

SDDC Annual Carbon Reduction Progress Report 2021/22

Project: Climate and Environment Action Plan 2021-30

Team: Environmental Services

Date: July 2022

Contents

Version Control	2
Approvals.....	2
Associated Documentation	2
Executive Summary.....	3
1. Context	4
2. Introduction	4
3. SDDC In-house Carbon Emission Reporting (Scope 1, 2 and 3).....	6
3.1 Total SDDC In-house carbon emissions (Scope 1 and 2)	6
3.2 Individual in-house carbon emission sources (Scope 1 and 2).....	6
3.3 Public Building carbon emissions by location (Scope 1 and 2).....	8
3.4 Scope 3 In-house carbon emission sources	9
4. South Derbyshire District-wide carbon emission estimates.....	12
5. Achievement Summary	14
6. Recommendations	16

Version Control

Version	Description of version	Effective Date
0.1	DRAFT	

Approvals

Approved by	Date
Matt Holford, Head of Environmental Services	1 July 2022

Associated Documentation

Description of Documentation	
Climate and Environment Strategy	2019
Climate and Environment Action Plan 2021-30	2021 -2030
UK local authority and regional CO2 emissions national statistics	2015 - 2019

Executive Summary.

Carbon emissions are a direct result of energy consumption. So, any reduction in carbon emissions not only supports South Derbyshire District Council's (SDDC) carbon neutral commitments and resilience to climate change, but also reduces its energy consumption. In terms of the current energy price rises this could be a significant co-benefit to reducing the Council's operational running costs.

This Carbon Reduction Report is the first of its kind for SDDC. It illustrates the main carbon emission sources of both the Council and across the area of South Derbyshire and their current trends.

The aim of the report is to highlight these carbon emission trends, analyse and compare them with prior years, to use this analysis to understand the effectiveness of the SDDC Climate and Environment Action Plan (2021-30) and the progress the Council is making towards its carbon neutral targets.

The report details how carbon emissions resulting from the Council's energy consumption have reduced year on year, showing the latest 2021/22 emissions are 21.5% lower than the Council's 2018/19 carbon emission baseline set out in the Climate and Environment Action Plan.

The report illustrates the impact of Covid19 and the lockdowns over the last two years as some of the main energy consuming areas such as the leisure centres were closed. These closures, along with increased working from home resulted in reduced energy consumption and the consequent reduction in carbon emissions.

In a similar trend, this Report details that the carbon emissions across the South Derbyshire District are reducing as well, by just over 4% from the 2018/19 baseline.

Even though carbon emissions are currently reducing in line with the Council's Climate and Environment Action Plan, this report shows the scale of the challenge. It identifies the vehicle fleet and two leisure centres as highest energy consumers. Consequently, these are the most significant carbon emitters that must be tackled for the Council to deliver carbon neutrality, pointing out the co-benefit that reducing energy consumption has on the operational running costs of the Council in the current high priced energy market.

Understanding the current carbon emission trends, the report summarises recommendations for the next steps that should be included in the annual review of the Climate and Environment Action Plan to increase its effectiveness of the Council's decarbonisation actions and to support SDDC's reduction in energy consumption.

1. Context

South Derbyshire District Council (SDDC) has a key leadership role to play in tackling climate change by reducing carbon emissions (tCO₂e) from its in-house services (those the Council controls) and by working with others to lower carbon emissions district-wide across the whole of South Derbyshire.

The Council has set out clear and transparent aspirations and commitments to tackle climate change by:

- Declaring a climate emergency and commitment to strive to reduce in-house emissions to carbon neutral by 2030 and District-wide emissions to carbon neutral by 2050.
- Publishing a Climate and Environment Strategy in 2019.
- Publishing a full Climate and Environment Action Plan (2021–30) and an associated carbon neutral pathway to 2030.
- Launching a Performance Management Programme for ensuring the delivery of the Climate and Environment Action Plan.

As part of these commitments, SDDC has been collating its in-house carbon emissions since developing its Climate and Environment Strategy in 2019. The 2018/19 annual carbon emissions form the emission baseline, upon which any emission reductions resulting from the progress of delivering the Climate and Environment Action Plan (2021-30) are based.

The South Derbyshire District-wide carbon emissions are obtained from the UK Government's National Statistics that were last published in 2021 for the 2005 to 2019 period. These are also contained in this report to illustrate the district-wide progress in carbon emission reductions as well as the scale of the future challenges to deliver carbon neutrality.

2. Introduction

This first SDDC Annual Carbon Reduction Progress Report (2021/22) details the Council's annual in-house carbon emissions resulting from its energy consumption. It analyses and compares these with the 2018/19 emission baseline and subsequent years and details the progress the Council is making towards its carbon neutral targets.

