

CITY PLAN 2019 - 2040

Topic Paper: Retrofit first and reducing embodied carbon

Regulation 19 Consultation

February 2024

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1. Introduction

1.1 Introduction

The purpose of this Topic Paper

1. Westminster City Council is performing a Partial Review of the City Plan 2019-2040. This is aimed at strengthening the policy on the delivery of affordable housing and prioritise retrofit and refurbishment of existing buildings where appropriate, rather than demolition with the intention of lowering carbon emissions associated with development. The Partial Review of the City Plan also includes Site Allocations to guide the development of key sites that make a significant contribution to growth targets and other policy objectives.
2. The purpose of this Topic Paper is to provide background and evidence base for the draft policy to promote retrofitting over demolition, known as the retrofit and embodied carbon policy. It will bring together different sources of information including consultation responses, data and case studies to set out the rationale for the policy and its different elements.

Structure of this Topic Paper

3. The Topic Paper is structured as follows:
 - **Section 2- The climate emergency**

This section provides context on the climate change emergency and how this relates to the built environment sector, and to Westminster.
 - **Section 3- Policy framework**

This section provides an overview of what the current policy framework is with regards to development in Westminster, incorporating national, regional and local policies. This framework is reviewed in the context of environmental laws, such as the Climate Change Act 2008. Building upon this analysis of existing policies, this section provides an overview of how the existing policy landscape has impacted embodied carbon emissions in Westminster. Analysis is then undertaken in this section to demonstrate the carbon emissions associated with some of the objectives of the existing local policies, and how by prioritising these aims, in conjunction with the findings of Section 2, demonstrates the need for a policy that addresses embodied carbon and retrofitting in the city.
 - **Section 4- Policy development**

As Sections 2 and 3 highlight current gaps in existing policies to reduce embodied carbon emissions, this section provides an overview of how the council developed a draft embodied carbon and retrofit policy. This includes the analysis of existing application trends, stakeholder consultation, evaluation of practices of other London authorities, commissioning of evidence to test feasibility and the review of other incidental changes to existing City Plan policies. This section therefore provides an overview of the iterative process undertaken by officers in drafting the policy wording.
 - **Section 5- Policy impacts**

Section 5 provides an overview of the impact of the draft policy on viability, and the need to continually monitor the effects of the draft policy with mechanisms built in for review.

- **Section 6 – Conclusion**

The final section provides a conclusion of the findings of the Topic Paper and key takeaways that have informed the draft policy.

2. The climate emergency

2.1 Global heating context

Our changing climate

1. It is widely recognised that climate change is one of the biggest challenges facing us all. The role of greenhouse gas emissions in man-made changes to the climate have become one of the most important policy areas across all forms of governance, from local, national to international. The UK is a signatory to the Paris Agreement (2015) which requires the UK to play its part in ensuring that global heating remains below 2°C, and ideally below 1.5°C. The catastrophic impacts of failing to meet this target mean that Local Planning Authorities have a moral and legal responsibility to support the transition towards a low-carbon economy, and to reduce greenhouse gas emissions.
2. Through the Climate Change Act (2008) the UK government has legislated a net-zero emissions target by 2050, and in 2021 through the Climate Change Committee's Sixth Carbon Budget, where an interim target was set to run a net-zero power system and reduce emissions by 78% by 2035. Section 19 of the Planning and Compulsory Purchase Act (2004) makes it incumbent on Local Planning Authorities to be able to demonstrate how policy contributes to the Climate Change Act target regime. To meet the legal obligations of Section 19 of the Planning and Compulsory Purchase Act, the council's development plan should ensure that only viable development that contributes towards the net-zero target is supported.

The contribution of the built environment towards climate change

3. The built environments contribution towards climate change is complex and multifaceted. The construction, operation and decommissioning of the built environment is all associated with significant emissions but is the basis for the vast majority of economic, cultural and social activity in the UK. Ensuring the correct supply of building stock to achieve social and economic benefits is of paramount importance, however this comes at an environmental cost: it is estimated that 40% of the UK's emissions are linked to the built environment, either through construction, operations or demolition.¹ A parliamentary report in 2022 estimated that *"construction activity [accounts] for around 50 million tonnes of CO₂ emissions, over half of which is linked to construction product and materials production, particularly materials such as steel and cement, which account for around 15% of global carbon emissions"*.²
4. A key challenge for planning policy is to use Local Plans to reduce these emissions whilst also ensuring a sustainable supply of buildings to meet social and economic needs, which must mean that this supply does not compromise the UK's legal and moral obligations to reduce emissions.

Embodied carbon

5. The carbon emissions from construction is the result of what is known as embodied carbon (taken to be carbon emissions up to the point of completing building works (including any alterations, refurbishment and extensions to a building) and any material amendments, such as facade or interior replacements throughout the lifetime of the building.³ Upfront embodied carbon is usually

¹ UK Government Commercial Function 'Promoting Net Zero Carbon and Sustainability in Construction', (2022)

² UK Government commercial Function 'Promoting Net Zero Carbon and Sustainability in Construction', (2022)

³ RICS 'Whole life carbon assessment for the built environment' (2017)

taken to refer to all the CO₂e emitted during principal construction phase from demolition and site clearance; production of materials and their transport and processing; and their installation on site. Depending upon the building type, upfront embodied carbon emissions for average buildings in the UK are currently estimated at around 750 – 950kg/CO₂e per m²,⁴ depending on the building type. It is estimated that embodied carbon accounts for up to 20% of emissions from the built environment⁵. Unlike the carbon emissions associated with the operation of a building, embodied carbon emissions will be less affected by grid-decarbonisation, as manufacture and processing of materials often involve global procurement and supply chains. Furthermore, when considering the whole-lifetime carbon emissions from a building, the emission associated with upfront embodied carbon are immediately released into the atmosphere, whereas operational emissions occur over a period of time, and so there is more opportunity to avoid or reduce the release of these emissions.

6. Various industry bodies exist who set standards for calculating embodied carbon, and the most widely used methodology has been developed by the Royal Institution of Chartered Surveyors (RICS). Some existing industry bodies have attempted to set voluntary benchmarks for embodied carbon, with the aim of encouraging building designer to reduce the amount of carbon being emitted through development. The most notable of these are the Low Energy Transformation Initiative (LETI), the Royal Institute of British Architects (RIBA) and the UK Green Building Council (UKGBC). Each benchmark is differentiated by what they include in their calculation of embodied carbon emissions. For example, LETI primarily focus on “upfront” emissions – that is those emitted from demolition to the completion of construction, while RIBA focus on whole-life embodied carbon, therefore involving demolition, construction, remodelling and decommission of a building throughout its life.

Operational carbon emissions

7. Operational emissions are composed of the greenhouse gas emissions used to heat, power, cool, and run a building, along with servicing water usage. A large proportion of operational emissions will reduce over time due to the electricity grid being decarbonised, however this is co-dependent upon buildings transitioning towards electricity as the main mechanism to heat buildings and reducing the demands of the building for heating and cooling through greater efficiencies. A large proportion of buildings in Westminster are in need of adaptation to prepare them for this transition. An important balance should be struck however between lowering operational emissions and ensuring that the carbon intensity of the materials used to achieve this does not outweigh the reductions in operational carbon.

Emissions related to demolition

8. The final key area which generates greenhouse gas emissions in the built environment is demolition, both the physical demolition itself and the associated waste processes. These emissions are captured in embodied carbon emissions, but unlike material manufacturing – there are more mechanisms to divert or avoid these emissions. The most effective way to reduce demolition emissions is to encourage and require construction projects to re-use as much on-site materials as possible, ideally in-situ – or close by the site. This also has the added benefit of reducing the amount of materials required in the construction process, lowering the overall embodied carbon. Construction waste accounts for the majority of waste in the UK.

⁴ LETI, ‘Embodied Carbon Target Alignment’ (2021)

⁵ UKGBC “Whole-Life-Carbon-Roadmap-A-Pathway-to-Net-Zero” (2021)

2.2 The Westminster context

The climate emergency in Westminster

1. The effects of climate change are already being felt in Westminster. In July 2021 extreme weather events led to significant flooding across Westminster, damaging a number of homes and businesses. In response to the changing climate, the council have declared a climate emergency and have set ambitious targets for the city to achieve net-zero by 2040. To support the delivery of a net-zero city, the council set up a Citizen's Assembly to provide an advisory role for the ways in which the council help the city achieve its net-zero targets. Following the first meeting of the assembly, a recommendations report was produced and of these recommendations, three are of significant relevance to planning policy in relation to retrofitting.⁶ These include:
 - **Recommendation 3:** Energy efficiency rating on any organisation, whether for profit or not, which owns, manages or occupies one or more non-residential buildings in Westminster, provides incentives for and assistance in hitting targets. Publish this data for transparency for the Council website and promote through WCC communication channels.
 - **Recommendation 4:** It should be mandatory for all types of businesses to ensure that developers reuse and recycle materials and minimise energy use. This should be complemented by the revised one-stop circular construction website, that offers easy access to all.
 - **Recommendation 5:** Make climate action the top priority when updating planning policies and documents and giving approvals. Pay particular attention to prioritising climate action in listed buildings.
2. The Assembly therefore provided clear guidance and a strong mandate for the council to pursue planning policies to achieve improvements in reducing construction waste and re-using materials, promoting energy efficiency in buildings, and making climate action the highest priority when developing planning policies.

⁶ Westminster Citizens Climate Assembly, Final Report (2023)

2.3 Westminster's carbon emissions

1. In 2020 the council declared a climate emergency and has set a target for the council to be net-zero by 2030, and the city as a whole by 2040. Unlike the 2035 and 2050 UK government targets, these targets are not legally binding, but the council has a clear democratic mandate to deliver on these goals. Westminster has some of the highest carbon emissions of any local authority in the UK, estimated by the Government at 1,671.9KT of CO₂ per annum in 2021.⁷ The Tyndall Centre for Climate Change Research at the University of Manchester⁸ has modelled Westminster's required reductions in annual emissions needed to meet the legislative requirements of the Climate Change Act, using data suggesting that currently (2023) emissions in Westminster are around 1,587KT.
2. The modelling suggests that by 2030, total emissions in the city would need to be reduced by around 505.3KT, to 1,081KT (a reduction of around 31%) – followed by a further 42% reduction by 2040, as demonstrated in Figure 1 below. The council have examined the potential impact of its current ambitious strategy for carbon reductions, and this has demonstrated a significant gap in the current trajectory compared to the reductions required for 2040.
3. The government emissions figures for Westminster include most activity in Westminster, but are calculated from operational emissions, and do not include all of the embodied carbon resulting from construction activity. Embodied carbon is recorded as manufacturing emissions, which are accounted for at source, however the demand and derived benefit from these emissions is being driven by activity in Westminster. In order to ascertain the extent of embodied carbon emissions in Westminster, modelling has been carried out using demolition and construction data from planning applications. It is noted however that this modelling is likely to be an underestimate of the total embodied carbon emissions, as large amounts of activity in the city is considered to be permitted development which does not require planning permission – although these emissions fall outside of the scope of any local development plan. The council's data on planning permissions involving demolition suggests that across schemes which involve demolition and redevelopment, the embodied carbon associated with these developments is equivalent of an additional 24 to 31% of carbon emissions per annum in the city.
4. For total emissions in Westminster, the estimated reductions required by 2030 is around 31% reduction, followed by a further 42% by 2040. The transition towards 2030 and 2040 requires an approximate 4.5% reduction per year until 2040. As no accurate data or forecasting exists for embodied carbon in Westminster, following the same reduction trajectory is the most logical approach, however these should be based upon as accurate a possible assessment of the current baseline benchmarks for development in the city.

⁷ Department for Energy Security and Net Zero (2023) UK local authority and regional greenhouse gas emissions national statistics, 2005 to 2021. Available from: <https://www.gov.uk/government/statistics/uk-local-authority-and-regional-greenhouse-gas-emissions-national-statistics-2005-to-2021>

⁸ Tyndall Centre for Climate Change Research (2023) Setting Climate Commitments for Westminster - 2023. Available from: <https://carbonbudget.manchester.ac.uk/reports/E09000033/>

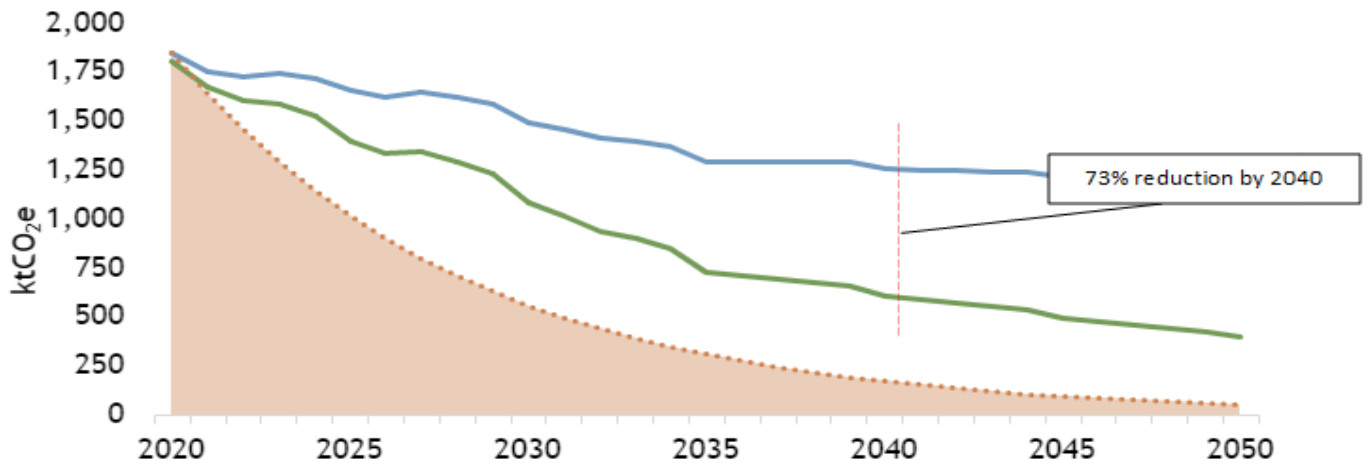


Figure 1: Graph re-produced from Tyndall Centre study⁸

3. Policy framework

3.1 National legislative framework

Climate change legislation

1. The Planning and Compulsory Purchase Act 2004 places a duty on local authorities to carry out plan-making with the *“objective of contributing to the achievement of sustainable development.”* This is in conjunction with the Planning Act 2008 which placed an additional obligation on local authorities to ensure that: *“Development plan documents must (taken as a whole) include policies designed to secure that the development and use of land in the local planning authority’s area contribute to the mitigation of, and adaptation to, climate change.”* This was in parallel with the Climate Change Act 2008 which established a legally binding target to reduce the UK’s greenhouse gas emissions by at least 80% in 2050 from 1990 levels.

National Planning Policy Framework

2. In Chapter 2 of the National Planning Policy Framework (NPPF) September 2023⁹, paragraph 7 states that: *“the purpose of the planning system is to contribute to the achievement of sustainable development.”* The achievement of sustainable development is based on three core principles comprising economic, social and environmental objectives. The environmental objective is elaborated on as a means to: *“protect and enhance our natural, built and historic environment...mitigating and adapting to climate change, including moving to a low carbon economy.”*
3. In balancing the three objectives of economic, social and environmental sustainability, paragraph 11 establishes a presumption favour of sustainable development. For plan-making, this requires that: *“all plans should promote a sustainable pattern of development that seeks to: meet the development needs of their area; align growth and infrastructure; improve the environment; mitigate climate change (including by making effective use of land in urban areas) and adapt to its effects.”*
4. Chapter 14, paragraph 152 of the NPPF September 2023 states that: *“The planning system should support the transition to a low carbon future in a changing climate... It should help to: shape places in ways that contribute to radical reductions in greenhouse gas emissions.”* Furthermore, paragraph 153 requires that: *“Plans should take a proactive approach to mitigating and adapting to climate change.”*
5. Taking the relevant national policies into consideration, it is evident that there is a requirement for local plans to factor in climate change and the reduction of greenhouse gas emissions.

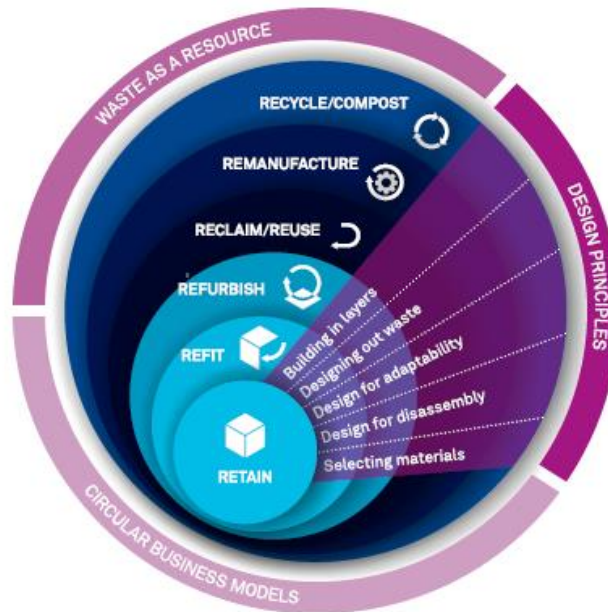
The London Plan 2021

6. In the regional development plan for Greater London, policies relating to climate change, retrofitting and whole-life carbon are supported.

