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Suffolk County Council

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SUFFOLK CC – EV STRATEGY SUPPORT

EV:Ready Report

Report contents

Document Control

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Introduction

WSP was appointed by Suffolk County Council (SCC) to provide electric vehicle (EV) advice to inform the development of an EV strategy.

SCC sought advice in the following area:

- **Opportunity to shift modes** – which car trips within the Suffolk County Transport Model could switch to active and sustainable travel. This has wider applications, as it could support the development of Local Transport Plans (LTPs), active and sustainable transport investment programmes. It also ensures that the EV advice is grounded within the wider transport decarbonisation opportunity.
- **EV:Ready analysis to estimate EV uptake across the county up to 2050** – which will inform the number, type and location of charge points.
- **An EV workshop with the County and Local Authorities** - to present the findings of the above, and to understand work being delivered around EVs, and to develop high-level policy recommendations which could be considered by the County and Local Authorities for inclusion in an EV Strategy and the LTP.

This report summarises key findings from the analysis. After the introductory section, the report is structured according to the research areas.

Methodology

OPPORTUNITY TO SHIFT MODE ANALYSIS

Outputs from the Suffolk County Transport Model (SCTM) were used to identify a representative sample of journey origins and destinations in the area.

The trip matrices were run through Google's Directions Application Programming Interface (API) to provide real-world transport route options for each journey, to produce network distance and journey time per mode (walking, cycling, public transport and driving).

From this, maps of areas recording a large demand for each mode, considering first mile and last mile sections for public transport, were produced.

Additional analysis was undertaken to identify areas where more sustainable modes are competitive with driving, and quantified these figures with Passenger Car Units (PCU) and Vehicle Kilometres Travelled (VKT) measures of passenger flow.

EV:READY ANALYSIS FOR SUFFOLK

WSP's EV:Ready tool was used to estimate EV uptake forecasts and electric vehicle charge point requirements (EVCPs) for a range of scenarios and years:

2a. EV uptake forecast

WSP's EV:Ready forecasting tool was run for the Suffolk area, to provide EV uptake forecasts yearly up to 2050.

The model uses Department for Transport data in addition to consumer segmentation analysis with Experian Mosaic (2022) and Census (2011) to calculate expected Electric Vehicle numbers.

2b. EVCP requirements forecast

EV:Ready's Electric Vehicle Charge Point module was run, to generate forecasts for EVCP requirements to 2030, including a breakdown of publicly and privately funded chargers.

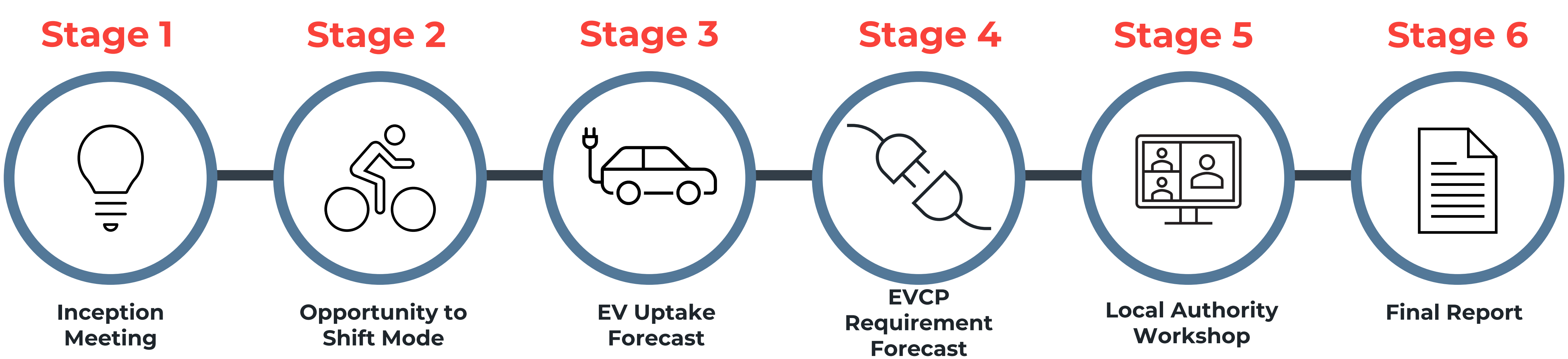
This provides the Council with an indication of where charge points should be prioritised for installation in the medium-term.

WORKSHOP WITH COUNTY AND LOCAL AUTHORITIES AND POLICY RECOMMENDATIONS

A workshop with members from the County and local authorities was undertaken to open up discussions about electric vehicles across Suffolk, present findings of the analysis, and to identify what authorities are planning for EVs.

Following on from the workshop, a set of high-level policy recommendations were developed to be considered by the County and Local Authorities for inclusion in an EV Strategy and the LTP. This is based on the findings of the EV:Ready analysis, as well as the County and Local Authorities EV work being delivered. The policy recommendations are centred around:

- Accelerating charge point deployment to promote EV uptake – including charge point type, location and delivery mechanism, as well as the role of the Council/s versus the private sector
- Reviewing Council fleet
- Collaborative working with Central Government and Local Authorities
- Updating EV parking and design standards
- Promotional activities and awareness raising.



PART A

Opportunity to Shift Modes

Mode shift potential

WHAT IS THE MODE SHIFT POTENTIAL ACROSS SUFFOLK?

The extraction of trips from SATURN modelling for 2028 calculated 1,135,097 daily trips within Suffolk currently made by car. A sample of 73% of these car trips was analysed to form a baseline.

Mode shift potential in trips and VKT from this baseline is shown opposite in **Figure A1**.

The baseline and three scenarios presented are:

- **Scenario 1: Active Commuting** this scenario assumes that every car trip which is possible to be made by walking (with 45 minutes) or cycling (within 60 minutes), while public transport and car trips have been assigned using the proportional difference in travel times.
- **Scenario 2: 15 Minute Neighbourhood** this scenario assumes that people will choose walking, and then cycling if their journey can be made by these modes in 15 minutes or less. PT and car mode share are based on difference in journey times.
- **Scenario 3: 30 Minute Neighbourhood** this scenario assumes that people will choose walking, and then cycling if their journey can be made by these modes in 30 minutes or less. PT and car mode share are based on difference in journey times.

Assuming all internal zone trips (trips within the LSOA area) are able to shift to sustainable modes, the Active Commuting scenario shifts 93% of trips away from car to active and public transport. Scenario 2 and 3 shift 61% and 79% respectively.

Notable is the disproportionate effect of which cars have on longer journeys. In Active Commuting, driving accounts for only 7% of trips, but this equates to 23% of the kilometres travelled.

Meanwhile, walking trips have a 33% mode share by trips, but only 10% of the people km.

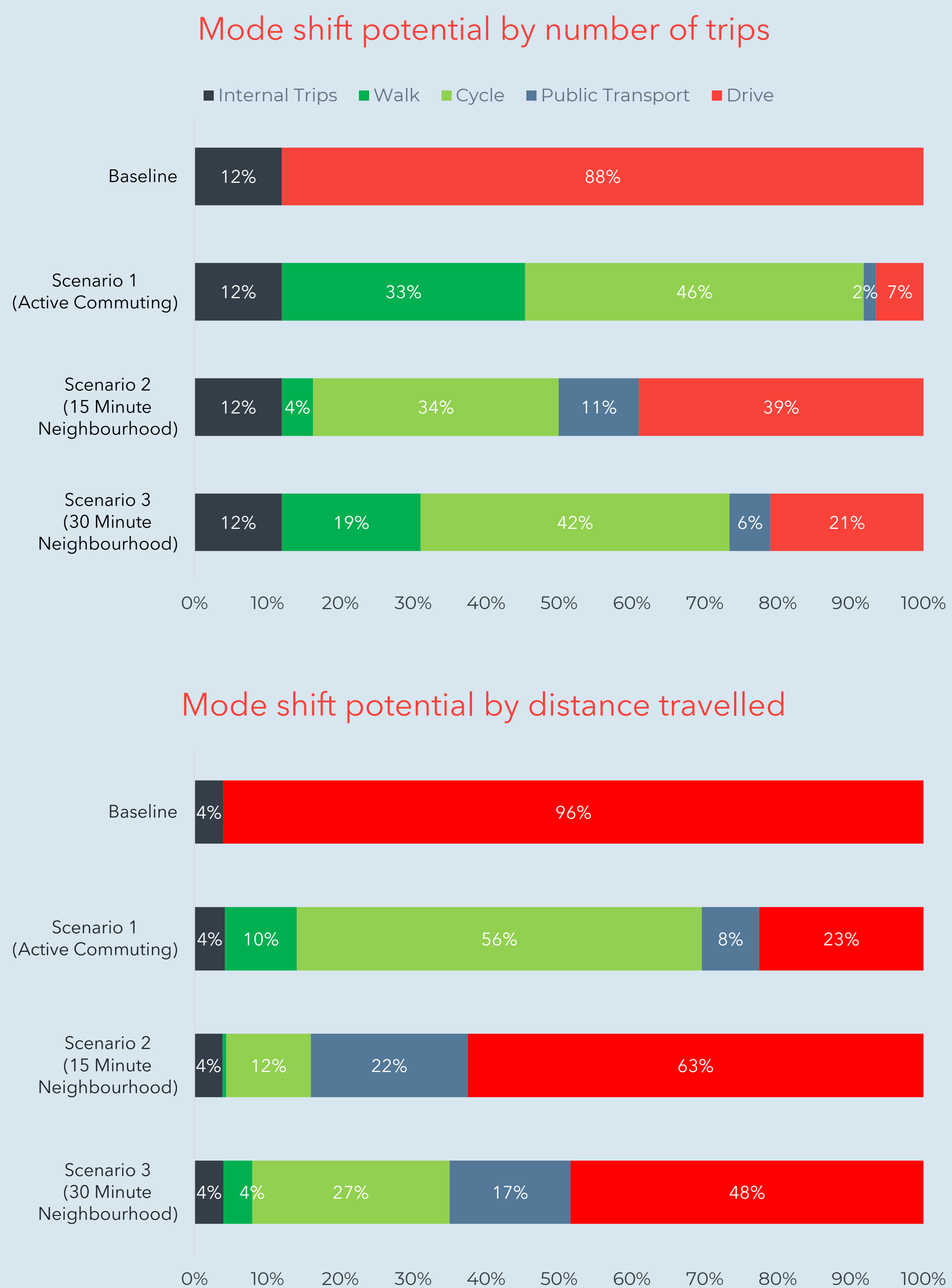


Figure A1 Mode shift potential (by number of trips and vehicle kilometres travelled)

Mode shift potential

KEY FINDINGS

The carbon emissions savings potential for the three scenarios is shown opposite in **Figure A2** for Suffolk.

The results of this analysis show that under Scenario 1 (Active Commuting), there is a **large potential to shift trips and reduce associated emissions**.

This is particularly apparent for cycling, which has the ability to replace 58% of baseline car emissions with zero emission travel.

Together with walking and other public and active modes, almost 900 tonnes of CO_2e could be removed from the baseline level of 1,214 tonnes, a reduction of 75% (on an average day).

Scenario 2 and 3 remove 25% and 44% of emissions respectively, an indication to the extent of which Suffolk meets the ideal of 15-minute and 30-minute neighbourhoods.

However, as discussed previously with vehicle kilometres, long trips which must be made by car contribute a higher proportion of emissions than shorter trips which could be shifted to sustainable modes.

While there is a need to shift modes, there's also a need to reduce the need for long distance travel, which is more likely to be by car. If these trips can't be shifted to more sustainable modes then effort should be made to support electrification of these car trips.

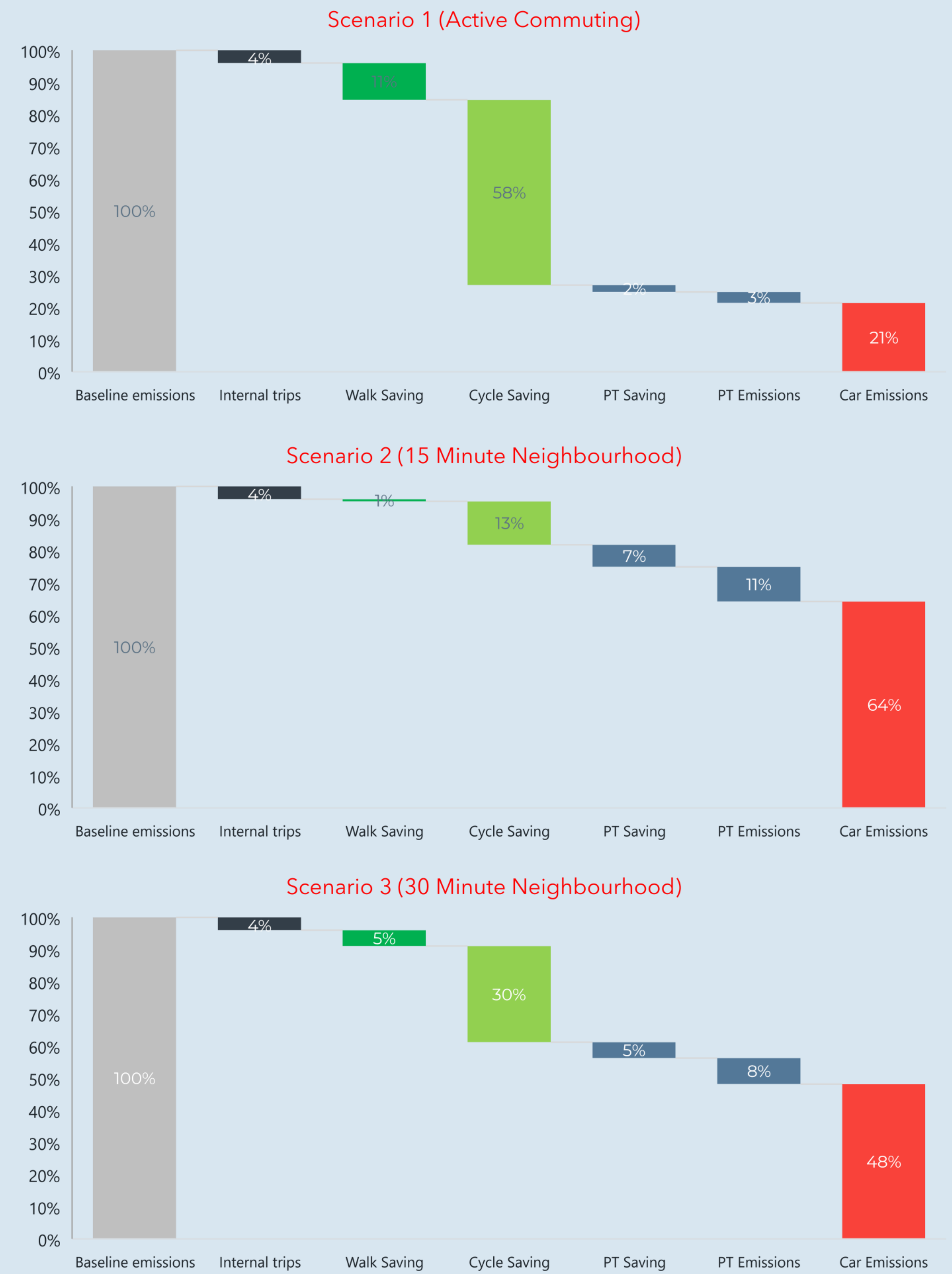


Figure A2 Carbon emissions and saving potential by scenario (CO_2e)

Mode shift potential

APPROACH DETAILS

Table A1 shows the trip figure, people kilometre and CO_2e figures calculated for this analysis.

Data source

The SATURN highway assignment model, which forms part of the Suffolk County Transport Model (SCTM), produced origins and destinations (O-D) with trip numbers of all journeys in the forecast year 2028.

Google Maps Directions API was used to source route options, lengths and durations for each mode (walking, cycling, Public Transport and driving) for each O-D pair. For public transport, a journey arrival time of 9am on a Tuesday has been applied.

Pre-processing

SATURN model zones were aggregated to an LSOA level to enable more data to be captured, as some urban zones are very small. Trips to and/or from an area outside of Suffolk were removed.

The top 18,511 O-D pairs by trip number were chosen to run through Google's Directions API. This represents 823,302 trips and 7,079,698 vehicle kilometres travelled (VKT): 72.5% of the 1,135,097 trips within Suffolk region and 60% of 11,823,003km VKT. The selected pairs give a good spatial coverage of the study area.

Methodology

Using Google Maps outputs, each O-D pair's travel time was compared between modes to identify where trips were walkable and cyclable. Trip numbers by mode were calculated for each scenario. VKT and carbon emissions were calculated using the journey distance by mode and UK Government carbon factors.

Average trip length for each LSOA was estimated for the purpose of calculating VKT for the 112,117 internal trips. It is assumed that all of these trips would be able to shift to active modes.

Reference:

Greenhouse gas reporting: conversion factors 2022 - GOV.UK (www.gov.uk)

Scenario	Internal Trips	Walk	Cycle	PT	Drive
Baseline		**None**			**All**
Trips	112,000 12%	0	0	0	823,000 88%
People km	293,000 4%	0	0	0	7,080,000 96%
Tonnes CO_2e	50; 4%	0	0	0	1,214,000; 96%
1: Active commuting		**45 mins or less**	**60 mins or less**	**Based on difference in travel time**	
Trips	112,000 12%	312,000 33%	435,000 46%	16,000 2%	61,000 7%
People km	293,000 4%	690,000 10%	3,887,000 56%	550,000 8%	1,577,000 23%
Tonnes CO_2e (savings compared to baseline)	0 (-50; 4%)	0 (-145; 11%)	0 (-727; 58%)	43; 3% (-27; 2%)	270; 21%
2: 15 Minute Neighbourhood		**15 mins or less**	**15 mins or less**	**Based on difference in travel time**	
Trips	112,000 12%	40,000 4%	315,000 34%	103,000 11%	365,000 39%
People km	293,000 4%	37,000 0%	878,000 12%	1,628,000 22%	4,731,000 63%
Tonnes CO_2e (savings compared to baseline)	0 (-50; 4%)	0 (-9; 1%)	0 (-170; 13%)	136; 11% (-87; 7%)	811; 64%
3: 30 Minute Neighbourhood		**30 mins or less**	**30 mins or less**	**Based on difference in travel time**	
Trips	112,000 12%	178,000 19%	396,000 42%	53,000 6%	225,000 21%
People km	293,000 4%	289,000 4%	1,986,000 27%	1,220,000 17%	3,553,000 48%
Tonnes CO_2e (savings compared to baseline)	0 (-50; 4%)	0 (-63; 5%)	0 (-378; 30%)	102; 8% (-62; 5%)	609; 48%

Table A1 Trip figure summary by scenario

Public Transport Compared with Driving

THE AVERAGE TRIP IN SUFFOLK IS AROUND FOUR TIMES SLOWER BY PUBLIC TRANSPORT THAN DRIVING

In Suffolk, a total of 548 (3.2%) and 476,583 vehicle kilometres (6.7%) can not be made by public transport in any amount of time, according to Google Maps with an arrival time of 9am on Tuesday.

Of the remaining trips, they take an average of 3.8 times the travel time of driving to be completed by Public Transport (**Figure A3**).

Longer trips lead to higher VKT levels, so when weighted by kilometres, the average trip takes 4.0 times the PT journey time.

Around 89% of trips (733,502) take more than double as long by public transport as by car. Only 1.4% of trips (11,375) take less than 1.5 times drive time. Just 0.02% of trips (216) have journey times which are faster or the same as driving.

Trips not possible by PT with the highest trip numbers (green) and trips with the most significant increase in time by PT (blue) are mapped in **Figure A4**.

This shows routes in rural areas as the worst performing, especially to the south and east of the region. Services in Lowestoft display a cluster of 25 routes which are among the 200 worst.

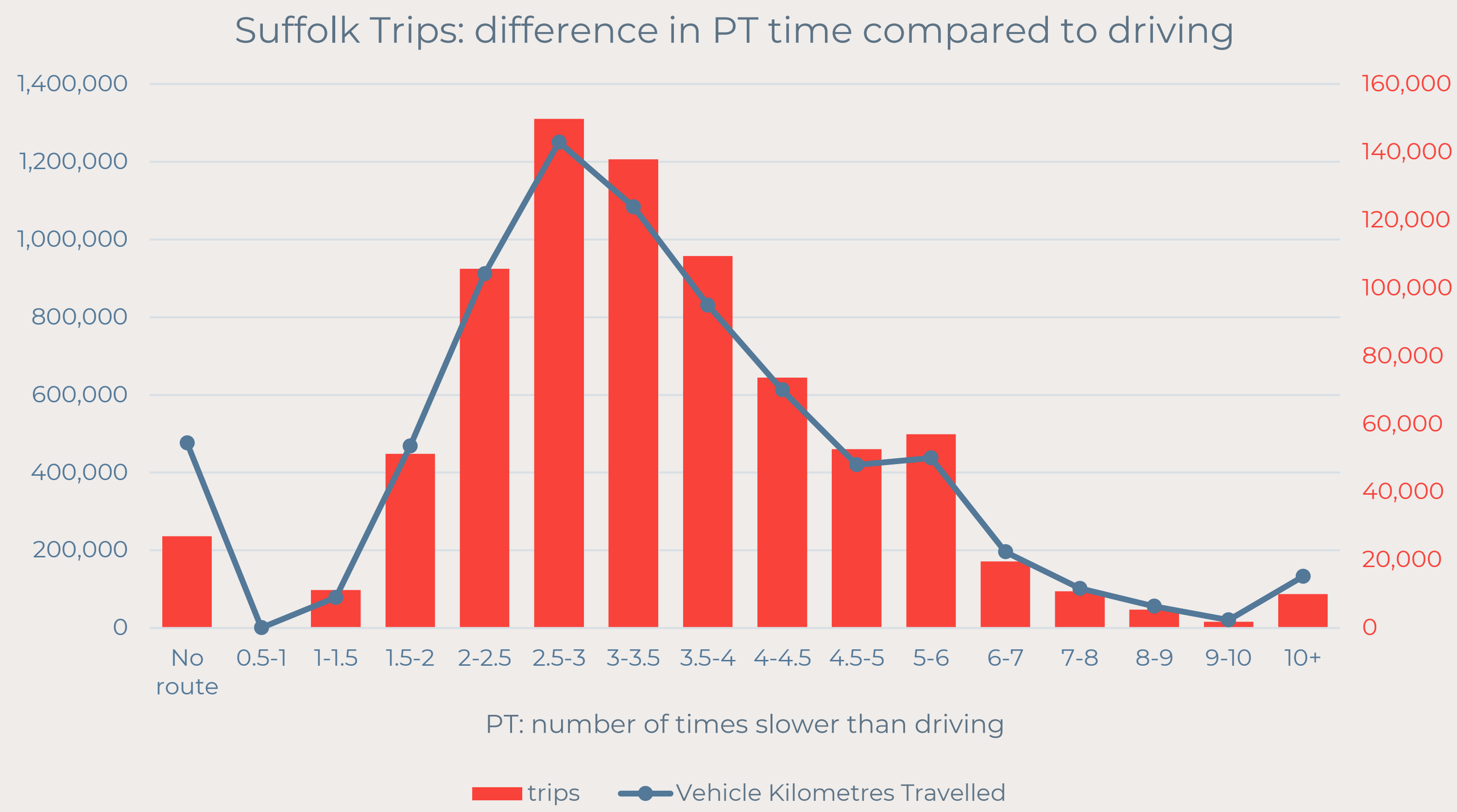


Figure A3 Distribution of differences in Public Transport journey time compared with driving

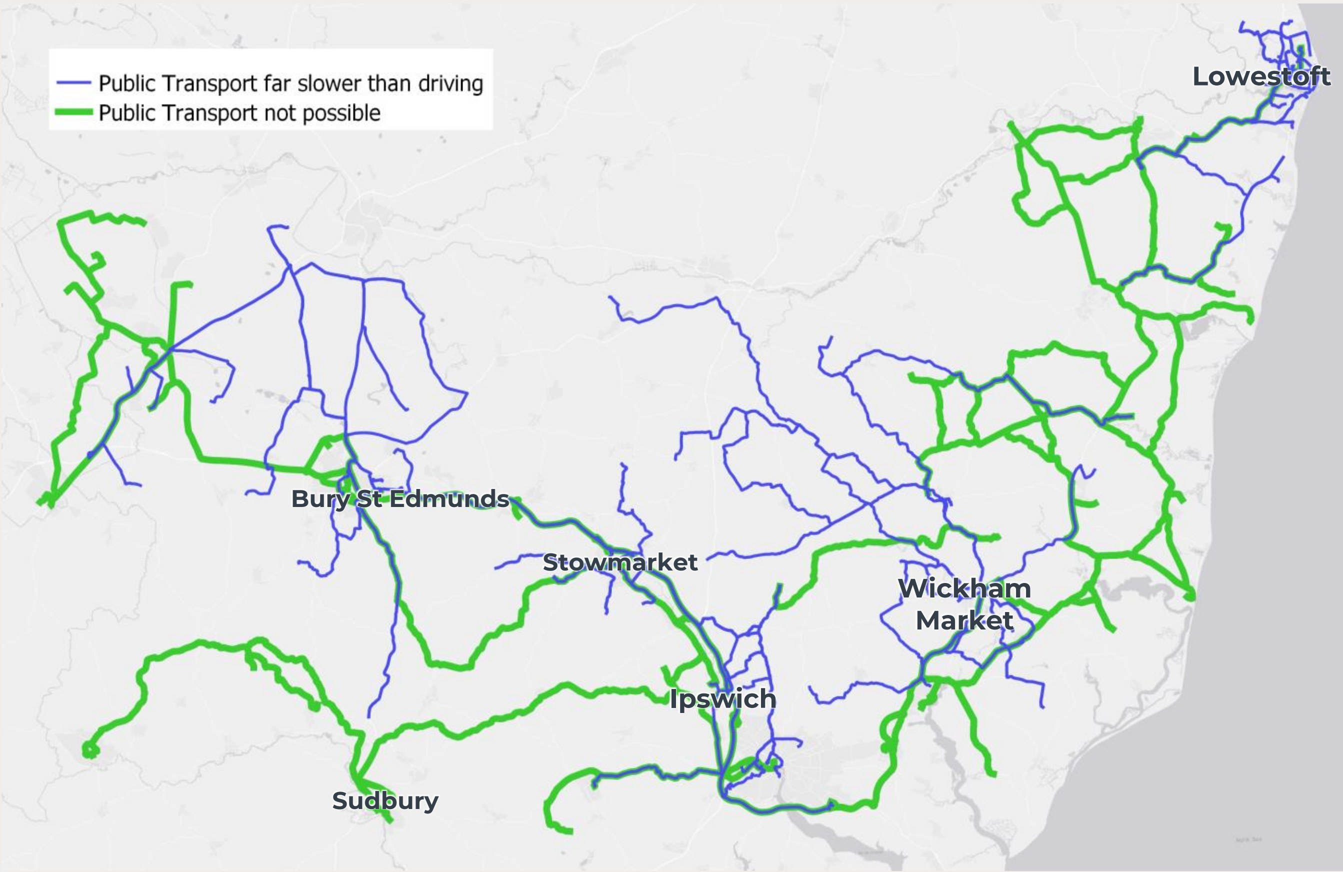


Figure A4 200 Worst trips (drive route) for Public Transport competition

Walking potential: Scenario 1

UP TO 38% OF CAR TRIPS COULD BE WALKED ACROSS SUFFOLK

Walking potential across Suffolk	
Number of trips	312,000
People km	690,000
Potential CO_2 emissions saving*	145 Tonnes CO_2e (per day)
First and last mile walking potential	
Number of trips	28,000
People km	22,000
Potential CO_2 emissions saving*	3,800 kg CO_2e (per day)

*emissions factor obtained from the Department for Business, Energy & Industrial Strategy GHG reporting conversion data

Figure A5 depicts the walking potential across Suffolk, displayed as modelled car trips per origin-destination pair that could shift to walking, using Scenario 1 (Active Commuting).