In line with the Department for Business, Energy and Industrial Strategy (BEIS) (2020) reporting guidance, Council in-house carbon emissions are categorised into Scope 1, Scope 2 or Scope 3 emissions, as detailed in Table 1 below:

Table 1: Definition of Scope 1, 2 and 3 Emissions

Category	Description	Energy consumption source
Scope 1	Direct emissions – directly controlled by Councils.	Metered heat (gas) consumed for public buildings Refrigerants used for public buildings Fuel used in SDDC vehicle fleet
Scope 2	In-direct emissions – directly controlled by Councils	Metered electricity – emissions from producing the electricity
Scope 3	In-direct emissions – only influenced by Councils	Grey mileage – employee business mileage Employee mileage commuting to work Water and wastewater usage Waste disposal Supply chain – purchased goods and services

Although the Council monitors, tracks and reports on Scope 1, 2 and 3 carbon emissions, the Council's in-house carbon neutral commitments are confined to Scope 1 and 2 only.

The South Derbyshire District-wide carbon emissions are categorised into the main carbon emission sectors of Industry, Commercial, Public Sector, Domestic Transport and Land use. This categorisation is in line with the Government's National Statistics Office.

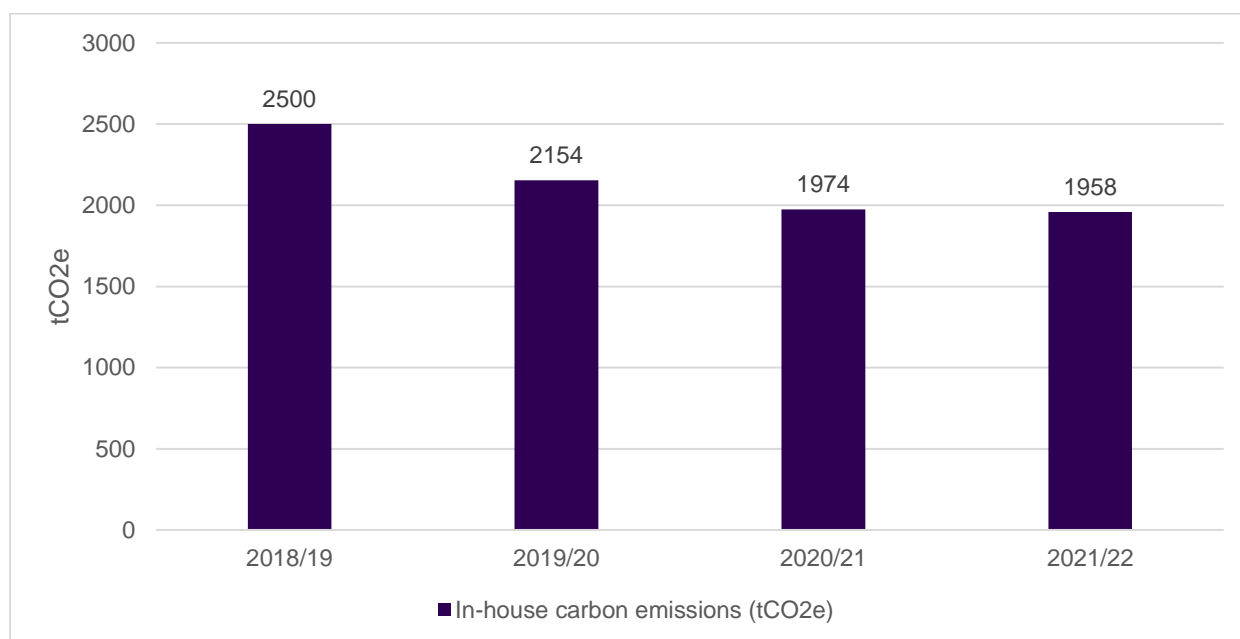
3. SDDC In-house Carbon Emission Reporting (Scope 1, 2 and 3)

The in-house carbon emissions detailed in this first annual report are based on the Council's energy consumption during the financial year 2021/22 and are calculated as tonnes of equivalent carbon dioxide (tCO₂e).

3.1 Total SDDC In-house carbon emissions (Scope 1 and 2)

This is the primary measure in understanding the progress SDDC is making on its commitment to reduce its in-house emissions (Scope 1 and 2) to carbon neutral by 2030. These in-house (Scope 1 and 2) carbon emissions result from the activities that the Council is in control of and are shown in Figure 1 below.