⁹ It is noted that the NPPF was updated in December 2023. However, the policies in the updated December 2023 NPPF will apply for the purpose of examining plans where those plans reach Regulation 19 of the Town and Country Planning (Local Planning) (England) Regulations 2012 (pre-submission) stage *after* 19 March 2024, as stated within the NPPF (December 2023) Annex 1 on Implementation [see paragraph 230]. Given that the Westminster City Plan Partial Review will reach this stage prior to 19 March 2024, the previous version of the NPPF (dated September 2023) has been relied upon instead.

7. **Policy SI 2** of the London Plan 2021 requires all major developments to be net zero carbon, applying the energy hierarchy to reduce operational greenhouse gas emissions. It also requires planning applications referable to the Mayor of London to calculate whole life cycle carbon emissions and demonstrate actions to reduce life-cycle carbon emissions. As part of the whole life carbon assessments, applicants are required to explore options to retain existing built structures for reuse and retrofit, in part or as a whole, stating that this should be prioritised before considering substantial demolition.
8. **Policy SI 7** sets out principles to achieve a circular economy and requires applications referable to the Mayor of London to provide a Circular Economy Statement. It also supports Development Plans to set out lower thresholds for Circular Economy Statements and sets a target of 95% or more of deconstruction and excavation waste being diverted from landfill.
9. The London Plan Guidance (LPG) on Whole Life Carbon (March 2022) sets out a methodology for how embodied carbon should be calculated in Whole Life Carbon reports. Appendix II of the LPG contains advisory benchmarks for applicants for embodied carbon, setting a minimum target of 950kg per m² and an aspirational target of 600kg per m². As is detailed in the next section, the average embodied carbon for new builds across all typologies in Westminster is currently around 700kg CO₂e per m², far exceeding the London Plan minimum benchmark targets, but still in excess of the aspirational targets.
10. A second issue with the LPG guidance is that as it current is drafted, grid-decarbonisation is not factored into the assessments, and the justification of this is due to the challenges associated with calculating the impact of grid decarbonisation on embodied carbon. While it is accepted that life-cycle embodied carbon may be hard to predict if grid-decarbonisation is factored in, it is not the case that upfront embodied carbon is difficult to factor in grid decarbonisation as carbon factors of materials are calculated at the time of their production, and these calculations will use the current carbon factor of any electricity used in their production. As a result, Whole Life Carbon calculations can be skewed heavily, as they can assume a continuous level of carbon emissions across their life cycle – and do not account for these reducing in line with grid decarbonisation. If grid decarbonisation was fully factored into Whole Life Carbon reports, then the role of embodied carbon would become far more apparent as it would constitute a far greater proportion of the overall whole-life carbon.
11. Outside of climate change the London Plan contains several policies which are often considered relevant to considering whether to retrofit or demolish and replace a building, specifically **Policy D3- Optimising Site Capacity** through a design-led approach. This strategic policy requires that development make the best use of London's finite land but ensuring that the density is optimised. Policy D3.B states that Opportunity Areas should be identified for higher density development. Outside of Opportunity Areas, Policy D3.A requires that development should be the most appropriate form and land use for the site. This strategic policy generally gives a policy framework for considering the replacement of buildings.
12. Paragraph 3.3.12 and Figure 3.2 of the London Plan are also of importance. Figure 3.2 "*shows a hierarchy for building approaches which maximises use of existing materials*" which is reproduced below.

Figure 3.2 - Circular economy hierarchy for building approaches



Source: Building Revolutions (2016), David Cheshire, RIBA Publishing ©

Figure 3: Reproduced from the London Plan 2021

13. Paragraph 3.3.12 of the London Plan goes on to state that development should work “*through refurbishment and re-use through to the least preferable option of recycling materials produced by the building or demolition process. The best use of the land needs to be taken into consideration when deciding whether to retain existing buildings in a development*”. The approach therefore requires policies to ensure that when considering replacing buildings, which have poor circular economy outcomes compared to retrofit, that the use of land proposed significantly improves on the potential offered by the existing building (i.e. is the “best” use of land).
14. Finally, of importance to climate focussed planning policy is the London Plan approach to carbon off-setting. Residual emissions to off-set are calculated using achieved reduction below Part L of the Building Regulations. It is relatively well established that achieving the highest reductions below Part L usually requires greater amounts of materials and associated embodied carbon. The current City Plan approach to carbon offsetting is set out in the Planning Obligations and Affordable Housing SPD. The local cost of carbon in Westminster is set at £880, however this is reduced to £330 for electrical and district heat sourced emissions.

The City Plan 2019 – 2040 (adopted April 2021)

15. The overarching vision of the current City Plan 2019 – 2040 includes the objective to create a city that will be sustainable for generations to come, with Westminster’s spatial strategy requiring the adaptation to and mitigation of the effects of climate change.
16. Policy 36 of the City Plan states that the council will promote zero carbon development, with Part B of the policy stating that: “*All development proposals should follow the principles of the Mayor of London’s energy hierarchy. Major development should be net zero carbon and demonstrate through an energy strategy how this target can be achieved.*”
17. Policy 37 reinforces the London Plan objectives of promoting a Circular Economy. In addition to this, Policy 38 requires development to extend the lifetime of buildings and spaces and respond to

the risks and likely consequences of climate change. This is set out by a number of sustainable design principles.

18. Policy 38 sets out that new development will incorporate exemplary standards of high quality, sustainable and inclusive urban design and architecture befitting Westminster's world-class status, environment and heritage and its diverse range of locally distinctive neighbourhoods. As part of how this is defined, the Plan goes on to state that *"As new developments are large consumers of resources and materials, the possibility of sensitively refurbishing or retrofitting buildings should also be considered prior to demolition and proposals for substantial demolition and reconstruction should be fully justified on the basis of whole-life carbon impact, resource and energy use, when compared to the existing building."*
19. The issue with the approach as it stands is that no locally specific guidance is in place for how options for retrofit versus new build development options should be compared. Furthermore, as the London Plan Guidance for Whole-Life Carbon usually forms the basis for the options appraisal exercises, the options can be skewed given that grid-decarbonisation is usually not factored in. Finally, these appraisal reports usually present dramatically different assumed life spans for new builds versus retrofitted buildings, which further compounds the results as long assumed life spans of new builds, along with distorted (by excluding grid-decarbonisation) assumed savings in operational carbon emissions, usually favour new buildings.

Adopted Neighbourhood Plans

20. Several of the adopted neighbourhood plans in Westminster contain policies promoting retrofitting, including:
 - **Belgravia Neighbourhood Plan** - Policy BEL2: Energy efficiency including retrofitting historic buildings
 - **Soho Neighbourhood Plan** - Policy 21: Refurbishment and Retrofitting of Existing Buildings
 - **Knightsbridge Neighbourhood Plan** - Policy KBR36: Retrofitting historic buildings for energy efficiency.

Non-statutory context

21. In addition to the statutory and policy framework outlined above, the Achieving Net Zero report by the National Audit Office (December 2020)¹⁰ states that *"Local authorities have significant scope to influence emission in their area"* reinforcing that *"Local authorities...have critical roles in the achievement of net zero"*. Similarly, the Government's Net Zero Strategy: Build Back Greener (October 2021)¹¹ estimates that: *"82% of the UK's emissions are within the scope of influence of local authorities"*.

¹⁰ National Audit Office (2020) Report – Value for Money. Achieving Net-Zero. Available from: <https://www.nao.org.uk/reports/achieving-net-zero/>

¹¹ Department for Energy Security and Net Zero and Department for Business, Energy & Industrial Strategy (2021) Net Zero Strategy: Build Back Greener. Available from: <https://www.gov.uk/government/publications/net-zero-strategy>

Analysis of policy context

22. The existing development plan has strong provisions relating to sustainable design, energy use, and ensuring appropriate density and design of buildings. The existing City Plan does include details on how sustainable design is to be achieved, including the justification of new buildings taking into account whole-life carbon impact. As was explored earlier, while whole-life carbon is important – the immediate reduction of emissions in the short term means these are an urgent source of emissions. The only benchmark for carbon emissions currently is the London Plan Guidance, which contains voluntary benchmarks for referable schemes. No national approach exists for reducing embodied carbon. There is no current requirement of approach which would ensure that embodied carbon emissions are reduced as far as possible, which would lead to a lower whole-life carbon for development – and importantly reduce immediate sources of emissions. It is clear that the current development plan contains insufficient measures to lower embodied carbon by 31% by 2030, in line with the reduction pathway identified by the Tyndall Centre modelling published in March 2023.
23. The current approach also presents problems with the methodology used to calculate whole-life carbon in appraisal exercises looking at retrofit versus new build options. A clearer, more consistent, method needs to be established which truly exhausts retrofitting before redevelopment is considered.
24. Taken together, it is evident that to achieve the broader national aims of achieving a net-zero carbon society, a significant role will need to be played by local authorities. A key area of influence from local authorities is in the development of planning policies and the management of development through planning decision making. This is reinforced through national planning legislation and policy which provides support for regional and local policies to decrease carbon emissions in response to climate change.
25. Whilst policies at the regional level do account for carbon emissions, these largely focus on operational energy, ignoring the significant impact of embodied carbon. Furthermore, as per the London Plan, Whole Life Cycle Carbon and Circular Economy Statements only apply to largescale developments which are of a size referable to the Mayor of London. This therefore misses developments across varying scales which have a significant cumulative impact. Furthermore, it is unclear whether the voluntary benchmarks found in the Whole Life Carbon Guidance are suitable for achieving a net-zero city, especially as they are no longer reflective of trends seen in whole-life carbon reporting. More evidence will be referred to below which will discuss the suitability of the London Plan benchmarks and the establishment of alternative benchmarks.
26. As is stated in the London Plan 2021, the Greater London Authority endorses local authorities to explore lower thresholds for the consideration of carbon in their own local plans. Given the gap in current considerations of embodied carbon developments other than those referable to the Mayor of London, the ability to create new policies to support a reduction in emissions arising from embodied carbon is supported.
27. The creation of a local policy requiring the consideration of embodied carbon will build further upon existing policies within the City Plan 2019 – 2040 which currently only emphasise operational carbon emissions, along with supporting other ambitions of the council.

3.2 Impacts of current policy framework

Benchmarking current carbon emissions from construction

1. The London Plan 2021 requires referable schemes to submit Whole Life Carbon reports, and Circular Economy Statements, and the council is also seeing an increasing number of applicants submit similar documents for non-referable major schemes. Generally, applicants submitting whole life carbon assessments are usually exemplars of current best practice in the city. From these it is possible to view trends in current practices for embodied carbon reductions in developments in Westminster, as shown in Figure 3 below. It is recognised that the trends are from limited datasets, and some relate to applications that are live at the time of writing, and so have been anonymised. The limited data available across the 30 major development schemes showcased in Figure 3 illustrates the current gap in the development plan when it comes to embodied carbon. That is that without it as a stringent requirement, development is only presenting whole-life carbon reporting in limited circumstances. What is promising about this data however is that the average for new buildings is generally reported to be below the averages estimated by industry bodies (often in excess of 1,000kgCO₂e/m²) and also below the London Plan Guidance minimum benchmark of 950kgCO₂e/m². The trend in the figures also clearly show the general carbon savings associated with retrofit schemes.

- Many refurbishments or lighter touch retrofits are likely to be associated with far lower embodied carbon emissions, however, there is a lack of data on this, due to the fact that many schemes undertaking this type of work do not require planning permission and therefore an assessment of this nature is not undertaken. Similarly, it is likely that many new buildings in Westminster are associated with higher embodied carbon emissions. As it is currently a voluntary assessment to undertake for some schemes, it is therefore likely that where applicants are reporting whole-life carbon, this is generally in instances where designers are actively seeking to minimise emissions, where possible.

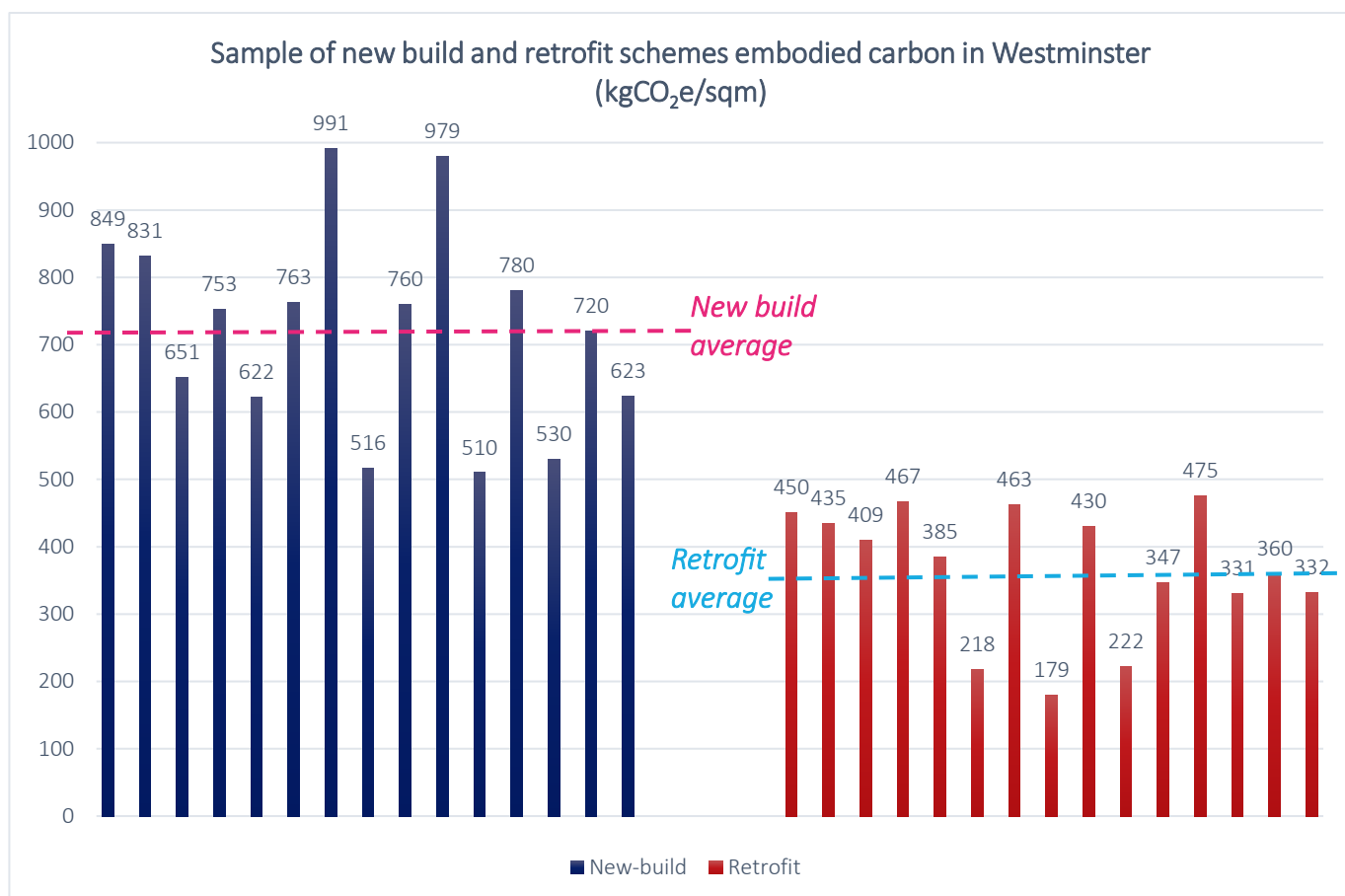


Figure 3: Whole Life Carbon: selected current trends in Westminster

- The data used in Figure 3 above is summarised in Table 1 below.

Table 1: Summary of embodied carbon emission statistics taken from benchmarking exercise

Development type	Embodied carbon
Average all schemes	546 kgCO ₂ e/ m ²
Average new build	725 kgCO ₂ e/ m ²
Average retrofit	367 kgCO ₂ e/ m ²
Business as usual weighted ¹²	492 kgCO ₂ e/ m ²

¹² This is calculated using the current new build to retrofit rate evident across WCC (35% new build, 65% retrofit). This was initially based on recent data on office schemes, however it was reviewed to see if this benchmarking did not include other types of development whether this would negatively impact the

- Using the data from Figure 3 above as a baseline, an approximate target benchmark can be established as 31% below current averages by 2030 and 73% by 2040. These reductions are calculated to align with the council’s carbon reduction pathway identified by the Tyndall Centre in 2023 (as discussed in the preceding sections of this Topic Paper). These are demonstrated in Table 2 below; however, it is noted that these are based on only initial analysis and that such target benchmarks should be revisited once more data becomes available for development in the city.

Table 2: Climate aligned embodied carbon requirements for Westminster, based on current averages

	Average all development	Weighted average, all development (presuming 35% new builds, 65% retrofits) ¹¹	New build only	Retrofit only
<i>2030 Target (31% reduction)</i>	377kg CO ₂ e/m ²	340kg CO ₂ e/m ²	500kg CO ₂ e/m ²	253kg CO ₂ e/m ²
<i>2040 Target (73% reduction)</i>	147kg CO ₂ e/m ²	133kg CO ₂ e/m ²	196kg CO ₂ e/m ²	99kg CO ₂ e/m ²

Review of embodied carbon as a result of existing policy framework

- The target benchmarks identified in Table 2 demonstrate the embodied carbon emissions of all development across Westminster based on a sample of 30 major schemes. In aligning these with the Tyndall Centre 2023 modelling for overall emissions reductions across the city to 2040, it is evident that both new build development and retrofit developments will be required to further innovate to decrease the average kilograms of CO₂ emissions per m² in development across the city. This is something which would be unlikely in the context of the current policy framework and the type of development typically seen in Westminster.
- Analysis was undertaken by officers to demonstrate what amount of embodied carbon emissions may be expended in order to maintain the achievement of some of the targets set by the adopted City Plan based on current embodied carbon trends. To do this, current ambitions of the City Plan 2019 – 2040 have been reviewed in the context of estimated embodied carbon emissions. These are as follows:
 - Housing delivery
 - Economic growth
 - Growth in office-based jobs
 - Upgrades to office floorspace (to facilitate both maintenance of existing jobs and growth in employment)
- The objective of this analysis is to demonstrate the annual estimated carbon spend associated with these targets to the year 2040.

