

## **Appendix 5 Matrix to Assess Climate Change Impact – Schools Capital Programme 2023 - 2027**

### **Introduction**

#### **Schools Capital Programme 2023 – 2027**

The Climate change impacts detailed below are to be mitigated by the measures detailed in the tables below.

They represent good design principles to be incorporated into specific project briefs issued to design teams, and then through the design and procurement process will manifest themselves in specifications and drawn design details issued to contractors and their supply chains.

The proposals shall include compliance with council policy to achieve BREEAM very good and 35% carbon reduction against 2022 building regulations. The schemes also offer an opportunity to involve pupils in the design process, set a good example in the day to day running of the school and allow pupils to monitor and learn from their school as part of the curriculum and informal learning.

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Issue	Positive impact	Negative impact	Mitigation measures	Effect on CO2 emissions (+ or – tonnes of CO2)	Opportunity to promote
<b>Water and Flooding use</b>	The new and refurbished buildings will meet planning policy requirements including achieving BREEAM Excellent for Water credits for new build schemes. Water efficiency measures will be installed in refurbishment and new build schemes e.g. percussive taps and water efficient dual flush toilets. Sustainable drainage a key consideration. Water butts will be considered as part of sustainable drainage on projects, including rainwater planters to slow down rainwater runoff.	There will be increased site use of water due to intensification of site occupation.	Maximise water efficiency measures in schemes, together with school campaigns (once occupied) to reduce water use. Include SUDS to reduce surface water run-off and flood mitigation measures for schools in flood risk areas, e.g. reduce run off using rainwater planters before discharge into including public sewer.	To be quantified at detailed design stage.	Encourage pupils to conserve water and to become water conservation champions.  The contractor could provide training and support to the school to ensure it uses the buildings efficiently.
<b>Energy Efficiency</b>	Proposals will comply with London Plan targets. This will require 35% on site carbon reduction against 2022 Building Regulations with	Energy consumption generated by the construction process and sourcing of materials.  Increased energy	Encourage the contractor to minimise energy use during the construction period and use materials with low embodied carbon content.	To be quantified at detailed design stage.	Encourage the pupils to conserve energy and to become energy champions.  Soft landing approach: the contractor to provide

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	<p>remainder to zero carbon offset through capital contributions towards the Council's Carbon Offset Fund.</p> <p>15% reduction to be achieved by reducing energy demand through design and specification of building fabric and services installations.</p> <p>Proposals will apply the energy hierarchy principles, Be Lean, Be Clean, Be Green.</p> <p>New services and modifications to existing mechanical services to meet (as a minimum) BB97, CIBSE, Part L2A (new build), Part L2B (remodelling areas) requirements in respect to energy conservation.</p> <p>LED lighting with controls to be installed.</p> <p>All new plant &amp;</p>	<p>consumption due to the additional numbers of pupils (consequence of population increase) that the expanded school will accommodate.</p> <p>Mechanical ventilation to toilets, kitchenettes and internal occupied spaces.</p>	<p>Encourage users to conserve energy through working with Climate Outreach Officers and education.</p> <p>Extend existing heating system to new where possible (and where efficient). Any new plant to be energy efficient and sustainable.</p> <p>Energy conservation, metering and monitoring to be included.</p>		<p>return visits following hand over to fine tune the system controls; check energy meter consumptions against targets and ensure that the buildings are operating as designed</p> <p>Provide training and support to the schools to ensure it uses the buildings efficiently.</p>

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	<p>systems will be energy efficient</p> <p>New extensions / blocks to be naturally ventilated if possible. Concerns re: air quality will entail a site-specific solution, e.g. Mechanical Ventilation with Heat Recovery.</p> <p>Consideration of renewable energy, including PV Panels as part of early design process.</p> <p>All new extensions / new builds will be constructed to modern standards with an air leakage rate that will not exceed 5m3/h/m3 at 50Pa and will meet planning policy requirements where applicable.</p>				

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<b>Air</b> Air quality, pollution.	Existing and new buildings to be naturally ventilated where possible. Mechanical Ventilation with Heat Recovery to be considered where this cannot be achieved, e.g. in areas of poor air quality. New build: Stack ventilation to be considered. Increased tree planting and on site greening where this can be facilitated. Consideration of renewable (and non-combustible) energy where suitable.	Air pollution generated by the construction process.  Potential increase in traffic from the school run due to increased pupil numbers.	Surveys to be instigated with the Air Quality Officer to establish what approach gives the best outcomes.  Where mechanical ventilation is required, systems shall include for energy reclaim facilities to pre-heat incoming air.  Non-combustible heating such as air source heat pumps to be prioritised.  Encourage contractor to use construction methods and machinery that minimise air pollution.  Mechanical ventilation to toilets, kitchenettes and internal occupied spaces.  Work with schools to	To be quantified at detailed design stage.	Project Managers to support the schools in developing sustainable travel plans with support from Highways.  Contractor to report efficiency and emissions of all new systems at end of programme.