Figure 1: Total Scope 1 and 2 Emissions



Progress analysis:

Progress is measured relative to the 2018/19 emission baseline when the Council's energy consumption activities resulted in carbon emissions of 2,500 tCO₂e. Overall SDDC are reducing its in-house carbon emissions year by year:

- 2021/22 annual carbon emissions have reduced by 542 tCO₂e (22%) from 2018/19
- Current carbon emissions have reduced by 16 tCO₂e (0.8%) from 2020/21

To get to carbon neutral by 2030 SDDC needs to reduce its in-house carbon emissions by a yearly average of 245 tCO₂e from 2022 to 2030.

3.2 Source Specific in-house carbon emission sources (Scope 1 and 2)

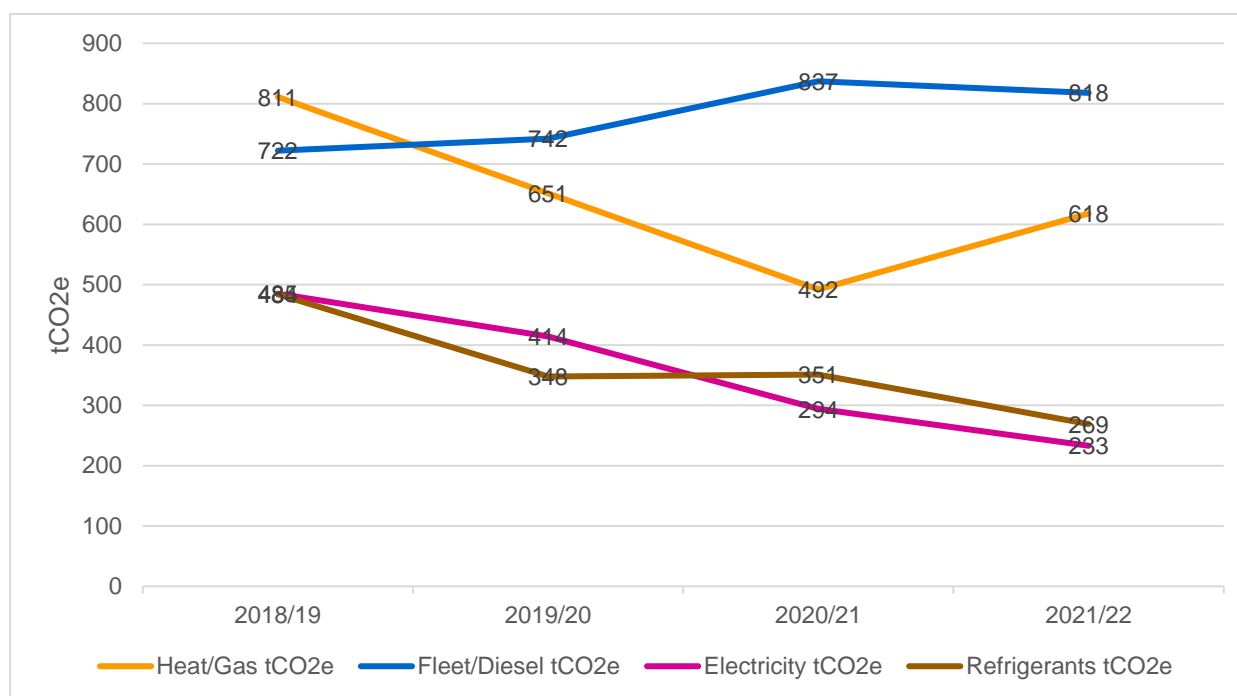
The total SDDC in-house carbon emissions (Scope 1 and 2) shown in Figure 1 are from all the Council's main operational areas of energy consumption which are under Council control, namely:

- The diesel used in its fleet vehicles (for waste collection, housing, etc)
- The heat/gas used to heat all public buildings (office buildings, swimming pools, etc)

- The electricity used in all its public buildings (lighting, power, etc)
- The refrigerants used in all its public buildings (air conditioning, water treatment, etc)

All these energy consuming sources are controlled by the Council and the carbon emissions resulting from each of these sources are illustrated in Figure 2:

Figure 2: Source Specific Scope 1 and 2 Emissions



Progress analysis:

Table 2 shows the variance in carbon emissions relative to the 2018/19 baseline of the individual energy consuming sources.

Table 2: Source Specific Scope 1 and 2 Emissions

tCO2e source	Variance between 2018 and 2022	Prior year variance
Heat/Gas	-163 tCO2e (20% reduction)	+156 tCO2e (33% increase)
Fleet/Diesel	+126 tCO2e (17% increase)	-19 tCO2e (2% reduction)
Electricity	-252 tCO2e (52% reduction)	-61 tCO2e (21% reduction)
Refrigerant	-215 tCO2e (44% reduction)	-82 tCO2e (23% reduction)

- All carbon emission sources are reducing except for those from fleet vehicles
 - The fleet carbon emissions have increased over the last two years due to the increase of waste fleet vehicles as a result of the household waste recycling contract being brought in-house.
- Covid19 lockdowns have influenced carbon emissions by causing reductions in energy consumed by SDDC:
 - Public building carbon emissions (gas, electricity and refrigerants) have reduced over the last two years as buildings have been closed.

