

Decarbonisation

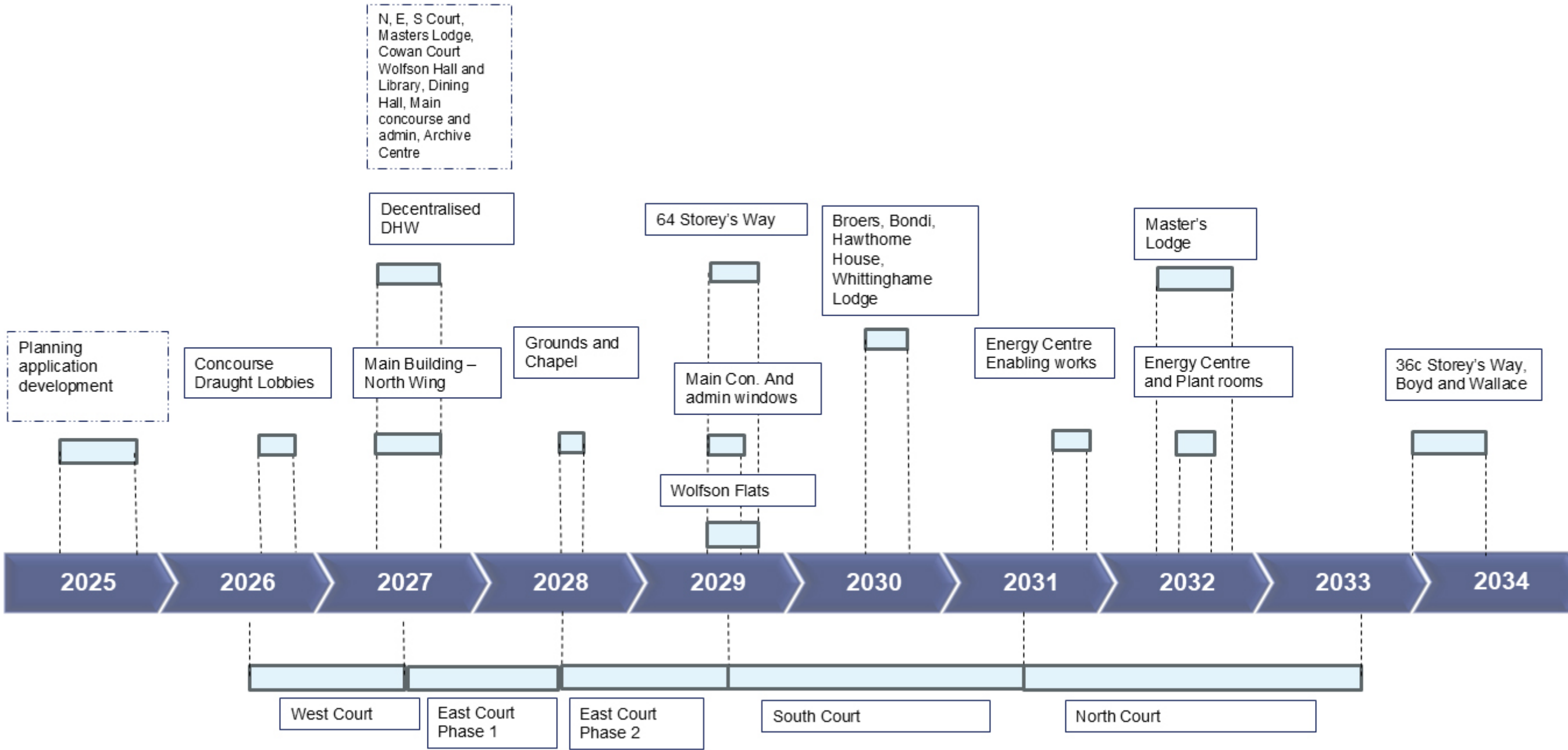
The University of Cambridge set a Science Based Target in 2019, committing itself to reduce its energy-related carbon emissions to absolute zero by 2048, with an additional aspiration to achieve this goal a decade earlier to assist with keeping global warming to below 1.5°C. Churchill College has embraced and furthered this ambition and set the following KPIs in 2022:

Aim: To reduce scope 1, 2 and 3 carbon emissions to zero.