The map shows that areas of higher demand (500+ potential walking trips) are largely centred around major towns such as Ipswich, Lowestoft, Bury St Edmunds and Sudbury.

Areas of lower demand exist in smaller towns or on the periphery of urban centres.

There are **312,000 trips** which are currently driven but could be made on foot in less than 45 minutes. This could be combined with **28,000 first and last mile walking segments** of Public Transport trips, resulting in an overall reduction of **148 tonnes of CO_2e**.

The walking potential stated here is based on opportunity and doesn't account for the population's propensity or ability to walk.

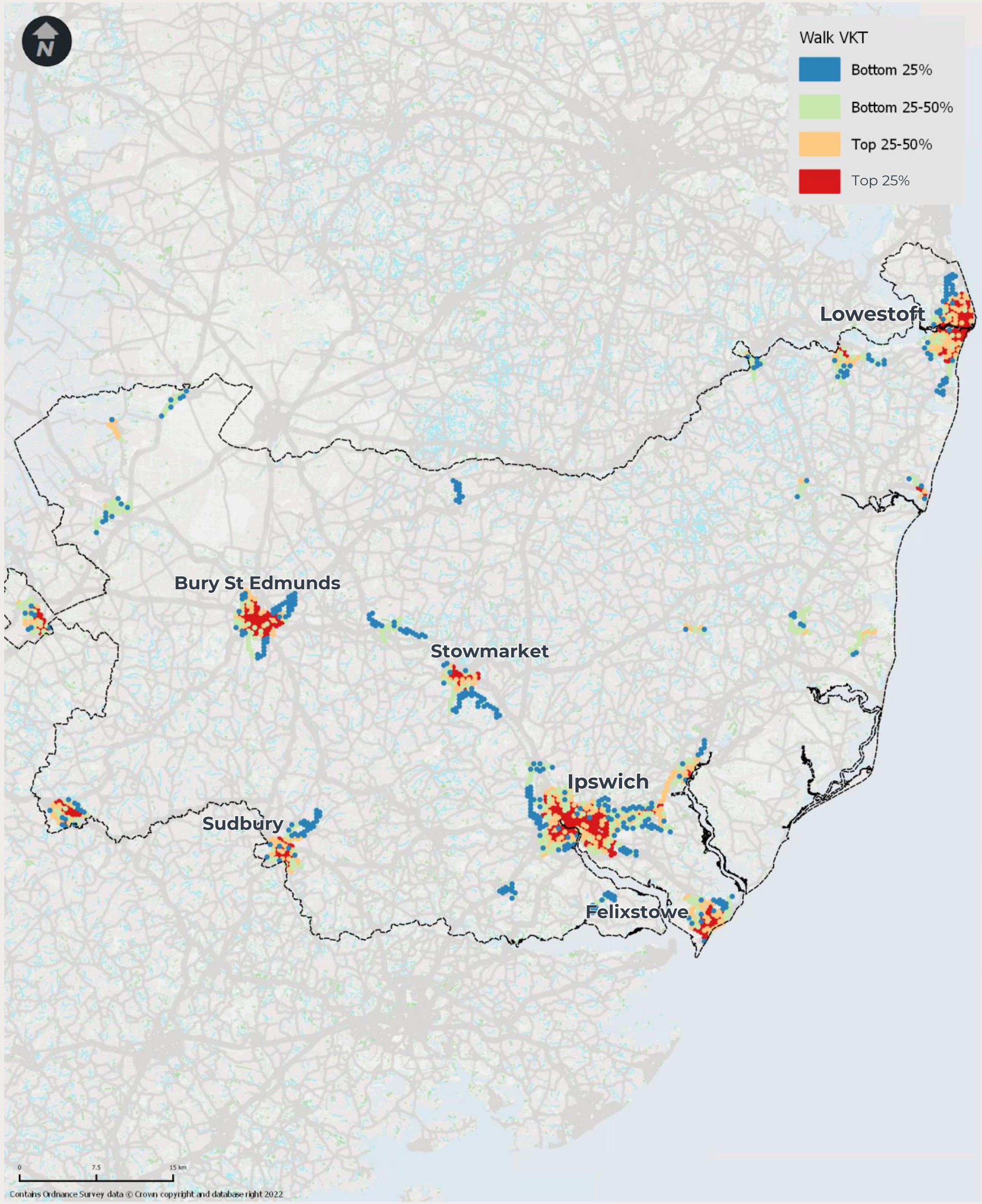


Figure A5 Walking potential for Scenario 1 Active Commuting (in VKT)

Walking potential: Scenario 1

IPSWICH

Figure A6 displays the walking potential in Ipswich by people kilometres (shown by hexagon aggregation).

There are 37,693 trips within Ipswich which could be walked within 45 minutes. Many of these trips are in the city centre, with a corridor of trips stretching to the east to Kesgrave and towards Woodbridge.

These walking trips correspond to 38,747 journey kilometres, and a **carbon saving of 6.64 tonnes of CO_2e per day**.

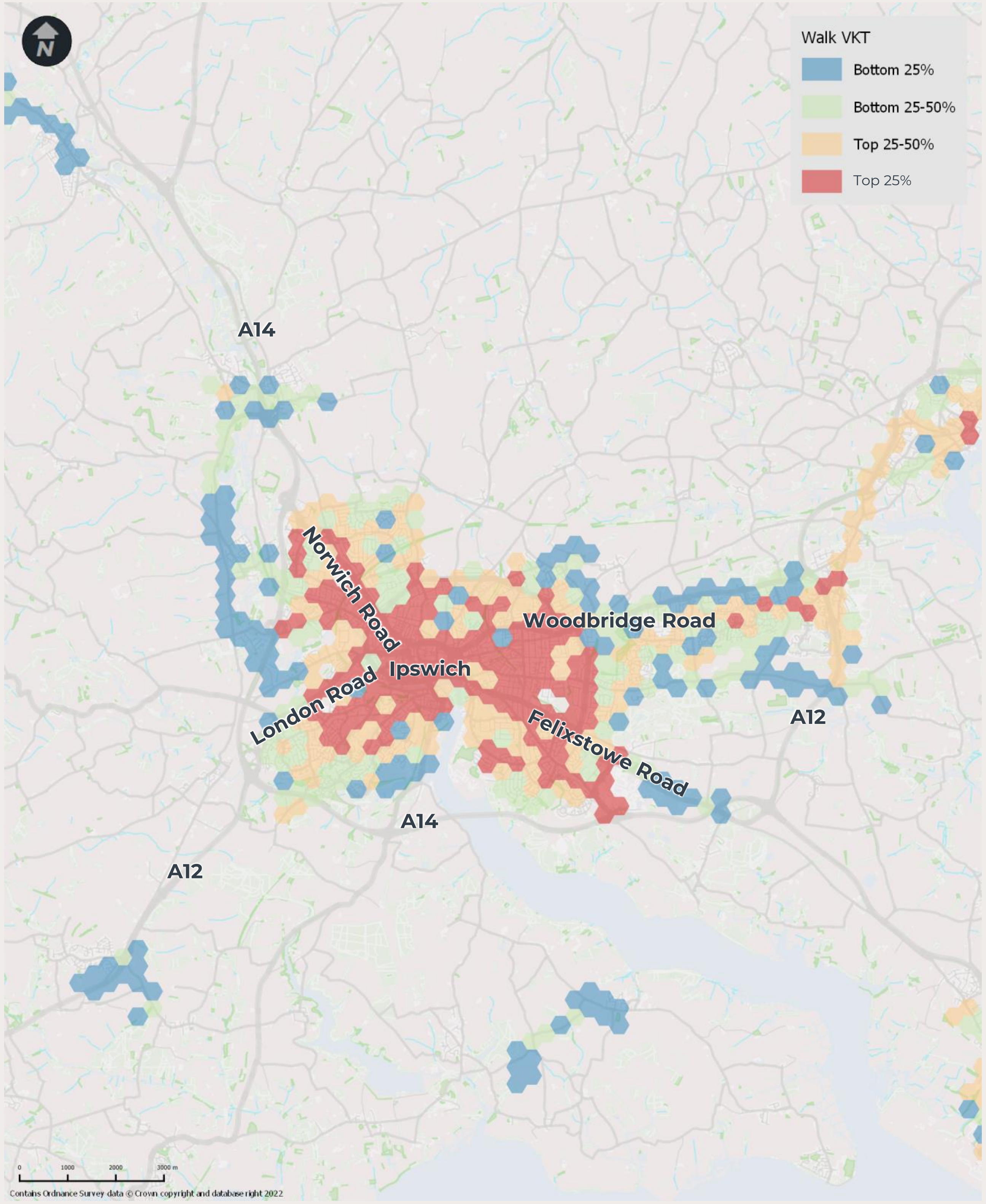


Figure A6 Walking potential for Ipswich for Scenario 1 Active Commuting (in VKT)

Cycling potential: Scenario 1

UP TO 53% OF CAR TRIPS COULD BE CYCLED ACROSS SUFFOLK

Cycling potential across Suffolk	
Number of trips	435,000
People km	3,887,000
Potential CO_2 emissions saving*	728 Tonnes CO_2e (per day)
First and last mile cycling potential	
Number of trips	3,000
People km	7,000
Potential CO_2 emissions saving*	1,200 kg CO_2e (per day)

*emissions factor obtained from the Department for Business, Energy & Industrial Strategy GHG reporting conversion data

Figure A7 depicts the cycling potential across Suffolk, calculated from modelled car trips per origin-destination pair that could shift to cycling, using Scenario 1 (Active Commuting).

Areas of high demand correspond to large urban areas, similarly to walking demand. However, cycling experiences far higher demand between towns and connecting communities across Suffolk.

Particularly high demand can be seen between Ipswich and Felixstowe, Stowmarket and Bury St Edmunds. Demand along the east coast is also high.

There are **435,000 trips** which are currently driven but could be cycled in less than an hour. This could be combined with **3,000 first and last mile cycling segments** of Public Transport trips, resulting in an overall reduction of **729 tonnes of CO_2e**.

The cycling potential stated here is based on opportunity and doesn't account for the population's propensity or ability to cycle.

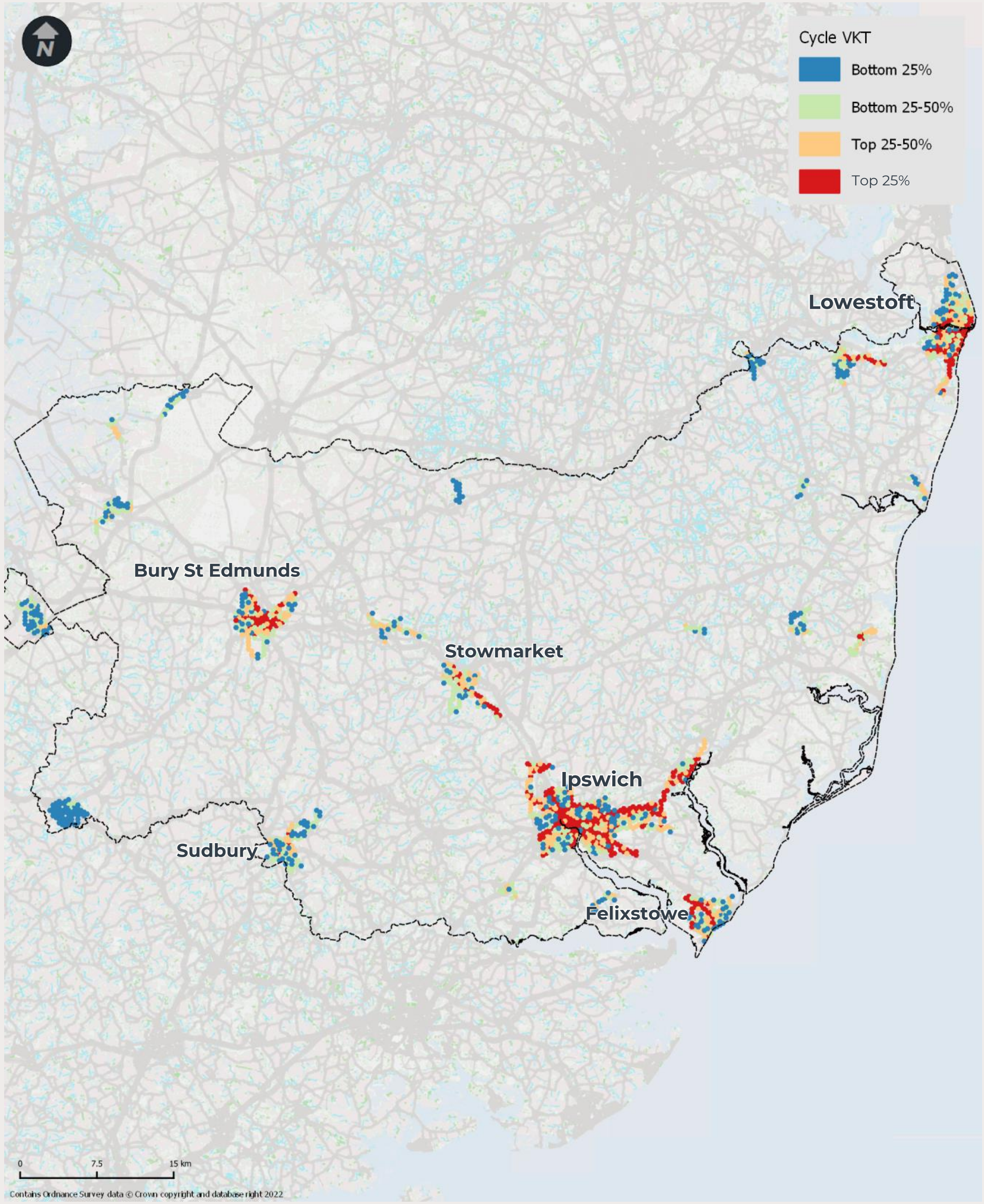


Figure A7 Cycling potential for Scenario 1 Active Commuting (in VKT)

Cycling potential: Scenario 1

IPSWICH

Figure A8 displays the cycling potential in Ipswich by people kilometres (shown by hexagon aggregation).

There are 244,542 trips within Ipswich which could be cycled within an hour. These trips exist in Ipswich city centre but also stretch out from there along major roads leading to Stowmarket, Woodbridge and Felixstowe.

These cycling trips correspond to 269,294 journey kilometres, and a **carbon saving of 46.17 tonnes of CO_2e per day**.

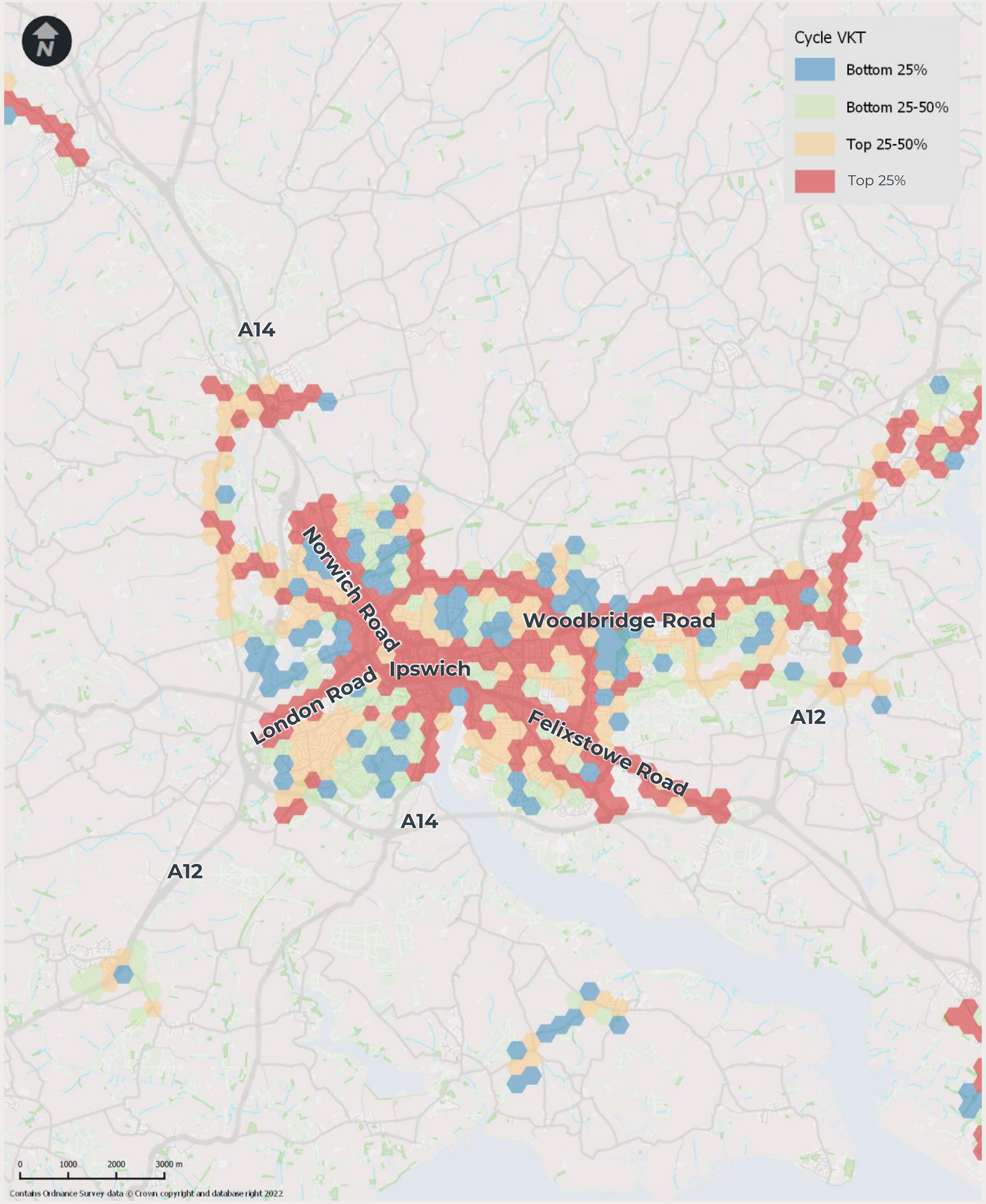


Figure A8 Cycling potential for Ipswich for Scenario 1 Active Commuting (in VKT)

PART B

EV:Ready Inputs

Forecasting Infrastructure Requirements

OVERVIEW AND APPROACH

To forecast EV uptake and subsequent requirements for electric vehicle charge point (EVCP) provision, WSP's in-house EV:Ready tool, which enables sophisticated EV uptake forecasting and scenario testing, was used.

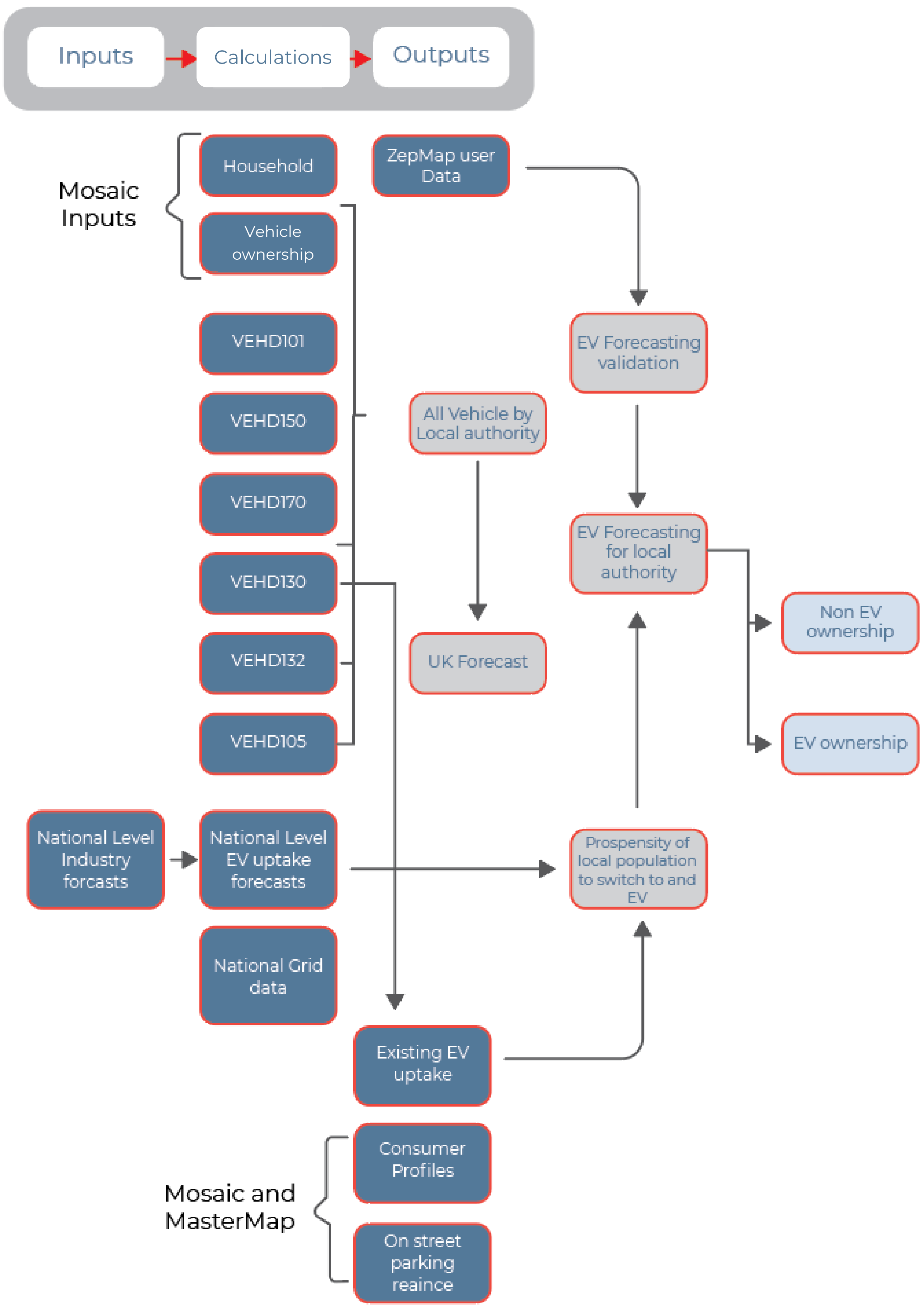
EV:Ready generates granular forecasts, accounting for highly localised spatial variations in the key determinants of EV uptake rates, including socio-demographics, the availability of off-street parking, vehicle ownership, vehicle sales and turnover rates, and vehicle ownership trends.

These inputs are shown in the following pages.

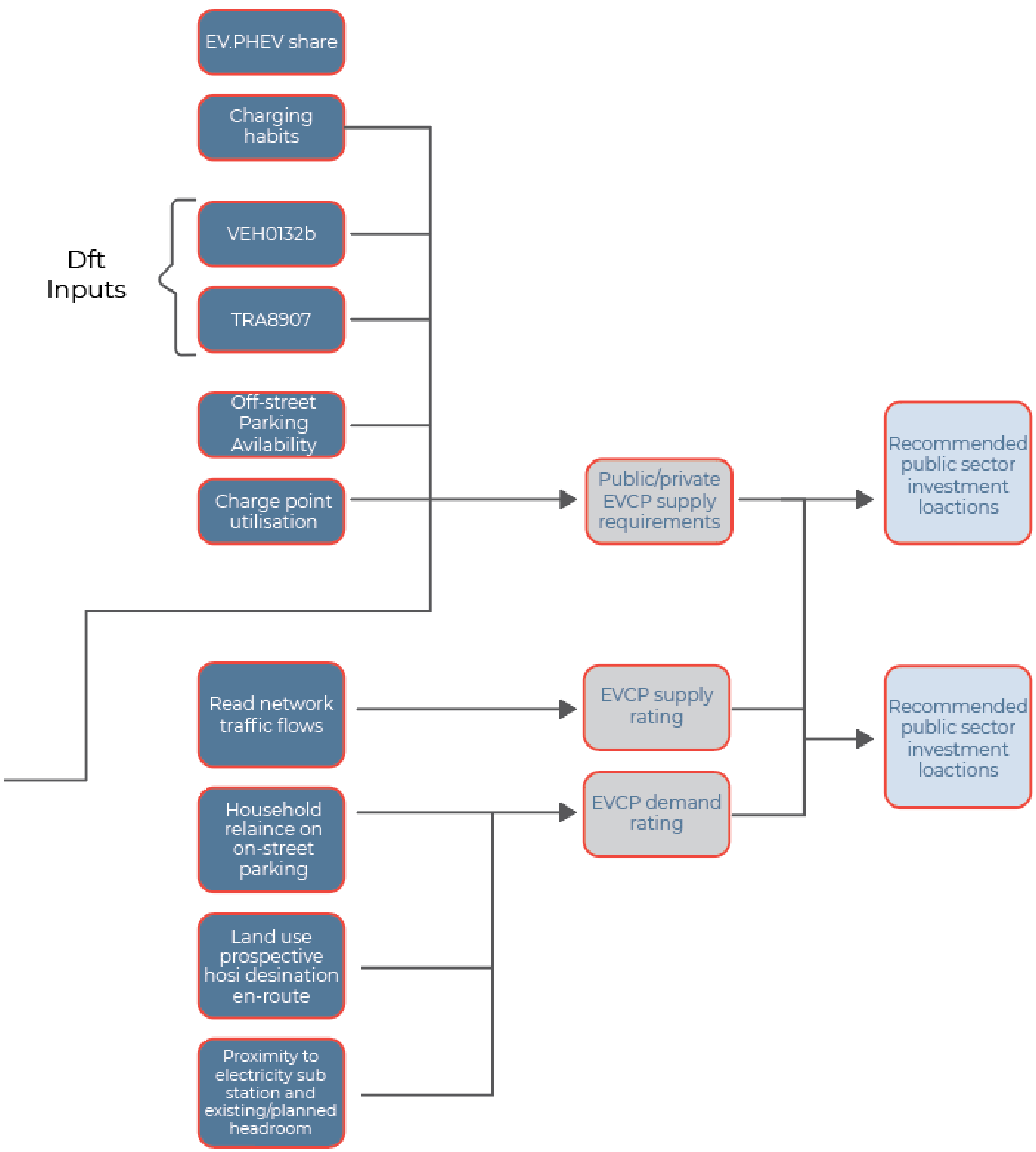
Figure B1: EV:Ready model process diagram

Source: WSP EV:Ready

The EV :Ready process



EVCP :Requirement forecasting process



EV:Ready inputs Baselining

HOUSEHOLD DENSITY

Table B1 (across) summarises key household statistics by local authority, that informs several of the figures overleaf.