- Electricity has seen the largest reduction as less employees use light and power in the public buildings with less people using them.

Fleet emissions are therefore currently the greatest single source of carbon emissions from Council activities.

3.3 Public Building carbon emissions by location (Scope 1 and 2)

The combined carbon emissions from the heating and powering of public buildings (gas, electric and refrigerants) contribute 60% of the Council's in-house totals. Reducing the energy consumption of public buildings has a significant impact on emission reductions as well as reducing the operating energy costs. Figures 3 and 4 below show the comparisons between the main Council public buildings:

Figure 3: Electricity Carbon Emissions by Building

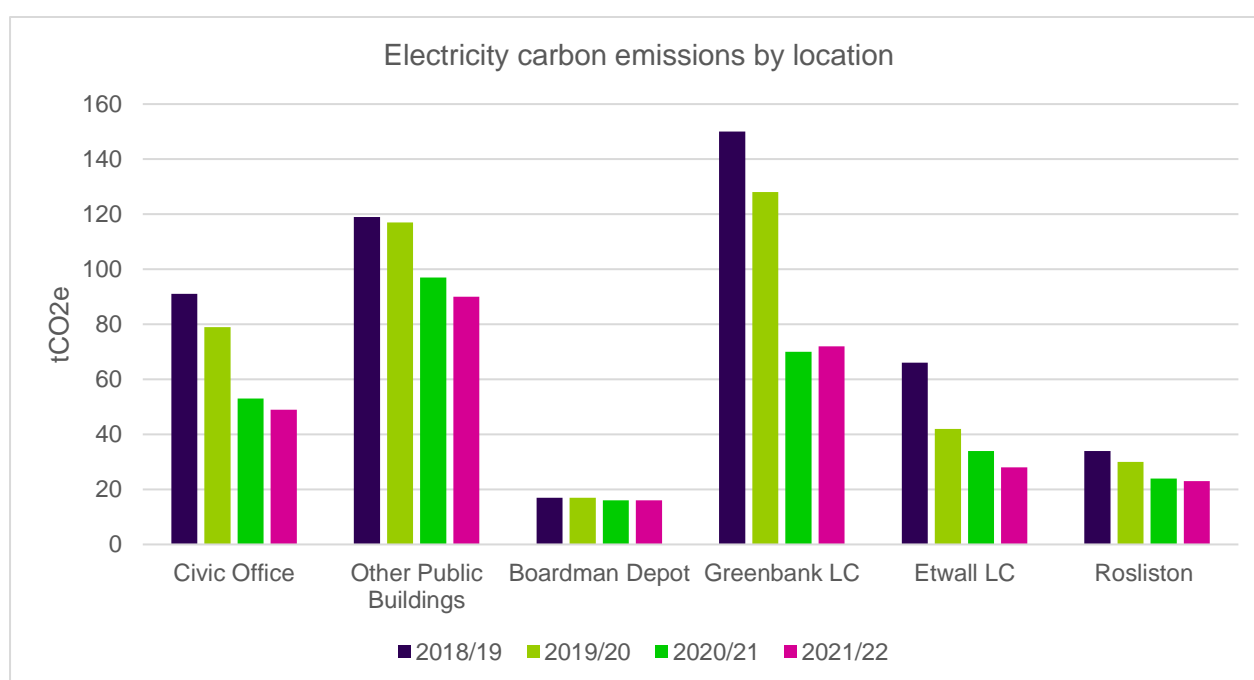
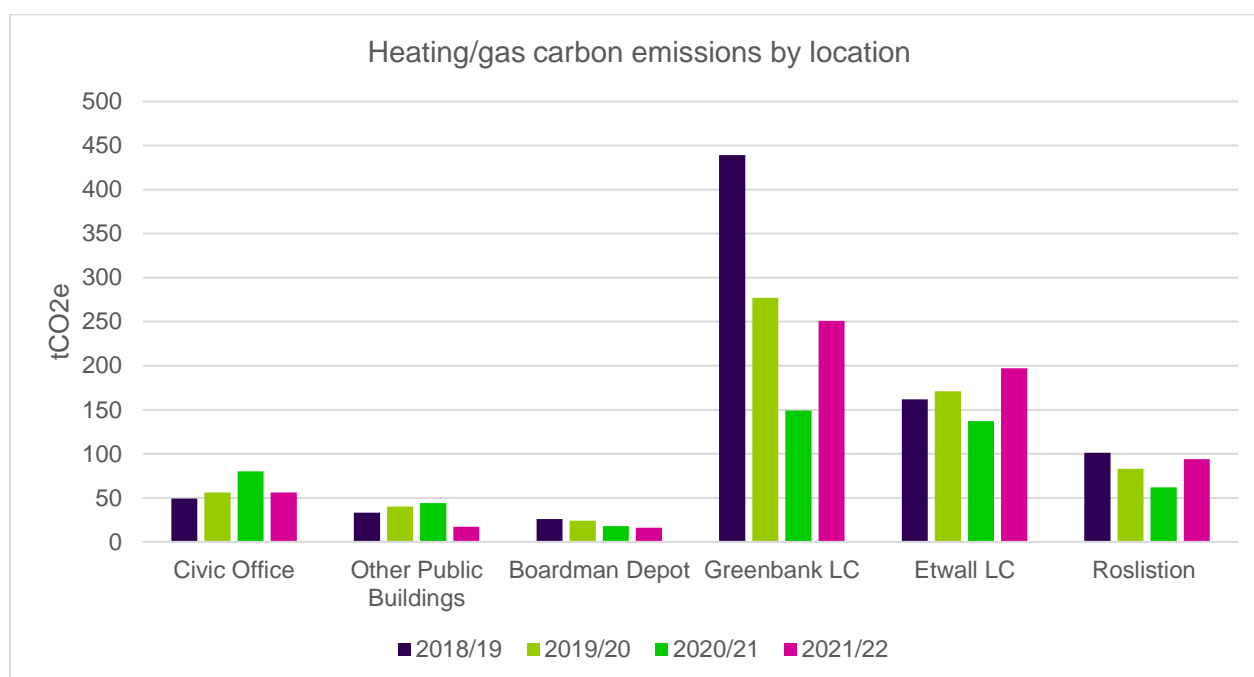