¹¹ weighting applied for commercial and residential schemes overall. In undertaking this analysis, it was found that the difference was negligible, and therefore this assumption has been used throughout the Topic Paper. See Table 4 on page 23 for further details.

Housing Delivery Targets

8. Achieving sustainable development requires meeting existing needs of the population, while ensuring that this will not compromise the needs of future generations. The NPPF places a clear and firm emphasis on the delivery of housing as being a priority focus for Local Planning Authorities in achieving the social aspects of sustainability, and it is a political priority for the council to deliver on its housing need. Meeting housing need is also vital to economic and environmental sustainability, as poor-quality housing supply not built to the highest and latest sustainability standards can harm the economy as well as lead to increased emissions. On the other hand, academic research has identified that meeting the nation’s housing needs is likely to exceed the UK’s carbon budget for remaining below 1.5°C¹³. Careful planning and prioritising of development is therefore required to ensure that embodied carbon emissions are emitted strategically. The current adopted City Plan contains no provisions to strategically plan for the allocating of embodied carbon emissions to achieve the Plan’s goals.
9. Based on Table 3 below, to enable housing growth to continue to meet Westminster’s housing needs, around 55KT of carbon would need to be spent each year until 2040. This is a worst-case scenario however, this presumes that all housing would be via demolition/rebuild options, whereas this is unlikely to be the case. The Council’s 2040 net zero target would require per annum embodied carbon emissions to be reduced by around 4.5% per year, reaching a 73% reduction by 2040, with the interim target of 31% by 2030. The council’s ambition therefore is that the 55KT per annum figure would need to reduce annually to align with the 2040 date.

Table 3: Calculated need for residential floorspace over the Plan period (16 years), and total estimated embodied carbon

Home type	Total estimated number required ¹⁴	Sqm per unit ¹⁵	Estimated floorspace	Kg CO ₂ e per sqm residential (based on new build average in Table 1)	Estimated embodied carbon (kg) business as usual between 2024 – 2040	Kg per annum	KT per annum
1-bedroom	5,832	50	291,600	725	211,468,320	13,216,770	13.2
2-bedroom	5,564	61	339,404	725	246,135,781	15,383,486	15.4
3-bedroom	5,066	86	435,676	725	315,952,235	19,747,015	19.7
4-bedroom	1,296	108	139,968	725	101,504,794	6,344,050	6.3
Total	17,758	-	1,206,648	725	875,061,130	54,691,321	54.7

10. Given the extensive amount of new housing required in Westminster, and the potential carbon cost of delivering this, there is an obvious role for the development plan to set a strategic approach for embodied carbon benchmarks for construction across different building typologies. The obvious role of benchmarks for this would be to ensure that housing delivery can be sustainable – i.e. facilitating delivery while limiting climate impact. Secondly, it strengthens the

¹³ zu Ermgassen et al, (2022)

¹⁴ Data taken from Westminster’s Strategic Housing Market Assessment (January 2024), and calculations based upon the Mayor of London space standards. The results are re-produced here only for indicative figures to model possible future carbon emissions from construction, and further details on housing need is provided in the evidence base.

¹⁵ Based on GLA residential space standards

argument for stringent benchmarks in non-residential construction are needed in order to ensure that housing delivery can be prioritised in terms of carbon spend.

Economic growth targets

11. The City Plan contains various targets relating to economic growth, as well as an emphasis in its spatial strategy on economic development in particular areas across the city.

Jobs data and office floorspace

12. The City Plan 2019 – 2040 adopts an office jobs target in line with the London Office Policy Review (2017). This requires that 63,000 office-based jobs are provided between 2019 and 2040, equivalent to 3,000 jobs per year. To understand what the current baseline position is (given that the target covers years since 2019), data from the Business Register and Employment Survey (BRES) published by the Office for National Statistics (ONS)¹⁶ was reviewed. The latest dataset was released in October 2023 for the time period up to April 2022. As shown in Appendix 1, the period from April 2019 to April 2022 is estimated to have generated a positive uplift of around 41,000 office jobs.
13. It is possible that this picture may continue to improve. The latest data covers the period of financial year April 2020 to April 2022. During this time, the effects of the COVID-19 pandemic were still being felt. Therefore, it is possible that job numbers for the financial year April 2022 to 2023 and the current financial year (April 2023 to 2024) may demonstrate additional increases, in line with reported employment trends as part of UK Labour Market Statistics. The rate of growth identified indicates an average of 13,650 jobs new office jobs per year – far greater than the target of 3,000 jobs per year. Whilst this rate of growth may slow, this figure remains significantly above the annual average that any fluctuations could still likely enable the achievement of the City Plan target.
14. Furthermore, in reviewing the new office floorspace delivered during this time period and applying the London Office Policy Review assumes a job density figure of around 11.3sqm per job, this would indicate that around 1,111 new jobs would have been generated (approximately 3% of the figure demonstrated in the BRES data). This highlights not only that job density has likely shifted in recent years due to changes in working conditions and approaches, but also that refurbished existing office floorspace may have also had an impact on supporting greater employment.
15. It is difficult to estimate the amount of office space refurbished during this period, as refurbishment does not always require planning permission, so it can therefore be challenging to ascertain whether refurbishments have driven this change. To give an indicative estimate, an analysis of the issuing of Energy Performance Certificates (EPCs) has been carried out. There are many cases where EPC assessments are mandatory, including for new buildings, extensions, and sale/letting transactions. Many building owners also make voluntary re-issues (i.e. in instances where a valid EPC already existed), usually where energy upgrades have been carried out which did not trigger a requirement for a mandatory re-issue, which would discount any new buildings with new EPCs at the same address. This is usually as a result of an ‘energy refurbishment’.

¹⁶ ONS (2023) Business Register and Employment Survey. October 2023. Available from: <https://www.nomisweb.co.uk/query/construct/summary.asp?mode=construct&version=0&dataset=189>

16. Through officer analysis of this data, it appears that between 2017 and 2023¹⁷ a total of 428,713sqm of office space underwent some form of energy refurbishment to some degree resulting in a new and improved EPC certificate being issued. During the period since the City Plan was adopted (post 2021), the figure is estimated at 221,697sqm. This is likely to be an underestimate of the actual number of buildings being retrofitted as not all refurbishments involve energy upgrades, especially where buildings already perform well in their EPC rating. Retrofits that did involve more substantial works may well have triggered a mandatory re-issue – to capture this, offices have been included in the estimates of refurbishments where planning permission was granted. This data is shown below in Table 4.

Table 4: Estimate of job generation potential of office floorspace redeveloped between 2017 and 2023

	Floorspace (sqm)	Percentage of total
Total estimated refurbished office space without planning consent	428,713 ¹⁸	42%
Total estimated refurbished office space with planning permission	236,558 ¹⁹	23%
Total estimated new build office	356,130 ¹⁹	35%
Total	1,021,401	100%

17. Regardless of the evident de-coupling of office floorspace with office jobs, the adopted City Plan target of 63,000 additional office jobs remains. Taking the presumed 41,000 already achieved, this means that an additional 22,000 office jobs would be needed in the city by 2040. If it were assumed that all new office jobs are to be provided through additional office floorspace, and an average jobs density of 1 per 11.3sqm (as used in the London Office Policy Review) applies, this would indicate a need for approximately 249,000 sqm of additional office floorspace- an average of 15,500 sqm per year to 2040. Table 5 provides high-level calculations to estimate the annual embodied carbon cost of meeting this requirement.

Table 5: Review of sqm needed to meet City Plan office job target by 2040

	Estimated total office sqm needed per year	Estimated sqm per year that is retrofit (65% of total sqm)	Estimated sqm per year that is new build (35% of total sqm)	Average CO ₂ e/kg per sqm (see Table 1)	KT per year
Retrofit office	15,500	10,075	-	367	3.7
New build office		-	5,425	725	3.9
Total		-	-	-	7.6

18. The carbon cost of the refurbishments (which form an important component of office delivery, as shown in Table 4) is challenging to model, as the EPC data does not give any indication of the scale of the work involved. The average carbon cost from retrofits in current Westminster

¹⁷ This time period was adopted to reflect a longer range of time, factoring in changes such as the COVID-19 pandemic and adoption of the current City Plan

¹⁸Source: [Open Data communities](#) (analysis based on voluntary re-issue of EPCs)

¹⁹ Source: Westminster applications and completions data

benchmarking data (shown in Figure 3) refers to major schemes with significant works involved, whereas the EPC refurbishment data captures both works that do not require consent and more major works. Therefore, the 3.7KT per year presumed in Table 5 is likely to be an overestimate. It is also important to remember that for both refurbishments and new builds, the operational carbon savings are not factored into any of these figures, and in both cases, the end result is usually a more energy efficient building.

19. Nonetheless, it is clear that around 7.6KT of embodied carbon emissions would be emitted per year in order to continue to meet the City Plan's job targets. This is useful as an indicative metric to test the balance between environmental and economic sustainability objectives. The lower the ratio (either due to increased job creation, or decreased carbon emissions from development), the more effective any policy seeking to limit embodied carbon is. What is highlighted from these figures is that a continuing trend of relying on demolition and redevelopment for office jobs does not appear to be a sustainable way (primarily due to environmental impacts) to achieve economic growth. This point is particularly pertinent, as the data suggests that carbon intensive demolition and rebuild options do not appear to be the principal reason for increased office jobs.

EPC regulatory changes

20. In addition to promoting growth in jobs, Westminster's relatively high demand for office redevelopment is, in part, driven by the Energy Act of 2011 and the Energy Efficiency (Private Rented Property) (England and Wales) Regulations, made on 26 March 2015. This legislation means that there is a drive for offices to achieve EPC Band C by 2027 and EPC Band B by 2030, or landowners will be unable to let the property. It is important to consider that the upgrading of this floorspace is not only in order to provide new jobs, but also to ensure the maintenance of existing jobs in the city.
21. Approximately 1.8 million sqm of floorspace classified as 'Office and Workspaces' requires some form of upgrade to meet the 2027 target of EPC C, and a further 1.5 million sqm needs to be upgraded by 2030. This is highlighted in Table 6 below.

Table 6: WCC floorspace as reported by GOV.UK statistical release, April 2023

	Estimated sqm of 'office and workshop' floorspace	% of total office and workshop floorspace
EPC BAND A	290,705	5%
EPC BAND B	1,806,479	33%
EPC BAND C	1,502,234	28%
EPC BAND D	1,208,971	22%
EPC BAND E	511,570	9%
EPC BAND F	74,227	1%
EPC BAND G	40,474	1%
Totals	5,434,660	100%

22. Figure 5 shows the cumulative requirement of office floorspace across the city to meet changes to EPC requirements. Using the figures from Table 6, it is evident that 61% of floorspace will need to have some form of upgrade work by 2030. Given the wider economic drivers, and capital costs of improving EPC bands, it is likely that under the current policy framework, a significant proportion of this office space would come under pressure for demolition and re-development.

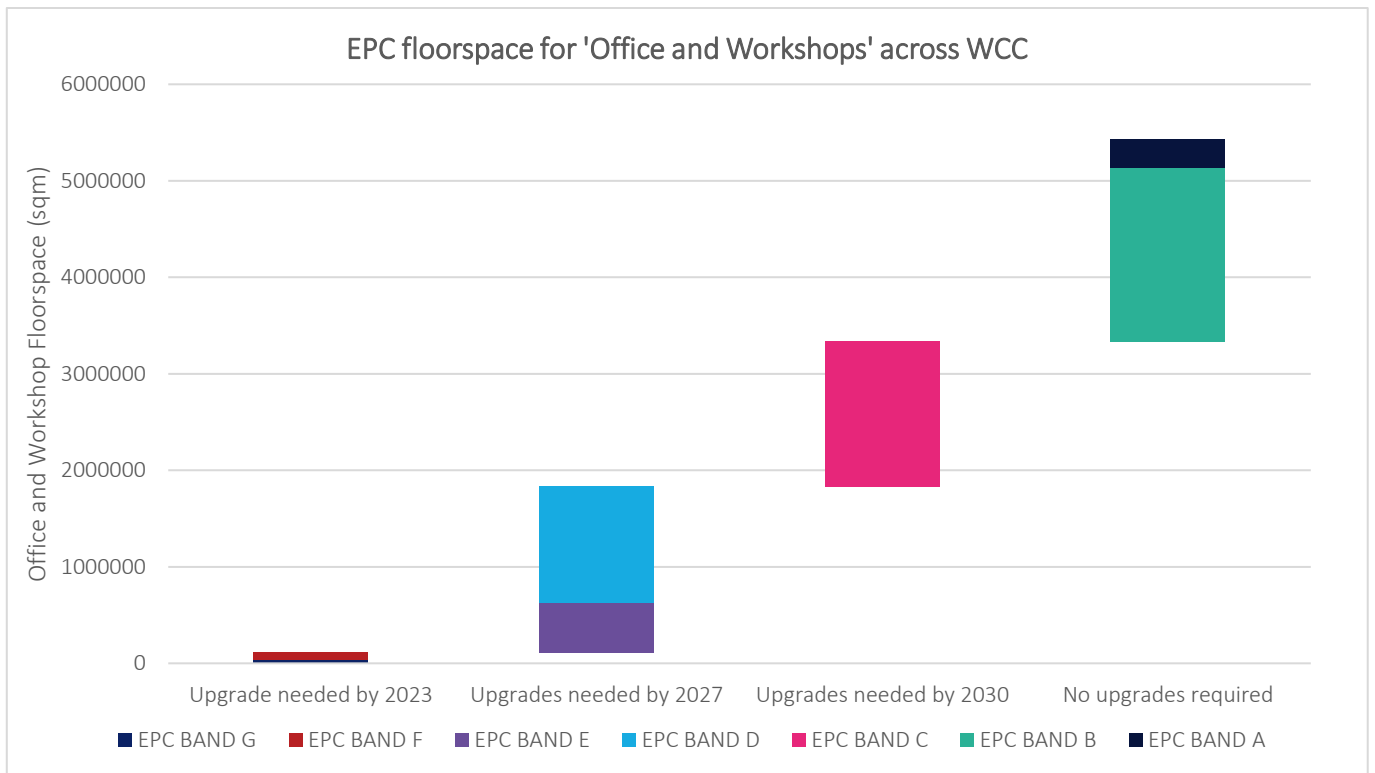


Figure 5: Floorspace breakdown of EPC ratings across the city

23. Of the office floorspace identified as requiring upgrades to meet EPC regulations, an estimated 3.3 million sqm will require some form of upgrade by 2030. Table 7 below shows the average sqm per year which would need to be upgraded between now and 2030.

Table 7: Office floorspace by EPC band, upgrade timelines

	Estimated sqm of office and workshop floorspace	Requiring upgrade between 2024 and 2027	Requiring upgrade between 2027 and 2030
EPC BAND C	1,502,234	-	1,502,234 sqm <i>(Average of 500,745 sqm per year)</i>
EPC BAND D	1,208,971	1,835,242 sqm	-
EPC BAND E	511,570	<i>(Average of 611,747 sqm per year)</i>	
EPC BAND F	74,227		
EPC BAND G	40,474		
Totals	3,337,476	Overall average 556,246 sqm per year	

24. Current data suggests that 42% of upgrades to offices have occurred without planning permission (as is demonstrated in Table 4). This has therefore presumed that for some existing buildings, the upgrades required are minor in detail and do not need major works. Deducting this 42% from the 3.3 million sqm figure, it is therefore estimated that around 1.9 million sqm of office floorspace will need to undergo upgrades subject to planning permission to meet EPC regulations for letting and/or selling premises. This would mean approximately 323,000 sqm on average per year would need to be upgraded in a manner which requires planning permission.
25. The current rate of office refresh (either through new build or refurbishment/retrofit) is around 170,000sqm per year, around 35% of this being achieved through demolition and new build schemes. To meet the estimated 323,000 sqm per year with planning permission, it is evident that office floorspace upgrades would need to significantly increase. The amount of embodied carbon that could arise from this floorspace being developed and/or refurbished is outlined below. This has presumed that:
- The 35% that are new builds would meet the relevant embodied carbon benchmarks set by different industry organisations set out below.
 - The 65% that are retrofits would maintain the current average of kg of CO₂e per m² (367kg, as shown in Table 1), expect in the ‘WCC 2030 target’ scenario, whereby they would be presumed to meet the 31% reduction in embodied carbon target (253kg).