Household density is a valuable indicator to consider alongside EV uptake forecasting because it provides an indication of areas that are more likely to require publicly accessible charging. Areas with a lower housing density are more likely to have access to private EV charging options on private driveways, whereas areas with a greater housing density are less likely to have access to private EV charging and therefore will require publicly accessible EVCPs.

In addition, understanding household density provides SCC with an indication of where EVCP installation will have the greatest impact, in terms of the number of households served by an EVCP, and therefore the best value for money.

Figure B3 (overleaf) indicates that housing density across much of Suffolk is very sparse, largely below 60 households per hectare, apart from the main urban centres of Ipswich, Bury St Edmunds, Felixstowe and Lowestoft etc. which see densities greater than 120 households per hectare. This provides SCC with an indication of where to target EVCP rollout.

Table B1: Household statistics

Local authority	Population	Households	Total vehicles	Average number of vehicles per household	Proportion of households reliant on on-street parking
Babergh	93,000	46,000	70,000	1.52	21.05%
East Suffolk	250,000	117,000	176,000	1.50	22.31%
Ipswich	136,000	60,000	75,000	1.25	36.93%
Mid Suffolk	105,000	45,000	92,000	2.04	17.37%
West Suffolk	177,000	77,000	126,000	1.64	26.65%
Suffolk	**761,000**	**345,000**	**539,000**	**1.56**	**25%**

EV:Ready Inputs

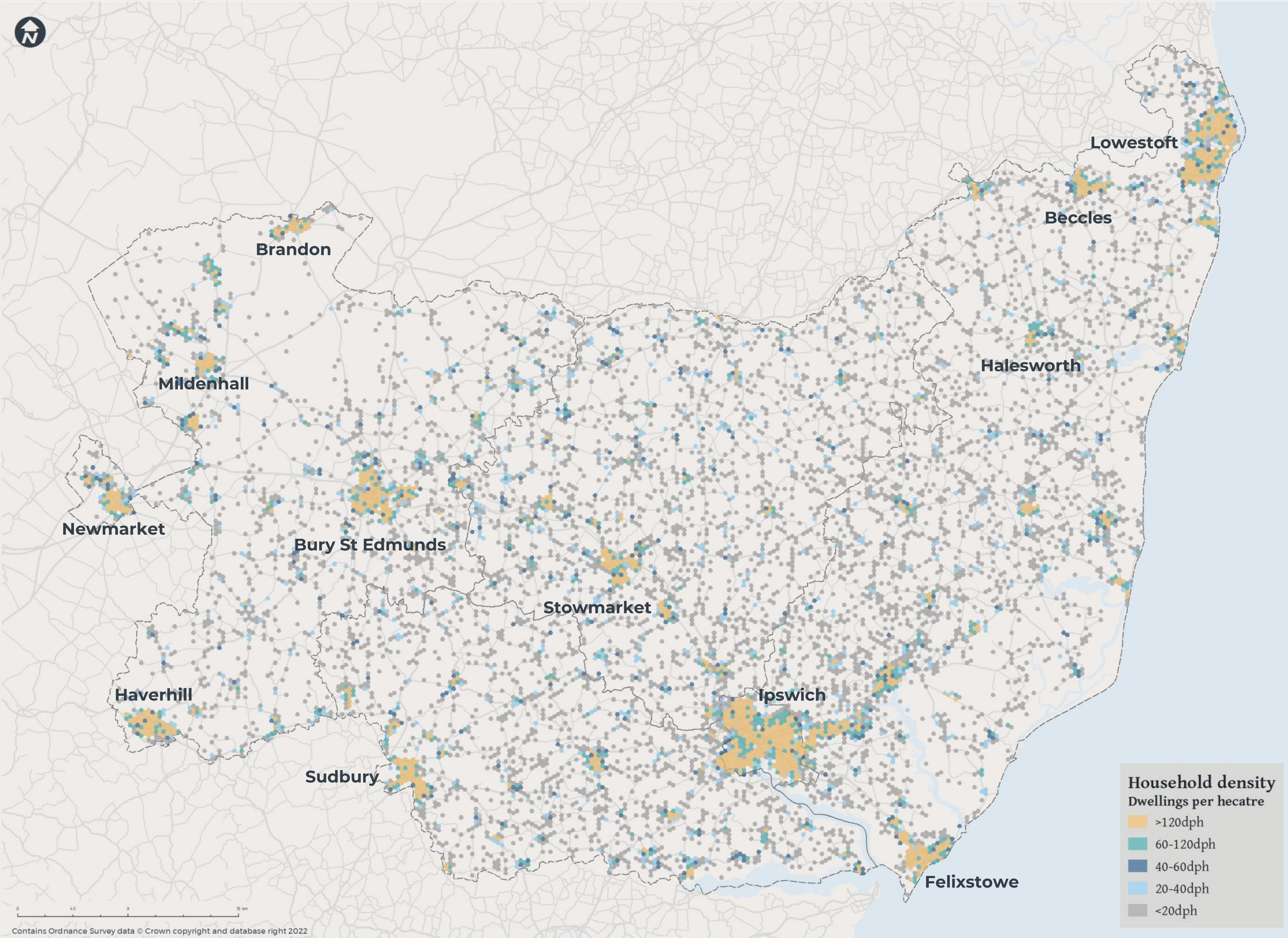


Figure B3: Household density

Source: WSP EV:Ready

EV:Ready inputs Baselining

BASELINE EV OWNERSHIP

In order to assess the future EV uptake, it is first necessary to assess baseline ownership levels.

Baseline data published on a quarterly and annual basis by DfT provides the initial EV registrations and EV shares for Suffolk[1]. There is a caveat for this data; Licensing data includes where vehicles are registered and thus within the data there can be some distortion for how and where vehicle fleets are registered.

Figure B4 shows how EV ownership has grown steadily in England from less than 100,000 vehicles in 2015 to over 600,000 vehicles in 2021. This is due to an array of factors including the growing choice of EV models available, increasing range, faster charging speeds and a growing network of publicly accessible charge points.

Figure B5 similarly shows how EV ownership has increased steadily across Suffolk from under 1,000 vehicles in 2015 to over 5,000 vehicles 2021. This is in line with the national trend and likely due to similar factors. Over the time period, EV uptake has been greatest in East Suffolk, and lowest in Babergh.

Current EV ownership as of 2021 Q4 is shown in **Table B2**. There were a total of 5,315 electric vehicles across Suffolk, of which ~62% were BEV, ~36% were PHEV and ~2% were unknown. EV ownership is highest in East Suffolk, followed by West Suffolk and Mid Suffolk. EV ownership is lowest in Babergh, with a similar number in Ipswich.

[1] See DfT Vehicle Licensing Statistics. Available online: https://www.gov.uk/government/collections/vehicles-statistics

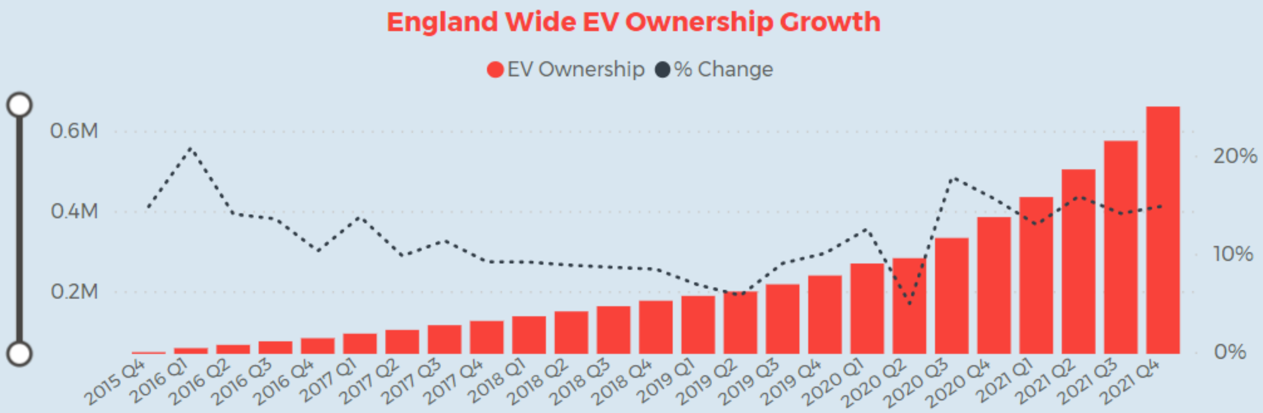


Figure B4: EV ownership in England (2015 – 2021)

Source: DfT Vehicle Licensing Statistics (Table VEH0132)

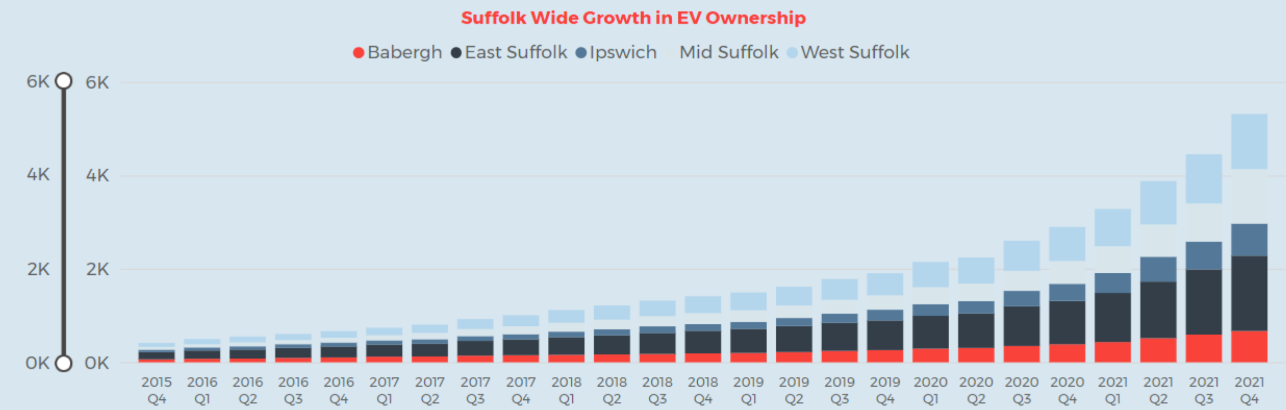


Figure B5: EV ownership in Suffolk (2015 – 2021)

Source: DfT Vehicle Licensing Statistics (Table VEH0132)

Table B2: Suffolk EV ownership (as of 2021 Q4)

Local authority	BEV	PHEV	Unknown	Total
Babergh	400	252	18	670
East Suffolk	951	612	50	1,613
Ipswich	434	237	16	687
Mid Suffolk	769	368	30	1,167
West Suffolk	698	450	30	1,178
Suffolk	**3,252**	**1,919**	**144**	**5,315**

EV:Ready inputs Baselining

BASELINE CAR OWNERSHIP

Current levels of car ownership (vehicles per household) helps to inform EV uptake projections, as estimates are based on the transition from internal combustion engine (ICE) ownership to EV ownership. Some populations may have a high propensity to switch to an EV in theory, but if they are not already a vehicle owner then it is unlikely they will become one for the sole purpose of purchasing an EV.

Figure B6 (overleaf) and **Table B3** shows that car ownership is high across much of Suffolk apart from the urban centres of Ipswich, Bury St Edmunds, Felixstowe and Lowestoft etc. As such, there may be relatively lower EV uptake in these urban centres compared to the rest of the county.

In terms of average number of vehicles per household, Mid Suffolk has an average of over two vehicles per household, compared to Ipswich with an average of just 1.25. This reflects the differing natures of the two districts, with Ipswich being more urban and Mid Suffolk more rural. The average vehicle per household within the County is above the average for the country (UK average excluding London is 1.33).

EV OWNERSHIP AS A PROPORTION OF TOTAL VEHICLE OWNERSHIP

Table B3 also shows EV ownership as a percentage of total vehicles for the districts and County. Across the County as of 2021 Q4, 1% of vehicles are EVs. Mid Suffolk has the highest percentage of EVs (1.27%) whilst East Suffolk has the lowest percentage (0.92%).

Table B3: Baseline car ownership (2021 Q4)

Local authority	Total vehicles	Total EVs	Average number of vehicles per household
Babergh	70,000	670 (0.95%)	1.52
East Suffolk	176,000	1,613 (0.91%)	1.50
Ipswich	75,000	687 (0.92%)	1.25
Mid Suffolk	92,000	1,167 (1.27%)	2.04
West Suffolk	126,000	1,178 (0.93%)	1.64
Suffolk	**539,000**	**5,315 (0.99%)**	**1.56**

EV:Ready Inputs

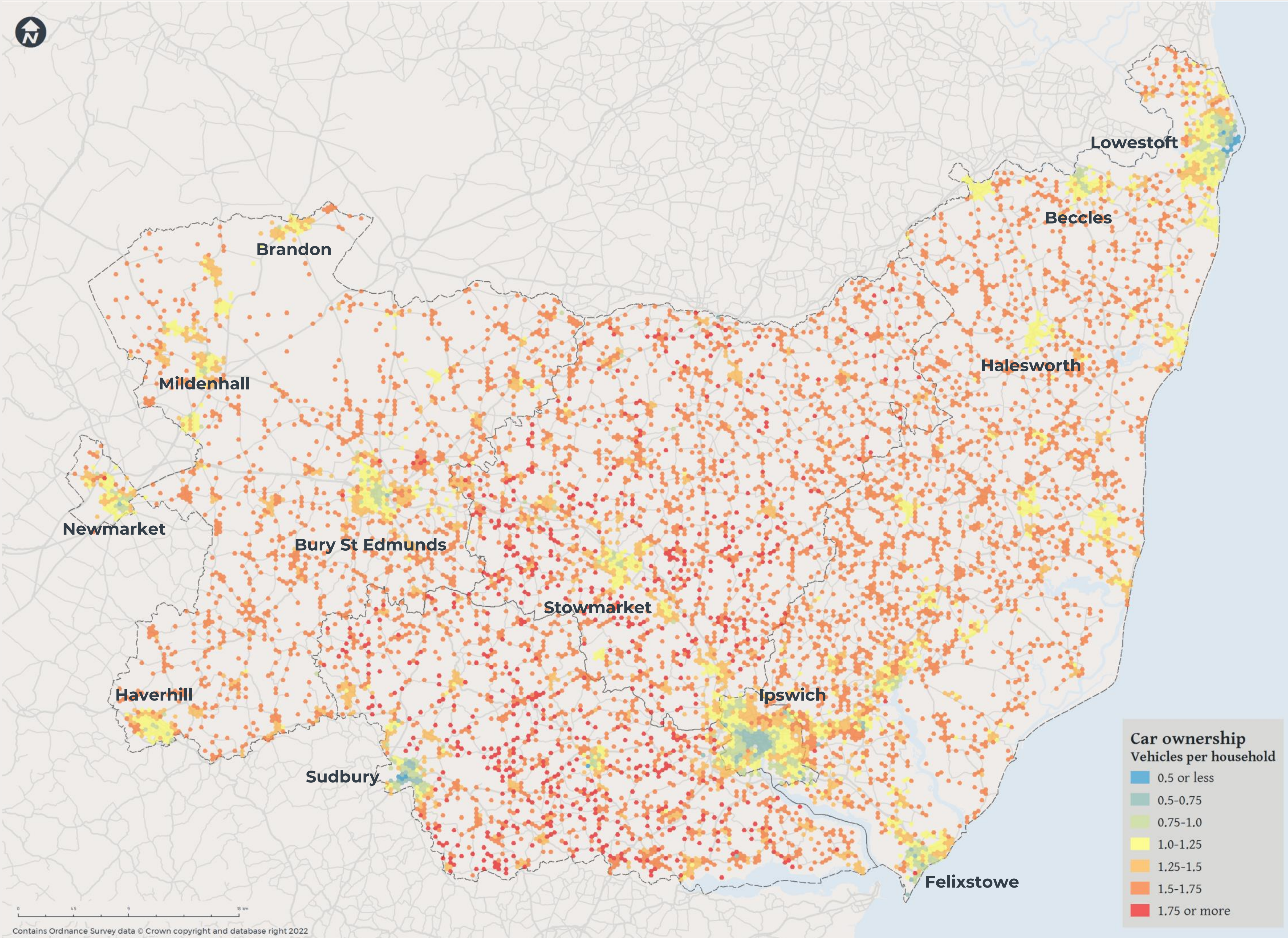


Figure B6: Car ownership (vehicles per household)

Source: WSP EV:Ready

EV:Ready inputs Baselining

RELIANCE ON ON-STREET PARKING

An important factor to EV uptake and EVCP demand is the extent to which areas are reliant on on-street parking. To date, those with access to off-street parking where they can conveniently and reliably charge their vehicle overnight have been over three times more likely to switch to an EV. About 93% of EVs are estimated to have access to home charging, despite between 20-40% of vehicles nationally having no such access to off-street parking. This impact is expected to lessen over time as EV ranges increase, recharging times shorten and public infrastructure improves, assumed to reduce from 40% to 10%.

Figures B7 and B8 (overleaf) presents the total and proportional share of households reliant on on-street parking at a hex level, based on the typical property types of the local population. The results are also summarised in **Table B4**.

The figures show that reliance on on-street parking is low across much of Suffolk apart from the urban centres of Ipswich, Bury St Edmunds, Felixstowe and Lowestoft. As such, there may be relatively lower EV uptake in these urban centres compared to the rest of the county without intervention from SCC or the local authorities.

The proportion of households reliant on on-street parking across Suffolk is 25%, which is lower than the average for the UK (30.6%).

Reference:

'Plugging the Gap' (2018) ICCC. https://www.theccc.org.uk/2018/01/19/plugging-gap-next-britains-ev-public-charging-network/

Table B4: Reliance on on-street parking

Local authority	Households	Proportion of households reliant on on-street parking (%)
Babergh	46,000	21.05%
East Suffolk	117,000	22.31%
Ipswich	60,000	36.93%
Mid Suffolk	45,000	17.37%
West Suffolk	77,000	26.65%
Suffolk	**345,000**	**25%**

EV:Ready Inputs

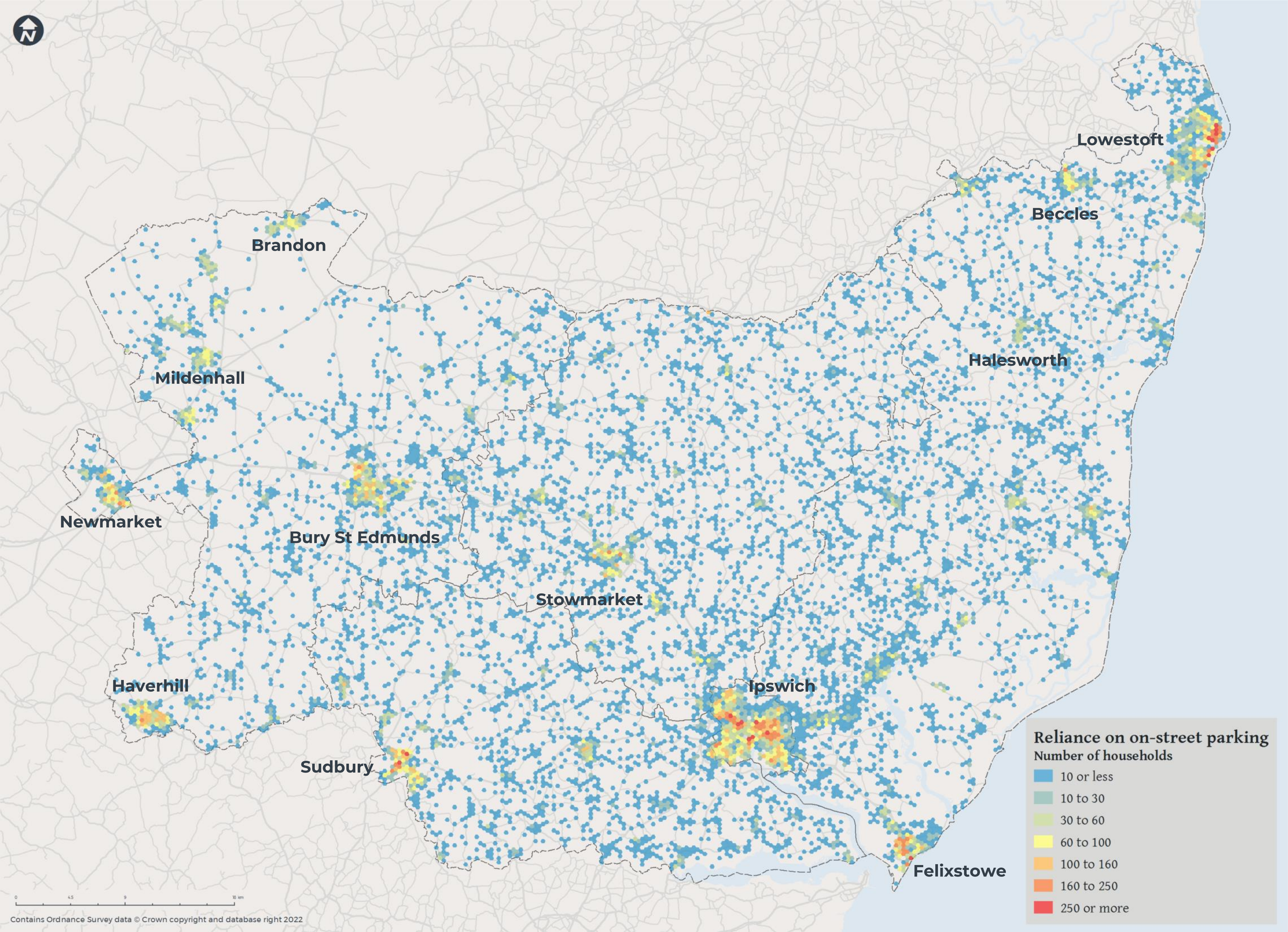


Figure B7: Reliance on on-street parking (number of households)

Source: WSP EV:Ready

EV:Ready Inputs

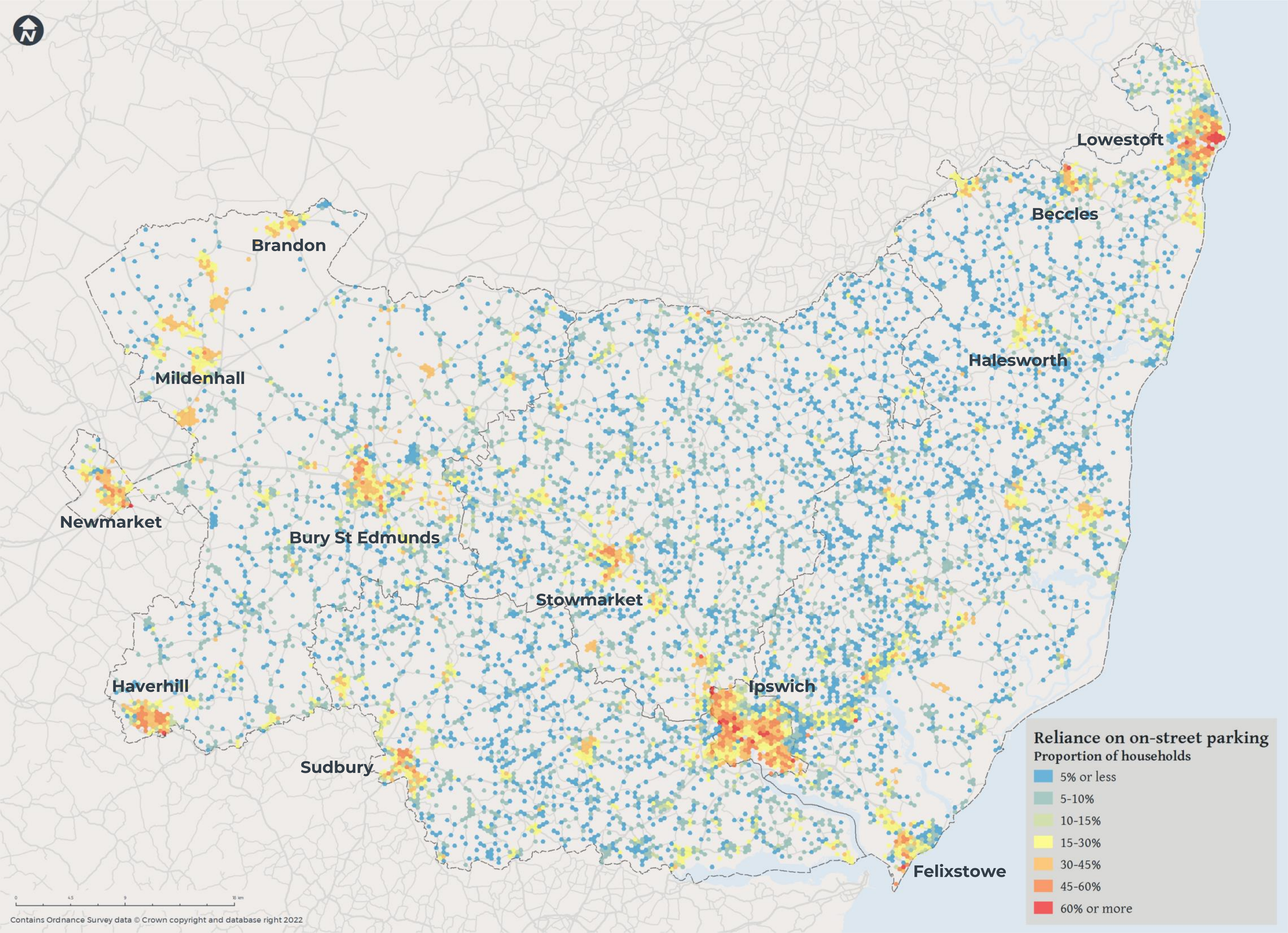


Figure B8: Reliance on on-street parking (proportion of households)

Source: WSP EV:Ready

EV:Ready inputs Baselining

CHARGE POINT TYPES

The range of charging solutions for EVs is evolving rapidly and reflects the ongoing technological developments and increasing investment in this market, as well as the range of different users and use cases for charging.