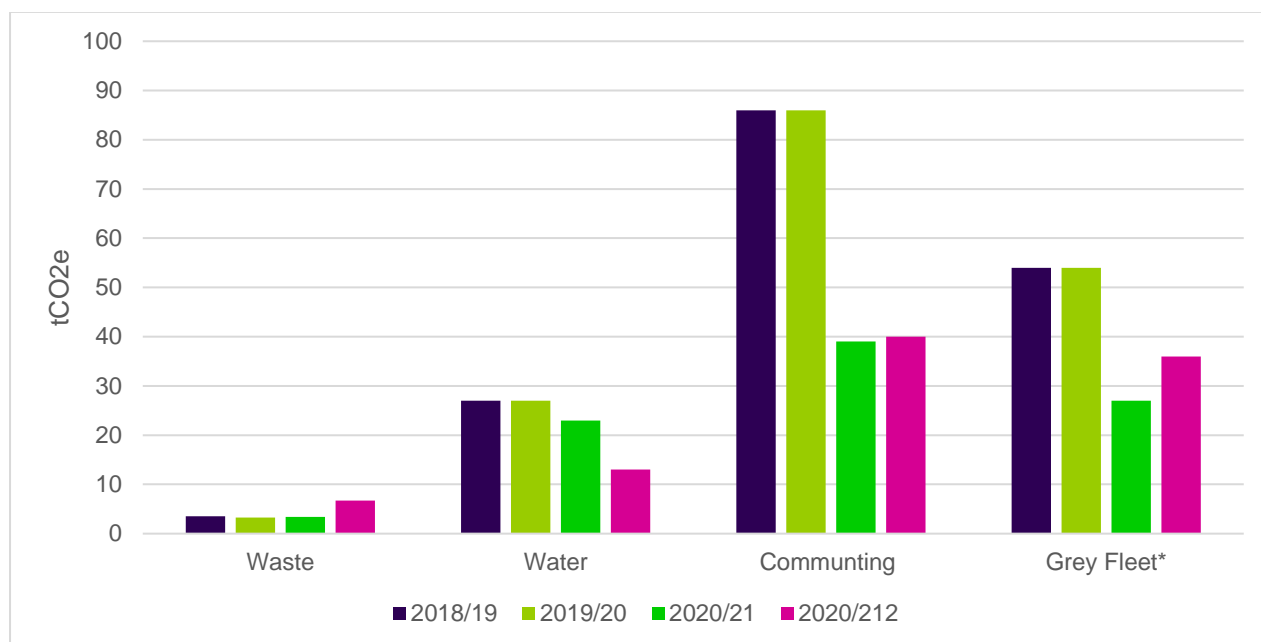
Figure 4: Natural Gas Carbon Emissions by Building**Progress analysis:**

