

*Cardiff Civic Society*

## **Submission on construction, land use, materials, and repurposing**

Recognising the threat to human life posed by environmental deterioration, Cardiff Council has declared climate and nature emergencies. Strategic policies within the consultation paper for its *Preferred Strategy* for the Replacement Local Development Plan 2021 to 2036 take some steps towards addressing these. But they do not adequately deal with the impacts of construction, which can often cause serious environmental damage to both climate and nature through its use of land and materials.

Policy makers and professional bodies increasingly recognise that this damage must be tackled through a new approach to development that assesses the whole life effect of a proposal, including construction and demolition as well as its operation. Protecting biodiversity, repurposing, and applying circular economy principles, could radically reduce the impact of development on the environment.

Cardiff Civic Society contends that responding to the acknowledged climate and nature emergencies requires more careful use of biodiverse land, encouragement of repurposing and extension of existing structures in preference to demolition and rebuild, greater attention to the use and choice of building materials, and whole life design and assessment.

Other local authorities across the UK are now tackling this challenge, and showing that it is viable to do so. Replacing the Local Development Plan is an opportunity for Cardiff to adopt and improve on best practice.

This document examines the Strategic Policies in the consultation document and proposes a set of amendments which would strengthen the Local Development Plan in line with Welsh Government's *Future Wales* strategy and Cardiff Council's *One Planet Cardiff* vision of a carbon neutral city.

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# 1 Construction in the Environment and Economy

## 1.1 Why the LDP must consider environmental damage from construction

### Climate change

It should not be necessary to explain the changing global climate or the need to act both to slow and ultimately reverse rising temperatures and to mitigate their consequences.<sup>1</sup> Through its *One Planet Cardiff* vision, Cardiff Council aspires to a carbon neutral city by 2030.<sup>2</sup> The Preferred Strategy recognises this goal, but it does not acknowledge the contribution of construction to climate change or set out policies to address this. That omission must be addressed.

### Biodiversity loss

The scientific consensus is indisputable. ‘Nature is essential for human existence and good quality of life. Most of nature’s contributions to people are not fully replaceable, and some are irreplaceable.’<sup>3</sup> The *State of Nature* report 2023 confirms how serious biodiversity loss has become, with many species at risk of extinction.<sup>4</sup>

Cardiff Council has declared a nature emergency and resolved to place biodiversity with equal prominence to climate change at the heart of decision making. Nonetheless, it cannot be said that biodiversity loss is yet as central a concern as climate change. Council has not defined its vision for responding to this loss in our city, as it has done for climate change in *One Planet Cardiff*, which has little to say on biodiversity.

A separate submission from CCS will examine more broadly how the *Preferred Strategy* responds to the loss of biodiversity, explaining how provision of green infrastructure does not suffice to deal with it. This document will look specifically at the impact of construction on biodiversity, which is not considered in the *Preferred Strategy*. That is not a small question: overall, the built environment is responsible for 30% of global biodiversity loss.<sup>5</sup>

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<sup>1</sup> International Panel on Climate Change, ‘Summary for Policymakers’, *Climate Change 2021: The Physical Science Basis* (2021) [10.1017/9781009157896](https://doi.org/10.1017/9781009157896)

<sup>2</sup> Cardiff Council, *One Planet Cardiff: Our vision for a carbon neutral city by 2030* <https://www.oneplanetcardiff.co.uk/wp-content/uploads/OPC%20vision%20document.pdf>

<sup>3</sup> Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), ‘Summary for Policymakers’, *Global Assessment Report on Biodiversity and Ecosystems* (2019), p.10 <https://doi.org/10.5281/zenodo.3553579>.

<sup>4</sup> State of Nature Partnership, *State of Nature* (2023) [https://stateofnature.org.uk/wp-content/uploads/2023/09/TP25999-State-of-Nature-main-report\\_2023\\_FULL-DOC-v12.pdf](https://stateofnature.org.uk/wp-content/uploads/2023/09/TP25999-State-of-Nature-main-report_2023_FULL-DOC-v12.pdf)

<sup>5</sup> Expedition Engineering, *The Embodied Biodiversity Impacts of Construction Materials*, p.4 [https://expedition.uk.com/wp-content/uploads/2023/09/230920\\_Embodied-Biodiversity\\_Report.pdf](https://expedition.uk.com/wp-content/uploads/2023/09/230920_Embodied-Biodiversity_Report.pdf).

## 1.2 How construction damages the environment

### Land use

Over the past half-century, land-use change has had the largest relative negative impact on nature for terrestrial and freshwater ecosystems, and while much of that damage results from commercial agriculture, urbanisation has also had a large and detrimental effect.<sup>6</sup> In both cases, loss of land with high or distinctive biodiversity is particularly damaging. Building affects not only the immediate site but can have wider consequences such as increased flooding through reduced natural drainage or disruption to migration patterns for birds and animals.

### Materials

The *2019 Global Status Report for Buildings and Construction*, prepared by the International Energy Agency (IEA) and co-ordinated by the United Nations Environment Programme, estimated that 11% of energy and process-related carbon dioxide emissions in 2018 resulted from manufacturing building materials and products such as steel, cement and glass.<sup>7</sup> This is too large to ignore. The *Report* sets a path ‘towards a zero-emissions, efficient and resilient buildings and construction sector’.