The suitability of a particular charging technology is dependent on a wide range of factors, including the use case of the individual, their vehicle type, the type of location and the available power supply.

Table B5 summarises the different charge point types and provides information on the rates of charge, socket/plug type and charging duration

EXISTING ELECTRIC VEHICLE CHARGE POINTS

Figure B9 shows the proportion of standard charge points versus rapid charge points across the County.

Figures B10-12 (overleaf) shows the existing EVCP infrastructure in Suffolk. There are a total of 272 EVCPs across the county, of which ~14% are rapid chargers and ~86% are standard chargers. The largest clusters of EVCP provision are in Ipswich, Newmarket and Bury St Edmunds.

Figure B10 shows that the spread of rapid EVCPs across the county is quite sparse, with no real contiguous rapid charger infrastructure.

While **Figure B11** shows that there is a wider spread of standard chargers across the county, there is still no real network.

Figure B12 shows that chargers tend to be located either in more urban areas such as Ipswich, or along key links in the road network of the county.

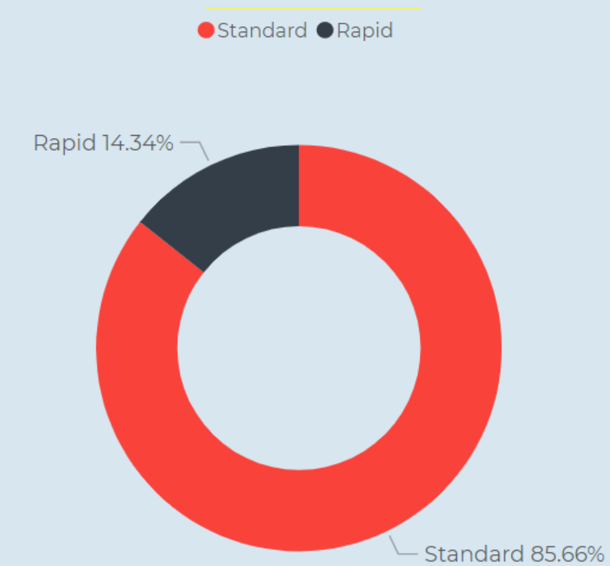
Table B5: Summary of the different charge point types

Charge point type	Maximum Power Output	Current/ Supply Type	Input Voltage	Maximum Current	Charging Mode	Socket / Plugs	Charging duration (40kW battery)
Domestic Socket	2.3-3kW	AC – Single Phase	230V	10-13A	1/2	Type 1/2	Approx. 17 hours
Slow	3.7kW	AC – Single Phase	230V	16A	2/3	Type 1/2	Approx. 11 hours
Standard	7.4kW		230V	32A	2/3	Type 1/2	Approx. 6 hours
Fast	11-22kW	AC – Three Phase	400V	16-32A per phase	3	Type 2	Approx. 2-4 hours
Rapid	43kW	AC – Three Phase	400V	60A per phase	3	Type 2	Approx. 55 mins
	20-50kW	DC	400V	100A	4	CHAdeMO / CCS	Approx. 40 mins
Tesla Super Charger	75-250kW	DC	Up to 400V	Up to 800A	4	Tesla adapted Type 2	Approx. 10-20 mins
Ultra-Rapid	Up to 350kW	DC	Up to 920V	Up to 500A	4	CCS / Tesla adapted Type 2	Approx. 7-16 mins

Table B6: Existing EVCP infrastructure

Local authority	Rapid	Standard	Total
Babergh	4	26	30
East Suffolk	11	63	74
Ipswich	3	50	53
Mid Suffolk	4	17	21
West Suffolk	17	77	94
Suffolk	**39**	**233**	**272**

Figure B9: Proportion of EVCP by type



EV:Ready Inputs

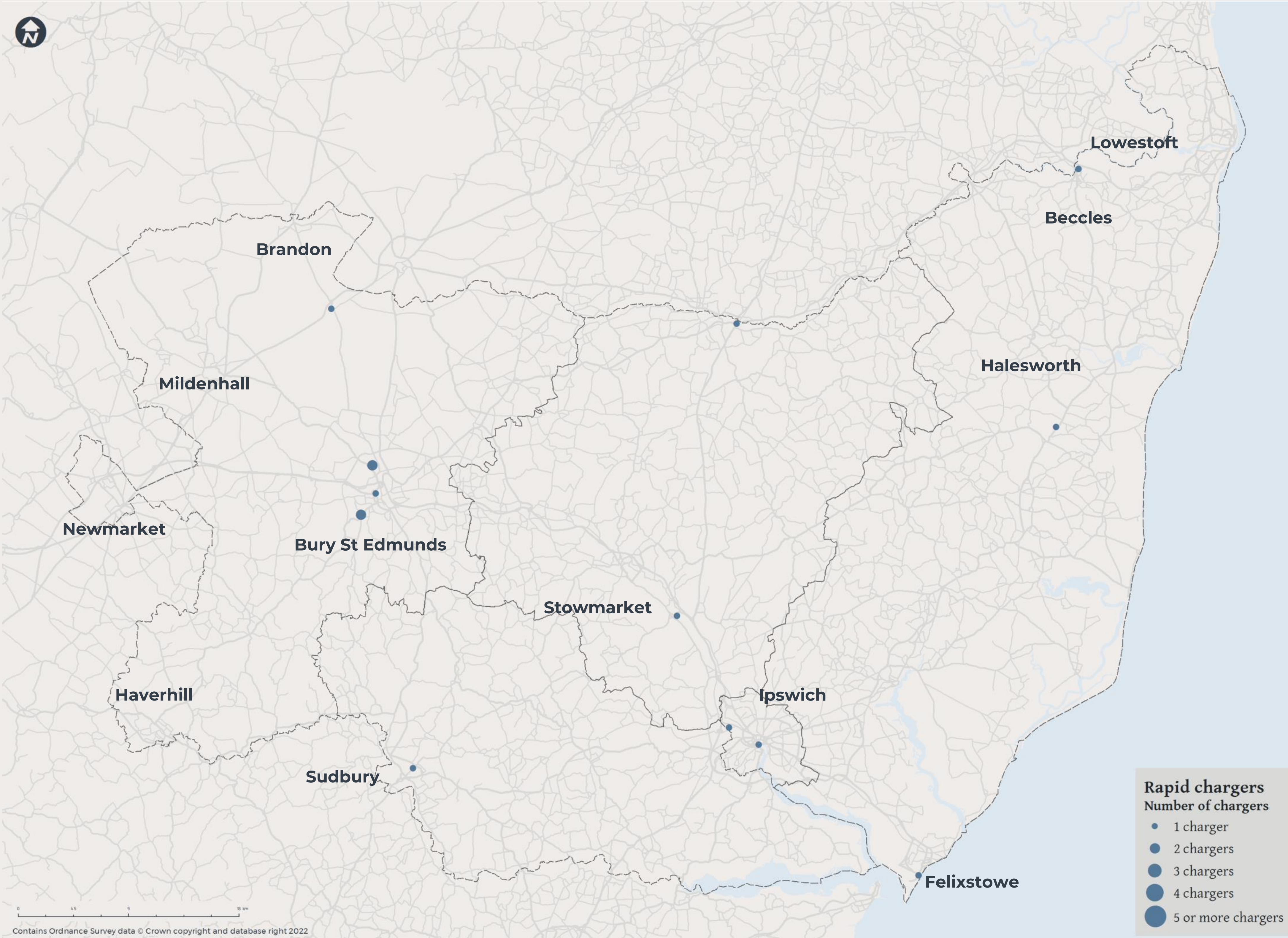


Figure B10: Existing rapid chargers

Source: WSP EV:Ready

EV:Ready Inputs

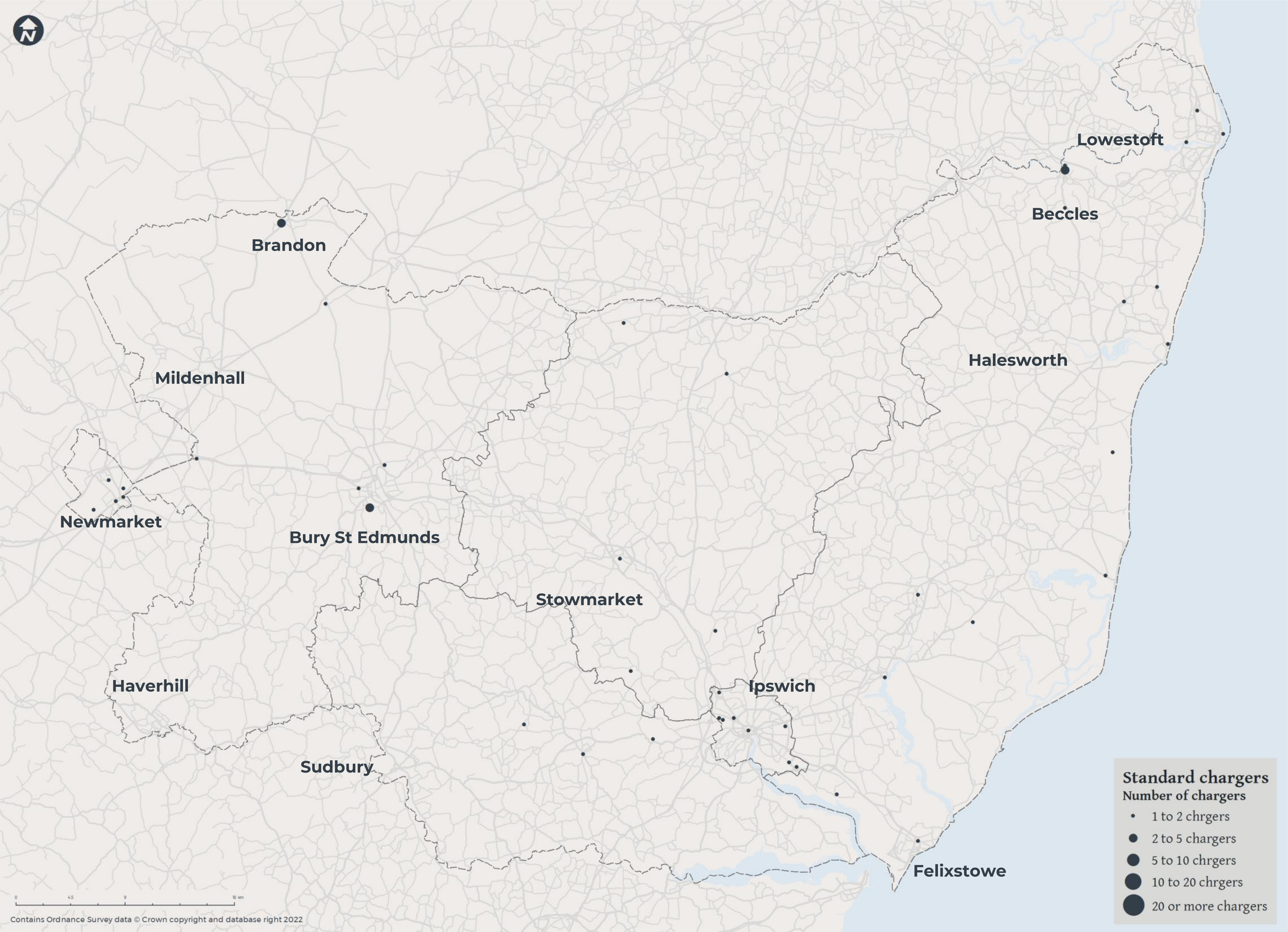


Figure B11: Existing standard chargers

Source: WSP EV:Ready

EV:Ready Inputs

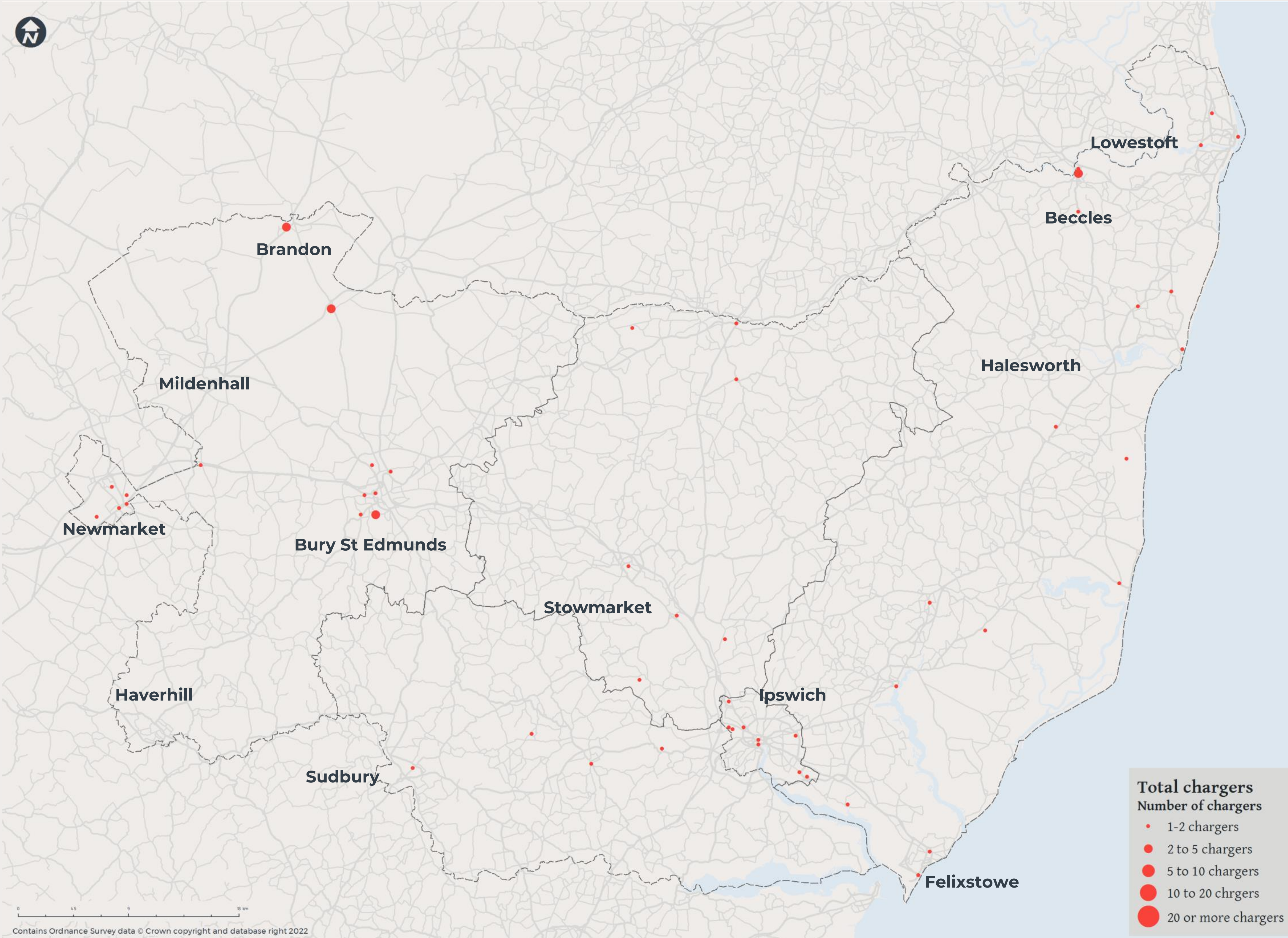


Figure B12: Total chargers (standard and rapid)

Source: WSP EV:Ready

EV:Ready Inputs Baselining

PROPENSITY TO OWN AN EV

Figure B13 presents the forecast propensity of residents to register an EV across Suffolk, based on socio-demographic factors captured in Experian Mosaic. Propensity to own an EV is relatively high across the majority of Suffolk and particularly in the more rural areas, whereas it is relatively lower in the urban centres of Ipswich, Bury St Edmunds, Felixstowe and Lowestoft etc.

Experian Mosaic

Experian Mosaic profiles have been used to classify Suffolk residents into user 'segments' of similar characteristics in order to determine their propensity to own an EV. The Experian Mosaic dataset is a cross-channel consumer classification system which segments the UK population into 15 groups. These segments are determined based on a wide array of data relating to demographics, employment, education and technology. The segments are summarised in **Table B7**.

Table B8 shows the overall propensity of Experian Mosaic segments to own an EV in the UK. Groups City Prosperity, Prestige Positions and Domestic Success have the highest propensity.

Table B8: Experian Mosaic segments

Mosaic segment	Propensity to own an EV
City Prosperity	218.76
Prestige Positions	167.82
Country Living	122.63
Rural Reality	81.40
Senior Security	59.73
Suburban Stability	88.22
Domestic Success	140.29
Aspiring Homemakers	104.14
Family Basics	61.73
Transient Renters	87.52
Municipal Tenants	53.77
Vintage Value	30.29
Modest Traditions	69.15
Urban Cohesion	99.04
Rental Hubs	120.58

Table B7: Experian Mosaic segments

Mosaic segment	Description
City Prosperity	High status city dwellers living in central locations and pursuing careers with high rewards
Prestige Positions	Established families in large detached homes living upmarket lifestyles
Country Living	Well-off owners in rural locations enjoying the benefits of country life
Rural Reality	Householders living in inexpensive homes in village communities
Senior Security	Elderly people with assets who are enjoying a comfortable retirement
Suburban Stability	Mature suburban owners living settled lives in mid-range housing
Domestic Success	Thriving families who are busy bringing up children and following careers
Aspiring Homemakers	Younger households settling down in housing priced within their means
Family Basics	Families with limited resources who have to budget to make ends meet
Transient Renters	Single people privately renting low cost homes for the short term
Municipal Tenants	Urban renters of social housing facing an array of challenges
Vintage Value	Elderly people reliant on support to meet financial or practical needs
Modest Traditions	Mature homeowners of value homes enjoying stable lifestyles
Urban Cohesion	Residents of settled urban communities with a strong sense of identity
Rental Hubs	Educated young people privately renting in urban neighbourhoods

EV:Ready Inputs

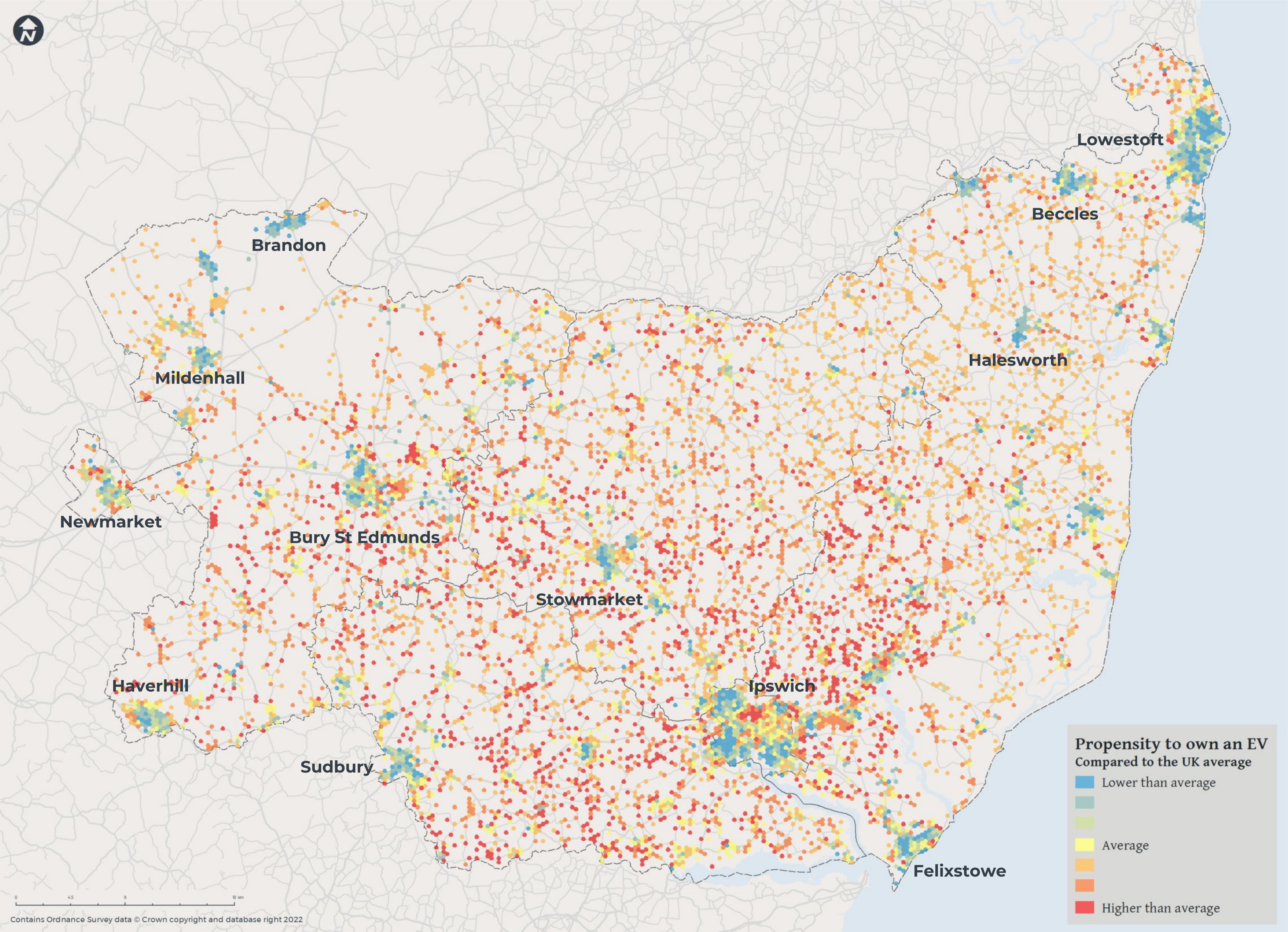


Figure B13: Propensity to own an EV

Source: WSP EV:Ready

EV:Ready Inputs Baselining

EXISTING CAR PARKS

An understanding of the location and capacity of existing car parks is useful for when considering EVCP infrastructure, as these car parks are potential locations for installation.

For the purposes of this study, the EV:Ready model utilises the Valuation Office Agency Non-Domestic Property Rates, which has data on the number of car parking spaces. This includes public or privately operated car parks, as well as car parking spaces attached to non-residential land uses.

As there are typically fewer space constraints and stakeholder considerations, EVCP installation in car parks can be operationally preferable than at other sites such as on-street, particularly from the local authority perspective.

In the short term, SCC and the constituent authorities may choose to pave the way for electric vehicle uptake across Suffolk by installing affordable, publicly accessible EVCP infrastructure in their council owned car parks. In the medium term, SCC and the constituent authorities could engage with charge point operators (CPOs) to incentivise EVCP installation by the private sector.

In the long term, as EV uptake increases, it is expected that private sector EVCP installation will take over, such that the public sector will only be required to support EVCP rollout in the more challenging or less commercially attractive locations.

Figure B14 (overleaf) shows the existing car parks across Suffolk.

As expected, in urban areas there are more car parks, with higher capacities. Car parks are also seen along key links in the county's road network.

CURRENT GRID CAPACITY

By analysing data published by UKPN, the estimated available capacity (MVA) can be approximated by taking the maximum forecasted demand and firm capacity at each primary substation. This is shown in **Figure B15** (overleaf). This gives a general indication of how much further demand can be added in at this level.

The data shown in the figure is using the latest available demand data from the LTDS, (Long Term Development Statement, for the 2024/25 period), to present the worst case. Though it should be noted that significant EV uptake is expected after this time.

The grid capacity in Suffolk is constrained in areas, such as West Suffolk, and towards the north east of the County. There is most grid capacity available in the south east, and in Ipswich.

RELEVANT LAND USE

Figure B16 (overleaf) shows the total area of land use within each cell that drives vehicle demand. This includes a wide array of uses such as shopping centres, retail parks, offices, healthcare facilities, and tourist attractions etc. Many of these sites will coincide with the existing car parks shown in **Figure B14**.

Darker (red) cells have a greater area of land use for such activities, whereas lighter (blue) cells) has a smaller area of land use for these activities. As such, darker areas will have a higher demand for electric vehicle charging.

As with existing car parks, there is more relevant land use in urban areas.

This map intends to show likely destinations for users of electric vehicles, and aids in mapping where EVCP demand will be highest.

WIDER FLEET AND VEHICLE TURNOVER TRENDS

Emerging trends towards reduced car ownership, and the increasing use of car sharing and ride hailing schemes seen amongst younger demographics is expected to unfold over time across Suffolk. This shift may be slower in areas with low population density, longer trip distances and limited public transport access which may increase driving demands. However, car ownership is expected to grow until early 2040, when 'peak car' is reached.

In order to forecast the number of EVs it is necessary to assess current and future vehicle fleet size, vehicle replacement rates, average vehicle age when scrapped and the range of ages at which vehicles are scrapped.

The baseline vehicle fleet for Suffolk (421k) was projected forward based on an average of the National Grid Future Energy Scenarios (FES), which include a range of assumptions around the share of travel by public transport, the growth in ride sharing and autonomous vehicles. This equates to a steady growth in vehicle numbers up to 2035, after which point growth rates slow, peaking in 2042 and then slowly declining.

The average age a vehicle is scrapped in the UK is approximately 13 years (SMMT).