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			implement sustainable modes of transport utilising the school travel plan as a driver for change, and to reduce parking spaces, to include considerations for EV charging, enhanced cycle storage and low traffic neighbourhoods (subject to consultation).		
<b>Waste</b> Reducing, reusing and recycling waste.	Reduction of waste through use of sustainable, durable materials in construction. The selected main contractor will engage with waste recycling specialists aligned to meet the local and national recycling and sustainable targets as published by WRAP and others as well as targets required through planning policy.  Opportunity to review	Waste generated by the construction process.	Design proposals will optimise adaptation and refurbishment of existing assets to meet new requirements, thus using fewer resources.  The contractor will be required to produce a site waste management plan and will be encouraged to use recycled materials as part of the construction.  The contractor's waste output will be part of	To be quantified at detailed design stage.	Integrate recycling opportunities in the building and on site and in the management of the new buildings.  Engagement with pupils through the contractor's Schools Liaison Officers.

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	and improve the onsite operational waste management and recycling facilities with each project proposal through better holistic design.		the monthly progress reporting strategy.		
<b>Land</b> Use of brownfield and greenfield sites.	Use of existing site.	None.	Not applicable.	To be quantified at detailed design stage.	Redevelopment of school site within the existing school community.

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Issue	Positive impact	Negative impact	Mitigation measures	Effect on CO2 emissions (+ or – tonnes of CO2)	Opportunity to promote
<b>Biodiversity</b> Effects on bio-diversity including green space, trees, rivers and streams.	Appropriately landscaped premises plans as part of holistic school design; Additional works will be undertaken to habitat gardens, play areas, external learning environments, including new planting and tree-replanting within site to encourage wildlife.	To be quantified (and minimised) at detailed design stage. Policy will be followed regarding re-provision of bio-diversity/ habitats at appropriate milestones , including new tree planting.	Undertake ecological survey as part of project feasibility and drive forward recommendations as part of design. Loss of existing trees to be avoided wherever possible and mitigated by additional tree planting and green areas in line with Council and Planning Policy. Opportunities to enhance biodiversity with integrated bird/bat boxes and green/brown roofs.	To be quantified at detailed design stage.	Improved external learning and play environment in all school sites.
<b>Transport</b> Travelling to deliver service. Discouraging car use and encouraging walking, cycling and use of public transport.	The provision of additional school places will reduce travel distances for school journeys and the potential for vehicle use.  There are good public transport links near the sites.  Projects will likely include enhanced	Potential for school expansions to generate additional car journeys to drop-off pupils.	The school developed a new School Travel Plan, which will encourage parents, pupils and staff community sustainable transport modes.  Re-provision of cycle racks for pupils, staff and visitors.	To be quantified at detailed design stage.	Promote sustainable travel modes through individually updated school travel plans.



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	cycle facilities as part of proposals in line with Council Policy.				

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<p><b>Buildings</b> Adapting buildings to reduce risk of overheating or flooding.</p> <p>Increasing capacity and footprint of developed site.</p> <p>Overheating.</p>	<p>Improvements in fabric of building will allow the building to be used optimally by service users.</p> <p>Other improvements will include measures to make the buildings adaptable to changes in temperature (e.g. through insulation and air tightness).</p>	<p>Greater Water consumption and surface water run-off</p>	<p>Insulation and air tightness measures will help keep buildings warmer in winter and cooler in summer. Consideration of building orientation during design process will help address overheating.</p> <p>SUDS required. Use of green roofs and grey and rain water harvesting to be considered.</p> <p>Dynamic Overheating Assessment undertaken prior to Planning Application to identify mitigation measures such as night time heat purging, and enhancement to</p>	<p>To be quantified at detailed design stage.</p>	<p>Ensure that sustainability is integrated into the building construction process and the school's curriculum.</p>

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			building fabric and detailing. Ensure major developments can reduce risk of overheating in line with the London Plan's cooling hierarchy, including good design, orientation and ventilation strategies (detailed above).		
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### **Commentary on any differences in financial costings for climate change mitigation / adaptation measures including energy efficiency and potential external grant sources**

Although the budget for the programme is restricted, the ambition is to improve the value of the assets within the school community. Where possible, use of other funding grants will be sought to enhance mitigations, e.g. the internal climate change loan scheme or external Public Sector Decarbonisation Scheme (PSDS).

### **Potential “whole life costing” savings i.e. increased installation costs will achieve running cost savings over lifetime including reduced use of resources e.g. water saving devices**

The investment in buildings through the Capital Programme should lead to reduced operational costs and better management of operational buildings, identified through the soft landings protocol adopted by the council and its contractors.

### **Explanation of proposal chosen in context of results matrix assessment, including what mitigating steps can and have been taken**

The decision to expand the schools has been taken to meet the council's statutory obligations in meeting predicted demand for additional school places.

The material palette, environmental measures, efficient energy and water conservation elements are the key areas for sustainability improvements that are within the Council's control.

### **Total tonnes of CO<sup>2</sup> and DEC rating of buildings to be occupied**

Unknown. To be quantified at detailed design stage for each individual project.