College KPIs

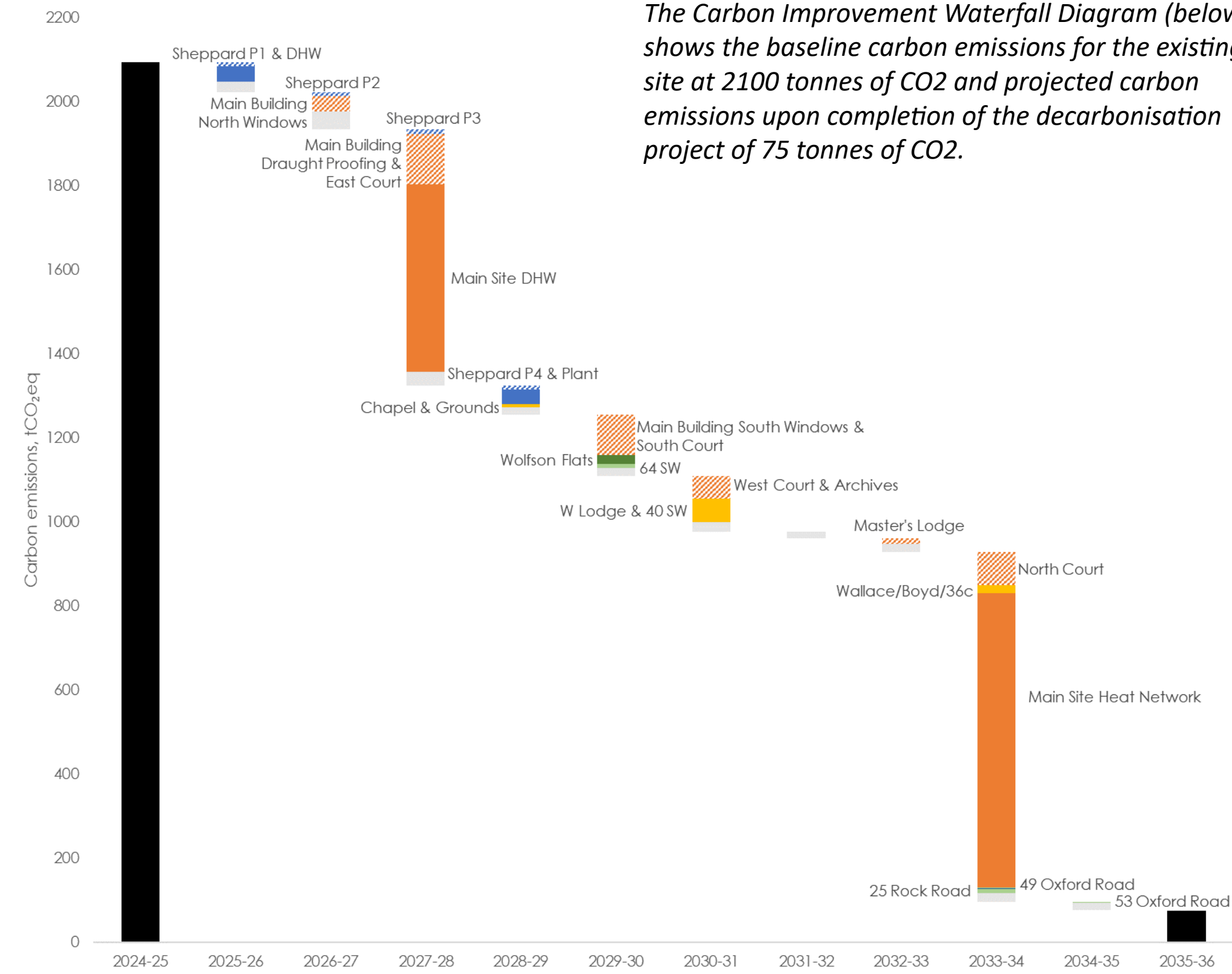
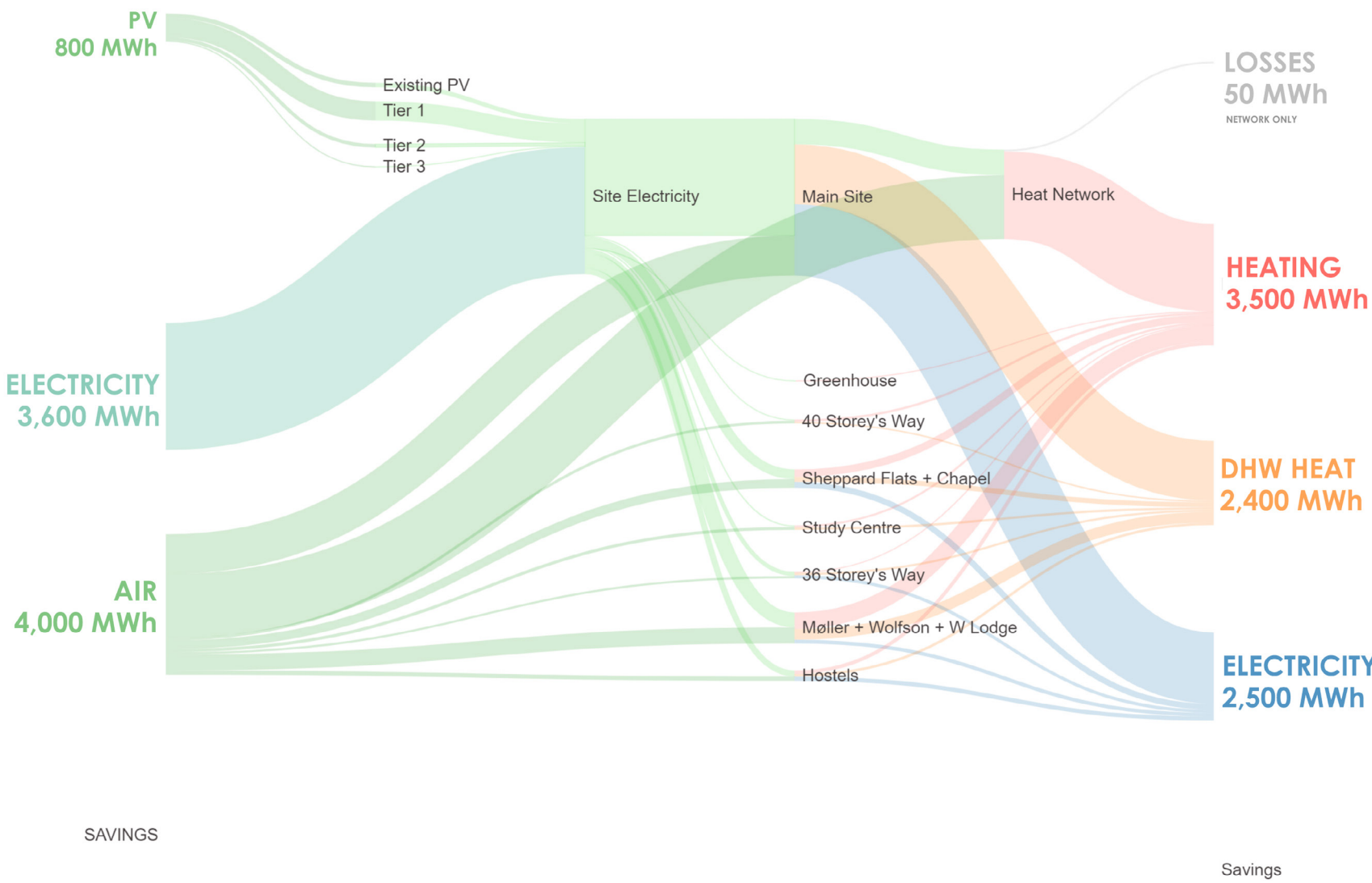
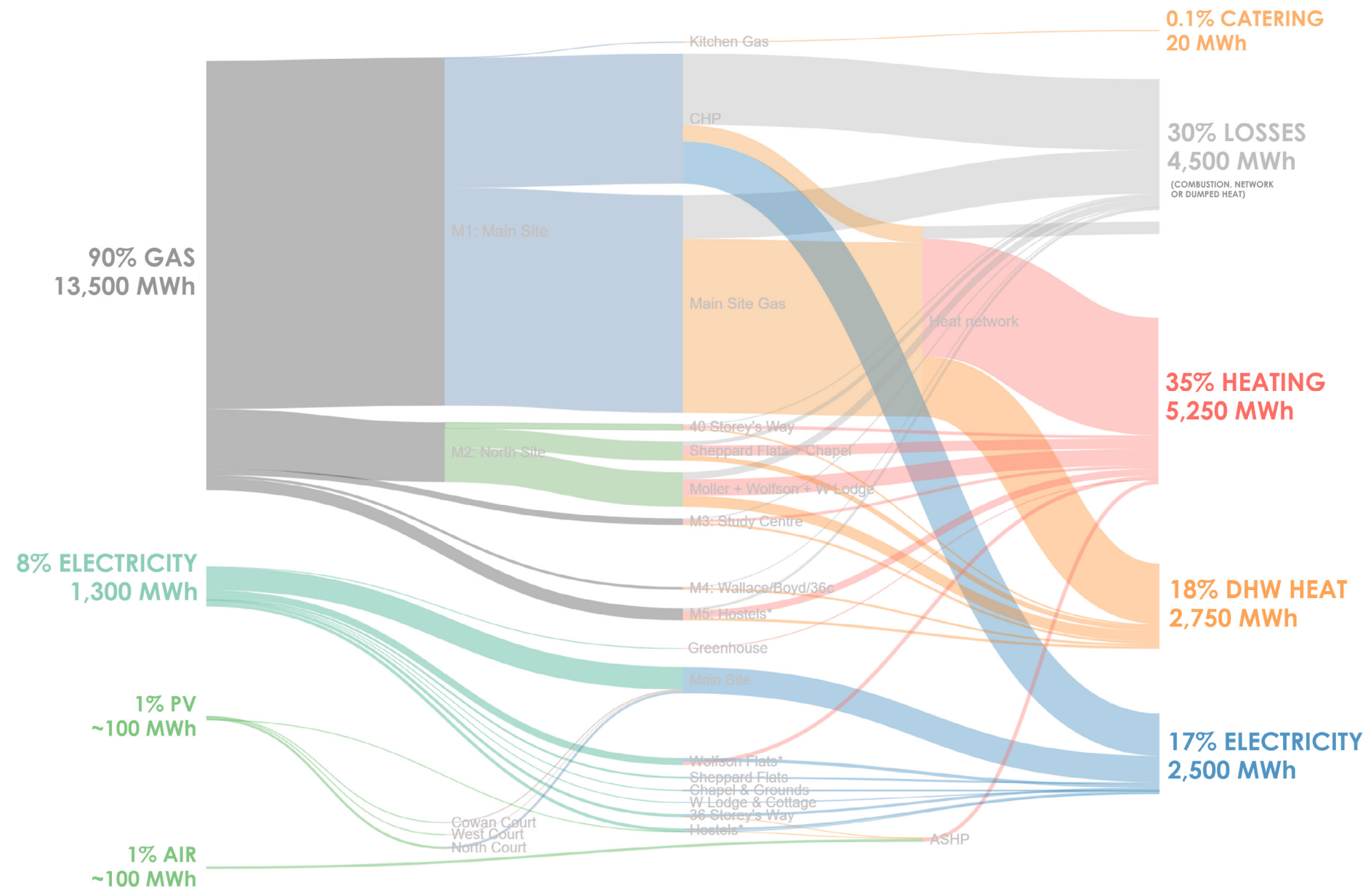
1. Utilising the University's science-based targeting approach for carbon reduction, reduce all energy related carbon emissions to zero by 2035 with scope 1 and 2 emissions by 2030.
2. Progress towards elimination of natural gas usage with elimination of natural gas consumption by 2030 (measured in kW/h per year) utilising innovative and forward looking solutions wherever possible.
3. Commence monitoring of environmental conditions and energy usage across College in 2022 utilising innovative student led projects for data collection. A study into the feasibility of decarbonising the College estate carried out last year led to the development of an achievable programme of fabric improvement and heat decarbonisation works to reach net zero carbon by 2035. This programme acknowledges working within the limits of heritage and College cashflow as well as the difficulties that come with disruption and decant in a live operational environment.

The timeline (below) shows an outline programme, separating the works into a sequence of phases.



The Sankey diagram above shows the existing energy sources and uses.

The Sankey diagram below shows the new energy sources and uses following the decarbonisation project



The Carbon Improvement Waterfall Diagram (below) shows the baseline carbon emissions for the existing site at 2100 tonnes of CO2 and projected carbon emissions upon completion of the decarbonisation project of 75 tonnes of CO2.

The diagram below shows the existing heating methods for the site. The Heat Decarbonisation Project proposes the following key changes.

- The separation of the space heating and hot water to the central networked site.

• A new Energy Centre using Air Source Heat Pumps providing space heating to the central networked site.

• New local Air Source Heat Pumps providing hot water.

• New local Air Source Heat Pumps to the wider site providing both heating and hot water.