EV:Ready Inputs

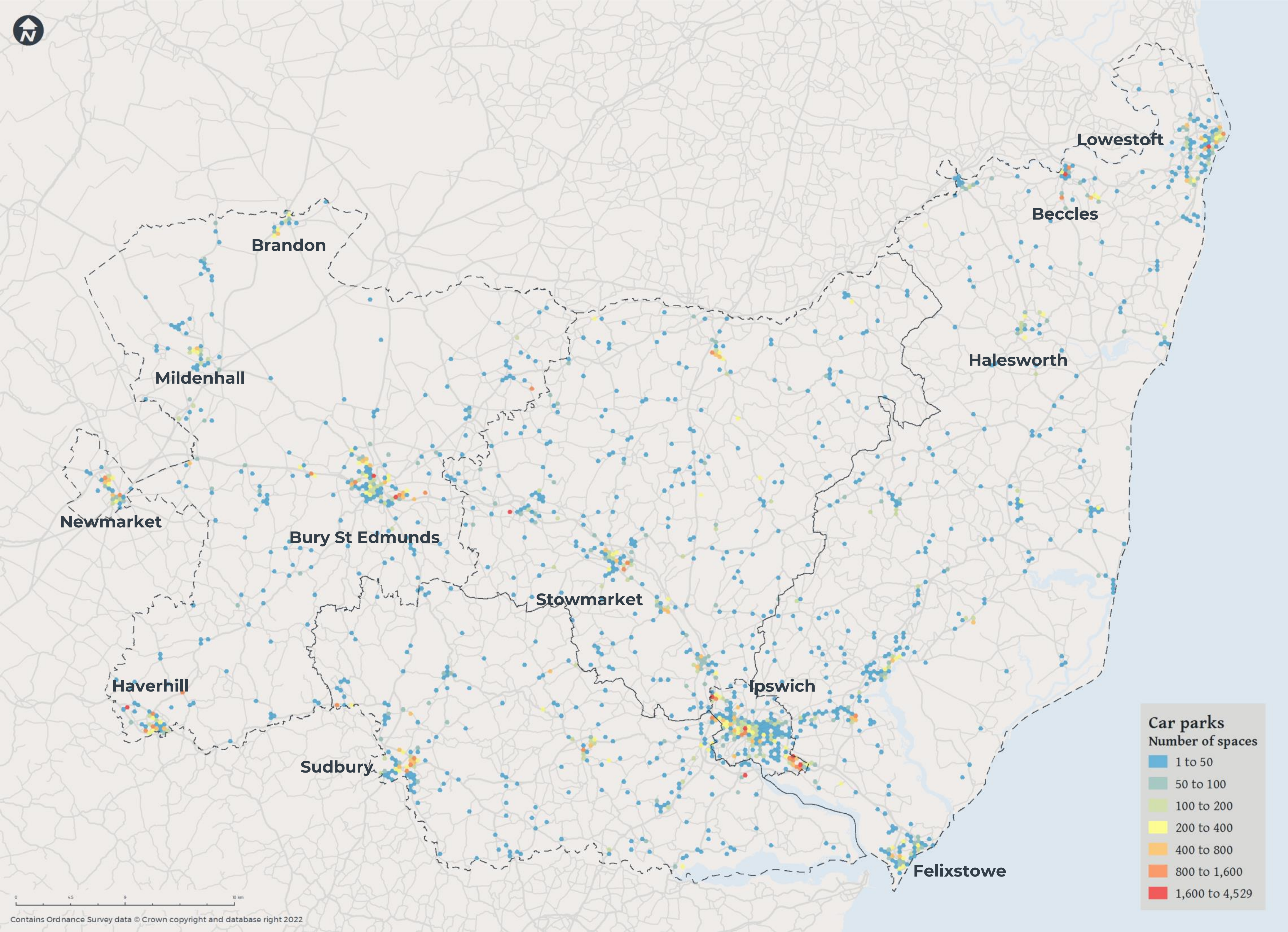


Figure B14: Car parks

Source: WSP EV:Ready

EV:Ready Inputs

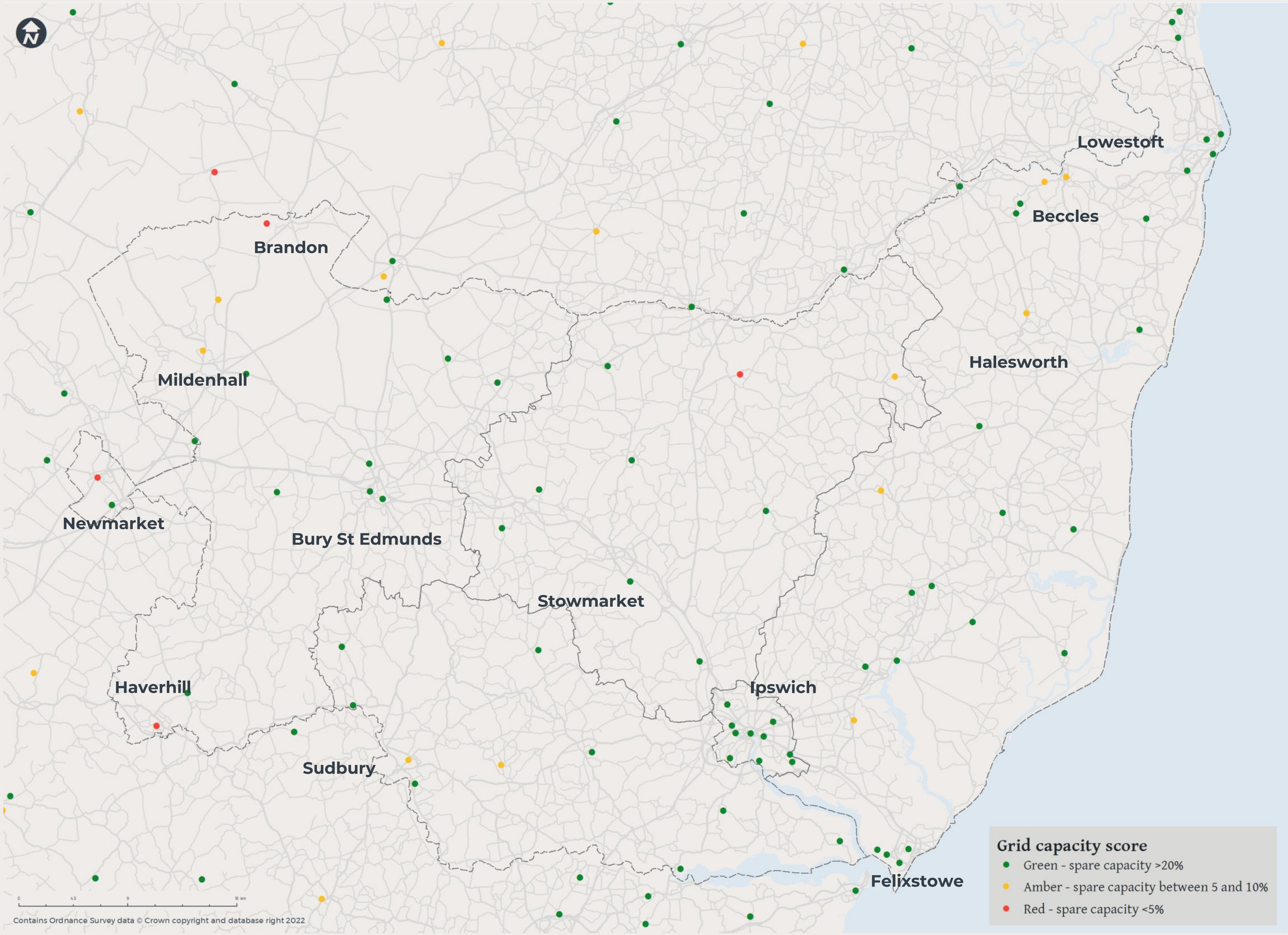


Figure B15: Spare grid capacity

Source: WSP EV:Ready

EV:Ready Inputs

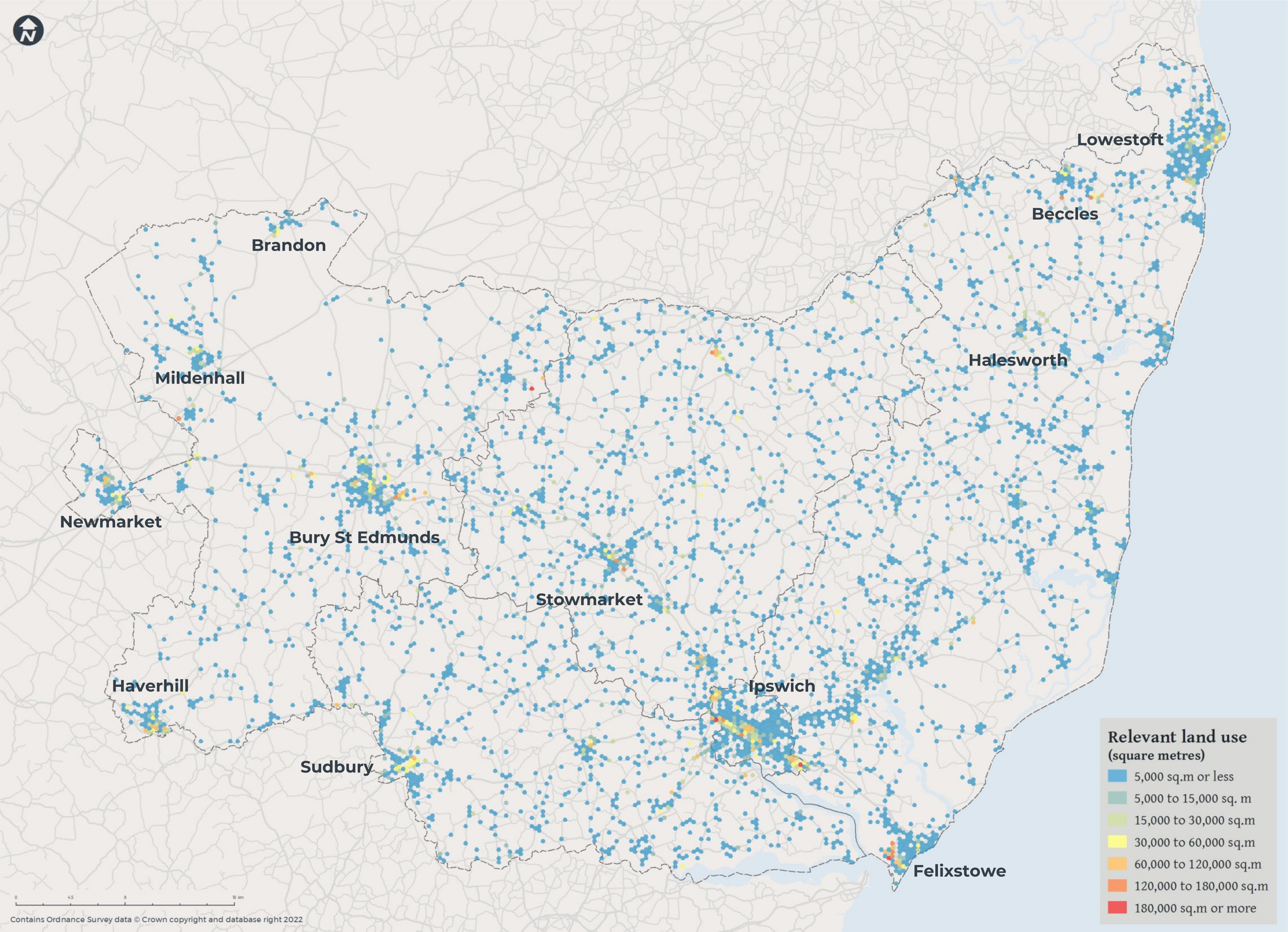


Figure B16: Relevant land use (Sq.m)

Source: WSP EV:Ready

PART C

EV:Ready outputs

EV:Ready Outputs

UPTAKE FORECAST: ACCURACY

Figures C1 and C2 show the EV uptake forecasts made by EV:Ready between 2015 and 2021 when run using 2015 data (as a sense check of the accuracy of the tool).

A comparison with actual figures shows an average error of 9% for Suffolk and 23% for the UK, though this may be explained by some parameters within EV:Ready that are tuned to live data which was not able to be backdated.

This reflects the well known conservatism of EV uptake forecasts across the industry, and as such is not a surprise. There is more accuracy at a local level due to more granular modelling that better reflect local circumstances.

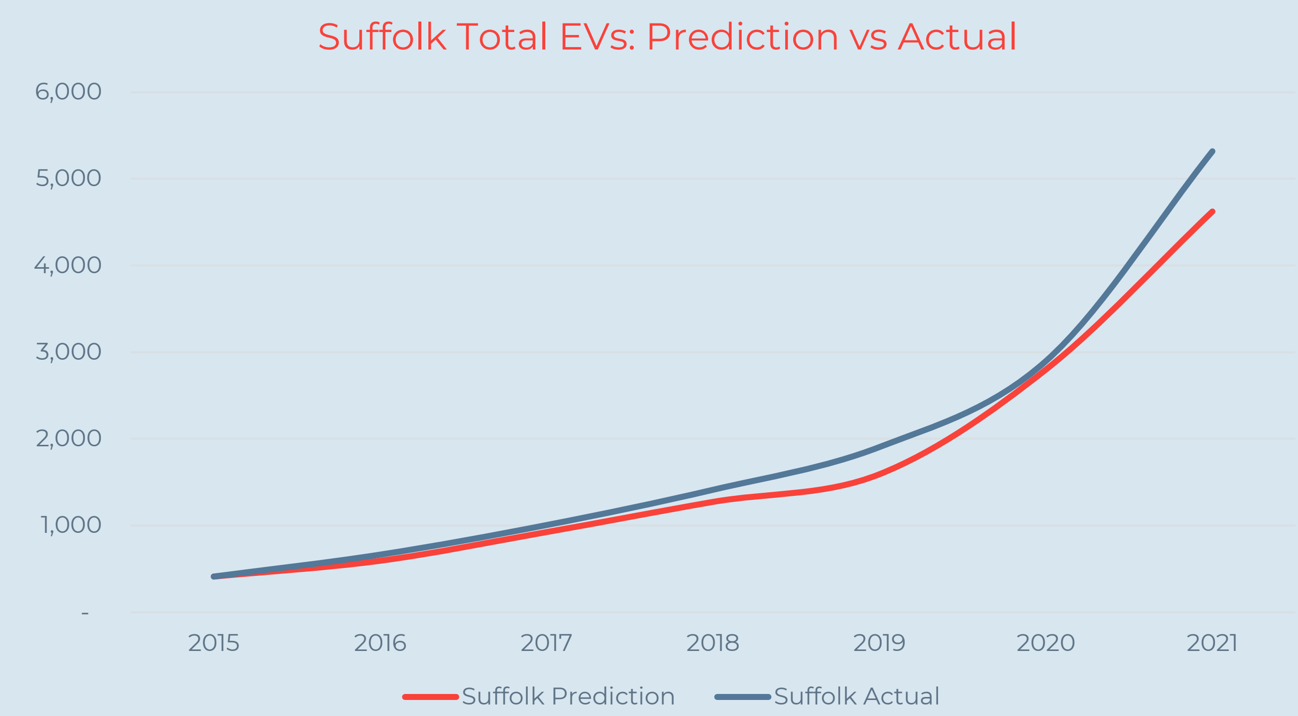


Figure C1: EV:Ready update forecasts from 2015 vs reality: Suffolk

Source: WSP EV:Ready

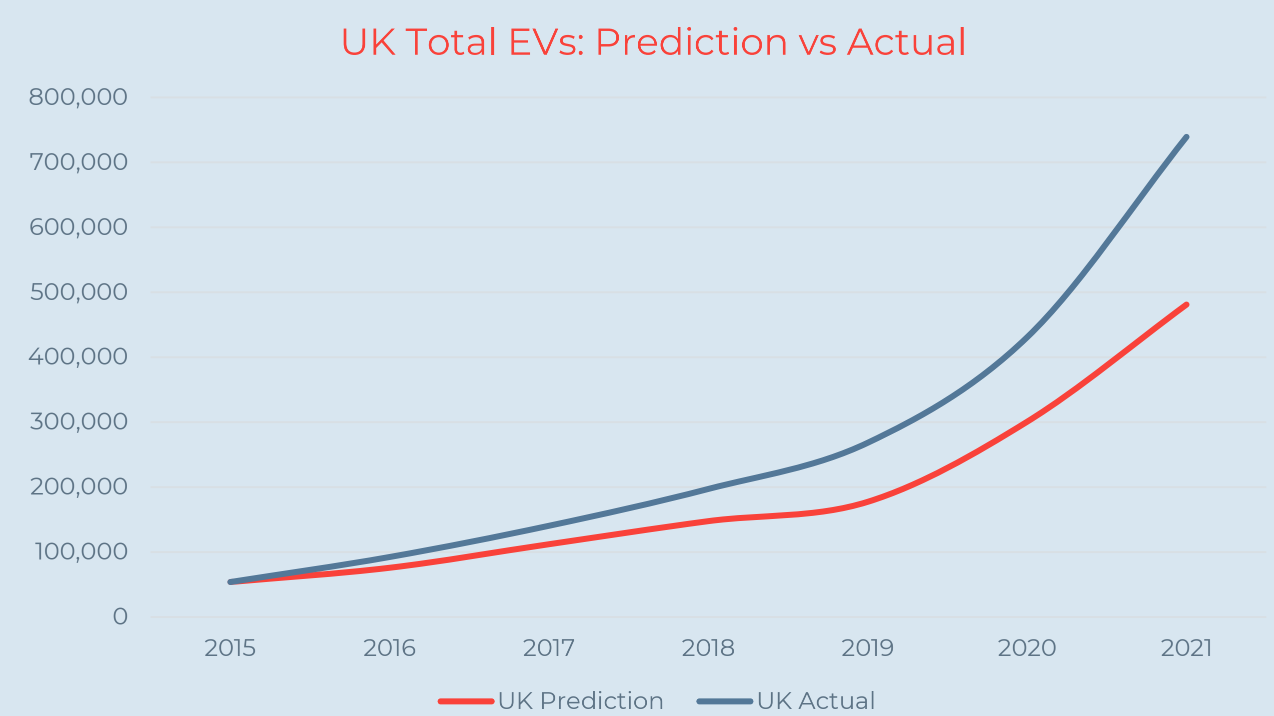


Figure C2: EV:Ready uptake forecasts from 2015 vs reality: UK

Source: WSP EV:Ready

EV:Ready Outputs

UPTAKE FORECAST

Figures C5 and C6 (overleaf) show the total and proportional (as a total of all vehicles) projected EV ownership across Suffolk in 2030.

Figure C5 indicates that EV ownership will be highest in Ipswich in 2030, alongside high ownership in the urban centres of Bury St Edmunds, Felixstowe and Lowestoft, and the towns of Stowmarket, Newmarket, Haverhill and Sudbury. EV ownership is relatively low across the rest of the county. However due to housing density and overall vehicle ownership, **Figure C6** shows the inverse for the proportion of vehicles that are electric, whereby the proportion of EVs is lower in urban cities and towns, and higher in rural areas. As such the proportion of EVs are lowest in Ipswich and Lowestoft.

Figure C3 and Table C1 show the projected EV uptake forecast for 2022, 2025 and 2030 by local authority. By 2030, EVs will represent ~29% of the total vehicle fleet in Suffolk, with the greatest number of EVs registered in East Suffolk, and the lowest number of EVs registered in Ipswich. The proportion of registered EVs will be relatively consistent between all of the local authorities.

Figure C4 shows the number of ICEs and EVs from 2020 projected to 2050, with EV growth following a ‘S’ curve.

Table C1: Forecast uptake to 2030 – number of vehicle and proportion of total fleet

LA	2022	2025	2030
Babergh	1,085 (2%)	4,046 (7%)	16,749 (29%)
East Suffolk	2,459 (2%)	9,515 (7%)	40,578 (28%)
Ipswich	920 (1%)	3,807 (6%)	17,249 (27%)
Mid Suffolk	1,370 (2%)	4,911 (8%)	19,906 (30%)
West Suffolk	1,869 (2%)	7,043 (7%)	29,874 (29%)
Suffolk	**7,702 (2%)**	**29,322 (7%)**	**124,356 (29%)**

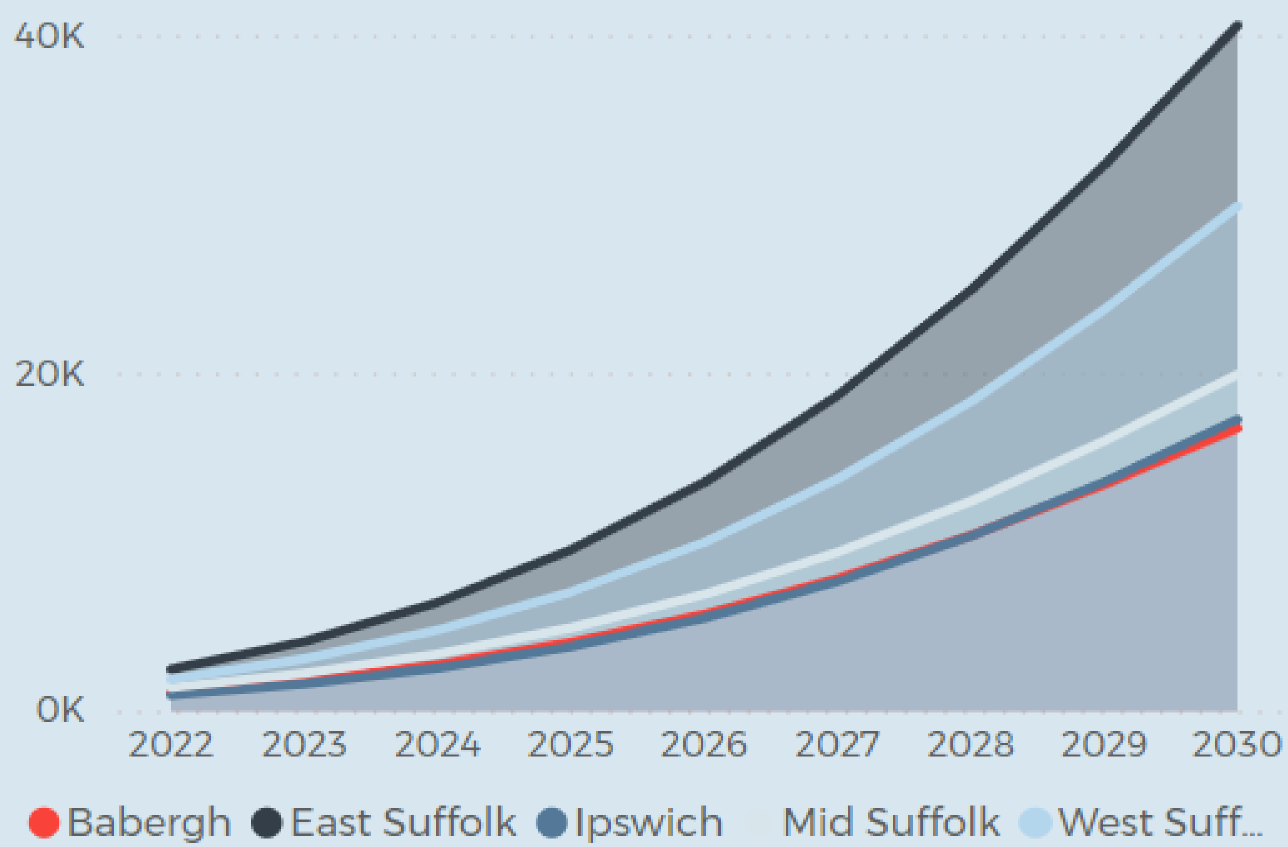


Figure C3: Forecast EV registration by local authority - 2030
Source: WSP EV:Ready

