The Elephant Park Masterplan aims to transform the Elephant and Castle district – one of London’s historic hearts – into Central London’s greenest new place to live accommodating 2,500 new residences, spaces for retail, leisure, education and business, as well as a brand new park right in the centre of the scheme. The regeneration is a development project from Lendlease and is a Stage 2, Participant in the C40 Climate Positive Development Program.

C40’s Climate Positive Development Program sets out a framework that helps guide a project’s journey to achieve a net-carbon negative outcome, encouraging developers to create a revolutionary new model of ambitious sustainable development. As a member of C40’s Climate Positive Development Program, the Elephant Park Roadmap Summary seeks to plan for, measure and verify this positive environmental impact though tracking and monitoring the development’s operational carbon impact and implementing measures to reduce and offset this impact.

Climate Positive development provides powerful solutions to ameliorating the profound impacts of climate change and urbanization. By targeting the goal of reduction towards offsetting emissions on-site and in surrounding areas, a Climate Positive Development radically shifts the trajectory of urban development to a new level of resiliency and sustainability.
As stated in the Climate Positive Roadmap; “The Elephant and Castle regeneration project represents a once in a lifetime opportunity to make real sustainable change in the heart of one of the world’s most urban, cosmopolitan and vibrant cities and will help create a blue print for sustainable design, sustainable construction, and sustainable living well into the future”. Success will require a close collaboration with our local community and cannot be delivered through onsite efficiency interventions alone.

This brief document represents a summary of the Elephant Park Climate Positive Roadmap, which details and quantifies the journey the project will take to achieve net carbon negative outcomes, as required under the Climate Positive Framework.

More detail on each of the strategies and calculations presented in this document can be found in the complete Roadmap.

SITE OVERVIEW

The Elephant Park Masterplan, located within the Elephant and Castle area, will comprise of up to 2500 homes, and over 30,000 square meters of business, retail, community and leisure space. The site, located in Zone 1, Central London, in the London Borough of Southwark, occupies an area of 9.71 hectares. The proposed development will include a major new public park; substantial accessible public space, and provision of private and communal residential amenity across the site.

Two key strategies in Climate Positive to offset emissions:

Efficiency/Impact Reduction: These are measures that reduce the carbon impact from Energy, Transport and Waste, thereby reducing the total operational annual carbon emissions on site. These carbon savings through efficiency measures are necessary to reduce the baseline emissions impact but are not sufficient to achieve a final Climate Positive outcome.

Climate Positive Credits: These measures often have an impact that extends beyond the boundary of the site. Climate Positive Credits help offset the remaining carbon emissions, resulting in net-negative emissions (Climate Positive Outcome). These measures involve reducing the emissions of the adjacent community or creating additional carbon sinks through carbon sequestration measures.

FIGURE 1: Elephant Park Masterplan
source: Lendlease
DETERMINING BASELINES

In order to achieve a Climate Positive outcome; the total emissions from energy, waste and transportation that enter the atmosphere as a result of the development’s operational activity must be offset to a net-negative level. To determine how this is to be done, a baseline assessment was determined to evaluate the development’s impacts in a business-as-usual scenario using carbon dioxide emissions as a metric. Understanding the level of emissions under a business-as-usual scenario provides a quantifiable target for achieving carbon reduction and eventually climate positive targets.

<table>
<thead>
<tr>
<th>ANNUAL PROJECTED IMPACT (tCO2e)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy Use</td>
</tr>
<tr>
<td>Waste</td>
</tr>
<tr>
<td>Transportation</td>
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<tr>
<td>TOTAL</td>
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</tbody>
</table>

FIGURE 2: Annual Projected Baseline Impact

Note: This projection is in the process of being updated as part of the ongoing development and in response to changes in the capacity of the energy centre. Figures remain as stated in the original roadmap. Emissions from construction activities on site will not be incorporated as part of the Baseline Carbon Impact of the site. Key Impact Reduction Strategies during the construction phase will also be included in the scope of this report but will not be used to offset baseline operational emissions.

STRATEGIES FOR ACHIEVING CLIMATE POSITIVE

With the baseline established, the following section summarizes strategies presented in the Elephant Park Climate Positive Roadmap to maximize efficiency onsite and abate emissions offsite to achieve net carbon negative results in energy, transportation and waste.