- Gas consumption at the six operational locations emits approximately three times the amount of carbon as that caused by electricity consumption.
- Overall heating/gas carbon emission have been showing reductions at all locations excepting the two leisure centres (LC's).
- Overall electricity carbon emissions have shown a year-on-year decline in all locations
- Greenbank and Etwall LC's are by far the highest carbon emitter locations.
 - Each LC's on average uses double the amount of electricity and triple the amount of heating/gas than the Civic Offices.
 - Carbon emissions from heating/gas in the LC's are double that of electricity emissions
 - Both LC's reduced emissions in the first year of Covid lockdown but increased significantly in the second year as they opened to the public

Heating/gas of the two LC's are the most significant single contributors to the Council's in-house carbon emissions after those of the vehicle fleet.

3.4 Scope 3 In-house carbon emission sources

The Scope 3 in-house carbon emissions (those caused by in-direct activities) can only be influenced by the Council, unlike Scope 1 and 2 emissions that can be directly controlled. The Scope 3 carbon emissions can be split into those connected to the Council's activities (waste, water, commuting and grey fleet mileage) and those Scope 3 carbon emissions resulting from the Council's procurement of goods and services from its supply chain.

Figure 5: Scope 3 carbon emissions resulting from Council in-house activities

Grey Fleet* is the SDDC business mileage of employees using their own vehicles.

Progress analysis:

- Scope 3 in-house carbon emissions are relatively small.
- Scope 3 carbon emissions from Commuting and Grey Fleet mileage are the most significant.
- All Scope 3 carbon emissions reduced because of the Covid19 lockdown.
- Carbon emissions from employees commuting to work has reduced by over 50% for the past two years because of Covid lockdown and working from home.
- Grey mileage reduced by 50% in the first year of lockdown but has increased by almost 10% in the last financial year.
- Carbon emissions from water have reduced with increased numbers of employees working from home.

Scope 3 carbon emissions resulting from the Council's Supply Chain

The other element of Scope 3 carbon emissions is those resulting from the SDDC Supply Chain - those generated by other organisations as part of the process of providing goods and services to the Council. These Scope 3 Supply Chain emissions are estimated using the annual spend data of all services and goods provided to SDDC above £50k on an annual basis and the DEFRA 'Table 13' supply chain conversion factors. It must be noted that these are estimates only and the conversion factors are based on several assumptions. The table below shows the estimated carbon emissions from the Council's supply chain over the last four years.

Scope 3	2018/19	2019/20	2020/21	2021/22
Supply Chain carbon emissions	6192 tCO2e	6145 tCO2e	8131 tCO2e	8148 tCO2e

Progress analysis:

Scope 3 Supply Chain emissions are not included as part of the Council's commitment to carbon neutral by 2030, as the Council has no direct control over its suppliers' operations. However, they are significant and as such should be reported on:

- Supply Chain carbon emissions are estimated to be over three times larger than the SDDC In-house Scope 1 and 2 carbon emissions
- Supply Chain carbon emissions are increasing year on year
- The spiked increases in 2020/21 and 2021/22 are a result of large ticket spend items
 - 2020/21- Planning - Highways England
 - 2021/22 – Housing – Barclays Bank

4. South Derbyshire District-wide carbon emission estimates

As well as the Council commitment to reducing its in-house carbon emissions to carbon neutral by 2030, it has also committed to striving to support the reduction of its District-wide carbon emissions to carbon neutral by 2050 in line with the UK Governments target legislation.

Local Authority carbon emission reporting is completed by the Office of National Statistics and gives the annual carbon emissions in ktCO₂ categorised into the sectors whose activities result in carbon emissions.

The District-wide carbon emissions for the South Derbyshire district are shown in Table 3 below:

Table 3: Annual Carbon Emissions by Sector in South Derbyshire

Sector carbon emissions (kt CO ₂)	2017/18	2018/19	2019/20
Industry	137	135	124 (-9%)
Agriculture	8.8	8.7	8.8 (0)
Commercial	52	49	44 (-24%)
Public Sector	13	13	12 (-8%)
Domestic	168	170	163 (-3%)
Transport	314	310	312 (-1%)
Net emissions (forestry, crops, grass)	-11.8	-12.3	-12.5 (6%)
Total	684	676	655 (-4%)
SDDC Emissions/head tCO ₂ e	6.7	6.5	6.1

Progress analysis:

- District-wide carbon emissions have reduced by 4.4% since 2017/18
- Largest reduction of carbon emission source is the Commercial sector
- Highest carbon emission source in South Derbyshire is the Transport sector
- Lowest carbon emission source in South Derbyshire is Agriculture, although it is showing no decrease in emissions year-on-year.
- The carbon sequestration by natural sources is increasing year-on-year.
- Overall, the South Derbyshire emissions/population head on average is reducing year-on-year.