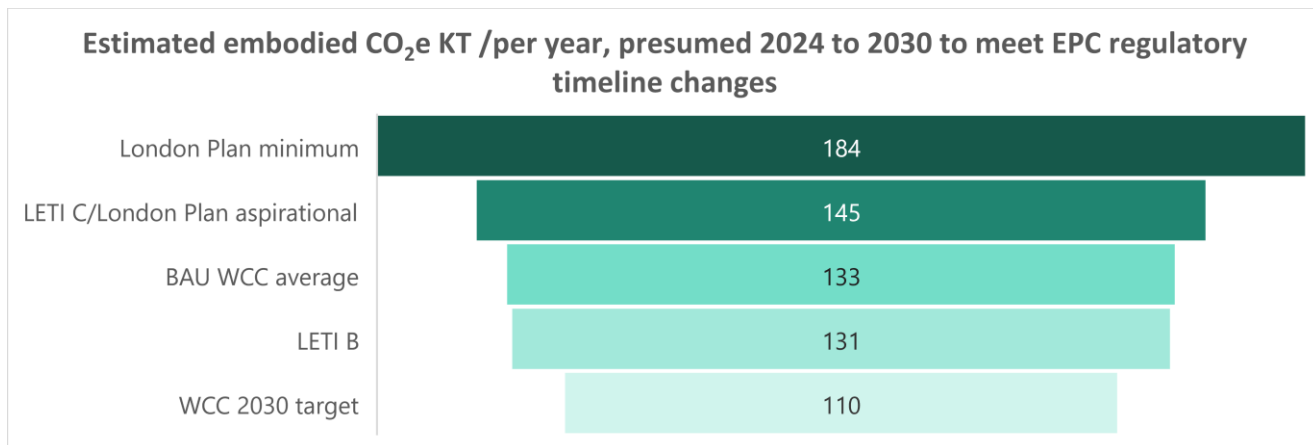


Figure 6: Comparison of embodied carbon per annum, depending on industry benchmarks for new-build offices. The 2030 WCC target assumes both retrofits and new buildings reduce embodied carbon emissions per m² to 31% below business as usual.

26. An important caveat to Figure 6 is that EPC rating upgrades also reduce annual CO₂ operating emissions. An analysis of the EPC data was carried out to establish the potential reductions in CO₂e that an EPC change could achieve for office buildings. To calculate this, the EPC data for Westminster’s offices was analysed to determine an average operational CO₂ emissions per m² for each EPC band, and this was used to establish the average percentage decrease per band of approximately 33%. Using this average, further analysis was carried out that showed that the estimated operational CO₂ emissions savings per annum if all office space was upgraded to Band B, with total savings of 95KT of CO₂ per annum. Assuming a phased upgrade of EPCs occurs between 2024 and 2030, this would result in an approximate payback time of around 11 years if the business-as-usual scenario was applied (upfront embodied carbon emissions of 798KT). However, if the government’s target date for grid-decarbonisation (2035) is factored in, and operational emissions decline per year until reaching net-zero by 2035, there would be a deficit of 399KT of carbon spent which would not be offset by the operational savings. The table below shows these payback periods, assuming no grid-decarbonisation, and assuming the grid will decarbonise by 2035.
27. The key take away from this table is not that buildings should not undergo energy performance upgrades, but that the mechanism by which this happens needs to ensure that the upfront carbon is limited. The modelling would suggest that for the EPC reductions to result in net-zero carbon, there would need to be a 50% reduction in the amount of embodied carbon used to achieve these results. Failure to do so could result in unintended climate impacts, where building owners seeking to reduce emissions in one area causes an excess of carbon emissions elsewhere. The modelling gives a different target benchmark for reducing embodied carbon (in commercial buildings), suggesting that a far higher reduction per m² emissions is required by 2030 than the 31% set out in Figure 1, and Table 2, however in line with the 2035 emission reduction trajectory.
28. A caveat to this modelling is that it makes several assumptions: 1) that the grid will decarbonise along the factors set out in the Etude Delivering Net-Zero Report, and 2) the work to meet the EPC targets happens at an equal rate between 2024 and 2030, meaning that the amount of carbon saved increases annually until 2030, and 3) that all buildings upgrade their EPC and are not exempt.

Table 8: Estimated carbon pay pack periods for EPC upgrades to meet 2030 regulation timeline

Est. total upfront embodied carbon 2024 – 2030 (business as usual): 798KT	2030	2035	Upfront embodied carbon reduction needed to be net-zero
Cumulative operational carbon savings from 2024 baseline without grid decarbonisation (Deficit)	334KT (-464KT)	810KT (+12KT)	-
Cumulative operational carbon savings with grid decarbonisation ²⁰ from 2024 baseline (Deficit)	215KT (-585KT)	393KT (-405KT)	50%

Key conclusions

29. The current approach in the adopted development plan is insufficient to reduce emissions related to embodied carbon. Taken together, the City Plan’s commitments on housing and office jobs is estimated at current levels to result in 62KT of CO₂e per annum over the City Plan period to 2040, under current trends in design and construction practices.
30. Wider regulation change to EPCs is also likely to mean that refurbishment and retrofitting will also result in a significant amount of embodied carbon on top of this, although it is difficult to quantify the exact amounts. It is evident however that the regulations relating to the EPC requirements of office spaces will continue to have an impact on the development pipeline and associated job maintenance and generation in the city. Furthermore, the EPC improvements will off-set some of the carbon upfront emissions through long term savings, but the pay back periods required are likely to be beyond the 1.5°C target dates, Westminster’s 2030/40 goals and the projected grid-decarbonisation date. As a result, the upfront embodied carbon from EPC regulatory compliance would need to be reduced by 50% which is approximately aligned with the 2030/2040 reduction trajectory which was estimated to be 53.5% by 2035.
31. Overall, this section has highlighted that in order to continue to meet the key objectives of the City Plan, embodied carbon emissions will continue. However, given the importance of these objectives, it is clear that reductions for other forms of development will need to occur, along with applying innovative solutions to continue to balance the achievement of these aims with less carbon intensive approaches (for example, through restricting demolition and retrofitting).

²⁰ Etude Delivering Net Zero (2023) grid-decarbonisation assumptions applied.

4. Policy Development

4.1 Policy development

1. As has been demonstrated in the preceding sections of this Topic Paper, current practices across Westminster, coupled with the wider legislative and policy context require a greater focus upon the carbon emissions of the built environment.
2. To understand how a policy within the Westminster City Plan could help to facilitate greater levels of retrofitting and overall reduced embodied carbon from new developments, a series of workstreams were undertaken by officers. This included research on embodied carbon to understand what reasonable benchmarks could be and how these could be applied to developments across the city. Another workstream sought to understand the implications of not allowing demolition and any negative impacts this might have on the social and economic fabric of the city. As such, this work elucidated which circumstances the council should consider appropriate to enable demolition in order to maintain a pro-growth development plan. A final workstream reviewed how retrofitting could be further incentivized and how this could overcome existing barriers to retrofitting. Following each of these workstreams, the draft policy was shared with a number of stakeholders in order to further shape and refine the wording.
3. This section of the Topic Paper provides further information on each of these workstreams, along with the process undertaken to collaboratively improve the effectiveness of the policy with key stakeholders. As part of this process, a review of practices undertaken by neighbouring authorities and the GLA was also undertaken to understand how the draft policy would align with similar policies in use elsewhere.
4. As is described in more detail in Sections 4.5 to 4.7, further comments on the draft policy wording were then sought through consultation with additional stakeholders.
5. Overall, the development of the retrofit first policy has sought to reflect the engagement held to date, whilst also balancing the competing interests of the development sector with the climate emergency.

Initial stakeholder consultation

6. The council consulted on the initial scope of the City Plan Partial Review (Regulation 18) between the 7th of October and 18th of November 2022.
7. The Regulation 18 consultation received responses from a range of consultees including residents, community groups, the development industry and statutory stakeholders. The main themes of the consultation responses are summarised as follows:
 - There was overarching support for a policy that promotes retrofitting and achieves net zero carbon.
 - The case was made that the policy should allow for demolition (or deconstruction) under certain cases, as not every building might be suitable for retrofitting, there might be larger carbon savings in the long term, or there may be competing policy objectives.

- It was suggested that the policy should follow a sequential approach, and should set out clear benchmarks, requirements and tests.
- The policy provides an opportunity for data collection and incorporating a new monitoring indicator.
- Alignment with the London Plan policies on Whole Life Cycle Carbon and Circular Economy was requested.
- It was highlighted that the policy should work for both historic and more modern buildings, and for different sizes and typologies.
- Wider benefits to retrofitting beyond carbon were highlighted that the policy should take consider such as greening, air quality and flood risk.

4.2 Embodied carbon

1. The need to reduce embodied carbon from development was explored in the opening sections of this paper. An approximate target of reducing embodied carbon in proportion to Westminster's wider carbon reduction goals was also calculated using existing benchmarks from reported whole life carbon at design stage. The results of this exercise gave an indicated science aligned benchmarks for Westminster of 377kg/sqm by 2030 and 147kg/sqm by 2040 for all building types (i.e. retrofits and new builds).
2. In developing the policy, consideration was given to set an overall budget for embodied carbon in the city, using the in-depth calculations that were carried out to ascertain the current embodied carbon emissions across WCC, and set yearly targets for all development which reduced this annually until a 31% reduction by 2030. This approach is unlikely to be appropriate, as although it would provide an easily understood metric, – it is challenging to forecast what development may come forward across the city, and would artificially alter the pipeline of new development, and theoretically could result in applications being refused one calendar year but approved the next. Furthermore, as the city evolves and changes through the plan period, additional infrastructure requirements could cause large increases in embodied carbon. It is therefore considered more proportionate to use of individual benchmarks for development.
3. Reviewing the current trends in Whole-life Carbon in Westminster, it was apparent that on the whole, retrofits offer significant embodied carbon savings compared to new buildings. The potential savings depend upon the extent of the retrofit, with deeper and more extensive retrofits utilising more materials and so have higher embodied carbon associated with them, reflecting the well-recognised correlation between the amount of materials re-used in-situ and lower embodied carbon. It is also understood that the use of secondary raw materials enhances the circular economy, lowering the demand for material extraction, and therefore is considered a climate change mitigation measure, promoting resilience locally, as well as globally²¹.
4. It is acknowledged that there will be an increase in embodied carbon emissions associated with domestic retrofits resulting from council's push for fabric first approach, renewable and low-carbon technologies and decarbonisation programmes. As some domestic works do not require planning permission, embodied carbon data and scope of those works cannot be fully captured. It becomes crucial that more stringent limits are considered for all other non-domestic major schemes. It is therefore considered appropriate to pursue a policy that increases the amount of retrofitting. To achieve this, benchmarks should be suitably challenging that developers consider retrofitting, but still enable high quality low carbon new buildings where appropriate.

Establishing benchmarks for Westminster

5. The starting point for establishing benchmarks should be to consider what embodied carbon benchmarks are required to ensure the carbon reduction trajectory for 2040 is achieved. Once this has been determined, in order to be reasonable and deliverable – consideration should be given

²¹ Global Resources Outlook 2019, Natural Resources for the Future We Want, International Resource Panel, UN

to the practicality of these from a cost impact, engineering and design perspective. If due to practical reasons a climate aligned benchmark is not possible for a new build, then further measures may be required to limit overall embodied carbon emissions. For example, it may be necessary to bring in complementary measures to reduce the number of demolitions taking place.

6. In the proceeding chapter, the City Plan's growths targets and current trends in whole life carbon were used to determine a baseline for establishing embodied carbon benchmarks in policy. In addition to the growth targets, a third area of likely emissions was established by examining the impact of EPC regulatory compliance, which is recognised as a current risk to the continued availability of office capacity. The emissions sources and their baselines will be used to analyse what climate aligned benchmarks might look like.
7. Using the London Plan, and a range of LETI's proposed benchmarks as a starting point – Figures 7 and 8 below show the estimates of carbon emissions per annum of different benchmarks of the City Plan growth targets, compared to the business-as-usual baseline established in the proceeding chapter. The benchmarks are then considered in relation to current EPC regulatory compliance timelines as well as the embodied carbon likely required to maintain the office stock with the EPC regulatory changes (with new floorspace removed to avoid double counting) in Figure 9, building upon Figure 6 to show until 2040. The 2030 and 2040 targets provide indicative figures for a climate aligned benchmark (i.e. a 31% reduction by 2030 and a 73% reduction by 2040 to align with the Tyndall Centre 2023 analysis).

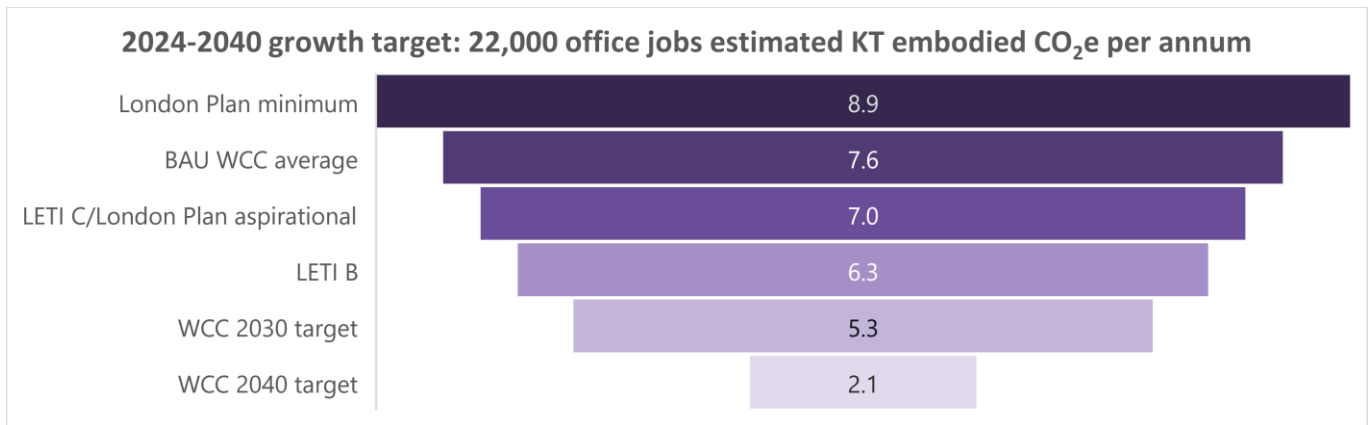


Figure 7: projected impact of different benchmarks per annum carbon emissions from embodied carbon related to delivering new and refreshed office space of ~15,500 sqm to generate 22,000 jobs.

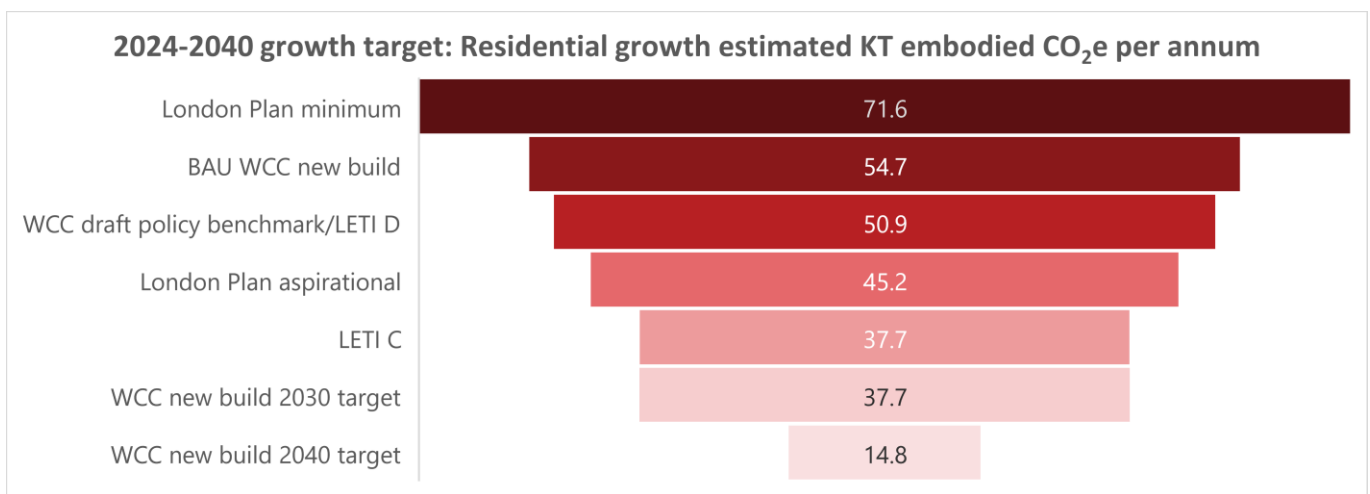


Figure 8: projected impact of different benchmarks per annum carbon emissions from embodied carbon related to delivering new residential dwellings in line with needs identified by Westminster's Strategic Housing Market Assessment (January 2024)

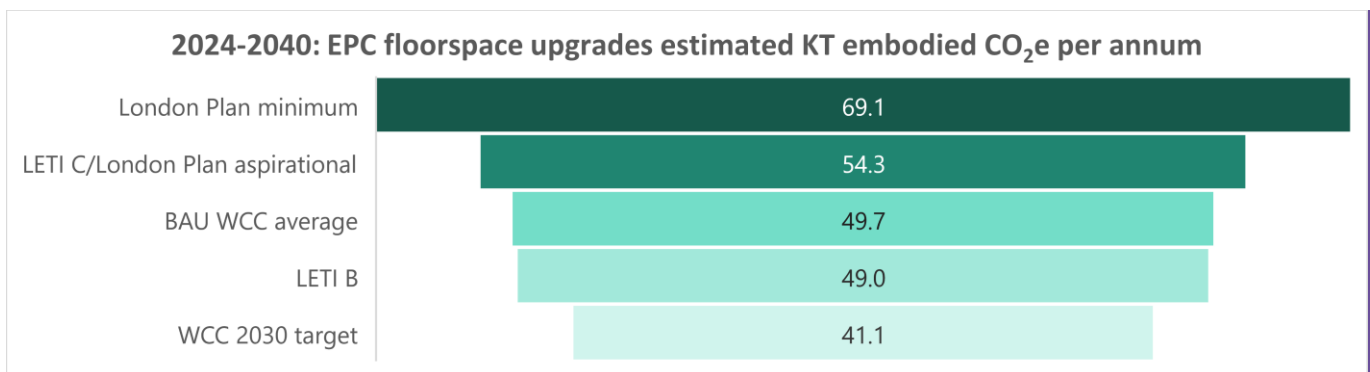


Figure 9: projected impact of different benchmarks per annum carbon emissions from embodied carbon related to regulatory compliance with EPC band ratings for offices across Westminster. Given that regulatory compliance for EPCs is required by 2030 and an interim target of 2027, the majority of these emissions will be generated between 2024 – 27.