ENERGY IMPACT REDUCTION

The Energy Strategy adopts London’s Energy Hierarchy, which prioritizes energy demand reduction (be lean), efficient supply (be clean), and then considers renewable energy to meet the remaining energy demand (be green).

- **Measures to reduce demand (be lean)** – Achieve a BREEAM (Building Research Establishment Environmental Assessment Methodology) excellent rating for non-residential elements of the development. Build to higher levels of the Code for Sustainable Homes (level 4) across the Development and to Code level 5 on specific units. Design teams are challenged to look for opportunities to innovate and increase energy efficiency throughout the design process.

- **Efficient energy generation (be clean)** – Centralized systems of Combined Heat and Power delivery via a district heating network established through multiple stages as demand increases with the development, thereby reducing the potential for generating excess heat.

- **Renewable energy (be green)** – Maintain flexibility to ensure the optimal carbon outcome accommodates changes in technology and fuel supply. Maximizing on-site renewable energy technologies through a Plot Specific Energy Strategy, which has so far established Solar PV and biomethane fluid injection grids as viable technologies, will achieve this.

- **Behaviour change (offsets)** – use the Development as a catalyst for behavior change or the adoption of low carbon technologies in the wider local community. Potential partnership to deliver reductions in carbon are in the process of being reviewed so as to be in place for the first year of operation.
• **Total energy demand & CO2 emissions** – The figure above illustrates the carbon abated from the aforementioned strategies as they are related to various policy and regulatory frameworks.

### WASTE REDUCTION STRATEGY

Elephant and Castle is located in the London Borough of Southwark; and as a Unitary Authority, Southwark are responsible for the collection, treatment and final disposal of all municipal solid waste (including household but excluding commercial wastes) within its area. The solid waste strategy includes education of residents to help reduce waste generation whenever possible in order to minimize landfill waste and promote high levels of recycling.

Facilities for recycling will be provided to encourage residents to maximise segregation of recyclables from refuse. During construction and demolition, there will be a minimum target of 98% diversion (by weight) of waste from landfill. Limits on the total volumes of waste from construction have also been set.

### TRANSPORTATION STRATEGY

The development will promote walking, cycling, and car sharing as an alternative to the use of traditional transport networks whilst enhancing public...
transit services to improve one of London’s major transportation hubs into a model for sustainable transport and urban connectivity.

- Promote walking – Use signage, walking buses, improve public realm safety, and provide links to existing green corridors and public transport
- Promote cycling – Provide cycle paths, signage, hire stations, maintenance facilities, safety
- Training, user groups, and approximately 3,350 new cycling spaces
- Expanding and enhancing accessible public transit services
- Reduce car travel – Promote car sharing, develop a parking management strategy, provide car club parking spaces and green freight (service and delivery) infrastructure. Encourage the adoption of electric vehicles by provide charging stations for 10% of total retail parking spaces and 20% of residential parking with infrastructure to continue expanding charging stations in the future.

**CLIMATE POSITIVE CREDIT PROJECTS**

A key component of the Climate Positive Development Programme is the quantification of reduction of carbon emissions in the wider community in addition to the emissions reduction and efficiency strategies as part of the Elephant Park operations. Conservative approaches were taken to become net-positive, and the Roadmap has outlined the following projects, with flexibility in place to accommodate increases in scale and technological functionality.

**Site wide Climate Positive Projects:**

*District Heating Network* – connect at least 1,000 homes outside the development to the central heating grid with space available to extend further.

*Low energy street lighting* – An example of a partnership project could be the installation of LED street lighting, which has the potential for 50% carbon savings, and work closely with academia to support study data in order to catalyze LED retrofitting projects throughout the city. The LED street light initiative has the potential to reduce nearly 1,500 tons of CO2 per year, as roughly 10-25% of borough energy is used on street lighting.

*Retrofitting projects for older properties* – Aim to retrofit and refurbish residential and commercial buildings in the area, targeting buildings where landlords and tenants have been unwilling to upgrade buildings due to various economic conditions.

*Carbon Sequestration* – Replace any lost trees on-site and plant a further 1,200 trees across the site and in the surrounding areas.

**CONSTRUCTION EMISSION REDUCTION**

Emissions from construction are not included as part of the calculation of emission impacts of a development. However, Lendlease has included a stepwise plan with additional recommendations for reducing emissions during construction, including embodied emissions.