,466
Rapid	£ 13,446	£ 45,769	£ 82,068	£ 113,809
Total	£ 14,552	£ 53,016	£ 95,449	£ 133,222

External Operator

Capital Cost (cumulative)	2025	2030	2035	2040
Standard	-£ 8,176	-£ 8,176	-£ 8,176	-£ 8,176
Fast	-£ 8,403	-£ 8,403	-£ 16,806	-£ 16,806
Rapid	-£ 27,553	-£ 55,106	-£ 82,659	-£ 110,212
Total	-£ 44,132	-£ 71,684	-£ 107,640	-£ 135,193

Operating Cost (per annum)	2025	2030	2035	2040
Standard	-£ 100	-£ 100	-£ 100	-£ 100
Fast	-£ 100	-£ 100	-£ 200	-£ 200
Rapid	-£ 100	-£ 200	-£ 300	-£ 400
Total	-£ 300	-£ 400	-£ 600	-£ 700

Net Revenue (per annum)	2025	2030	2035	2040
Standard	£ 618	£ 2,071	£ 3,700	£ 5,128
Fast	£ 1,731	£ 5,804	£ 10,371	£ 14,372
Rapid	£ 12,552	£ 42,094	£ 75,215	£ 104,233
Total	£ 14,901	£ 49,969	£ 89,286	£ 123,733

Margin (per annum)	2025	2030	2035	2040
Standard	£ 518	£ 1,971	£ 3,600	£ 5,028
Fast	£ 1,631	£ 5,704	£ 10,171	£ 14,172
Rapid	£ 12,452	£ 41,894	£ 74,915	£ 103,833
Total	£ 14,601	£ 49,569	£ 88,686	£ 123,033

Concession Model

Capital Cost (cumulative)	2025	2030	2035	2040
Standard	-£ 5,007	-£ 5,007	-£ 5,007	-£ 5,007
Fast	-£ 5,007	-£ 5,007	-£ 10,015	-£ 10,015
Rapid	-£ 4,342	-£ 8,685	-£ 13,027	-£ 17,370
Total	-£ 14,357	-£ 18,700	-£ 28,049	-£ 32,392

Operating Cost (per annum)	2025	2030	2035	2040
Standard	£ -	£ -	£ -	£ -
Fast	£ -	£ -	£ -	£ -
Rapid	£ -	£ -	£ -	£ -
Total	£ -	£ -	£ -	£ -

Net Revenue (per annum)	2025	2030	2035	2040
Standard	£ 206	£ 690	£ 1,233	£ 1,709
Fast	£ 577	£ 1,935	£ 3,457	£ 4,791
Rapid	£ 4,184	£ 14,031	£ 25,072	£ 34,744
Total	£ 4,967	£ 16,656	£ 29,762	£ 41,244

Margin (per annum)	2025	2030	2035	2040
Standard	£ 206	£ 690	£ 1,233	£ 1,709
Fast	£ 577	£ 1,935	£ 3,457	£ 4,791
Rapid	£ 4,184	£ 14,031	£ 25,072	£ 34,744
Total	£ 4,967	£ 16,656	£ 29,762	£ 41,244

Lease Model

Capital Cost (cumulative)	2025	2030	2035	2040
Standard	£ -	£ -	£ -	£ -
Fast	£ -	£ -	£ -	£ -
Rapid	£ -	£ -	£ -	£ -
Total	£ -	£ -	£ -	£ -

Operating Cost (per annum)	2025	2030	2035	2040
Standard	£ -	£ -	£ -	£ -
Fast	£ -	£ -	£ -	£ -
Rapid	£ -	£ -	£ -	£ -
Total	£ -	£ -	£ -	£ -

Net Revenue (per annum)	2025	2030	2035	2040
Standard	£ 137	£ 460	£ 822	£ 1,139
Fast	£ 385	£ 1,290	£ 2,305	£ 3,194
Rapid	£ 2,789	£ 9,354	£ 16,714	£ 23,163
Total	£ 3,311	£ 11,104	£ 19,841	£ 27,496

Margin (per annum)	2025	2030	2035	2040
Standard	£ 137	£ 460	£ 822	£ 1,139
Fast	£ 385	£ 1,290	£ 2,305	£ 3,194
Rapid	£ 2,789	£ 9,354	£ 16,714	£ 23,163
Total	£ 3,311	£ 11,104	£ 19,841	£ 27,496

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