8. Figures 7, 8 and 9 highlight that depending on the benchmarks set for embodied carbon emissions, there can be vast differences in the annual KT of CO₂ emissions associated with development in Westminster. A key trend to note is that in all scenarios, the London Plan and LETI bandings do not achieve the reductions needed to align with the Tyndall Centre 2023 assumed reductions of 31% by 2030 and 73% by 2040. This gives further impetus on the need to encourage a policy that reduces embodied carbon emissions as a step-change to industry practices, to continue to drive improvements as close to the climate aligned benchmarks as possible.
9. By providing an average annualised figure to 2040 (i.e. the City Plan time period), the charts above also highlight the embodied carbon expected to be generated per year in order to meet some of the growth targets of the City Plan, alongside EPC regulatory changes. If new developments were to adhere to the London Plan minimum embodied carbon benchmarks, this would equate to around 150KT per year, compared to, for example, current BAU trends that would cost around 112KT and the Westminster 2030 climate aligned benchmark which would cost around 84KT per year. This vast discrepancy gives further rationale for the need to further reduce embodied carbon beyond benchmarks currently set by the London Plan. Furthermore, in reviewing Figure 8 it is evident that residential development will likely have the largest embodied carbon impact per year of the City Plan period. As this remains in acute need across the city, this therefore places greater pressure on commercial developments to achieve embodied carbon reductions to ensure sustained housing growth in line with identified housing needs.

Choice of benchmarks

10. There are a number of different benchmarks currently in use across the industry, with more also being developed at the time of writing. There are a number of benefits and disbenefits of each. The focus on upfront embodied carbon (as is the case with the London Energy Transformation Initiative 'LETI' benchmarks) was primarily due to the fact that unlike life-cycle embodied carbon (favoured by organisations such as RIBA) these emissions are immediately emitted into the atmosphere when a development is constructed and are currently largely unregulated, and so require the most urgent attention. Furthermore, while life-cycle embodied carbon emissions can be reduced through proactive and positive design, the processes driving these emissions are often outside the usual control of the planning system (due to being related more to processes such as repair, maintenance and fit-out). To capture the elements controlled at the planning stage, rather than allow life-cycle embodied carbon to be used for benchmarking, the policy has been drafted to ensure that new buildings are designed to be future proofed and limit carbon emissions from repair, maintenance and fit-out.
11. Based on this, it was decided that on balance, the best approach for the council would be to use the LETI benchmarks based on their 2020 guidance, focussing on upfront embodied carbon. Given that this space will continue to evolve over the City Plan period, whilst targets from LETI have been adopted, the explanatory notes within the policy make clear that any future benchmarks which have been aligned with the LETI bandings would be acceptable to use in the future. Furthermore, the LETI benchmarks referenced within the draft policy are explained to have been derived from their 2020 guidance. This means that if the benchmarks were to alter over the City Plan period, the benchmarks stated within the 2020 documentation would remain acceptable.

Setting realistic benchmarks

12. Achieving sustainable development also means ensuring that other tenets of sustainability are met, including social and economic. This means that when setting benchmarks for development, consideration must be given as to whether a benchmark could be so robust that it prevents ensuring the needs of current generations are also met. To analyse realistic benchmarks the council commissioned an evidence paper to look at what reductions in embodied carbon are realistic from an engineering point of view, as well as cost implications for reducing embodied carbon.
13. The report is entitled “Embodied Carbon Evidence Base” (the ‘report’). The report was intended to explore different options for lowering upfront embodied carbon across the main building components: structure, façade, MEP and services. The analysis uses three archetypes, an office, residential, and mixed-use development. A similar report was prepared for the West of England Combined Authority, and formed part of the evidence base for the development of a policy which also sought to limit embodied carbon – however the report was refreshed in line with the most up to date methodologies for calculating carbon, including recently adopted guidelines from the Centre for Window and Cladding Technology on embodied carbon in facades, and TM65 for MEP systems. It was also important that this study was updated to reflect typical typologies evident across Westminster.
14. The archetypes use for this report are as follows:
 - **Office:** 7 Storeys, Gross Internal Floor Area (GIA) 9,072 m²
 - **Mixed Use:** 7 Storeys, Gross Internal Floor Area (GIA) 9,072 m²
 - **Residential:** 8 Storeys, Gross Internal Floor Area (GIA) 6,912 m²
15. The key findings from the report are summarised in Figure 10 below, with building typologies in the top row referring to relevant LETI bandings.

Building Typology	D, E, F, G	C	B	A	A+, A++
Upfront Embodied Carbon (A1-A5)					
Office	0%	0%	7%	<i>Further Measures Necessary</i>	<i>Non-compliant</i>
Mixed Use	0 %	0%	2%	<i>Further Measures Necessary</i>	<i>Non-compliant</i>
Residential	0%	0%	<i>Further Measures Necessary</i>	<i>Non-compliant</i>	<i>Non-compliant</i>

Figure 10: Cost uplift per typology to comply with the letter banding targets of Embodied Carbon Target Alignment Work. Table reproduced from Embodied Carbon Evidence Base.

16. The report concluded that, mostly due to the updated façade methodologies and restrictions on the use of timber, achieving low embodied carbon in residential developments poses a significant challenge. These results differ from the work carried out by LETI to set benchmarks, which assumed lower carbon costs of residential developments. It is likely that for residential buildings below 18 metres (where timber can be used more widely) it should be possible to achieve lower results. Given the limited land available in Westminster, it is likely that a significant proportion of new residential will be over 18 metres in height. This presents a challenge, as the existing City Plan and NPPF make firm commitments on house building, which should not be undermined by other policies. Given this evidence piece, it is clear that higher benchmarks are therefore required for residential developments compared to other building types. It is also apparent that in order to balance the overall embodied carbon emissions and align them to the 2030 and 2040 goals, non-residential developments will have to perform better in embodied carbon reductions.

Smaller scale buildings

17. As noted above, the authors of the embodied carbon study previously carried out a similar piece of work for the West of England Combined Authority²², which the council have considered alongside the recently commissioned piece as part of their evidence base. Some caution should be used when relying upon this evidence, as since its publication understanding of how to calculate embodied carbon has progressed – especially around facades and MEP installation. That being said, it has some utility as indicative of the feasibility and cost, especially for smaller scale buildings. The buildings looked at in this report were all under 18 metres including a residential dwellinghouse and a smaller office building.

18. The office and apartment block archetypes looked at for the report were as follows:

- **Office:** 4 Storeys, Gross Internal Floor Area (GIA) 1,600sqm.
- **Apartment block:** 8 Storeys, Gross Internal Floor Area (GIA) 3,360sqm.

19. The key findings from the report are summarised in Figure 11 below, with building typologies in the top row referring to relevant LETI bandings.

²² West of England Combined Authority (2021) Evidence Base for West of England Net Zero Building Policy: Embodied Carbon. Available from: <https://www.westofengland-ca.gov.uk/wp-content/uploads/2022/01/Spatial-Development-Strategy-Evidence-base-for-Net-Zero-Building-Policy-Embodied-Carbon-Jan-2022.pdf>

Building Typology	D, E, F, G	C	B	A	A+, A++
Whole Life Embodied Carbon (A-C)					
Office	0%	0%	0%	16%	No compliance
School	0%	0%	9%	15%	No compliance
Apartment Block	0%	0%	0%	9%	No compliance
Semi-detached house	0%	0%	3%	15%	No compliance
Upfront Embodied Carbon (A)					
Office	0%	6%	9%	16%	No compliance
School	0%	7%	9%	15%	No compliance
Apartment Block	0%	0%	0%	9%	No compliance
Semi-detached house	0%	3%	15%	15%	No compliance

Figure 11: Cost uplift per typology to comply with letter banding targets. Table kindly reproduced with permission from the West of England combined Authority.

The limits of benchmarks

20. It is clear from the projected impact of different benchmarks that simply setting a benchmark alone is not going to bring the overall embodied carbon down to the 2030 and 2040 targets. Firstly, it does not appear possible from the Embodied Carbon Evidence Base report that, under certain conditions, new residential buildings are able to achieve the reductions in embodied carbon required to meet the 2030 targets. This finding is consistent with the council's benchmarking, where residential schemes were often associated with higher embodied carbon. Furthermore, the Embodied Carbon Evidence Base suggests that an equivalent of Band B is the most realistically achievable for new commercial buildings, and the modelling suggests that if current development patterns continue, this would not be low enough to meet the 2030 target.
21. As reducing the new build embodied carbon benchmark even lower would render new build developments unachievable to deliver, it follows that the alternative would be to attempt to reduce the amount of demolitions taking place across the city. The benchmarking exercise clearly showed that retrofits (both deep and light touch) are associated with reduced amounts of embodied carbon. Taken together, the Embodied Carbon Evidence Base and the council's benchmarking exercise mean that to achieve the 2030 climate targets, reducing the rate of office and residential demolition and increasing the rate of refurbishment and retrofits will be necessary.
22. Given the currently available construction practices and materials, it is relatively clear from both the feasibility report and the rate of new builds, that both embodied carbon benchmarks and some sort of limitation of new build is required in order to achieve the kind of reductions required to meet the Climate Change Act's emission reductions. If building materials dramatically reduce their embodied carbon, this balance may shift. Review mechanisms in the policy (to be discussed

in Section 5 of this Topic Paper) should ensure continued benchmarking to update the plan in the future.

23. The chart below estimates the potential total emissions from combining an adjusted rate of new buildings down to 15% from their current 35% alongside various target benchmarks. This is not intended as a target rate of demolition, but rather to illustrate the potential carbon savings that a reduction would have. The modelling appears to suggest that by cutting the new build rate by approximately half and the addition of a benchmark that corresponds to LETI Band B, this would be close to achieving the interim Westminster 2030 target.
24. It is important to remember that having a “buffer” space is required to off-set some of the unavoidable emissions arising from residential growth, and other key infrastructure that may have higher emissions associated with them, such as new hospitals, or transport infrastructure. Westminster is somewhat unique in that it has a relatively high share of commercial development, and so this kind of development offers the potential for the highest impact. What this graph also clearly shows is that future City Plan reviews will need to focus on carefully benchmarking for retrofits. The lower the achieved embodied carbon is for retrofits, the more capacity there is to facilitate new buildings. Strategically, this will be important to facilitate other growth objectives that are likely to require new buildings.

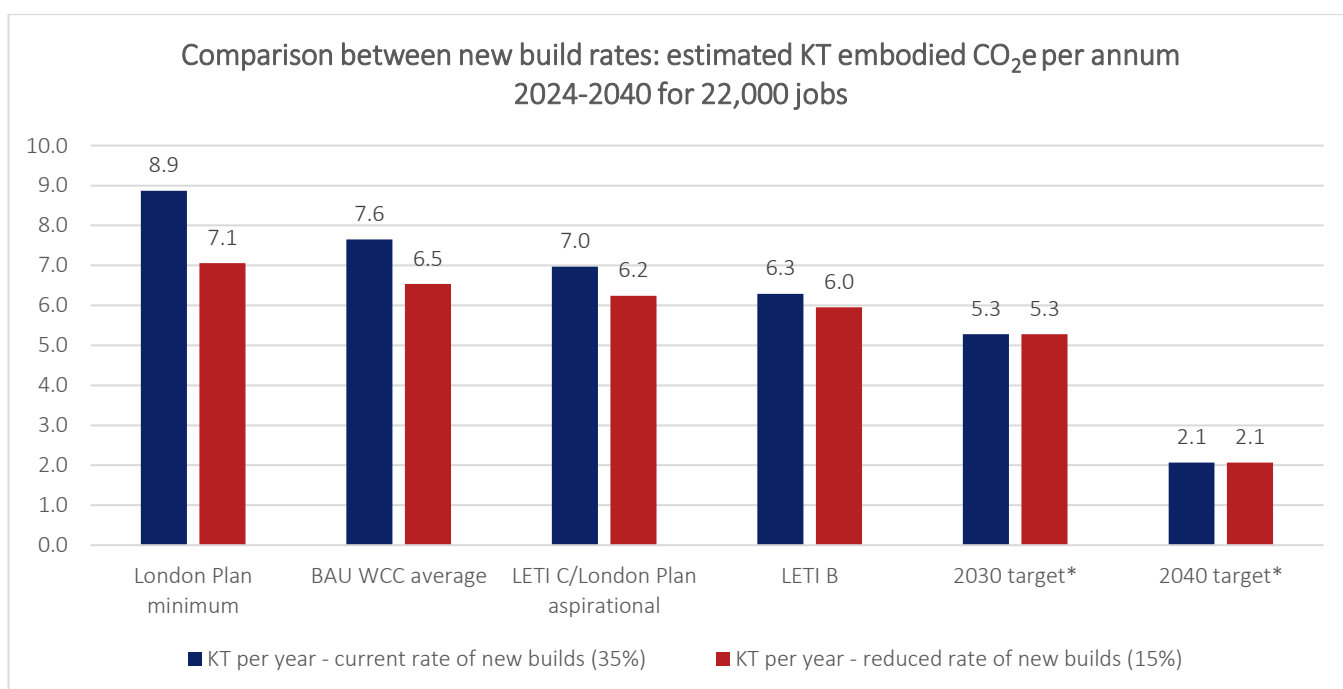


Figure 12: Comparison of KT per year for City Plan jobs target if new-build rate of offices was to decrease from 35% to 15%. *Note, 2030 and 2040 targets are based on all schemes meeting weighted average climate aligned targets.

25. It is challenging to model accurately for housing delivery what changes in redevelopment rates might have. Historically, Westminster has relied upon windfall sites for development, and there are limited sites within the city where large scale housing projects are likely – except as part of estate regeneration. It is likely that by introducing new requirements around embodied carbon and demolition, more schemes will follow permitted development routes, or changes of use, both of

which are likely associated with less embodied carbon. The effect of the policy on housing delivery would therefore need to be carefully monitored.

Thresholds for benchmarks

26. The council have opted to apply the benchmarks to all major schemes, regardless of the extent of demolition, and to all schemes involving total demolition. Applying the benchmarks to both major schemes involving retrofit and development are important to ensure that the carbon emissions associated with retrofit schemes remains limited, although it is anticipated that the carbon associated with these kinds of schemes is likely to be lower.

Householder applications

27. The policy thresholds mean that the benchmarks would not apply to householder applications for alterations and extensions, and nor would it apply to small business premises carrying out alterations or extensions. It would however apply to smaller buildings that are proposed for total demolition. This approach ensures that small businesses and householders are not expected to carry out onerous assessments when seeking to make small scale alterations and extensions.
28. The thresholds do apply to householders who are carrying out total demolition and re-build of a dwellinghouse – although rather than a benchmark, specific provisions apply for custom and self-build development (which most development like this would fall into). The policy in these instances will require the maximum embodied carbon reductions deliverable, which would be taken to mean what is feasible given the scale and proportion of the development proposal. Although demolition and rebuilding of single family dwellings is relatively uncommon – there were 19 such developments between 2017 – 2021, which officer analysis estimates resulted in an estimated 33 to 42 tonnes of CO₂e per scheme, with only a marginal public benefit from the increased size of family homes. While this is not as significant as the emissions associated with other forms of development, the 2030/40 targets of reducing carbon emissions would need to apply across all development.
29. The draft policy wording does deliberately exclude instances which involve the demolition of single storey buildings, such as garages and outbuildings. This reflects the fact that these types of buildings are often relatively lightweight, and the carbon intensity of their replacement is limited, and development of these areas can offer important opportunities to optimise site capacities by provided larger buildings.

Summarising the approach

30. Limiting embodied carbon is an important and necessary step to achieving overall reductions in carbon emissions in Westminster, and beyond. In order to deliver the reductions required by the relevant legislation, and achieve the growth targets in the city, it is important for these emissions to be carefully managed to deliver sustainable development across the city. What is also clear that as a source of emissions, upfront embodied carbon needs to be reduced significantly by 2040. The evidence suggests that the reductions required go beyond what is currently practical and viable for the majority of developments, and so other options for securing these reductions need to be explored to ensure sustainable growth across the City Plan period. Principally, this will involve a more strategic and measured approach to when and how demolition is permitted, and the introduction of incentives and support to encourage retrofitting as the default form of

development. Retrofitting is associated with far lower embodied carbon emissions and so by increasing the share of developments adopting a retrofit approach, the Plan can support the strategic and targeted delivery of new buildings where they are likely to have the greatest impacts, whether on housing delivery or economic development objectives.

