

User guidance:

- The first section of this form guides users through considering major areas where emissions are likely to occur. If emissions are impacted in a way not covered by these categories, please identify this at the bottom of the section
- The first section should be filled as such:
 - **Impact.** identify, in relation to each area, whether the decision of the proposal does the following: *reduces emissions, increases emissions, or has no impact on emissions*. If it is uncertain this section can be labelled *impact unknown*
 - If **no impact on emissions** is identified: no further detail is needed for this area, but can be added if relevant (e.g. if efforts have been made to mitigate emissions in this area.)
 - **Describe impacts or potential impacts on emissions:** two sections deal respectively with emissions from the Council (including those of contractors), and emissions across Rotherham as a whole. In both sections please explain any factors that are likely to reduce or increase emissions. If **impact unknown** has been selected, then identify the area of uncertainty and outline known variables that may affect impacts.
 - In most cases there is no need to quantify the emission impact of an area after outlining the factors that may reduce or increase emissions. In some cases, however, this may be desirable if factors can be reduced to a small number of known variables (e.g. if an emission impact is attached to a known or estimated quantity of fuel consumed).
 - **Describe any measures to mitigate emission impact:** regardless of the emission impact, in many cases steps should be taken in order to reduce mitigate all emissions associated with each area as far as possible; these steps can be outlined here (For example: if a proposal is likely to increase emissions but practices or materials have been adopted in order to reduce this overall impact, this would be described here).
 - **Outline any monitoring of emission impacts that will be carried out:** in this section outline any steps taken to monitor emission levels, or steps taken to monitor the factors that are expected to increase or reduce emission levels (for example, if waste or transport levels are being monitored this would be described here)
- A **summary paragraph** outlining the likely overall impacts of the proposal/decision on emissions should then be completed - this is not required if the proposal/decision has no impact across all areas.
- The supporting information section should be filled as followed:
 - Author/completing officer
 - **Research, data, or information** may refer to datasets, background documents, literature, consultations, or other data-gathering exercise. These should also be added to the **supporting documents** section of the cabinet report

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- Carbon Impact Assessments are to be appended to the associated cabinet reports
 - Prior to publishing reports, Carbon Impact Assessments should be sent to climate@rotherham.gov.uk for feedback
 - Report authors may also use the above email address to direct any further queries or to access further support regarding completing the assessment

Will the decision/proposal impact...	Impact	If an impact or potential impacts are identified			
		Describe impacts or potential impacts on emissions from the Council and its contractors.	Describe impact or potential impacts on emissions across Rotherham as a whole.	Describe any measures to mitigate emission impacts	Outline any monitoring of emission impacts that will be carried out
Emissions from non-domestic buildings?	<i>no impact on emissions</i>				
Emissions from transport?	<p><i>increases emissions overall</i></p> <p><i>reduces emissions in Rotherham</i></p> <p><i>increases emissions in Sheffield</i></p>	<p>Operation and maintenance of traffic signals can be expected to result in a small increase in carbon emissions. Power consumption associated with the signals is estimated 3,000 kWh p.a., resulting in 543 kg of CO2 emissions p.a. at 2020 UK average carbon intensity of electricity generation of 181 gCO2/kWh.</p> <p>There will be savings associated with maintenance and lighting for the subways which are to be removed as a consequence of the scheme.</p> <p>There will be a one-off carbon cost associated with the manufacture and retrofitting or replacement of pre-Euro 6</p>	<p>The forecast net effect of these changes is an increase of 0.1% in 2022 in territorial road transport emissions in Rotherham and Sheffield combined.</p> <p>2022 figures are indicated as modelling is specified to test compliance with NO2 targets. These may not be an indicator of carbon impacts beyond 2022 owing to background changes after that year. Modelling is not available for future years beyond 2022, although a 2023 test is in preparation.</p> <p>In that year, there is a reduction in emissions in Rotherham forecast, more than offset by increases in Sheffield. However, this change is considered smaller than the uncertainties within the forecasting and modelling undertaken, and should be viewed with caution – this is discussed further at the foot of this section.</p>	<p>Signals equipment at Bellows Road will be of low voltage type as is now standard practice.</p> <p>The plan includes support to upgrade vehicles affected by the charging scheme in Sheffield, due to launch in Spring '22. The support for taxis and vans will</p>	