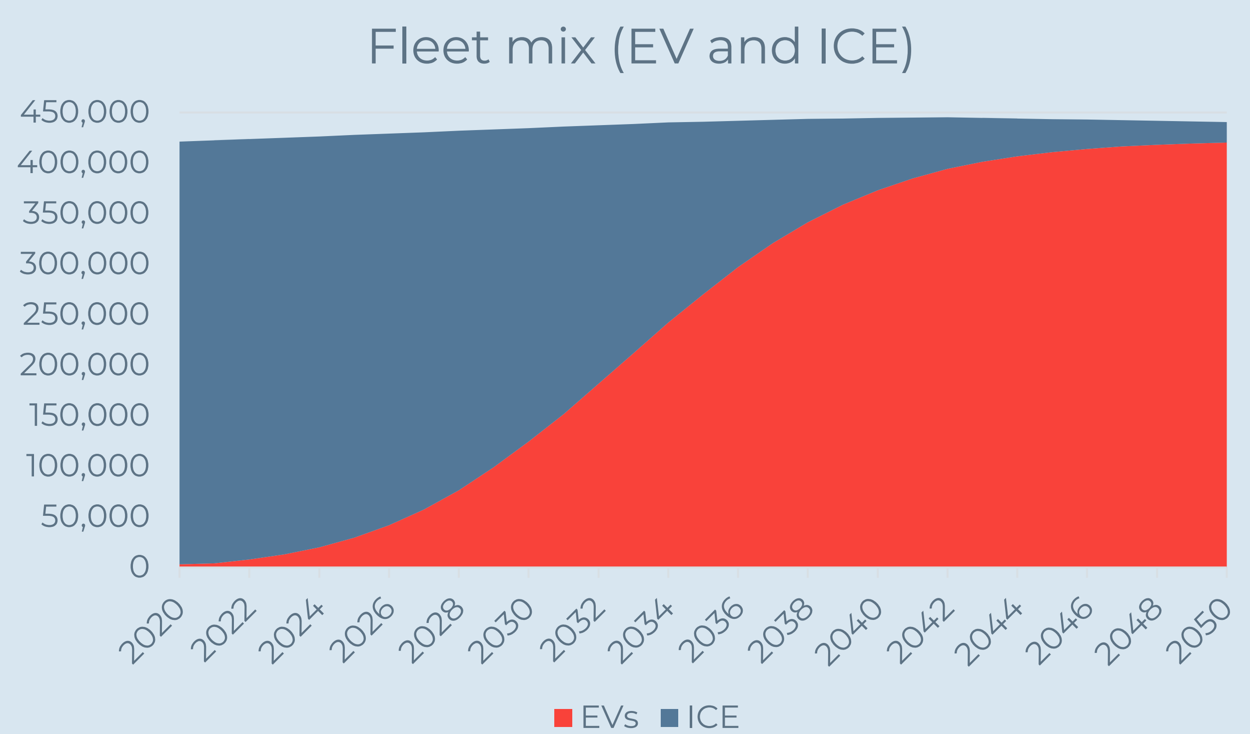


Figure C4: Fleet mix (EV and ICE)
Source: WSP EV:Ready

EV:Ready Outputs

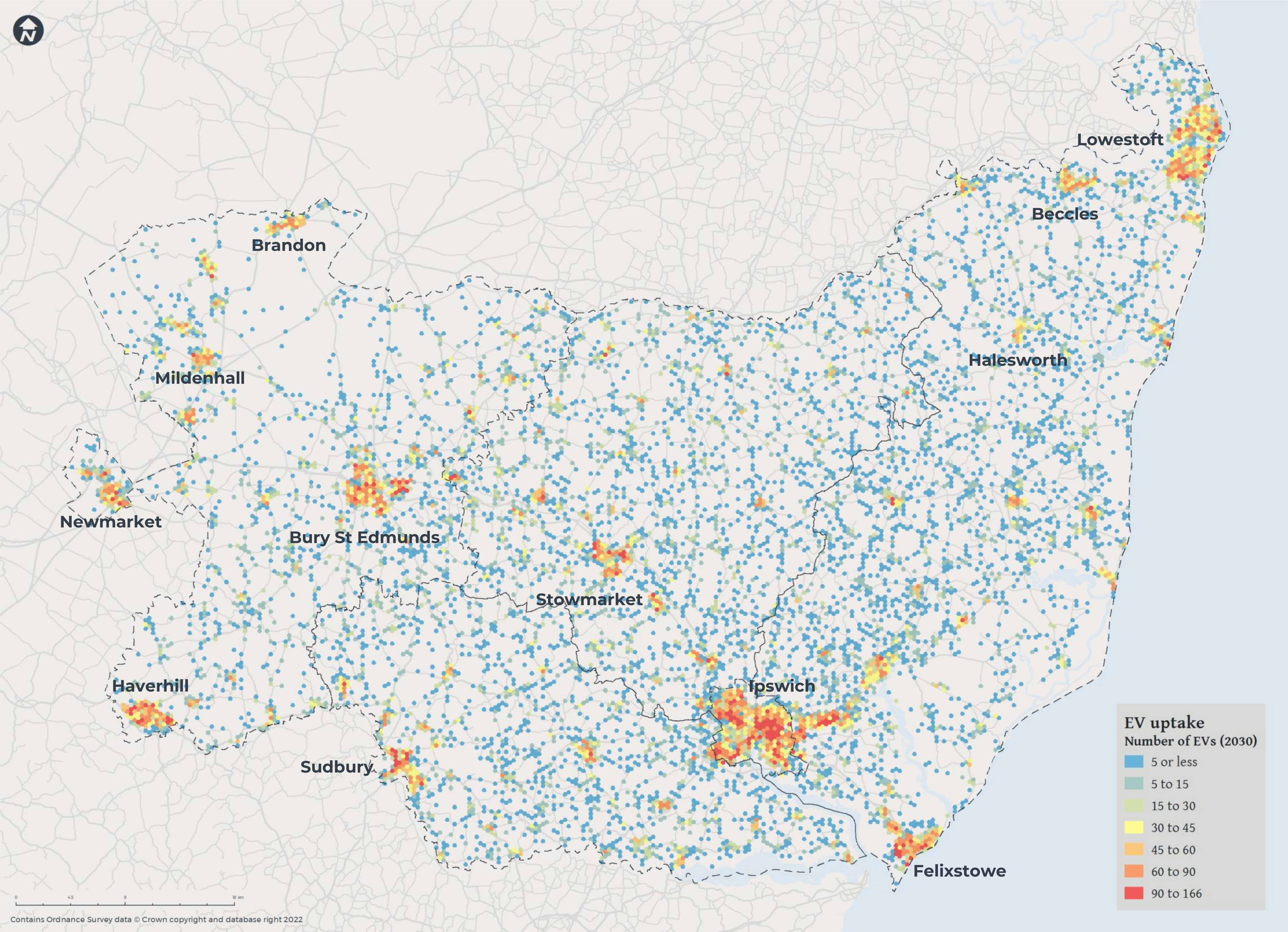


Figure C5: EV uptake (number of vehicles) - 2030

Source: WSP EV:Ready

EV:Ready Outputs

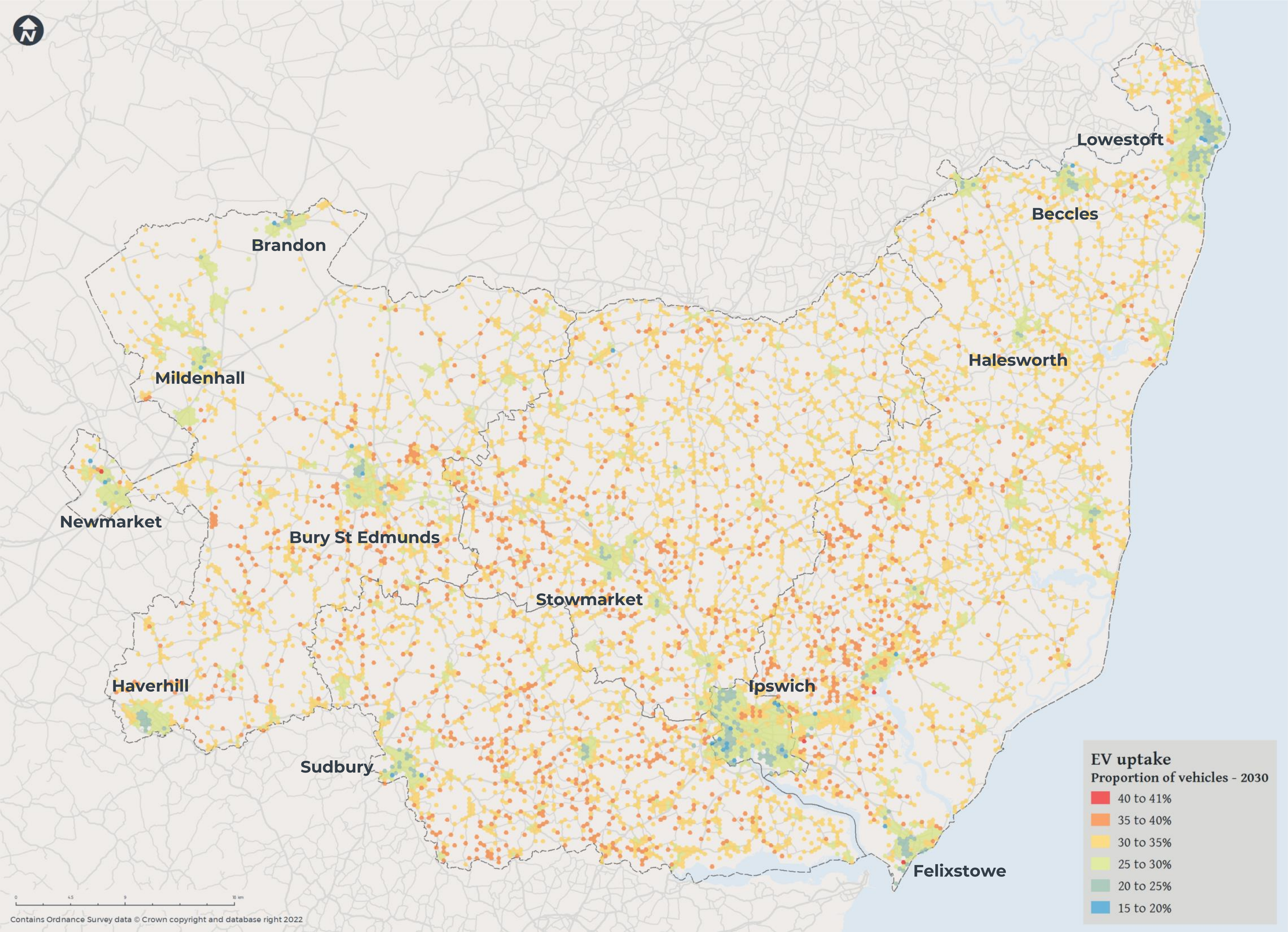


Figure C6: EV uptake (proportion of vehicles) - 2030

Source: WSP EV:Ready

EV:Ready Outputs

UPTAKE FORECAST

Figure C7 (overleaf) shows the number of ICE vehicles across Suffolk in 2030. Again, the figure shows higher numbers of combustion engine vehicles in the urban centres, particularly Ipswich. This is in line with the baseline household density (**Figure B2**) and projected car ownership (**Figure C8**), as where there are a greater number of residents and vehicles, it follows that there will be a greater number of ICE vehicles.

When comparing this to **Figure C5** which shows EV uptake, it is clear there is still a high proportion of ICE vehicles primarily in urban areas. This reflects the array of input factors, particularly the higher reliance on on-street parking identified in **Figure B7** and **B8**, and the lower propensity to own an EV based on socio-demographic factors identified in **Figure B13**.

This therefore suggests that lower-income, urban residents in the likes of Ipswich, Lowestoft and Bury St Edmunds will be slower to switch to EVs than more affluent rural residents, due to financial and charging constraints.

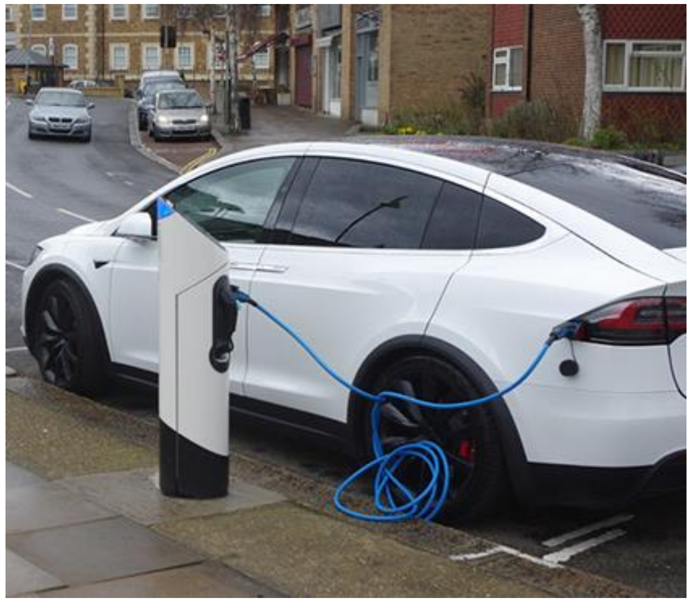


Figure C9 (overleaf) shows the estimated number of EVs per day using the 2031 SERTM model. This shows the routes where EVs are likely to be travelling throughout the county, and comprises journeys made for all purposes including commuting, utility, leisure, and delivery/servicing movements.

The figure shows a high volume of EVs most notably on the A14 running from Ipswich to Newmarket, as well as portions of the A12 south and east of Ipswich.

Medium level demand is shown across the A140 north of Stowmarket to Eye, county, including the A143 between Haverhill and Bury St Edmunds, the A11 north east of Mildenhall to Thetford, and the A146 south of Lowestoft. The roads within the town centres of Ipswich and Bury St Edmunds also show high levels of demand.

This provides SCC with an initial indication of where to target deployment of the rapid charging infrastructure required for en-route charging, or where to focus engagement with private sector CPOs for en-route charging.

EV:Ready Outputs

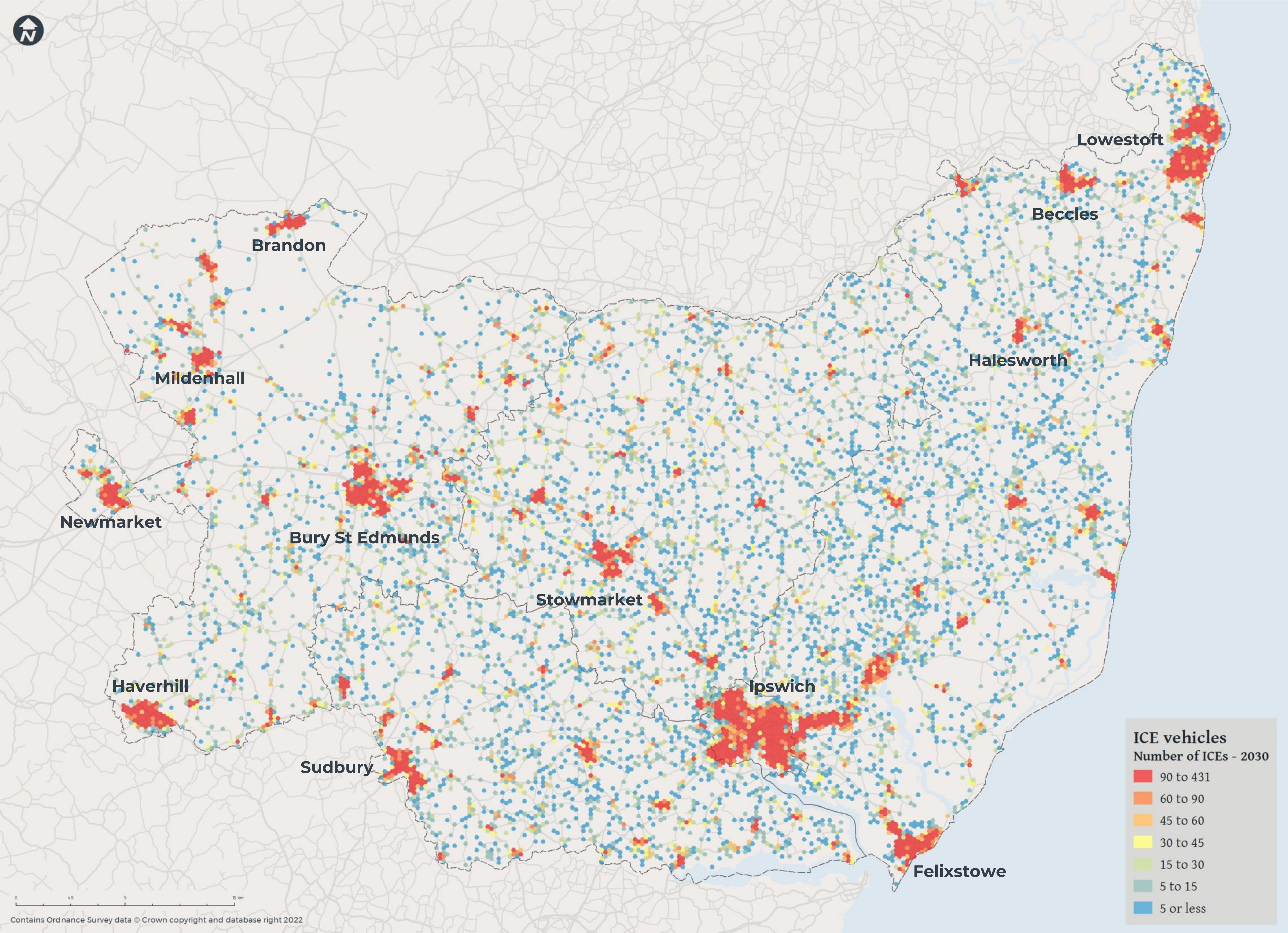


Figure C7: ICE vehicles (2030)

Source: WSP EV:Ready

EV:Ready Outputs

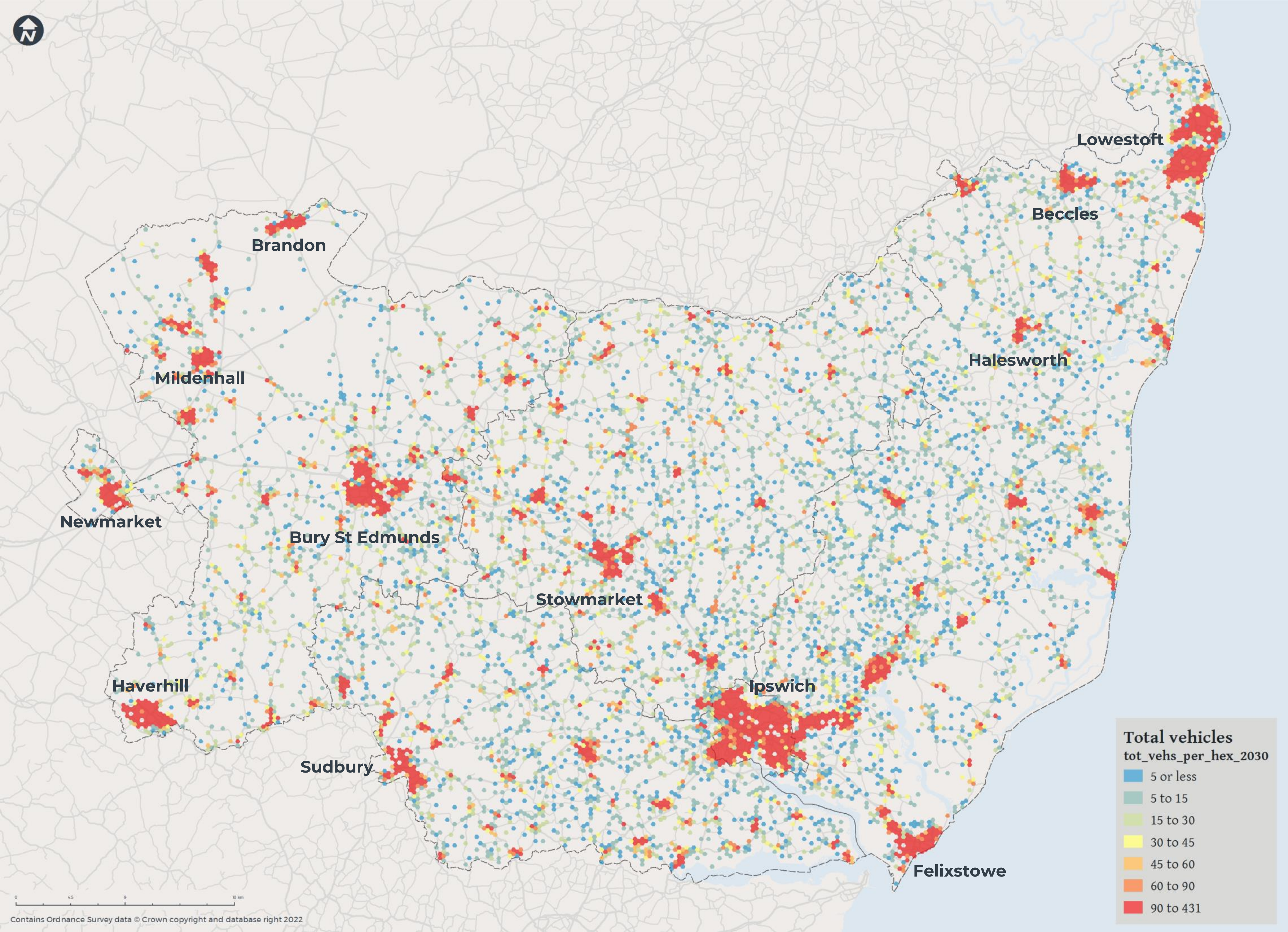


Figure C8: Total vehicles (2030)

Source: WSP EV:Ready

EV:Ready Outputs

Figure C9: EVs per day (2031)

Source: WSP EV:Ready

EV:Ready Outputs

DEMAND FORECAST

The public EV charging eco-system encompasses three unique types of charge points which accommodate the different needs of different drivers.

Each type of charging has a unique supply and demand profile. These have all been modelled to show an accurate forecast of charge point requirements:

- Origin – home based charging
- En-route - locations such as public charge points at motorway service stations and petrol stations
- Destination - sites are publicly accessible sites where the driver has chosen to go to a site for other purposes.

The results are shown in the figures overleaf and discussed below.

DEMAND FORECAST ORIGIN

Approximately 30% of households in the UK do not have access to off-street parking where they would be able to charge a vehicle. In order to run an EV there must be available public EV charging infrastructure to charge these vehicles.

While at present most EV owners have off-street charging facilities, as EV uptake increases there will be ever greater demand for on-street residential charging.

In areas where there is a deficit of off-street parking there will be a higher demand for origin charging provision.

Origin charging for properties with no off-street parking is usually provided on residential streets, with dedicated on-street parking bays for charging.

Figure C10 (overleaf) shows the origin demand score across the county. In Suffolk there is high demand for origin charging in the urban centres of Bury St Edmunds, Ipswich and Lowestoft. This is due to these areas having a higher proportion of households reliant on on-street parking.

There is low demand for origin charging in the more rural areas of the County.

DEMAND FORECAST EN-ROUTE

Vehicles travelling long distances, often along the strategic route network may wish to top up, to extend their range and allow them to complete their journey. This is also referred to as intermediate charging.

EV:Ready, integrated with the SERTM regional transport model, has been used to calculate the en-route charging demand for all major road links.

En-route charging usually takes the form of rapid (occasionally standard) chargers, provided on strategic link roads such as A roads and motorways, mostly at service stations.

Figure C11 (overleaf) shows the en-route charging demand score across the county. There is high demand for en-route charging along the A140 between Needham Market and Eye, a key north-south link in the County, and along the A14, a key east-west link, connecting Ipswich to Bury St Edmunds and Newmarket.

Demand for en-route charging is forecasted to be generally lower in the east of the County.

DEMAND FORECAST DESTINATION

Destination charging sites are publicly accessible sites where the driver has chosen to go to a site for other purposes, i.e. somewhere they would have already parked such as shopping centres, railway stations and leisure sites. At these sites, vehicles often take opportunity to top up whilst they are parked. **Figure C12** (overleaf) shows the forecast demand for destination charging in 2030.

The figure indicates that demand for destination charging will be greatest in Bury St Edmunds, followed by Ipswich and Lowestoft, likely because these urban centres have the greatest number of attractors across Suffolk.

The demand for destination charging is relatively low across much of the rest of Suffolk and particularly across the rural expanse due to the limited number of attractors.

This therefore provides SCC with an indication of where to target EVCP infrastructure designed to cater for destination charging.

RAPID AND STANDARD DEMAND FORECAST

The results of the en-route demand, shows the rapid charging demand across the county as shown in **Figure C13** (overleaf). While bringing together the results for origin and destination charging in **Figure C14** shows the forecast charging demand across Suffolk for standard charging.

Figure C13 indicates that there will be high levels of rapid charging demand on the strategic corridors between Ipswich and Bury St Edmunds town centre. There will be medium levels of charging demand around the larger towns of Lowestoft, Felixstowe, Sudbury and Newmarket etc. There will be low level rapid charging demand across much of the rest of the county.

Figure C14 indicates that there will be high levels of standard charging demand in Ipswich and Bury St Edmunds town centre. Medium levels of demand are present in the other larger towns with demand falling for the rest of the county. This therefore provides an indication with where SCC should target a variety of publicly accessible charge points to meet public charging demand.