4.3 Ensuring high quality replacement buildings

1. As was highlighted in the Section 4.2, a policy which utilises embodied carbon benchmarks to limit carbon emissions from new buildings is unlikely to achieve the reductions required to meet the Climate Change Act and council targets for a net-zero city by 2040. For new residential buildings, it was also apparent from the Embodied Carbon Evidence Base report that reducing embodied carbon is a significant challenge. Taken together, these issues justify exploring policy measures to further reduce the rate of new builds, alongside measures to reduce embodied carbon. The current City Plan approach requires developers to explore options for the re-use of buildings but falls short of setting out policy tests to regulate the approach to when demolition is acceptable. The only other policies which relate to demolition are design and heritage related, rather than specifically related to climate change. The data available to the council on the rate of demolition versus new buildings for commercial buildings currently suggests that around a third of all developments involves substantial or total demolition. Reducing this figure appears to be key to achieving the reductions needed.
2. Replacing buildings is still a key mechanism for achieving sustainable development, particularly where buildings have reached their natural end of life or are made redundant due to changes in the requirements of urban economies. At the same time, there is economic pressure to replace buildings as financial returns from new buildings are traditionally often greater or seen to be more reliable for owners when compared to retention. Any prospective policy must therefore balance the competing needs of building owners to generate value from their assets, the practicable and societal need to replace some buildings, and the carbon impacts of construction activity. To achieve this, the council propose to set out a series of policy tests to reduce the demolition rate, while ensuring the necessary process of building replacement can continue to a modulated rate. The adopted policies relating to heritage, design and demolition would all continue to apply.
3. Whilst retrofitting is identified as a key measure to reduce embodied carbon emissions, it is recognised that there are a multitude of constraints unique to individual buildings and settings which can determine the appropriateness of this in certain circumstances. There may also be scenarios where due to the limitations of what can be achieved through retrofit, demolition needs to occur to secure and deliver on priorities for the city. This could take many forms and may include public infrastructure or delivering on the council's spatial strategy, in particular across Housing Renewal Areas.
4. The introduction of a series of tests were included in the drafting of the policy in recognition of this need for flexibility, whilst still providing greater certainty to applicants. Furthermore, the tests were introduced as a means to help ensure that other objectives of the council (including Fairer Westminster Strategy targets and adopted City Plan policies) could still be achieved, rather than adopting a blanket approach to retrofitting and demolition.
5. The intention of the policy is to ensure that an appraisal exercise is undertaken to demonstrate what the outcomes may be if a building is proposed for total or substantial demolition. The options

appraisal exercise will therefore assist in understanding the carbon cost versus the wider benefits that could be secured through refurbishment, retrofit, deep retrofit or new-build options. By requiring that an appraisal exercise is undertaken, the overall effects of proposed developments on meeting the objectives of the council can be better realised, whilst also ensuring a robust approach to considering whether demolition should occur or not.

6. The tests were developed to comprise all major applications, and for any applications which involve demolition (which could be either minor or major applications). The decision to extend this to apply to minor applications, is based on the fact that the majority of planning applications in Westminster over the last five years have been minor applications, as demonstrated in Table 9 below.

Table 9: Westminster planning applications data Q4 2018 to Q3 2023 (DLUHC)²³

	Number	Proportion
Major	174	1.7%
Minor	10,190	98.3%
Total	10,364	100%

7. The tests were therefore developed to consider the following:

- Delivery of public benefits
- Overall carbon associated with the development
- Bespoke operational requirements
- Feasibility and structural constraints

These are elaborated on in further detail below.

One: Delivery of public benefits

8. As was discussed above, it was recognised that there will be some instances where a development scheme which has the potential to deliver public benefits may not be able to deliver these to the same extent through a retrofit solution. This could include benefits such as affordable housing, community floorspace, affordable workspace, significant job growth or critical social infrastructure. Similarly, the introduction of new public infrastructure such as transport, health and education uses may also be key to Westminster’s population and to residents across the wider London area.

9. The introduction of this test recognises that there are other priorities of the council, including ambitions set out within the City Plan, which may require a flexible approach in considering restrictions on demolition. This includes the following spatial areas:

- **Housing Renewal Areas**

Developments within Housing Renewal Areas are one such example where the delivery of affordable housing and the upgrading of outdated housing stock is of high priority to the council, and which will deliver wider public benefits. In these areas, it may be difficult to retain existing buildings whilst ensuring the important regeneration benefits and contribution to affordable housing can be fully realised.

- **Opportunity Areas**

Within the City Plan, the Victoria and Paddington Opportunity Areas are set as locations to facilitate growth and the promotion of sustainable development across the city. Opportunity Areas are also locations which the Plan has recognised as the most appropriate for maximising sustainable development opportunities, and optimising site capacities. In these locations the benefits that new buildings can provide in order to make the greatest contribution towards

²³ Department for Levelling Up, Housing and Communities (2023) Live tables on planning application statistics. Available from: <https://www.gov.uk/government/statistical-data-sets/live-tables-on-planning-application-statistics>

economic and social development is recognised. It is also recognised that by continuing to allow for growth within Opportunity Areas, this can deliver on the wider ambitions for these areas and the vast public benefits they can provide, such as a more intensive creation of on-site jobs and provision of residential units much needed for the city overall. Policy 41 of the City Plan also stipulates that locationally, taller buildings are more likely to be appropriate in Opportunity Areas, where they deliver upon the spatial strategy for each area. As such there is opportunity for greater site capacities in these locations, which may be better suited to these areas than others across the city and therefore some demolition may be needed to support this objective.

- **West End Retail and Leisure Special Policy Area (WERLSPA)**

There may be instances where the delivery of a significant number of economic benefits may also support the objectives of the West End Retail and Leisure Special Policy Area, and which could only be delivered with some form of demolition.

- **North West Economic Development Area (NWEDA)**

There may be instances where the delivery of a significant number of economic benefits may also support the objectives of the North West Economic Development Area, and which could only be delivered with some form of demolition.

10. The introduction of the public benefit test recognises that applicants will be encouraged to provide public benefits regardless of whether a development is a retrofit or a new build. However, this test seeks to identify that where this may not be possible or significantly reduced via a retrofit approach, flexibility on demolition can be provided in these circumstances. Therefore, the emphasis of the test is the demonstration of what the net additional public benefits would be if a demolition approach was adopted.
11. For example, when considering the delivery of economic benefits, such as new jobs, it is key that any appraisal exercise demonstrates what the net benefit would be from different development options. Figure 13 below shows an example using a proxy number of jobs and three scenarios including the economic potential of an existing building, a retrofit option and a demolition and re-build option.

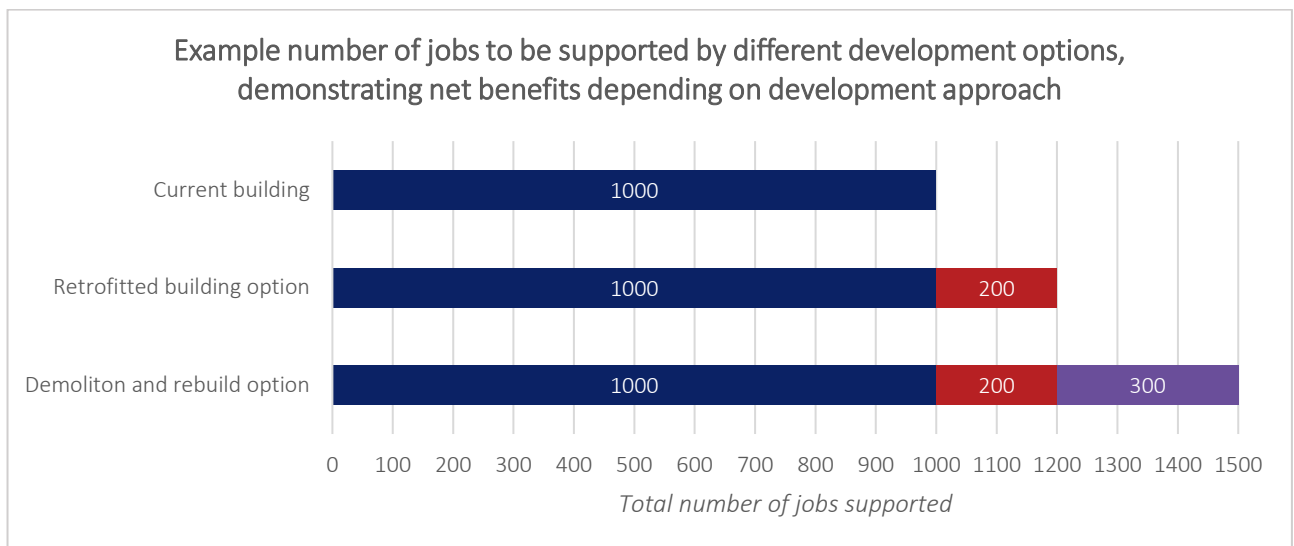


Figure 13: Proxy scenario showing an approach to estimating net additional benefits in retrofit and new build options

12. Figure 13 in this example shows that an existing building has the potential to support 1,000 jobs. Through a retrofit option, it is estimated that an additional 200 jobs could be supported, taking the total number of jobs to 1,200. Through a demolition and re-build option, the new building could support an additional 500 jobs compared to the existing building, representing a total of 1,500 jobs. When considering the economic benefits and evaluating the differences between retrofit and demolition and re-build options, the 300 net additional jobs delivered by a re-build option above the 1,200 that could be achieved through a retrofit is the economic benefit to be demonstrated.
13. The net uplift between a retrofit and re-build option, demonstrated in a manner highlighted above, must be significant in order to meet the objectives of this test.
14. By taking this approach to the measurement of public benefits, such as jobs, decision making is better able to factor in how public benefits are altered based on whether a building is retrofitted, or demolished and re-built, rather than viewing the demolition and re-build option as the only one which delivers benefits when compared to an existing building. This will ultimately assist in balancing the negative environmental externalities associated with carbon emissions with economic growth.
15. Whilst job numbers are just one example of a public benefit, it is expected that this same approach should be used for all benefits. This means that in meeting this test, applicants should demonstrate the net additional benefits achieved above and beyond what could be achievable through a retrofit option and that this distinction is clearly made in any appraisal documentation for consideration by officers.

Two: Considering the carbon associated with retrofitting

16. The main intention of the retrofit policy is to reduce embodied carbon emissions. In some instances, the amount of whole-life carbon associated with a retrofit may exceed those which could be achieved through a demolition and rebuild option. This is particularly the case where more 'light touch' retrofits would continue to leave a large amount of residual operational

emissions, and therefore deeper retrofits required to achieve a reduction in operational carbon emissions would involve embodied carbon emissions comparable to a new building. This test was therefore introduced in order to restrict the occurrence of perverse outcomes which could contradict the overarching aims of the policy.

17. When considering the whole life carbon of a building, retrofitted buildings, particularly those considered to be a deep retrofit, are generally expected to be assessed against a 60-year timeline. This period is understood to be the recognised calculation timeframe used within all assessments and standardised across the industry.

Three: Consideration for bespoke operational requirements

18. As buildings are usually designed with specific uses in mind, the repurposing of these to adapt to bespoke needs can restrict certain future uses. For example, multi-storey car parks throughout Westminster were originally designed for vehicle parking. The requirements for these structures make them difficult to be retrofitted to other uses. As such, it may be appropriate in some circumstances that demolition is allowed at these sites. This may also apply to sensitive uses where it can be demonstrated that bespoke design features are required and which could not be repurposed at all through a retrofit to enable a new productive use.
19. Through the introduction of this test however, it was recognised that in some cases, the bespoke operational requirements of some uses mean that they are not appropriate in certain locations, or within certain existing structures. To consider this, a Site Selection Statement is requested to demonstrate the appropriateness of the proposed use at the site in question and the steps taken to consider alternative options. The Statement should highlight why the bespoke requirement is unique to this particular location in order to demonstrate why demolition should be acceptable.
20. This test was introduced into the policy wording in order to continue to promote the types of land uses and redevelopment opportunities the city seeks to prioritise, whilst also ensuring a balance for the right types of uses in the right locations.

Four: Feasibility and structural constraints

21. It is recognised that structural concerns may impede the feasibility of a retrofit. This could be true for a range of different buildings for a multitude of reasons. As such, where it can be verified by a structural engineer that no retrofitting options are possible, demolition may be acceptable. Through this report, it would need to be demonstrated that the extent of measures required to make the existing structure sound and able to accommodate a retrofit would be unachievable. This test was introduced to assist in ensuring that buildings which are unsound do not remain as stranded assets, but rather can be redeveloped for other uses which will continue to benefit the city and make the best use of land.

Thresholds for policy tests

22. All development subject to planning permission where substantial or total demolition is proposed would be required to demonstrate that one of the four tests have been met through an options appraisal exercise. This was introduced in the policy in order to ensure that the council were proactive in reducing the number of buildings being demolished and rebuilt and so that they could be satisfied that all options possible for retaining the building had been reviewed. Where a development scheme could demonstrate that it is not possible as a result of one of the tests

above, it is recognised that some flexibility would need to be allowed for. It is important to note that this only applies to schemes proposing substantial or total demolition (as usually the most carbon intensive options) to ensure that deep retrofits, which may require some form of demolition in order to retrofit the building, are not subject to the same policy tests and should remain encouraged.

23. Similarly, buildings which are single storey have been excluded from this and will not be required to meet the policy tests. This decision was made to not create overly onerous restrictions on landowners (including householders) for structures such as single storey garages or outbuildings. Across Westminster there are a limited number of single-storey dwellings which this policy could apply to, and it is recognised that single storey structures tend to have lower embodied carbon due to not requiring extensive reinforcement and load bearing as is the case in buildings with multiple storeys.
24. The development of these tests is also not in isolation. As was highlighted above, the policy has sought to focus on four core areas, including a review of embodied carbon performance. As has been elaborated on elsewhere in this Topic Paper, this ensures that regardless of whether demolition is able to occur as per the tests outlined above, enhanced performance with regards to embodied carbon for any development will still be integral.

4.4 Unlocking and promoting retrofitting

1. In the development of this section of the policy, it was recognised that there were a number of barriers to retrofit which could impede the current rates of retrofitting across the city.
2. Current barriers to retrofit include:
 - Heritage constraints such as the use of particular materials or components which promote a certain aesthetic which might be costly, difficult to procure or challenging to secure specific expertise for building works.
 - Occupier needs including bespoke requirements, changes to work practices and specific building configurations required to achieve this and market demands.
 - Viability and the ability to secure investment.
 - Industry perceptions on retrofitted commercial environments and future rental yields or sale of assets.
3. Alongside these barriers was the council's recognition of the forthcoming EPC requirement changes which will create greater impetus for existing buildings to be upgraded to improve energy performance. In addition to this is the wider issue of existing buildings being able to adapt to climate change impacts. This can include upgrades to enhance user experiences in the face of a changing climate, or improvements to enable renewable energy uses such as connections to district heat networks or the upgrading of aged systems.
4. Given the challenges that these pose, a more coherent ambition on retrofitting from the council is needed. Furthermore, in order to effectively achieve an industry step-change, incentives for retrofit are required. As a result, this part of the policy is included to demonstrate that the retrofitting of historic buildings will be supported as long as the building is retrofitted in a sensitive manner. To address what this means, the current Historic England definition for 'responsible retrofit' has been adopted as industry best practice. This defines responsible retrofitting as:

Responsible retrofit: Responsible retrofitting is an informed and integrated attitude to retrofit in a way that enables people to reduce the operational carbon of a building, improve energy efficiency, and/or improve a building's resilience to the impacts of climate change. Responsible retrofit will take into account the building's location, context, design, construction, materials and use, to ensure retrofit measures perform well and avoid adverse impacts to health, heritage and the natural environment²⁴.

²⁴ Historic England (2023) Climate Change and Historic Building Adaptation Advice Note. Available from: <https://historicengland.org.uk/content/docs/guidance/climate-change-historic-building-adaptation-consultation-draft/>

5. The second section of this part of the policy was therefore introduced to rebalance how heritage and townscape impacts are considered alongside improvements to environmental performance of existing buildings to reduce overall carbon emissions.
6. It may be demonstrated through the initial options appraisal exercise (Part A of the draft policy, as discussed in Section 4.3) that in order to retain an existing building and bring it back into use, an uplift in floorspace is required in order to make any development viable. If this is the case, the council would prefer to see an existing building retained and improved, rather than being lost to demolition. This is in order to ensure the longevity of our building stock and to reinforce the position of retrofitting as the preferable development option. The inclusion of this part of the policy was directly in response to a number of current barriers to retrofitting raised through the initial consultation activities and through officer experiences of planning applications across the city.
7. To enable the demonstration of these retrofitting measures, the policy wording sought to require a means of evidence to support this. The wording therefore includes the need for a Sustainable Design Statement or Retrofit Plan to give evidence to the council that technical risks to the building have been identified and addressed in any new scheme design and that harm to heritage assets has been avoided or minimised.
8. The City Plan currently requires that a Sustainable Design Statement is prepared for: *'all applications which create new floorspace and/or where extensive works to retrofit/improve the environmental performance of a building are proposed'*. It is therefore unlikely that the introduction of this requirement will significantly alter the validation documentation required from schemes where the draft retrofit and embodied carbon policy may apply. In any case, this signposting to the completion of a Sustainable Design Statement was included to help to reinforce the importance of the consideration of retrofit impacts as part of a holistic review of design measures.
9. It is critical that the wording intending to incentivize retrofit is not viewed in isolation. As with all policies within the City Plan, other aspects including amenity, heritage and environmental impacts and design will still need to be balanced on a case-by-case basis.