		<p>vehicles to meet with the requirements of the charging scheme in Sheffield, but also in respect of the bus fleet in Rotherham.</p>	<p>Measures are forecast to save circa 1 kt p.a. CO₂ in 2022, or about 0.2% of 2019 road transport emissions in Rotherham, compared against business as usual.</p> <p>The most significant savings in Rotherham are seen on Sheffield Parkway – about 90% of the savings are seen here. This is likely an effect of reduced vehicle speeds consequential to the 50mph speed limit reducing emissions, but also of re-assignment of some traffic away from the Parkway to quicker routes given increased journey times (especially off peak) as consequence of the speed limit. This reassignment does not appear to be onto other roads in Rotherham; it may be the reassignment is on to roads into Lower Don Valley in Sheffield. As such a proportion of the apparent saving may not be a real saving of emissions, but instead an ‘off-shoring’ of emissions. This likely explains some but not all of the forecast change in emissions in Sheffield. This effect may be reduced upon opening the Parkway improvement scheme in late 2022, which is anticipated to reduce peak hour delays and so may result in a reassignment of traffic back to the Parkway in peak periods.</p> <p>It should be noted that there are uncertainties arising from the modelling,</p>	<p>include greater incentives to switch to zero emission options (as opposed to cleaner internal combustion vehicles)</p>	
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<p>Emissions from waste, or the quantity of waste itself?</p>	<p><i>increase emissions</i></p>	<p>A one-off carbon footprint can be expected from disposals arising from site clearance and excavation for the proposed schemes. Emissions can be expected upon disposal of equipment at lifecycle maintenance.</p> <p>Emissions can be expected from the decommissioning of the upgraded vehicle fleet once this reaches the end of its life, or at such time as</p>			

		more stringent measures (e.g. shift to electric or other zero emission vehicles) take force.			
Emissions from housing and domestic buildings?	<i>no impact on emissions</i>				
Emissions from construction and/or development?	<i>increase emissions</i>	There will be some negative environmental impacts in relation to the extraction and transportation of materials for the scheme along the supply chain, and with the construction of the scheme locally. These impacts are considered to be typical for a scheme of this scale.			
Carbon capture (e.g. through trees)?	<i>Impact unknown</i>				

Identify any emission impacts associated with this decision that have not been covered by the above fields:

- CAZ scheme has been developed and is required in order to reduce NO₂ specifically but will have impacts on other pollutants as outlined in general above.

Please provide a summary of all impacts and mitigation/monitoring measures:

In respect of measures in Rotherham, construction of the measures can be expected to result in one-off increase in emissions, and a small increase in emissions can be expected as consequence of the operation and maintenance of the signals. These are estimated to be small compared to the 1.2 kt p.a. (0.2%) saving forecast in road transport emissions Rotherham as a consequence of the Clean Air Zone package. It should be noted that most of this saving relates to the reduced speed limit on Sheffield Parkway, and that a proportion of this may be an 'off-shoring' of emissions associated with traffic redistribution, rather than a genuine saving.

In the round, the proposals are forecast to increase carbon emissions, by about 0.1% of 2019 transport emissions in Sheffield and Rotherham combined. Additional one-off emissions can be associated with delivery of infrastructure and vehicle fleet upgrade; the quantum of emissions

associated with these is unknown.

There are uncertainties associated with modelling the impact of the scheme, especially for years beyond 2022. These uncertainties are considered larger than the changes of emissions forecast, a reflection of the very small impact of the proposals on balance.

Supporting information:

Reports to cabinet regarding air quality and requirements on RMBC to improve it in shortest time possible.

- The National Air Quality Plan, published by Department for Environment, Food and Rural Affairs (DEFRA) in July 2017
- Cabinet report 17/12/2018 – Item 83 [Improving Air Quality in Rotherham](#)
- Cabinet report 22/3/21 - Item 134 :[SCC/RMBC Clean Air Zone Programme-Approval to deliver Rotherham's Air Quality Measures Projects](#)
- Sheffield & Rotherham Clean Air Plan – Full Business Case

Completed by:
(Name, title, and service area/directorate).

Nat Porter, Senior Transport Planner, Transportation Infrastructure Service,
Regeneration & Environment

Please outline any research, data, or information used to complete this [form].

CAZ savings, and trip length distribution, derived from modelling using Sheffield City Region Transport Model 1.

Estimates of power consumption at signals from UKERC 'Quick Hits – 3. Traffic Signals (2006), adjusted in light of local officer experience.

UK Electricity Carbon Intensity from National Grid.

If quantities of emissions are relevant to and have been used in this form please identify which conversion factors have been used to quantify impacts.

Carbon intensity of Electricity taken to be 181 g / kWh.
Carbon intensity of road traffic is modelled utilising SATURN and ENEVAL, and reflect forecast speeds and flows using industry standard curves.

Tracking [to be completed by Policy Support / Climate Champions]