# 2017-18
# Waste emissions baseline report

London Borough of Lambeth

July 2020

lambeth

# Background and methodology

In order to achieve Lambeth Council's strategy to become carbon neutral in council operations by 2030, an emissions baselining report has been published outlining greenhouse gas emissions from energy and gas, transport and water use for the year 2018-19. The Department for Business, Energy and Industrial Strategy (BEIS) conversion factors used for the rest of the baselining report aren't suitable for calculation of scope 3 emissions from waste as they only provide emissions for transport of waste to the facility and minimal preparation. Treatment processes are omitted, meaning that the emissions are shown to be the same for incineration, landfill and recycling, and so a different methodology was required to accurately estimate emissions from waste and reflect carbon impacts from different types of treatment.

The Greater London Authority (GLA) standard for LA emissions calculations for waste treatment is the Emissions Performance Standard (EPS) Ready Reckoner (RR), developed to allow comparison of emissions from London boroughs' waste management and model emissions scenarios. The RR accounts for impacts of treatment processes as well as transport. For example, for incineration of residual waste, both the composition of waste, and heat and electricity generation efficiency of the treatment facility are considered. The method therefore shows reduction in emissions through increase in lower-carbon treatment options. The EPS RR also uses conversion factors to calculate mass of $CO_2$e from tonnage of waste (these can be found in the Ready Reckoner Guidance document), using a variety of factor sources which have been assessed for their accuracy and utility for each application.

The RR gives the option to use imported WasteDataFlow (WDF) data or our own data. WDF is the system for reporting of municipal waste UK LAs to government. It feeds into national statistics and provides evidence to guide policy, so is robust data for our baselining purposes here. For Lambeth, WDF data is used for the LA-collected waste; transport; rejects from material collected separately for recycling; composition and reject rate of co-mingled dry recycling; and onward treatment assumptions. Our own data was used for residual waste composition and a mix of the two was used for transport and treatment data. It's important to note that the baseline for this section is for 2017-18 as this is the most recent year for which the waste team had inputted data from the RR for GLA reporting and to model future emissions scenarios.

Negative scores for emissions given by the RR indicate that waste management processes can save more $CO_2$ than they emit, so contributing to overall emissions reduction and showing that a net carbon benefit is achieved.

# Assumptions and exceptions

The RR baseline for transport assumes 775 tCO$_2$e from kerbside collection transport for Lambeth. Treatment transport (to the treatment facility) is based on real data. We have

replaced this contribution of the assumption to total emissions with real Lambeth data, using 2017 BEIS conversion factor, to improve accuracy. The conversion factor 1.47400 $kgCO_2e$/mile, for rigid heavy goods vehicles above 17 tonnes in weight and 50% laden to reflect an average of outbound and return journeys, was used. Mileage of the vehicle fleet for 2017-18 was used to be consistent with the rest of the waste data, except in the cases of 2 vehicles for which mileage data wasn't available for this year. It was replaced with mileage data for 2018-19 for the same vehicles which should reflect a similar distance to that travelled the year prior. One vehicle, which travelled 4,074 miles, only had data for February - June 2019 available and so this was used instead of 2017-18 data.

In the RR, the conversion factors with units $kgCO_2e$/km.tonne was used to give an equivalent measure of 1 tonne of waste transported per kilometre. We do not currently have sufficient data on vehicle tonnage for each collection to use this factor to keep the collection transport emissions consistent with the treatment transport emissions from the RR.