Major scheme post-completion:

10. During the policy development, feedback from industry stakeholders included evidence presented to the council about office occupancy habits, where sustainability was identified as a growing priority of future building owners and tenants. Further evidence was provided showing that this is a growing concern amongst younger potential employees. There are many existing schemes which assist developers in achieving and showcasing low operational carbon buildings, and the existing City Plan approach is to encourage these (for example, BREEAM ratings, and certified net-zero). A recurring issue however is that many of these certifications focus heavily on operational use, and do not have transparency to occupants around the embodied carbon associated with a building. This problem is complex, as while potential occupants create the demand side for best in class, or other high-quality buildings, given the way sustainable buildings are currently marketed and showcased, it is difficult for potential occupants to make informed choices about the overall carbon cost of a building.

11. To address this issue, the reasoned justification within the draft policy makes clear that for major schemes (residential and commercial) developers should be transparent with potential occupants and visitors about the carbon cost of buildings. It is envisioned that this will take the form of a post-completion requirement to display the following information, as shown below.

Indicative for a 1,500sqm building which achieved 475kg per m²

Carbon used in construction of this building	Date built: Date retrofitted: (if appropriate)
Actual carbon achieved	712 tonnes
Target total carbon	525 tonnes
Score	B
Additional measure taken	<i>*Developers can insert information about carbon off-set schemes or other measures they have taken to address difference</i>

12. By introducing a mechanism to improve transparency around embodied carbon in buildings, it is hoped that potential occupants of major schemes will be able to make more informed choices about their buildings, and developers will be encouraged to improve their performance in construction. In turn, this would help encourage more developers to consider retrofit as their development choice and for greater appreciation of what truly makes a building 'sustainable'.

4.5 Collaborative policy development

1. Once the draft policy wording was drafted, informal engagement with a number of key stakeholders was undertaken. Given that the new policy would be a noticeable step-change from current practice, the council thought it would be important to incorporate initial feedback to help to further shape the direction of travel for the policy prior to formal consultation. This phase of engagement was carried out from October to December 2023 and included a number of groups, as elaborated on in further detail below.

Westminster Retrofit Taskforce

2. Established in 2022, the Westminster Retrofit Taskforce²⁵ is comprised of council officers, external stakeholders and three independent industry experts. The Retrofit Taskforce was created to address the practical challenges of retrofitting vast building stocks, including heritage buildings, in Westminster. Following its inception, the taskforce developed an early delivery plan with workstreams aimed at addressing the identified barriers to retrofit and the upscaling of delivery across the city. This incorporated a review of the emerging planning policy, which was presented to the Taskforce for comment in October 2023.
3. Initial feedback highlighted the need to robustly define what is meant by key terms such as 'retrofit', 'substantial demolition' and 'responsible retrofit' with suggestions provided by the Taskforce. Members of the Taskforce also provided comments on the draft policy wording and how the policy should be set out.

Westminster City Council disciplines

4. In addition to consultation with the Taskforce, a number of internal sessions were held with teams across the council to discuss the policy. At various sessions over October and November 2023 this included representatives from the following internal teams:
 - Planning Policy
 - Town Planning
 - Design, Conservation and Sustainability
 - Climate Emergency
 - Housing
 - Development
 - Economy
5. The feedback provided from this engagement helped to refine the wording of the draft policy. This included a review of how the options appraisal tests might work in practice, with examples given by council colleagues of scenarios which might require more flexibility in the policy approach. A

²⁵ Westminster City Council (2023) Retrofit Taskforce. Available from: <https://www.westminster.gov.uk/planning-building-control-and-environmental-regulations/planning-and-climate-emergency/retrofit-taskforce>

number of discussions were also held around the balancing of heritage, design and environmental considerations and how this might work in practice through the implementation of Part C of the draft policy.

6. Another key discussion point focussed on the delivery of affordable housing and how schemes such as estate regeneration programmes delivering above policy-compliant levels of affordable housing might be dealt with through this policy. This discussion led to the inclusion of fast-track affordable housing schemes as being one example of a public benefit where demolition may be allowed.

Historic England

7. Historic England attended one of the sessions with the Retrofit Taskforce and was also asked for comments on the draft policy wording.
8. Overall, Historic England have been supportive of a policy that seeks to retain existing buildings over demolition. Points were raised however around the need to deal with heritage and retrofit matters separately in the policy wording and to incorporate some form of monitoring to ensure that a one size fits all approach, which might lead to maladaptation of buildings, does not eventuate.
9. Concerns were also raised at the inclusion of the LETI criteria for embodied carbon, as Historic England perceive that this is more appropriate for new buildings. However, it was also noted that a standard to assess the embodied carbon of retrofitted traditionally constructed buildings also did not exist, reinforcing the challenges in this type of assessment.
10. Comments from Historic England also raised concerns with the specific reference to extensions and the reasons why this particular type of development had been singled out. It was suggested that further clarity be provided around the notion of what an extension that enables wider retrofit entails.

Westminster Property Association

11. The Westminster Property Association (WPA) have published a number of documents which support their stance that developments should consider retrofit first, not retrofit only. This includes Zero Carbon Westminster: A Focus on Retrofit in Historic Buildings²⁶ and Retrofit First, Not Retrofit Only²⁷ in collaboration with the London Property Alliance.
12. Draft versions of the policy were shared with the WPA, with WCC planning policy officers attending the November 2023 meeting of the WPA's Planning Sustainability Group. Members of the WPA were then also invited to an in-person industry workshop hosted by WCC in November 2023, along with an online webinar for WPA members in December 2023.
13. Feedback was provided through discussions at these events and attendees were invited to email any comments on the draft policy wording.

²⁶ Westminster Property Association (2021) Zero Carbon Westminster: A Focus on Retrofit in Historic Buildings. Available from: <https://www.westminsterpropertyassociation.com/zero-carbon-westminster-a-focus-on-retrofit-in-historic-buildings/>

²⁷ London Property Alliance (2022) Retrofit First, Not Retrofit Only: A focus on the retrofit and redevelopment of 20th century buildings. Available from: <https://www.londonpropertyalliance.com/retrofit-first-not-retrofit-only-a-focus-on-the-retrofit-and-redevelopment-of-20th-century-buildings/>

14. During the meetings and workshops held with the WPA a number of concerns were raised. This namely comprised the following:
- Commercial implications
 - Ability for the policy to support the continued development of Grade A office space.
 - Ability of the policy to support the development of exemplar office spaces which support high-value jobs across Westminster.
 - Rental yields associated with retrofitted buildings.
 - Investment available for retrofitted buildings.
 - Financial viability of retrofitting schemes.
 - Introduction of whole-life carbon benchmarks
 - Concerns over the adoption of LETI and RIBA benchmarks.
 - Concerns over the inaccuracies of whole-life carbon assessments and the assumptions used to inform these assessments.
 - Concerns around the expertise required to prepare and consider whole-life carbon assessments (from both the point of view of applicants and council officers).
 - How building regulation requirements (namely around accessibility and fire safety) can be addressed through retrofit options.
 - How key terms such as ‘retrofit’ and ‘demolition’ are defined in the policy.
 - Availability of low carbon building materials and bespoke materials required to sensitively refurbish heritage buildings.
 - The ability of the retrofit policy to enable best use of land on underutilised sites.
 - The use of terminology such as ‘exceptional circumstances’ and ‘absolute minimum’ within the policy wording.
15. A number of these concerns were reiterated in the WPAs published response to the council’s draft policy²⁸.
16. In addition to these concerns, support for the objectives of the policy were also received from members of the WPA, including from representatives from organisations which already have embodied carbon targets and who prioritise retrofit.
17. A number of the concerns raised by the WPA were reflected in subsequent updates to the draft policy wording.
- Industry workshop**
18. A workshop was held in November with representatives from architecture practices, engineering firms, construction contractors, developers, sustainability professions, planning firms and landowners. This also included members from the WPA, as mentioned above.
19. The workshop was held in-person and provided context around the need for a retrofit and embodied carbon policy, how the policy had developed and insights into the three parts included

²⁸ Westminster Property Alliance (2023) Response to Westminster City Council’s draft Retrofit Policy. Available from: <https://www.westminsterpropertyassociation.com/response-to-westminster-city-councils-informal-consultation-draft-retrofit-policy/>

in the draft wording. Attendees were invited to take part in smaller group discussions, guided by a series of questions relevant to each part of the draft wording. Given the range of experiences in the room, the discussions were balanced between attendees who were either very supportive of the policy or those who had opposing views. Feedback received from the workshop was collated by officers and used to inform further amends to the draft policy wording.

Summary

20. Overall, the informal engagement activities prior to the Regulation 19 consultation proved useful for the council in order to inform the drafting of the policy. The iterative process sought views from varied stakeholders, many with differing views on how a policy seeking to reduce embodied carbon emissions and demolition might work in practice. The draft policy has sought to balance these opinions.

4.6 Review of practices adopted by neighbouring authorities

1. Following Regulation 18 in 2022, meetings with neighbouring authorities were held as part of the councils Duty to Cooperate requirement. Given the focus of the City Plan partial review, this incorporated discussion around the work being undertaken by different authorities with regards to embodied carbon and retrofitting. This helped to provide further insight to the council on things which worked well and where gaps may still exist. An overview of the discussions with the City of London Corporation, the London Borough of Camden and the Royal Borough of Kensington and Chelsea are elaborated on in further detail below.

City of London Corporation

2. The draft City of London City Plan 2040 is currently subject to a process of internal review and update before the Regulation 19 consultation stage, due to take place in the first half of 2024. This new plan incorporates a 'retrofit first' policy which requires that all major developments must undertake an optioneering assessment, in line with the Corporation's Carbon Options Guidance Planning Advice Note²⁹ and should use this process to establish the most sustainable and suitable approach for the site.

London Borough of Camden

3. The London Borough of Camden has Policy CC1 in place which requires that "all proposals that involve substantial demolition to demonstrate that it is not possible to retain and improve the existing building". The borough has developed planning guidance titled Energy Efficiency and Adaptation³⁰ (adopted in January 2021) to provide further guidance on how this policy should be applied, including following the sequential approach of:
 - Refit
 - Refurbish
 - Substantial refurbishment and extension, and
 - Reclaim and recycle.
4. Camden's draft local plan (January 2024) contains two policies similar to the proposed retrofit first policy. Policy CC3 requires that retrofit options be fully explored before demolition is approved, but it contains no specific policy tests on demolition – leaving it up to the applicant to justify demolition is the best development outcome for the land. Policy CC4 - Minimising Carbon Emissions requires that new build residential limit embodied carbon to 500kg sqm and non-residential 600kg m².

²⁹ City of London Corporation (2023) Carbon Options Guidance. Available from: <https://www.cityoflondon.gov.uk/assets/Services-Environment/carbon-options-guidance-planning-advice-note.pdf>

³⁰ London Borough of Camden (2021) Energy Efficiency and Adaptation. Available from: <https://www.camden.gov.uk/documents/20142/4823269/Energy+efficiency+CPG+Jan+2021.pdf/96c4fe9d-d3a4-4067-1030-29689a859887?t=1611732902542>

Royal Borough of Kensington & Chelsea

5. The Royal Borough of Kensington & Chelsea is advancing their Local Plan³¹ which has a policy that promotes sustainable retrofitting (Policy GB1), a policy on Circular Economy (Policy GB2) and a policy on Whole-Life Carbon (Policy GB3). These policies support sensitive retrofitting whilst requiring that all major developments prepare a Circular Economy Statement in line with the London Plan requirements. Furthermore, all major development applications will be requested to provide whole-life carbon assessments which demonstrate actions taken to reduce whole-life carbon emissions.
6. The initial consultation, review of other policy approaches and internal discussions across the council presented a number of options for the policy. This included whether or not the policy should embark on a focus of promoting 'retrofit only' or 'retrofit first' approaches. Similarly, it was reviewed whether the aims of reducing embodied carbon emissions should therefore focus solely on setting embodied carbon benchmarks, rather than prioritising the re-use of existing buildings. As different options were explored, obstacles around heritage considerations and the redevelopment of historic buildings were also raised, highlighting the need to review how competing interests might be balanced.
7. As a result, it became evident that a holistic policy should both promote retrofit and require embodied carbon reductions. Furthermore, given the prominence of historic buildings in Westminster which will be required to meet energy performance requirements and to contribute to the overall reduction in carbon emissions in the city, it became clear that the policy ought to address heritage considerations.

³¹ Royal Borough of Kensington and Chelsea (2023) New Local Plan Review. Available from: <https://www.rbkc.gov.uk/planning-and-building-control/planning-policy/local-plan>

4.7 London Plan conformity

1. In the development of the draft policy, careful consideration has been given to the London Plan. As a result, the draft policy has been refined and altered to ensure that it achieves the shared aims of good growth, affordable housing and climate change mitigation. The council are of the view that the policy as drafted and submitted is in conformity with the London Plan.

Affordable Housing Delivery

2. London Plan policy DF1 concerns with how development is funded and makes clear that when viability issues are raised, priority should be given to affordable housing and transport improvements. Two mechanisms have been introduced to the draft policy to ensure that it makes clear this priority of the London Plan. Part A of the draft policy explicitly states that public benefits can be used to justify the demolition of a building, and affordable housing is specifically listed in the explanatory text to ensure clarity. Furthermore, although affordable housing schemes are still expected to deliver low carbon overall, Part B of the draft policy contains specific measure to make clear that affordable housing delivery should take priority over the use of low carbon materials in construction, allowing affordable housing schemes to focus on whole-life cycle carbon, rather than just upfront embodied carbon. This should enable greater flexibility in ensuring build costs can be kept to levels that can viably deliver affordable housing.

Optimising site capacity

3. The London Plan policy D3 sets out that all development must make the best use of land by following a design-led approach that optimises the capacity of sites. Optimisation means both the appropriate form of development, and land use. The form of a development should respond to a site's context and capacity for growth. It goes on to state that higher density developments should generally be promoted in locations that are well connected to jobs, services, infrastructure and amenities. This policy is understood in conjunction with the Spatial Development Patterns chapter, which sets out the approach to Opportunity Areas. The council's adopted development plan identifies several Opportunity Areas, as well as Housing Renewal Areas, which are suitable for higher density and taller buildings in order to support the growth objectives of these area. Furthermore, the draft policy makes clear that site capacity should be considered alongside the Circular Economy Hierarchy, ensuring the best use of land when considering whether to retain buildings.
4. The approach taken to demolition in the draft policy is considered to conform with the framework of D3, as well as the wider spatial strategy taken by the London Plan. Firstly, it is clear that demolition is still supported where it would enable the best use of land and instead seeks to prevent unjustified demolition. The primary mechanism for this is to set out that where demolition is proposed, it must be delivering significant public benefits which outweigh the impact of the development in relation to climate change. Public benefits arising from development may vary depending on the location of the site, such as whether it is in an Opportunity Area or a Housing Renewal Area, as well as the existing buildings. Within Opportunity Areas, the potential for large uplifts in commercial floorspace and associated jobs which a new building could deliver are greater than elsewhere in the city. These areas are already identified as suitable for site optimisation, and the policy does not restrict opportunities in these areas – but rather seeks to ensure they are fully realised. Similarly, estate regeneration (especially in Housing Renewal Areas) and policy compliant

levels of on-site affordable housing delivery are also identified in the draft policy as public benefits which could justify demolition.

5. Outside of Opportunity Areas, and Housing Renewal Areas, new buildings do not have the same potential to provide very large uplifts in capacity. However, the spatial strategy still supports development in certain parts of the city that leads to improved economic outcomes for the area. It is recognised however that the potential of many sites in these areas could be delivered through infill and upwards extensions, combined with high quality retrofits, maximising site capacity through an approach of retain, retrofit and extend. Where this approach is demonstrably unable to deliver the same wider benefits, the draft policy ensures that demolition can be considered. This approach is considered consistent with Policy D3, which makes clear that alongside the optimising site capacity approach, the Circular Economy Hierarchy should be considered. Furthermore, the draft policy wording contains provisions which enable public benefits to be weighed up, which may well include the best use of land, but seeks to ensure that the public benefits that are gained by the development would not be achievable to the same extent through a retrofit or other retention option, which will ensure that sites are efficiently optimised.

4.8 Incidental amendments to the City Plan

1. The introduction of a new policy as part of the City Plan partial review was analysed against existing policies in the adopted City Plan to understand if additional amendments may be needed. One such example related to the relationship between carbon offsetting and the draft policy focus on reducing embodied carbon emissions.
2. The council's current approach to carbon off-setting is set in London Plan Policy SI2 and City Plan Policy 36, as detailed below.

London Plan Policy SI 2:

A minimum on-site reduction of at least 35 per cent beyond Building Regulations is required for major development. Residential development should achieve 10 per cent, and non-residential development should achieve 15 per cent through energy efficiency measures. Where it is clearly demonstrated that the zero-carbon target cannot be fully achieved on-site, any shortfall should be provided, in agreement with the borough, either:

- 1) through a cash in lieu contribution to the borough's carbon offset fund, or
- 2) off-site provided that an alternative proposal is identified and delivery is certain.

Policy 36: Energy - Carbon Reduction

B. All development proposals should follow the principles of the Mayor of London's energy hierarchy. Major development should be net zero carbon and demonstrate through an energy strategy how this target can be achieved.