In terms of comparisons, the table below shows the total carbon emissions and the emissions per head comparisons with all other district councils in Derbyshire:

Table 4: Annual Carbon Emissions by Council Area in Derby and Derbyshire

Local Authority	Total emissions (ktCO ₂ e)		Emissions/Head	
	2017/18	2019/20	2018	2019
South Derbyshire	684	655	6.7	6.1 (-9%)
Northeast Derbyshire	481	438	4.8	4.3 (-10%)
High Peak	704	685	7.6	7.4 (-3%)
Erewash	433	416	3.8	3.6 (-5%)
Derbyshire Dales	564	539	7.9	7.4 (-6%)
Chesterfield	432	417	4.1	4.0 (-2%)
Bolsover	401	371	5.1	4.6 (-10%)
Amber Valley	672	661	5.3	5.2 (-2%)
Derby	1,069	1,012	4.2	3.9 (-7%)

Derbyshire CC	4,371	4,182	5.5	5.2 (-5%)
---------------	-------	-------	-----	-----------

Progress analysis:

- Carbon emissions are reducing in all areas of Derby and Derbyshire year on year.
- Carbon emissions in South Derbyshire have reduced per head of population by 9% since 2017/18 – the third highest reduction in Derbyshire.
- South Derbyshire has the third highest carbon emissions in Derbyshire, after High Peak and Amber Valley.

5. Achievement Summary

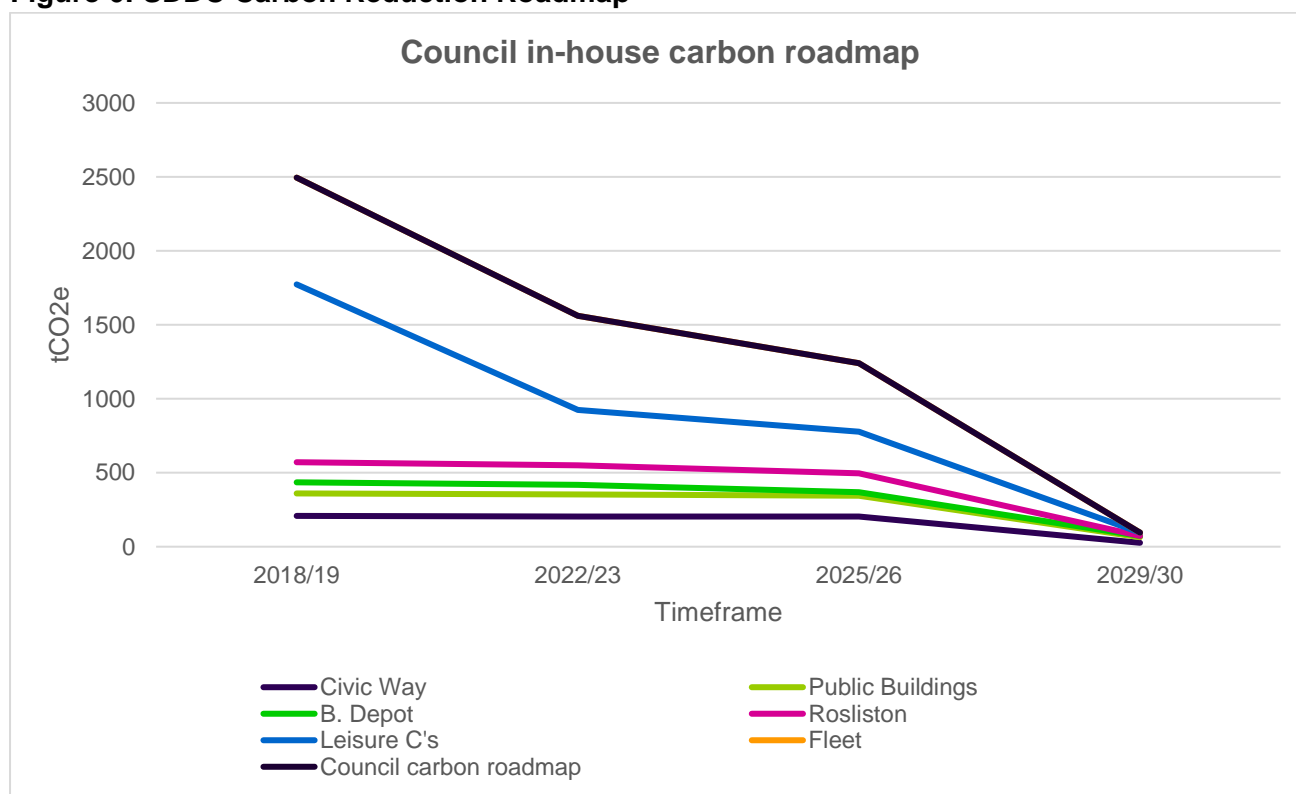
A summary of achievements that show the effectiveness of SDDC's approach is shown in Table 5:

Table 5: Achievements

Achievement	Summary
Council tracking carbon emissions	Annual in-house Scope 1, 2 and 3 emissions tracked, and 2018/19 emission benchmark established
Council Annual Carbon Report published	Annual in-house and District-wide reported emissions and analysed against emissions benchmark
Overall in-house carbon emissions have reduced year-on year	Against 2018/19 benchmark, the 2021/22 in-house carbon emissions have reduced by 21.5%
Most of the in-house Scope 1 and 2 emissions are reducing year-on-year	Emissions from heat/gas, refrigerants and electricity have all reduced significantly from the 2018/19 baseline. Only fleet vehicle emissions have increased.
Most in-house Scope 3 emissions are reducing year-on year	Emissions from waste, water, employee commuting and grey fleet are showing significant reductions.
District-wide emissions are reducing year-on year	District-wide emissions have reduced by 4% since the 2017/18 benchmark
SDDC has started to track Scope 3 Supply Chain emissions	Scope 3 Supply Chain carbon emissions are over three times the size of SDDC in-house emissions
District-wide emissions per head of population are reducing	Emissions per head of population have reduced by 9% from the 2017/18 benchmark
Compared to other districts in Derbyshire	Although the total emissions of South Derbyshire are the third highest in Derbyshire, the reduction in emissions per head of population is the third highest.

Covid19 has had its impact on SDDC's carbon emissions, with the temporary closures of Leisure Centres and the increase in working from home reducing the consumption of energy, the carbon emissions from these energy sources have also reduced.

Although SDDC still has a long way to go to achieve carbon neutrality, this 2021/22 Annual Carbon Report illustrates that SDDC has made a solid start to its carbon emission reduction journey. It also demonstrates that the decarbonisation actions that have been planned and implemented are starting to become effective. The overall carbon emission total of 1957 tCO₂e for 2021/22 and the individual carbon emissions from the in-house source locations are in alignment with the Council's in-house carbon roadmap of achieving carbon neutral by 2030, as shown in Figure 6:

Figure 6: SDDC Carbon Reduction Roadmap

Both the achievements of SDDC's actions and the impact of Covid19 illustrate that decarbonisation is achievable and the co-benefit of emission reduction will be reduced energy consumption that leads to lower operational running costs for the public buildings and vehicle fleet.

6. Recommendations

The tracking, analysis and achievements of SDDC's in-house carbon emissions also demonstrates what else needs to be done to ensure the carbon neutral targets and commitments will be met. The table below shows the recommendations and next steps required that will support SDDC's carbon neutral journey that should be fed into the annual review of the Climate and Environment Action Plan 2021-30.

Recommendations	Next Steps
Highlight the co-benefit of reducing carbon emissions – the reduction of energy consumption and subsequent operational costs	Review and prioritise all energy reduction actions considering high energy prices
Highlight highest carbon emission sources: <ul style="list-style-type: none"> Vehicle Fleet Heat/Gas consumption 	Ensure the continuation all decarbonisation actions for these sources and funding opportunities continue to be exploited to support their effectiveness.
Highlight the highest carbon emission SDDC locations: <ul style="list-style-type: none"> Greenbank Leisure Centre Etwall Leisure Centre Rosliston Centre Civic Offices 	Actions have already started, and focus should be on continuing to embed in specific carbon reduction action for these locations. As these locations require high-cost action to reduce carbon emissions, then priority is to ensure all plans are ready to exploit any external funding opportunities.
Highlight the highest carbon emission sources <ul style="list-style-type: none"> Heat/Gas Diesel fuel 	Prioritise actions that are specifically focused on these two emission sources
Highlight the scale of Scope 3 Supply Chain carbon emissions	Establish next steps for tackling Supply Chain emissions
Highlight the largest District-wide carbon emission categories	Create league table of District-wide carbon emission sectors for South Derbyshire
Identify how other Districts are reducing their district-wide emissions	Compare SDDC District-wide actions with all other Districts to include any specific best practice actions SDDC are missing.
Use the Annual Carbon Report in reviewing decarbonisation actions	Feed recommendations and learnings of this Report into the Climate and Environment Action Plan reviewing programme.