## Results

Total scope 3 emissions from waste in Lambeth are 1,717.06 $tCO_2e$. Of the positive sources of emissions, 93.2% are from incineration of waste, and 6.8% from transport for kerbside and treatment collections. These are offset by negative scores given for recycling, reuse and organics treatment, of which recycling contributes 98.1% (Table 1). Lambeth sends no waste to landfill so emissions are 0. The total emissions from collection transport for Lambeth is 702.67 $tCO_2e$, which was added to the RR treatment transport figure to give more accurate Lambeth emissions. Please see Figure 1 and Table 1.
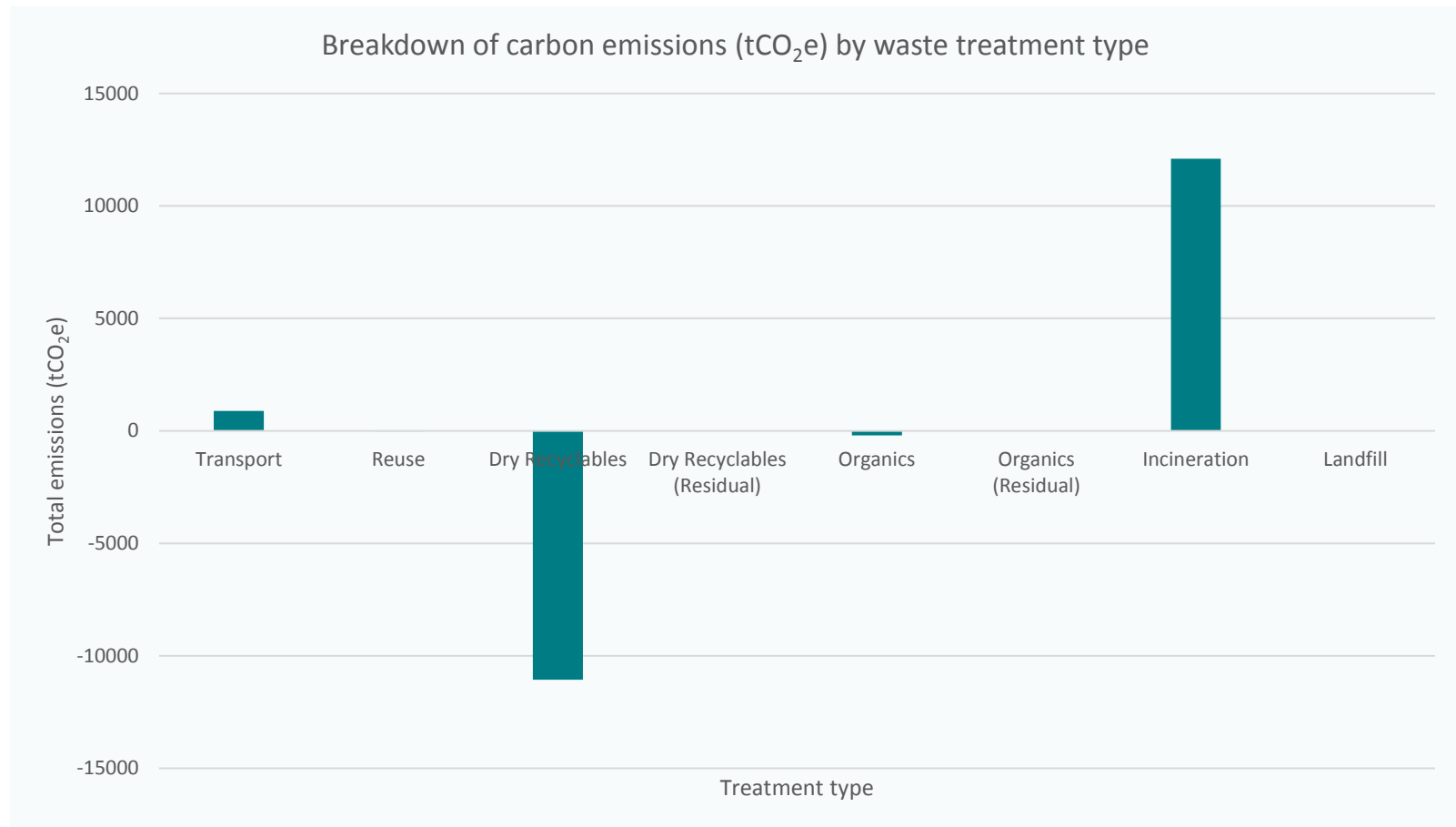
Figure 1. Breakdown of emissions from waste for 2017-18 by waste treatment type and transport, calculated using the EPS Ready Reckoner. Positive emissions indicate carbon emissions, while negative values indicate carbon savings. No waste is sent to landfill.

| | Positive emissions | | Negative emissions | | | Total |
|---|---|---|---|---|---|---|
| | Transport | Incineration | Reuse | Dry Recyclables | Organics | |
| Emissions (tCO₂e) | 888.25 | 12,097.35 | -3.59 | -11,059.52 | -205.43 | 1,717.06 |

Table 1. Breakdown of emissions (tCO$_2$e) from waste for 2017-18, plus total emissions. Positive emissions indicate where treatment emits carbon, and negative emissions are where treatment offsets carbon by diverting waste from a carbon-emitting process. Not included here are landfill and mechanical biological treatment, and recycling and organics treatment of residual waste, because for Lambeth these values are 0.