C. Where it is clearly demonstrated that it is not financially or technically viable to achieve zero-carbon on-site, any shortfall in carbon reduction targets should be addressed via off-site measures or through the provision of a carbon offset payment secured by legal agreement.

3. The focus of the energy policy on improving performance against Building Regulations has some implications for embodied carbon. Specifically, many measures to enhance performance uses additional materials, which in turn, have an embodied carbon cost. To achieve a near 100% performance below the Part L minimum policy requirements could result in a building which is over engineered for the reality of the UK climate, at a relatively high carbon cost. The council are in the process of increasing the local price of carbon to £880 per tonne, with a discount afforded

to residual electrical or district heating emissions. This could create a strong incentive for developers to increase material use to avoid these payments, resulting in higher embodied carbon. To prevent this from happening, it is considered that an incidental change is required to Policy 36: Energy of the City Plan. The change would be that any embodied carbon reduction achieved below the minimal benchmark set in the draft retrofit and embodied carbon policy would be credited to the total amount of carbon to be offset in an applicant’s Energy Statement. Reflecting the immediate release of embodied carbon emissions to the atmosphere, the reduction to any amount payable would be charged at a rate of £880 per tonne (this will be kept under review), to a maximum reduction to £0. The need for this change was highlighted during the development of the Embodied Carbon Feasibility evidence paper and was subsequently raised during informal engagement with industry bodies on the development of the draft policy. An example calculation is provided in Table 10 below.

Table 10: Example of calculation for carbon offset payment, based on introduction of draft policy

Example 10,000sqm building – powered entirely by electricity	
Energy Statement total carbon (t/CO ₂ e)	80t X offset period (30 years) = 2,400t
Price (including electricity discount)	£792,000
Target total embodied carbon: 475kg/sqm (t/CO ₂ e)	4,750t
Embodied carbon actual: 430kg/sqm	4,300t (difference: 450t)
Discount from offset payment	450t X £880 £396,000
Total carbon offset payment	£396,000

Introduction of pre-demolition and redevelopment audits

- Given the requirement for development involving demolition to submit a pre-demolition and redevelopment audit, an incidental change to Policy 37 is also required to include this document in the list of documents required.

4.9 Definitions

1. The definitions that will be included in the glossary of the City Plan are intended to make clear some of the terminology within the draft policy, in particular the thresholds, but also to provide clarity on when the council consider a particular form of development falling into the category of either a retrofit or redevelopment. The definitions are intended to ensure the draft policy as far as possible encourages the retention of as much fabric as practical.

Total demolition:

The removal, deconstruction or demolition of an existing building, which will entail the removal of all of its fit out, superstructure, cores, and basement slab(s), but which could involve the retention of parts or all of the façade.

2. The definition of total demolition is drafted to capture development where little or minimal of the structure is retained in-situ. While it is the case that the façade contains a considerable degree of embodied carbon, which would be saved by its retention, the loss of the structure within presents a relatively intensive amount of carbon. Total demolition of a building over a single storey is the only form of demolition which is subject to the policy tests set out in Part A of the draft policy. By intention, this ensures that only development which makes minimal attempts to retain the fabric of a building subject to the most stringent test – and that deep retrofits that may involve a significant amount of demolition but do make some attempt to retain existing buildings are not subject to the same level of scrutiny.

Substantial Demolition:

Development consisting of the demolition of 50% or more of existing above ground structures, by area or volume, but not constituting total demolition.

3. Substantial demolition is very similar to total demolition, however different in that some proportion of the building is retained. A separate definition is given to total demolition, as it enables deep retrofits to be excluded from the policy tests, while still requiring justification (through the options appraisal exercise). The definition intentionally excludes below ground structures, as it avoids buildings with large basements from being almost entirely demolished but meeting this definition otherwise. Substantial demolition is not subject to the draft policy tests for demolition, but still requires an options appraisal exercise to demonstrate that it is the most suitable choice for a building.

Retrofit:

Development involving the re-use of at least 50% of the existing building in-situ (by mass or volume), retaining as a minimum the foundations, core, and floor slabs, and which results in energy, performance, and climate adaptation upgrades, which will reduce carbon emissions from the building and prolong its usable lifespan.

4. The intention of the policy is to encourage development with the lowest embodied carbon intensity, but which can facilitate improvements to the operational carbon performance of a building. It is widely recognised that retrofits are usually the lowest intensity (if excluding lighter touch refurbishments). The term is used in Part A of the draft policy to set out the expectations the council have for the options appraisal exercise, and the comparisons required to justify for a deep retrofit or redevelopment. Furthermore, the term is also used where applicants are relying upon Part C of the draft policy to justify extensions that are required to facilitate a retrofit.

Deep retrofit:

Development involving the re-use of as much of the existing building as possible, but may involve substantial demolition and replacement of parts of (but not all of) the façade, core, floor and slab, and which results in significant energy, performance, and climate adaptation upgrades, comparable to those a new building, dramatically reducing carbon emissions from the building and prolonging its usable lifespan.

5. Deep retrofits are more carbon intensive than a normal retrofit, however they can present a better option than a new building in terms of carbon costs, while largely providing similar or equal benefits to a new building.

Responsible retrofit:

Responsible retrofitting is an informed and integrated attitude to retrofit in a way that enables people to reduce the operational carbon of a building, improve energy efficiency, and/or improve a building's resilience to the impacts of climate change. Responsible retrofit will take into account the building's location, context, design, construction, materials and use, to ensure retrofit measures perform well and avoid adverse impacts to health, heritage and the natural environment.

6. This definition is taken from Historic England and provides a comprehensive definition to provide clarity to the general presumption in favour of retrofitting which the policy is intended to provide. In particular, given the extensive heritage designations in Westminster, the use of a definition from Historic England provides the most locally relevant definition of what is meant in achieving a 'responsible retrofit'.

Embodied carbon:

The carbon emissions emitted producing a building's materials, their transport and installation on site as well as their disposal at end of life.

7. This definition is taken from LETI, for consistency with the use of the LETI bandings within the draft policy.

Operational carbon:

The greenhouse gas emissions arising from all energy consumed by an building in use, over its life cycle once construction is completed.

8. To reflect the industry standards on operational carbon, the definition provided by RICS within their Whole life Carbon Assessment for the Built Environment document (second edition, September 2023) has been adopted.

5. Policy Impacts

5.1 Viability

1. The council commissioned a viability appraisal of the new policies proposed as part of the City Plan partial review, which included an assessment of the cumulative impact of the adopted City Plan policies. This included a review of a sample of development schemes across Westminster as a proxy to understand potential viability constraints. The majority of development sites within this sample that were found to be unviable were those which were unviable from the outset. However, notwithstanding this, a high proportion of the appraised developments were found to be unviable as a result of the draft policy.
2. An important clarification over the methodology used can explain these results. To establish the impact of viability on these development schemes, the viability report used the estimated build costs from the Embodied Carbon Evidence Base report. This report modelled the potential impact of embodied carbon benchmarks on new buildings only. The viability report appraisal methodology applied this build cost impact across all developments, regardless of whether that development would be a new building or not. The viability report also assumed a build cost impact of 7%, when the build cost impacts identified by the authors of the evidence report indicate 2% for housing, and between -1% and 7% for offices, depending on whether they achieve the minimum or maximum target. The viability report therefore is a 'stress test' of the draft policy, and it is highly likely that a number of schemes would in fact be viable, however were shown as unviable in this particular appraisal.
3. The modest uplift in build costs reported in the Embodied Carbon Evidence Base are unlikely to be applicable to retrofits, changes of use or other refurbishments, simply because less materials are generally used in these kinds of developments, and so the associated embodied carbon would already be policy compliant. As a result, while the viability appraisal is useful to help inform the thresholds of when the draft policy should apply, the council are satisfied that a number of these schemes would continue to be viable if the draft policy were adopted.
4. The viability report also applied an uplift in build costs regardless of the quantum of affordable housing being delivered. In all of the housing models, it assumed that policy compliant levels of affordable housing would be delivered. In these instances, the draft retrofit and embodied carbon policy has deliberately prioritised housing delivery, requiring the maximum reduction in carbon deliverable without making the policy compliant levels of affordable housing unviable. Cumulatively applying these policies is therefore not an accurate mechanism for assessing viability. If build costs were unduly affected on a given scheme due to the requirement to reduce embodied carbon, the clear direction in the development plan is to prioritise affordable housing.
5. The council are therefore satisfied that the draft policy will not unduly impact development viability in the city.

5.2 Key Performance Indicators

Housing

1. Although provisions in the draft policy exist to try and prevent any negative impacts on affordable housing delivery, the draft policy may still impact overall housing delivery if the policy approach to demolition is being implemented too stringently. The evidence suggests that the embodied carbon aspect of the policy should not negatively harm housing delivery, as it has a relatively neutral impact on costs. It is recommended that this policy is reviewed as part of any review mechanism triggered by under delivery of housing.

Employment

2. Given the relatively far-reaching implications of the draft policy, and its intention to change the pattern of development, careful monitoring of the impacts of the policy are required. In line the adopted City Plan, it is recommended that to monitor the policy impacts that employment figures continue to be used, rather than floorspace. Two consecutive years of reduced job delivery or reduction in overall jobs would trigger a review of the policy.

Carbon

3. Monitoring the embodied carbon reporting of development will be a key mechanism for future benchmarking exercises, allowing the council to review whether the current benchmarks are too lenient, or too challenging. No review mechanism is necessary, but rather the evidence gathered will be used in future plan reviews.

Table 11: Key Performance Indicators for draft policy

Key Performance Indicator	City Plan Objective	Data Source	Trigger review
Reported embodied carbon associated with development	1, 7, 8 & 10	Westminster City Council	-
Housing and jobs delivered through retrofit and new build	1, 2, 3, & 7	Westminster City Council	Two consecutive years of new buildings providing more than half of total new homes or jobs
Applications for responsible retrofit	1, 7, 8 & 10	Westminster City Council	-

6. Conclusion

6.1 Conclusion

1. This Topic Paper has been prepared to provide further context on the reasons for a new policy focussing on embodied carbon and the prioritisation of retrofit as part of the City Plan partial review.
2. By reviewing the climate change emergency in the context of Westminster alongside the existing planning policy framework, it is clear that whilst a radical reduction in carbon emissions is needed, there is a current gap in how embodied carbon emissions from the built environment are dealt with. The articulation of this gap forms the basis for the draft retrofit first policy.
3. In developing this policy, this Topic Paper has demonstrated how analysis was undertaken by the council to understand embodied carbon emissions, how these could be reduced and what this could look like for development schemes in the future. The analysis involved benchmarking embodied carbon reported under the current development plan, and modelling what reduction would be required to meet net-zero targets, and assessing the impact of these against growth targets from the City Plan, and wider regulatory changes. Once scientific aligned benchmarks were established, additional evidence was commissioned on the cost and practical feasibility of setting embodied carbon benchmarks, alongside extensive engagement with both internal and external stakeholders to help to shape the direction of the policy.
4. In deriving an approach to promote retrofit, a number of scenarios were identified in this Topic Paper where some demolition may still be allowed to occur in order to meet the wider objectives of the City Plan 2019 – 2040, the Fairer Westminster Strategy, and to continue to support sustainable development. In doing so, this Topic Paper has highlighted that whilst embodied carbon will still need to be emitted to meet these key growth aims, this will need to be balanced in order to secure positive environmental, social and economic sustainability outcomes.
5. An important finding of this Topic Paper is that whilst the draft policy has included embodied carbon benchmarks, these only go some way to meeting the carbon reductions estimated to be needed in Westminster by the Tyndall Centre in 2023 by the year 2040. The industry engagement, and evidence paper commissioned has suggested that attempting to lower embodied carbon in new buildings to the levels required to meet net-zero are likely impractical under current building practices and materials use. Meeting the required embodied carbon reductions in developments are far more practical through retrofitted schemes. Therefore, a combination of benchmarks on embodied carbon performance alongside restrictions upon demolition is needed in order to make as big an impact as possible to align with the wider objectives of being a net-zero carbon city by 2040. This has been reflected in the drafting of the policy.
6. It is anticipated that whilst the draft policy will be a step-change for the built environment industry, this will not have an overall negative impact on the viability of development schemes across the city. The draft policy seeks to remain pro sustainable growth and as such, will be monitored and reviewed to ensure that this objective remains once the draft policy is adopted, through a series of key performance indicators.
7. In summary, this Topic Paper has shown that in order to balance the need to address the built environments' impact upon climate change alongside sustained growth across the city, a change to business-as-usual practices is needed. The preparation of a draft policy aims to address this in order to continue to achieve best-practice outcomes across the city.

Appendices

Appendix 1: Review of office jobs across the city

1. An analysis was carried out using Business Register and Employment Survey (BRES) data³² to try and obtain an estimate for the current office jobs in Westminster. The difficulty in estimating jobs associated with commercial space is that employment figures are usually based on industry, rather than specifically recorded as 'office based'. Within each industry, there may be some 'office jobs', in addition to additional jobs which do not require office space. As a result, it can be challenging to ascertain the exact number of office-based jobs and how this might correlate to office floorspace. To estimate the number of office-based jobs currently in Westminster, industries reported in the BRES data which are presumed to be predominantly office based were chosen to represent a proxy of the office workforce. For all industries chosen, there will undoubtedly be some employee jobs captured which do not rely on traditional office floorspace. However, given that some other industries not selected would also likely include some degree of office-based jobs not captured, it is likely that this a reasonable estimate.
2. Based on the presumed predominately office-based industries, Figure 1 below shows the changes in employment numbers between April 2019 and April 2022, corresponding to the adopted City Plan period.

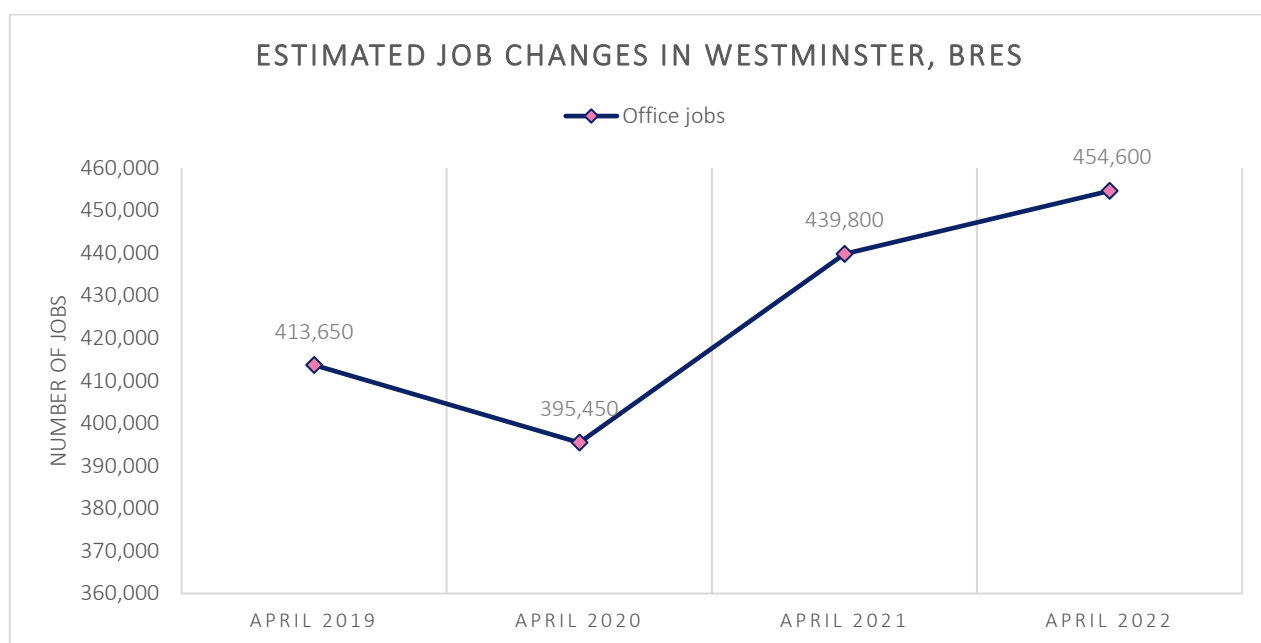


Figure 1: Changes in office job figures across WCC, 2019- 2022

3. Figure 1 shows that between April 2019 and April 2022, there has been an increase in office jobs based on industry proxies of around +41,000.

³² ONS (2023) Business Register and Employment Survey. October 2023. Available from: <https://www.nomisweb.co.uk/query/construct/summary.asp?mode=construct&version=0&dataset=189>

4. Analysis of current office floorspace delivery shows that there is still a significant state of flux, with the latest City Plan Progress Report (January 2024)³³ estimating a net loss of Class E floorspace (of which office uses form part of) of -25,500sqm in 2023, and -33,200sqm in 2022. The main driver of a loss of Class E floorspace has been a comparative shift from floorspace across the city to other uses, including hotels, food and beverage, and some residential. Many of these land use changes are outside of the control of the council as they are not considered development or are permitted development. As noted above, the loss in floorspace has not correlated with the overall number of office jobs estimated in Westminster. There appears to be a clear indication that the nature of office work has changed since the City Plan was adopted, and that the demands for space per employee have changed. The most obvious driver for this is a general shift towards hybrid working, but job density may also have increased in office buildings through more efficient layouts.

³³ Westminster City Council (2024) City Plan Progress Report 2022-2023. Available from: <https://www.westminster.gov.uk/planning-building-control-and-environmental-regulations/planning-policy/evidence-and-monitoring>

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