EV:Ready Outputs

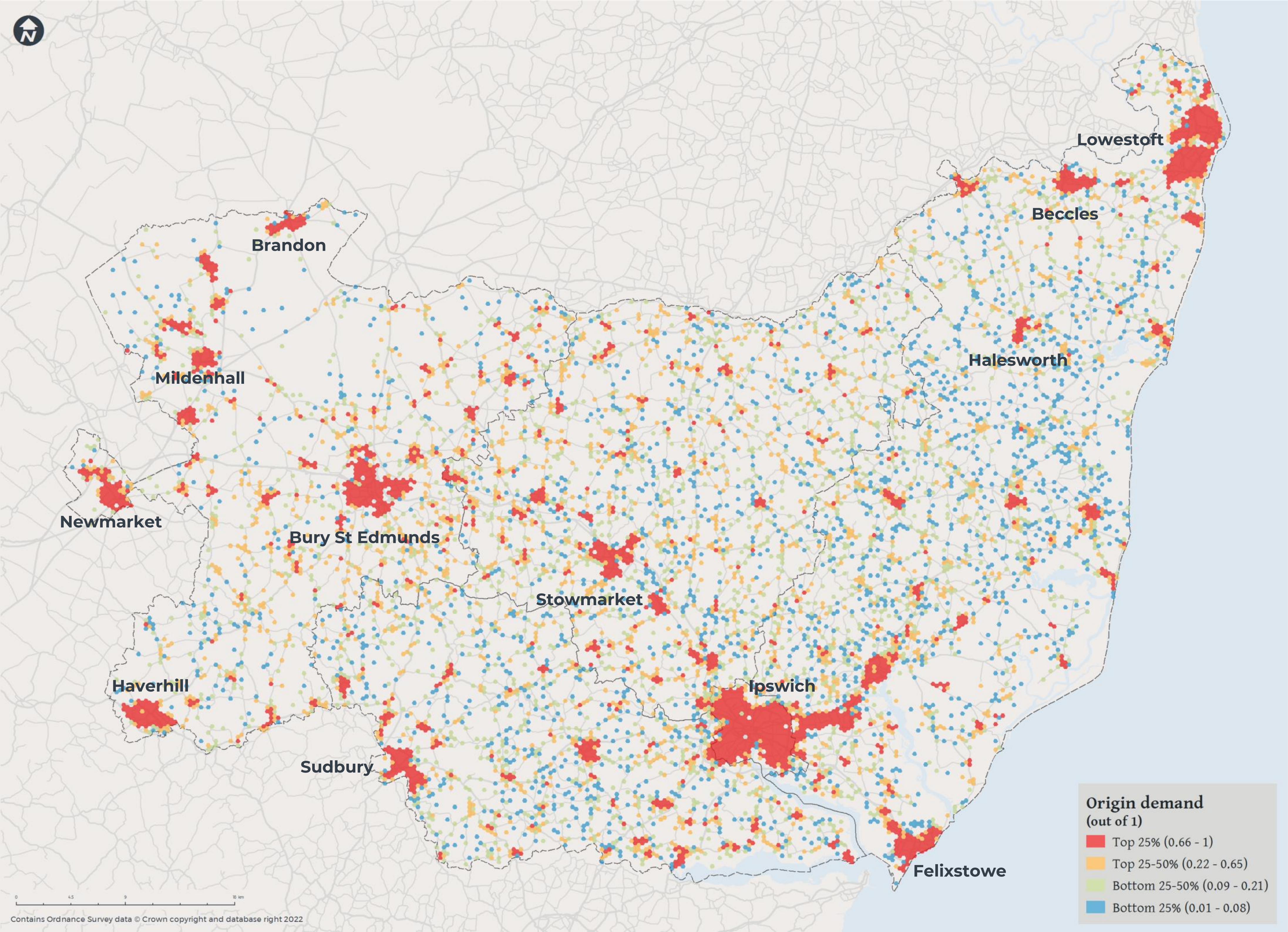


Figure C10: Origin Demand

EV:Ready Outputs

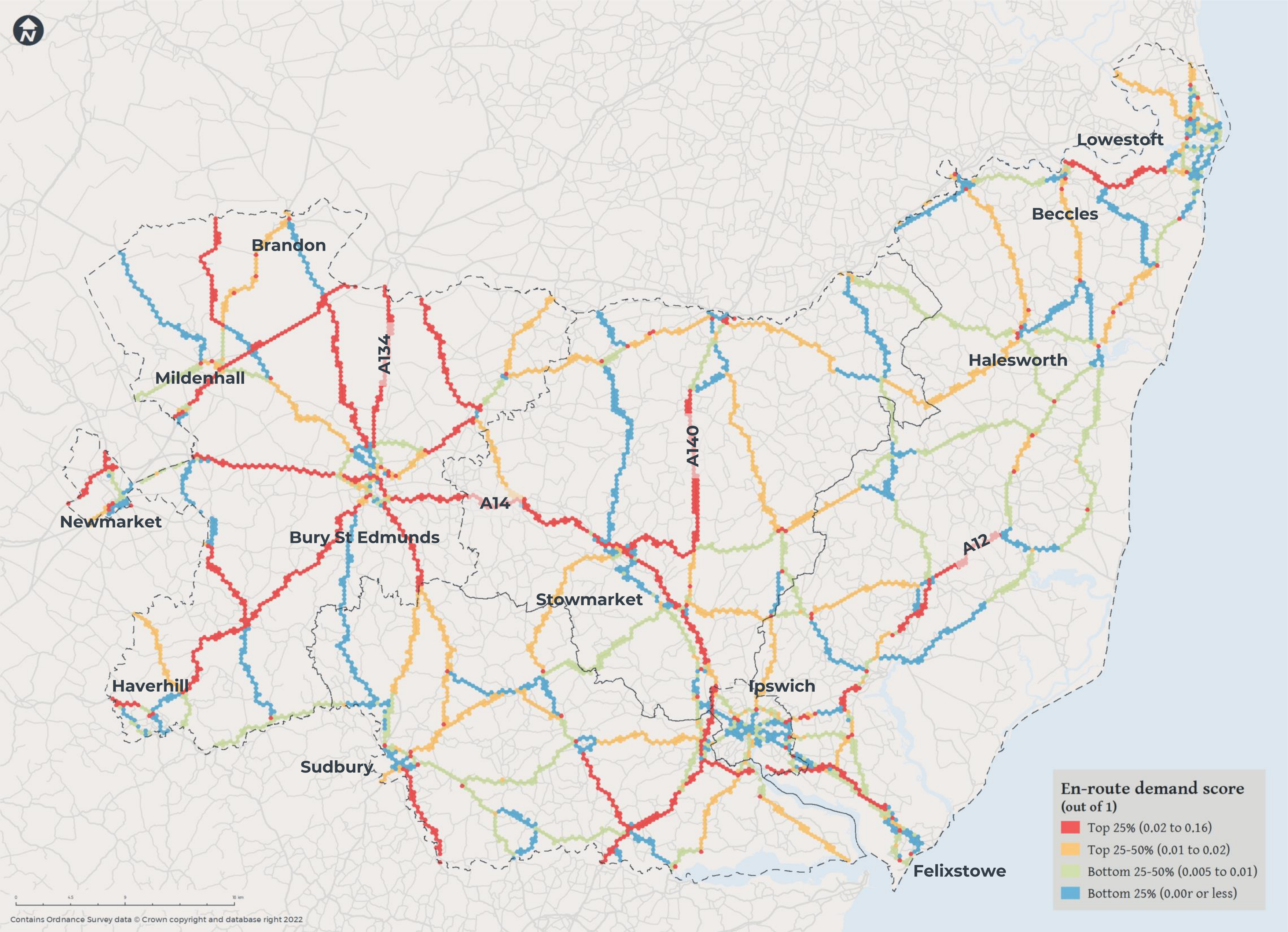


Figure C11: En-route charging demand

Source: WSP EV:Ready

EV:Ready Outputs

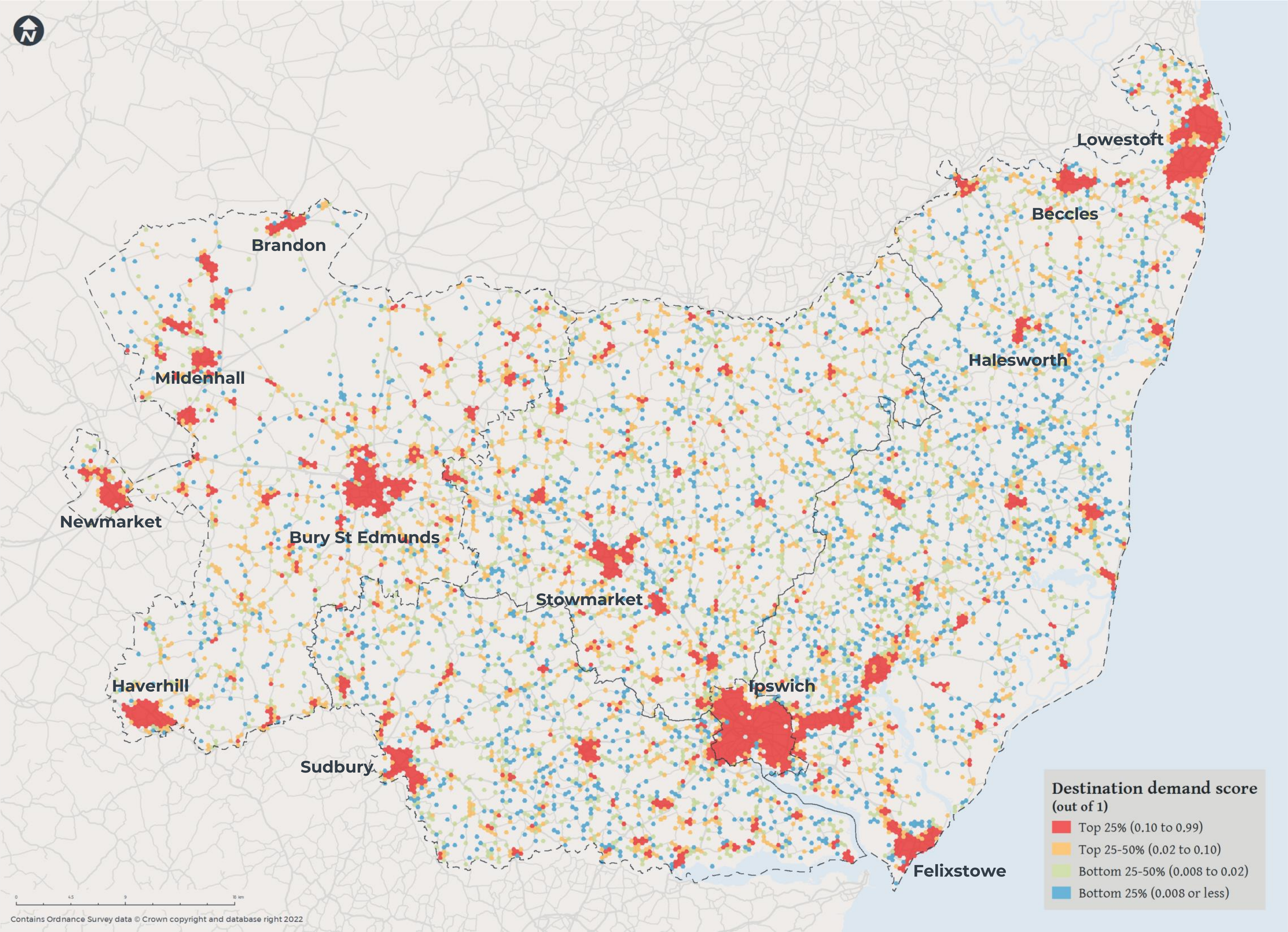


Figure C12: Destination demand

Source: WSP EV:Ready

EV:Ready Outputs

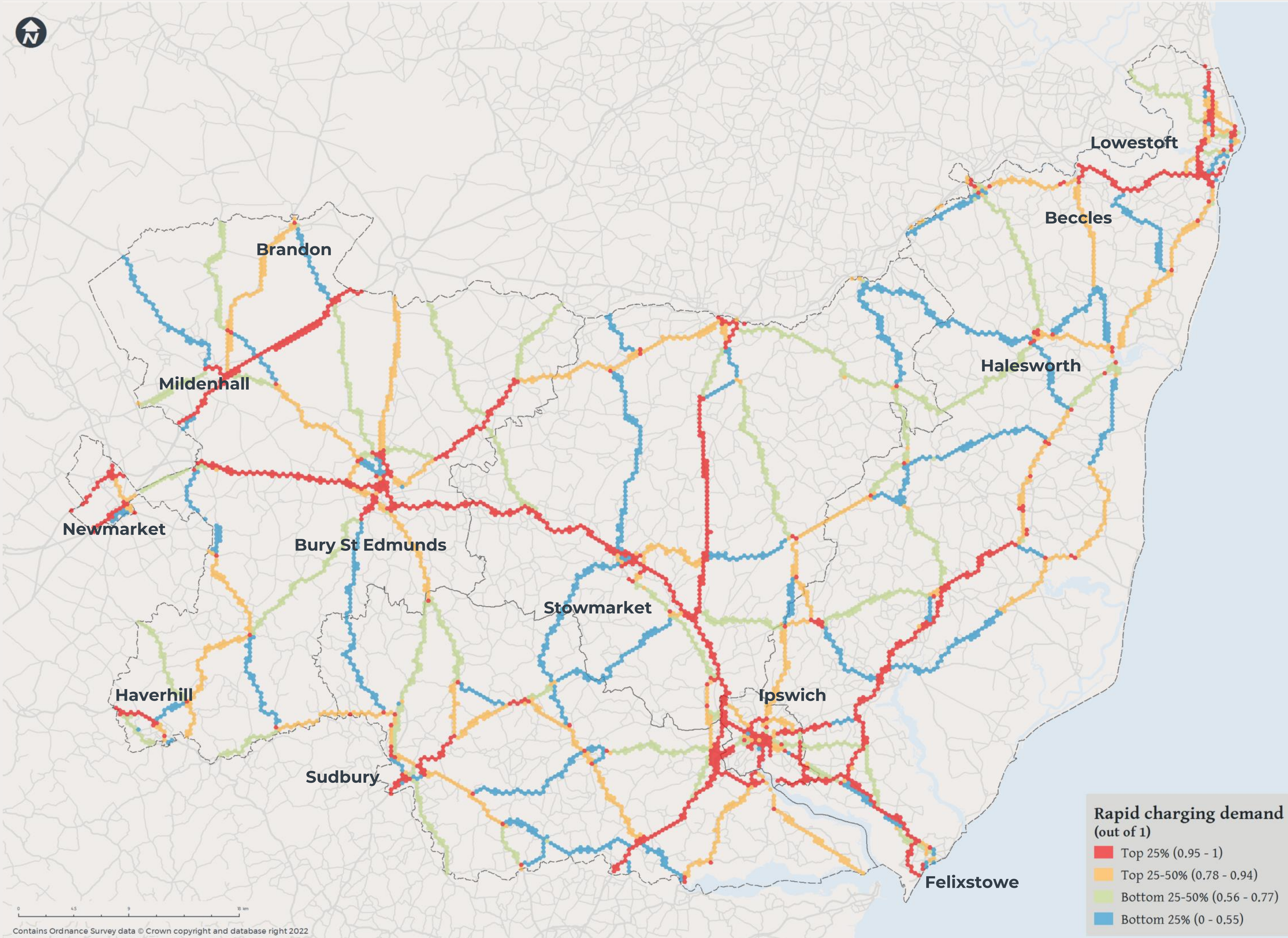


Figure C13: Rapid charging demand

Source: WSP EV:Ready

EV:Ready Outputs

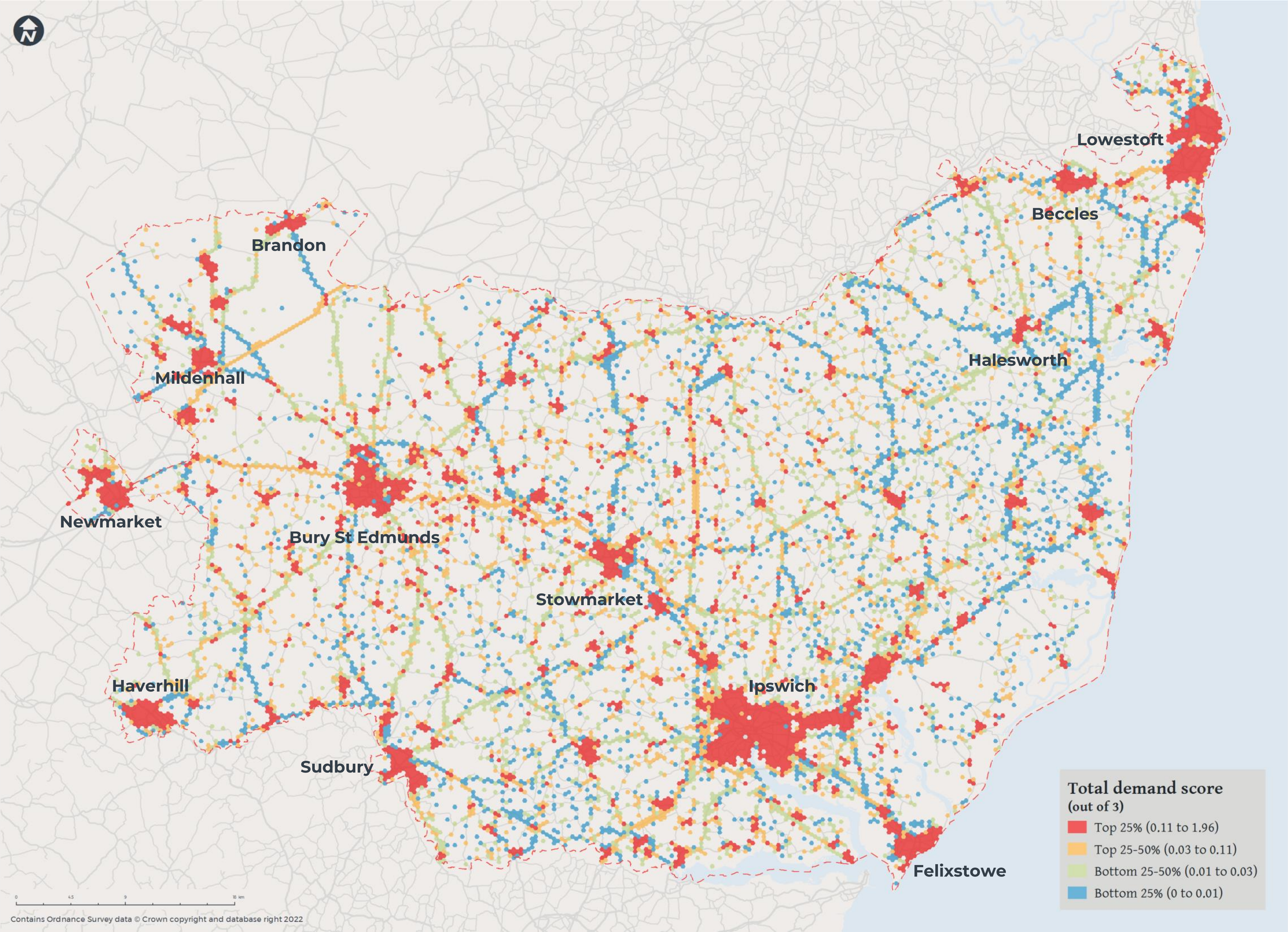


Figure C14: Standard charging demand

Source: WSP EV:Ready

EV:Ready Outputs

SUPPLY FORECAST

Both the public and private sector are actively engaged in the installation of EV charging infrastructure.

For local authorities it is important to understand where the private sector is likely to invest. This is so limited resources can be appropriately focused on 'plugging the gaps' in the EVCP network and ensuring that equitable access to charging is achieved. This will drive EV uptake and ultimately contribute towards decarbonisation goals.

This approach is supported by the DfT's national EV charging strategy.

Electrical grid capacity is a key determinant of supply. Where headroom in the local electricity network is low, installation of EVCPs could require costly upgrade works which can extend to millions of pounds in extreme cases.

The presence of existing EVCPs in an area, which are already meeting the demand, will be a deterrent to further supply being installed.

SUPPLY SCORE

Figure C15 shows the rapid charging supply score for 2030 across Suffolk. The score shows what locations will have the best supply for EVCPs in 2030.

With rapid charging, the areas with the best supply score are mostly along the major road links through the County, and around the urban centres of Ipswich, Lowestoft and Bury St Edmunds. The supply score is lowest in more rural areas, where grid capacity is more constrained and less available.

Figure C16 (overleaf) shows the standard charging supply score for 2030 across Suffolk. The score is highest in more urban areas such as Ipswich, where there is most demand for standard charging, and most available grid capacity.

Table C2 shows the assumptions (and weightings) that are used to develop the supply scores (as shown in **Figures C15 and C16**). The supply score is a combination of different inputs normalised to 1, and is weighted depending on the presence of EVCPs in each hexcel. For example, for en-route supply score, if a hexcel has high modelled flow, and high grid supply, with no EVCPs present, the score will be approaching 1.

CHARGING HABITS – PUBLIC VS PRIVATE

Firstly, there is a need to consider the extent to which vehicles will use public chargers, as opposed to private residential or workplace charging. At present a large majority of charging takes place at homes and workplaces (~80% of kW delivered). However, this ratio may change over time, with implications for the number of public chargers required.

There are some contrasting and often strongly held views amongst the EV industry as to the whether in the future, EV charging habits and infrastructure will pivot more decisively away from the current model, towards a far larger proportion of charging at ultra-rapid charging hubs, with quick turnaround times which are more akin to the petrol station model. Whilst others anticipate sustained high levels of home and workplace charging, or greater destination charging, with standard chargers proliferating within car parking spaces and supporting a 'grazing' or top-up behaviour.

Workplace charging may sometimes double as publicly accessible charging. There are also diverging views of the extent to which workplaces will accommodate employees wishing to charge, particularly where larger numbers of chargers would be required, triggering electrical upgrades making them more costly to install.

Table C2: Supply score assumptions (weighted)

Assumptions and weightings	EV uptake normalised to 1	Reliance on on-street parking – higher %, higher score	Modelled Flow normalised to 1	Grid supply normalised to 1	Land use normalised to 1	Origin demand normalised to 1	Destination demand normalised to 1	Weighting
En-route Supply Score (out of 1)			50%	50%				Rapid EVCPs - 0 Standard EVCPs - 0.5
Standard Supply Score (out of 2)	Sum of the origin and destination supply calculations							
Origin Supply (out of 1)	25%	25%		25%		25%		Any EVCP - 0.5
Destination Supply (out of 1)			25%	25%	25%		25%	Any EVCP - 0.5

EV:Ready Outputs

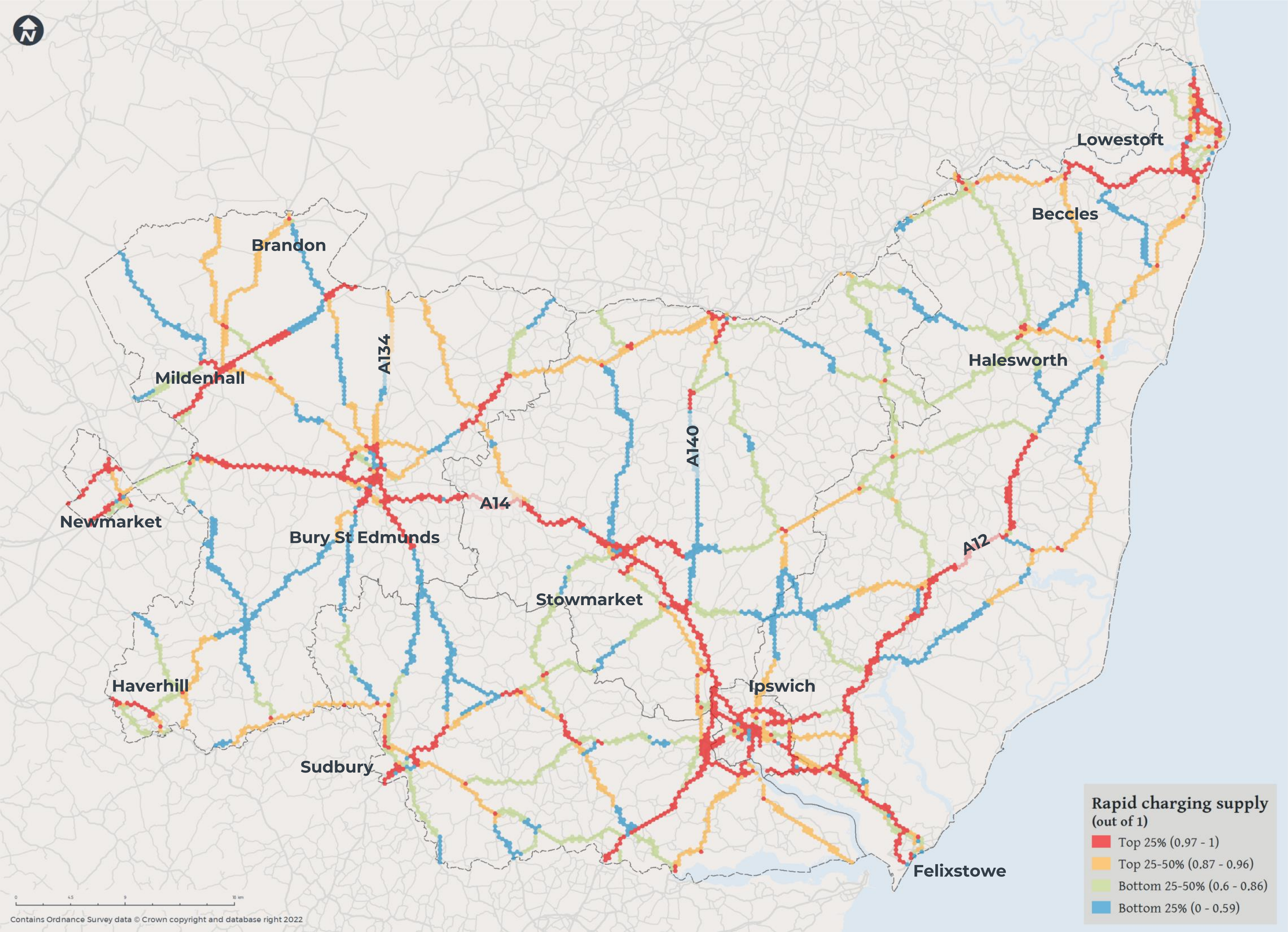


Figure C15: Rapid charging supply score

Source: WSP EV:Ready

EV:Ready Outputs

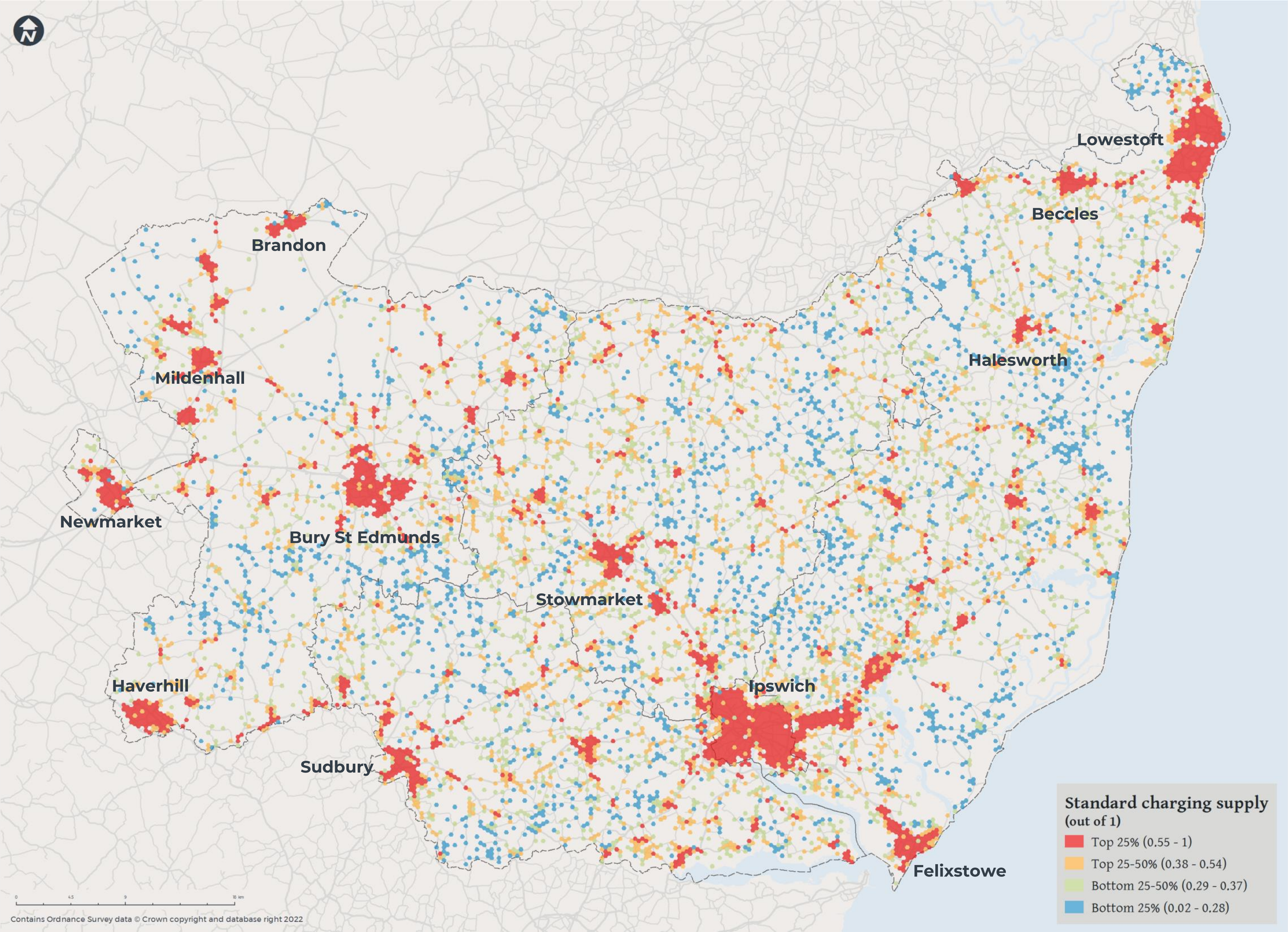


Figure C16: Standard charging supply score

Source: WSP EV:Ready

EV:Ready Outputs

EVCP REQUIREMENTS FORECAST

The forecast uptake of EVs enables an assessment of associated charging infrastructure requirements. A wide range of variables are considered in this assessment, including charging habits, vehicle mileage and efficiency, access to off-street parking, proportion of charging delivered via public chargers, trends in vehicle and charger technology, and average charge rates.

Table C3 shows the forecast public EVCP requirements for Suffolk, for low and high forecast scenarios.

Based on the forecast uptake of EVs in Suffolk, the estimate is for a requirement of between 1,336 – 2,028 additional publicly funded charge points by 2030.

The forecast demand in the lower number of EVCPs per EV suggests that there is a lower requirement for 1,336 additional publicly funded chargers by 2030. It is important to recognise that in this scenario, it is assumed that charge points are deployed optimally and achieve higher utilisation, with greater increased in the average charge rates consumed. It serves to provide a more limited minimum baseline coverage of EV charging provision, and more high powered recharging in fewer locations.

Conversely, the forecast demand for the number of charge points required in the higher number of EVCP per EV is 2,028 additional chargers by 2030. In this scenario it is assumed charge points are deployed more widely and used less intensively, with more modest increased assumed in the average charge rate.

Table C4 shows the public EVCP requirement standard versus rapid split, for the 2030 mid range scenario. Roughly 3% of charge points are forecasted to be rapid, with the rest standard.

Table C3: Public EVCP Requirements Forecast

District	Lower number of EVCPs per EV		Higher number of EVCPs per EV	
	2025	**2030**	**2025**	**2030**
Babergh	59	209	82	329
East Suffolk	163	432	201	561
Ipswich	44	171	83	332
Mid Suffolk	70	247	98	389
West Suffolk	94	277	146	417
Suffolk	**430**	**1,336**	**610**	**2,028**

Table C4: Public EVCP Requirement standard / rapid split

District	Low EVCPs per EV (2030)		High EVCPs per EV (2030)	
	Rapid	**Standard**	**Rapid**	**Standard**
Babergh	6	203	10	319
East Suffolk	13	419	17	544
Ipswich	5	166	10	322
Mid Suffolk	7	240	12	378
West Suffolk	8	268	13	404
Suffolk	**39**	**1,296**	**62**	**1,967**

EV Ready Outputs

EVCP ILLUSTRATIVE LOCATIONS – GAP ANALYSIS

Figures C17 and C18 show the gap analysis undertaken to identify where the private sector is likely to meet EVCP requirements, and where the public sector will likely have to intervene.

To identify areas where gaps are anticipated in the provision of chargers by the private sector, a gap analysis is undertaken which consists of comparing supply and demand scores. Where the resultant score is positive, supply outweighs the demand and so these areas would be commercially attractive to the private sector. Where the score is negative, demand outweighs the supply and therefore it is anticipated that there will be a gap in private sector investment in these areas, so the public sector should 'plug the gap'.

Areas of the highest demand (i.e. the top quartile of demand scores) are considered alongside the gap analysis to determine the top areas for public or private sector. Using the split of rapid and standard charger supply and demand, the gaps can be refined further, highlighting patterns in private and public sector investment. For example, it is expected that the private sector would prefer to install rapid chargers along high traffic routes such as motorways and A roads, and therefore the public sector is recommended to install standard chargers in town or village centres.

Figure C17 shows the top 50% of locations for rapid EVCP for 2030. When considering rapid charging provision, it is mostly the case that the private sector should provide for this, due to not only good levels of supply, but also strong demand along the SRN. As shown in the figure demand is strong along A14. A12 and A1. There are areas where the public sector may need to intervene, such as the A140 and the A134.

Figures 18 shows the top 50% of locations for standard EVCP provision for 2030.

When considering standard charging provision, it is mostly the case that the public sector will likely be required to provide parts of this.

There is a requirement shown in the more rural areas of the region. It is likely that almost all smaller towns and villages will have some form of standard charging provision by 2030.

It is expected that the public sector will need to fund a proportion of standard chargers by 2030,in areas such as Felixstowe, Ipswich, Bury St Edmunds and Newmarket

EV:Ready Outputs

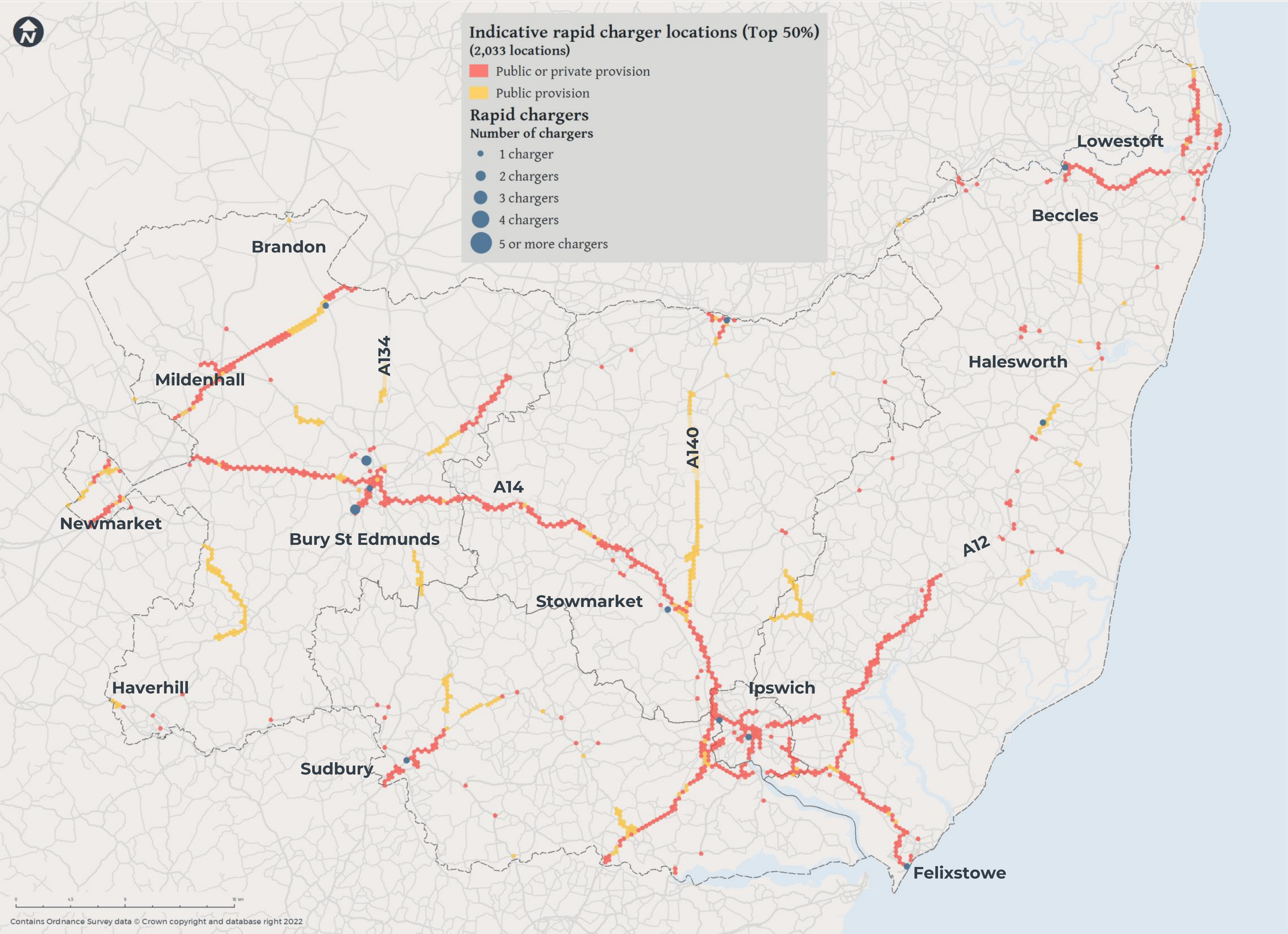


Figure C17: Illustrative rapid charge point locations - 2030

Source: WSP EV:Ready

EV:Ready Outputs

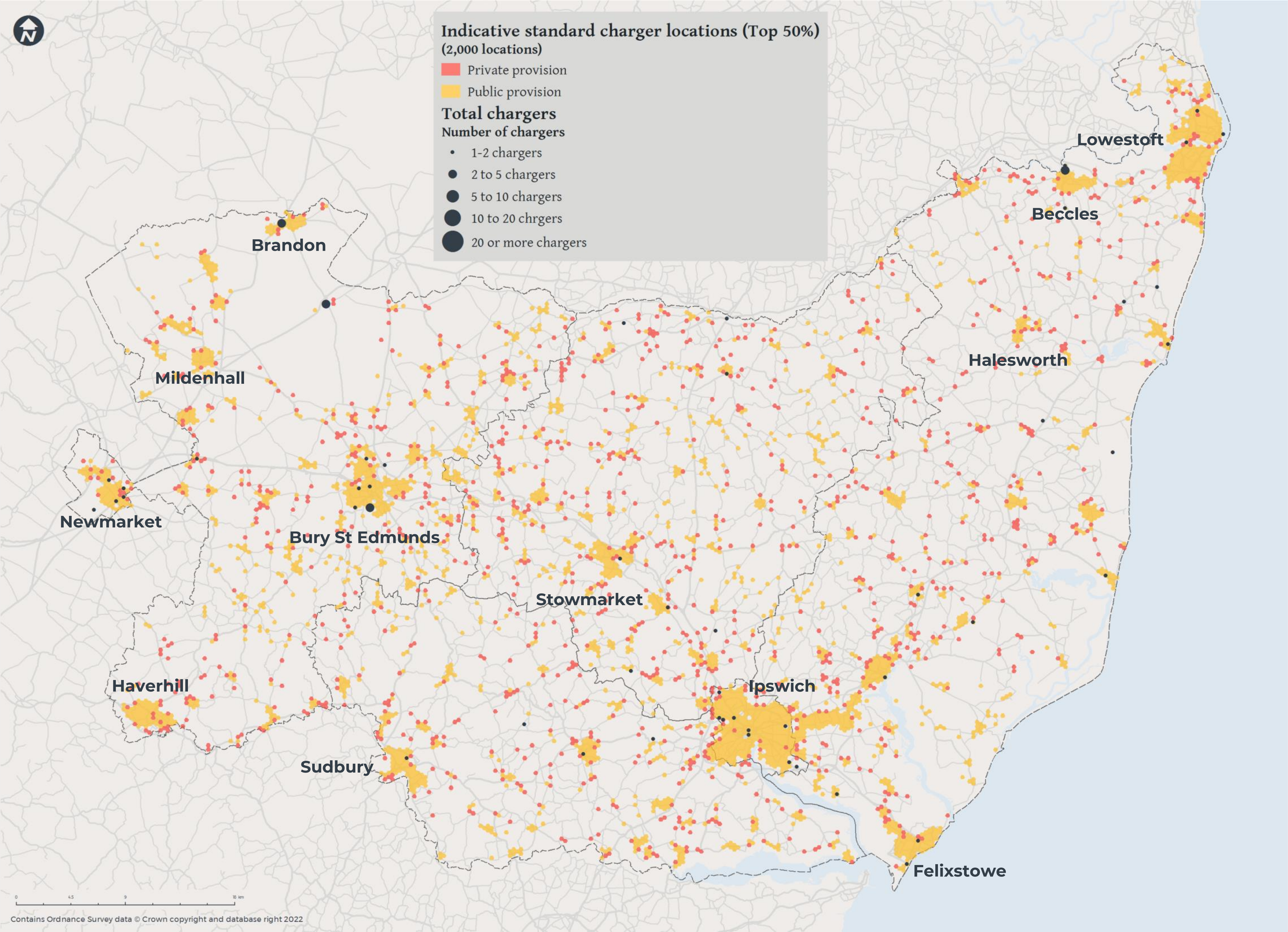


Figure C18: Illustrative standard charge point locations – 2030

Source: WSP EV:Ready

PART D

EV Workshop

EV Workshop

INTRODUCTION

WSP organised and hosted a workshop, to present the results from the work of this study and explain the findings. The workshop also provided a platform for Suffolk County and it's local authorities to share what they are doing, and what they have planned with regards to EVs.

The following slides detail the information gathered and discussed during the workshop.

Work to date

SUFFOLK

- Plug in Suffolk – UK first open access standard charging rate network across County
- Submitted a LEVI funding bid of £2m +
- Updated Suffolk parking guidance
- Target date of 2024 to move SCC small fleet/pool vehicles to EV.

BABERGH AND MID SUFFOLK

- Solar car ports at Council leisure centres which include EV charging provision
- Looking at EV salary sacrifice schemes for the council
- Assessing options for LGV fleet to go electric – will likely be at next lease opportunity
- ORCS bid for chargers in 12 car parks currently being considered by EST – awaiting outcome
- Talking with CPOs about a roll out throughout the district.

EAST SUFFOLK

- Local Plans have Sustainable Transport policies that support EV charging in new developments
- Developing a new cycling and walking strategy
- Usage data on charge points: 22kW in Debden car park (>400 transactions 21/22 – up from 140 19/20), rapid in Martello North car park (>900 transactions 21/22, up from 140 19/20)
- Current market investigation with commercial installers and operators to determine ESC's approach for roll out
- Operating 6 BEV cars and vans for Civil Parking Enforcement patrols.

IPSWICH

- Seven car parks have EVCPs (through ORCS)
- LP policy has requirement for all applications to address EVCP provision appropriately
- IBC is investing in its own EVCP provision in public car parks
- IP One area has adopted policy to require zero residents parking and to require car clubs with electric vehicles and charging points, including in IBC own building schemes.

WEST SUFFOLK

- Drafted policy parameter NSP06 to require electric charging points in developments requiring parking spaces in line with Suffolk parking guidance
- Successfully installed three rounds of chargepoints via ORCS, including a trial of lamppost mounted EV chargepoints
- Another ORCS bid submitted for chargepoints in 13 car parks currently being considered by EST – awaiting outcome
- Working on long term contract for chargepoints in car parks, leisure centres and country parks to ensure local consistency.
- Actively encouraging car club take up
- Plans to install chargepoints at all operational depots.

OVERVIEW

There has already clearly been investment in the provision of EVCPs across Suffolk. However the approach has not been joined up across districts, and thus some districts have fallen behind.

There has been good utilisation of ORCS funding across some of the districts, in terms of improving provision in public car parks. Districts and the county are also looking at either converting their fleets to EV, or providing an EV salary sacrifice scheme, or both.

Updates to local plans and policy are also being implemented, including updated parking guidance and increased support for EV charging new developments.

West Suffolk and Ipswich are also encouraging car club take up, with a focus on electric car club vehicles.

Issues

SCC

- Inexperience in the operation of public / private partnerships operating at a scale necessary to achieve the numbers of charge points required
- Concern that EVs are seen as the “silver bullet” for meeting Net Zero aims
- Maintenance issues with EVCPs – operators not doing what they say they will
- Energy supply to site and connection point
- Inclusivity
- Meeting with UKPN to address excessive costs

BABERGH AND MID SUFFOLK

- Lack of funding, with no obvious emerging sources
- Hesitancy to “wait and see” what comes of local, regional and national strategy
- Need internal resource to look for funding
- Funding is the key issue, existing chargers funded directly through Community Infrastructure Levy’s
- Problems with DNO response to queries
- Members requesting EV chargers in their rural wards where there is no evidence of current need
- Many CPOs are chasing LA endorsement, with many different applications
- Rising electricity costs and keeping abreast of tariffs and charging rate updates.

EAST SUFFOLK

- Lack of knowledge and experience on part of council
- No clear direction for infrastructure role out
- Some belief that East Suffolk is too rural for EV take-up
- Internal resource to mange project
- Grid capacity in certain locations.

WEST SUFFOLK

- Maintaining the network once it has been installed
- UKPN connection costs
- Government guidance changes such as 2022 building regulations – need to not duplicate in planning
- Interest from members – possibly more work around knowledge.

OVERVIEW

There have been a number of issues identified with the current approach to EV uptake and EVCP provision across the county. It is clear that there is work to be done to ensure there is a combined and collaborative approach to EVs and EVCPs in Suffolk.

Key issues highlighted are maintenance issues, connection costs and DNO response times, which all contribute to increased costs, delays and difficulties in the running and supply of EVCPs.

Connection costs continue to be a key barrier in terms of slowing the roll out of EVCPs, and so it is essential to identify areas where the connection cost is not likely to be too great.

The lack of available government funding, and the lack of internal resource and knowledge have both been mentioned as key issues across the County.

There is also the issue of providing EVCPs in more rural locations where there might not be as much desire for them.

Many of these issues have been addressed in this report already, and as such there are recommendations provided.

Recommendations

SCC

- Comms / messaging and media coverage
- Open access charging as standard
- SCC in the process of getting all pool vehicles to be EV by 2024
- A need to be seen in the context of wider sustainable transport ambitions
- Looking at potential for adopting a provider across the county under an SLA in order to get best value for money.

BABERGH AND MID SUFFOLK

- Strategic approach to ensure there is no duplication of locations competing with Essex, Norfolk and Cambridgeshire
- A need to look at inter district/cross county border collaboration
- Understanding the role of e-cargo bikes particularly for deliveries/pick ups in towns.
- A need for accurate predictions to be able to locate charge points in optimum places
- A need to address charging for taxis.

EAST SUFFOLK

- Technical direction for installations – locations, size, numbers, contacts, funding opportunities
- County-level collaboration is key, especially as internal resource and expertise may initially limited
- Ensure that data makes sense
- Scope to “buy-in” resource from other LAs (guidance, project management).

IPSWICH

- Looking at potential for adopting a provider across the county under an SLA in order to get best value for money
- Understanding local demand
- A need to find an on-street model which meets SCC and district requirements.

OVERVIEW

The local authorities have identified a number of recommendations that can be considered, and have fed into the strawman recommendations.

A key recommendation is to ensure a strategic approach to EVCP provision across the County and local authorities, to prevent duplication of charging locations along borders within the County and surrounding counties. Further to this County-level collaboration is considered important, to ensure appropriate knowledge and resource sharing.

Also a requirement to be considered across the County is the need to understand the role and benefits of e-cargo bikes and e-bikes, and also charging for taxis.

STRAWMAN RECOMMENDATIONS

Over the next two pages a set of high-level strawman recommendations have been developed, reflecting analysis and results found herein this report, and the further information gained during the workshop. The recommendations have been tailored to the County and the districts, addressing issues highlighted in the workshop. A combine and collaborative approach is key to the successful delivery of EVCPs across the county.

The recommendations are centred around :

- Accelerating charge point deployment to promote EV uptake
- Reviewing the fleet
- Collaborative working with central, regional and local government
- Ensuring EV parking and design standards are up to date
- Exploring wider measures
- Promotional activities and awareness raising.

A recommendation action plan is provided in table E1 on page 66.

PART E

Recommendations

ACCELERATE CHARGE POINT DEPLOYMENT TO PROMOTE EV UPTAKE

- ✓ Focus on establishing good charge point coverage and plugging gaps across the network
- ✓ Deliver the right EVCP solution for the right location
- ✓ Take a balanced approach to delivering charging infrastructure by inviting private investment but retaining control
- ✓ Encourage and maximise private sector deployment of EVCPs (to reduce risk and public sector resource requirements)
- ✓ Make the most of available funding opportunities, and seek Local Enterprise Partnership funding to deliver chargers where there is a reliance on public funding
- ✓ Consider the potential to integrate EV charging with other energy and transport services as part of new mobility hubs.

REVIEW FLEET

- ✓ Undertake a review of County and District Council fleets to identify opportunities to switch to EVs
- ✓ Install chargepoints at Council depots, with associated driver awareness and training

COLLABORATIVE WORKING WITH CENTRAL GOVERNMENT, DISTRICTS AND BOROUGHS

- ✓ The County Council to take a co-ordinating role to the planning for EVs and deployment of EVCPs across Suffolk
- ✓ The County Council to develop and lead an EV forum or working group for the county, districts and boroughs
- ✓ Encourage open access charging as standard across the county
- ✓ Advocate to Central Government to further reduce the costs of electric vehicle purchase and ownership compared to petrol and diesel vehicles.

UPDATE EV PARKING AND DESIGN STANDARDS

- ✓ As per the Building Regulations, adopt EV parking standards to ensure every new home with a parking space has an EV charge point, as well as for other non-residential developments
- ✓ Adopt design standards for on-street chargers to enable and manage future public and private sector roll-out of charge points
- ✓ Provide guidance for the use of cable covers and covered ducts for residents.

EXPLORE WIDER MEASURES

- ✓ Explore additional local incentives to increase EV uptake beyond additional charge point infrastructure (this could include emissions based parking and permits)
- ✓ Identify opportunities to support research and innovation in electric vehicles in Suffolk
- ✓ Develop an aligned communications and messaging approach to maximise media coverage and exposure.

PROMOTIONAL ACTIVITIES AND AWARENESS RAISING

- ✓ For existing households, promote the available funding opportunities such as the OZEV's EV chargepoint grant.
- ✓ For existing workplaces, promote OZEV's EV infrastructure grant for staff and fleets, and it's Workplace Charging Scheme
- ✓ Promote home charging share schemes such as Zap-Home
- ✓ Promote workplace charging share schemes such as Zap-Work
- ✓ Promote the Energy Saving Trust fleet reviews
- ✓ Encourage stakeholders to deliver EV charge points at other key destinations including supermarkets and train stations
- ✓ Engage with tourist destinations and explore tourism opportunities associated with Evs.

Table E1 - Recommendation summary table

Recommendation	Owner	Priority	Cost
Accelerate charge point deployment to promote EV uptake			
Focus on establishing good charge point coverage and plugging the gaps across the network The results of the EV:Ready analysis suggests that EV uptake could increase from 7,700 EVs in 2022 to 29,300 EVs in 2025 and 124,300 by 2030 – representing 29% of cars. To support this growth in EVs, between 1,336 and 2,028 EVCPs will be required across the county.	SCC, districts	High	High
Deliver the right EVCP solution for the right location The EV:Ready analysis has identified and scored locations for both rapid and standard chargers. SCC, the Districts and Boroughs should work through this analysis to identify suitable locations for EVCPs to accommodate EV growth. A regular review of charge point utilisation data should be undertaken to identify high demand areas, and focus further EVCP infrastructure in those areas.	SCC, districts	High	High
Take a **balanced approach to delivering charging infrastructure** by inviting private investment but retaining control. This is of particular importance for publicly funded EVCPs (whether standard or rapid) that may be installed on Council-owned land or highway. Leverage the County's scale with a **county-wide procurement** for one or more CPO/s. Babergh and Mid Suffolk, East Suffolk and West Suffolk should focus their conversations with CPOs to a county-wide approach.	SCC, districts	High	High
Encourage and maximise private sector deployment of EVCPs (to reduce risk and public sector resource requirement). This may include support with developing charging hubs (whether on public or private land) and encourage private sector deployment of rapid charge points by promoting strategic sites on Council-owned land.	SCC, districts	High	High
Make the most of available funding opportunities This could include submitting a bid to the OZEV On-Street Residential Chargepoint Scheme or similar and seeking Local Enterprise Partnership funding to deliver chargers where there is a reliance on public funding. Ipswich should share the lessons learnt from their recent LEVI funding bid to assist other districts with successful funding applications. Babergh and Mid Suffolk and West Suffolk to share outcome of ORCS bids, and share lessons learnt with other districts.	SCC, districts	High	High
Consider the potential to **integrate EV charging with other energy and transport services** such as part of new mobility hubs. Babergh and Mid Suffolk to share successes of solar car ports at Council leisure centres with other districts	SCC, districts	High	High
Review Fleet			
Babergh and Mid Suffolk to further look into options to convert fleet including LGVs, and progress the council's EV salary sacrifice scheme	Babergh and Mid Suffolk	High	Low
East Suffolk to share successes of the six BEV cars and vans for civil parking enforcement patrols, and identify further opportunities for fleet conversion	East Suffolk	High	Low
West Suffolk to undertake a fleet review to identify opportunities	West Suffolk	High	Low
Ipswich to undertake a fleet review to identify opportunities	Ipswich	High	Low
SCC to bring forward 2024 date of moving the SCC small fleet and pool vehicles to EV	SCC	High	Low

Table E1 - Recommendation summary table

Recommendation	Owner	Priority	Cost
Collaborative working with Central Government, Districts and Boroughs			
SCC should take a co-ordinating role to the planning for EVs and deployment of EVCPs across Suffolk.	SCC	Medium	Low
SCC should lead an EV forum where the County and districts can share knowledge and discuss issues and requirements. As part of this forum create a working group to address the problems of excessive costs and maintenance issues.	SCC	Medium	Low
Ensure all future EVCPs are delivered as **open access as standard.** Plug In Suffolk should continue to lead the way in being the **UK's first open access network**	SCC, districts	Medium	Low
Advocate Central Government to further reduce the costs of electric vehicle ownership compared to petrol and diesel vehicles	SCC, districts	Low	Low
Update EV parking and design standards			
As per the Building Regulations, a**dopt EV parking standards to ensure every new home with a parking space has an EV charge point**, as well as for other non-residential developments. As part of this, the districts should adopt SCC's recently updated parking guidance.	SCC, districts	High	Low
Adopt design standards for on-street chargers to enable and manage future private sector roll out of charge points. This should also ensure that all accessibility criteria are met for any future on-street charge points.	SCC, districts	Medium	Low
Provide guidance for the use of cable covers and covered ducts by residents	SCC	Low	Low
Explore wider measures			
Explore additional local incentives to increase EV uptake beyond additional charge point infrastructure. As part of this **districts** should introduce emissions based parking permits and diesel surcharges	SCC, districts	Medium	Low
Identify opportunities to **support research and innovation** in Electric Vehicles in Suffolk	SCC, districts	Low	Low
SCC to develop an aligned communications and messaging approach to maximise media coverage and exposure. **Any messaging SCC do should be forwarded on by districts.**	SCC, districts	Low	Low

Table E1 - Recommendation summary table

Recommendation	Owner	Priority	Cost
Promotional activities and awareness raising			
For existing households, promote available funding opportunities such as OZEV's EV chargepoint grant.	SCC, districts	Medium	Low
For existing workplaces, promote OZEV's EV infrastructure grant for staff and fleets, and it's Workplace Charging Scheme	SCC, districts	Medium	Low
Promote home charging share schemes such as Zap-Home	SCC, districts	Low	Low
Promote workplace charging share schemes such as Zap-Work	SCC, districts	Low	Low
Promote the Energy Saving Trust fleet reviews to private sector organisations across Suffolk	SCC, districts	Low	Low
Encourage stakeholders to deliver EV charge points at other key destinations including supermarkets and train stations	SCC, districts	Medium	Low
Districts to engage with tourist destinations and **explore tourism opportunities associated with EVs**	Districts	Low	Low
SCC to develop an E-bike and E-cargo-bike strategy, to encourage their uptake across the county	SCC, districts	Low	Low
SCC to develop a county-wide approach to car clubs. West Suffolk can share knowledge on the successful roll-out of car clubs with other districts	SCC, districts	Medium	Low
Districts to advertise existing EV charging infrastructure in council owned car parks	Districts	High	Low

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