As well as land use impacts, construction also damages biodiversity away from development sites, as all its materials have to be extracted from mines, quarries and forests, manufactured, transported, and eventually reused, recycled or disposed.<sup>8</sup> The contribution to climate change from construction-related carbon emissions disrupts habitats and disturbs biodiversity.

## 1.3 Construction and the economy

Construction amounts to around 8% of the Welsh economy.<sup>9</sup> In 2019, there were 14,900 construction jobs in Cardiff.<sup>10</sup> Doing development differently – and better – does not mean shrinking the construction sector. Land of high biodiversity value does not need to be built on when there are large wastelands needing regeneration. Achieving net zero will require

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<sup>6</sup> IPBES, pp.12,28.

<sup>7</sup> Global Alliance for Buildings and Construction, *2019 Global Status Report for Buildings and Construction* <https://www.iea.org/reports/global-status-report-for-buildings-and-construction-2019>.

<sup>8</sup> Expedition Engineering, p.4.

<sup>9</sup> Welsh Government, ‘Indices of Production and Construction’, *StatsWales* <https://statswales.gov.wales/Catalogue/Business-Economy-and-Labour-Market/Economic-Indices/Indices-of-Production-and-Construction>.

<sup>10</sup> Welsh Government, ‘Workplace employment by Welsh local areas and broad industry’, *StatsWales* <https://statswales.gov.wales/Catalogue/Business-Economy-and-Labour-Market/People-and-Work/Employment/Jobs/Whole-Workforce/workplaceemployment-by-welshlocalareas-industry>.

more construction jobs, not fewer.<sup>11</sup> Reducing waste and embodied carbon in the built environment through repair, reuse, remanufacturing and closed-loop recycling, can create local jobs and new capabilities.<sup>12</sup>

## 2 Recognising Damage from Land Use and Construction Materials

### 2.1 Welsh Government

*Planning Policy Wales* recognises that ‘Biodiversity underpins the structure and functioning of ecosystems. It is the diversity of living organisms whether at the genetic, species or ecosystem level. An ecosystem is made up of living organisms, plants, animals and micro-organisms, in conjunction with their non-living environment, air, water, minerals and soil, and all the diverse and complex interactions that take place between them.’<sup>13</sup> Changes to land use and damaging construction materials threaten entire ecosystems.

### 2.2 Professional bodies

It is increasingly understood by professionals and their representative bodies that the use and disposal of building materials can be wasteful and damaging, and that demolition followed by new construction entails large carbon emissions and biodiversity loss at and beyond the site.

#### **Royal Institute of British Architects**

The Royal Institute of British Architects (RIBA) has recognised since 2021 that the carbon emissions resulting from demolition followed by new build must be reduced.<sup>14</sup>

#### **Royal Institution of Chartered Surveyors**

The Royal Institution of Chartered Surveyors (RICS) has since 2017 recognised the merits of *Whole Life Carbon Assessment for the Built Environment*.<sup>15</sup> ‘Operational emissions result from energy consumption in the day-to-day running of a property, while embodied emissions arise from producing, procuring and installing the materials and components that make up a

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<sup>11</sup> Mission Zero Coalition, *Mission Retrofit: The building mission zero*, pp.14-15,17,19,48

[https://missionzerocoalition.com/wp-content/uploads/2023/09/MZC-Mission-Retrofit-Report\\_FINAL.pdf](https://missionzerocoalition.com/wp-content/uploads/2023/09/MZC-Mission-Retrofit-Report_FINAL.pdf).

<sup>12</sup> World Green Building Council, ‘Circular Economy in the built environment waste hierarchy: Why recycling is the last resort’ <https://worldgbc.org/article/waste-hierarchy-cbre/>.

<sup>13</sup> Welsh Government, *Planning Policy Wales: Edition 11* (2021), p.136

[https://www.gov.wales/sites/default/files/publications/2021-02/planning-policy-wales-edition-11\\_0.pdf](https://www.gov.wales/sites/default/files/publications/2021-02/planning-policy-wales-edition-11_0.pdf).

<sup>14</sup> Harrabin, Roger, ‘RIBA Architects say building demolitions cause of carbon emissions’, *BBC News*, 9 July 2021 <https://www.bbc.co.uk/news/av/uk-57756991>.

<sup>15</sup> Royal Institution of Chartered Surveyors, *Whole Life Carbon Assessment for the Built Environment: RICS professional statement*, UK (2017) <https://www.rics.org/profession-standards/rics-standards-and-guidance/sector-standards/building-surveying-standards/whole-life-carbon-assessment-for-the-built-environment>.

structure. These also include the lifetime emissions from maintenance, repair, replacement and ultimately demolition and disposal.<sup>16</sup> RICS recognises that both types of emissions must be considered in whole life assessments.

### **Town and County Planning Association / Royal Town Planning Institute**

The Town and County Planning Association (TCPA) and the Royal Town Planning Institute (RTPI) have jointly produced *The Climate Crisis* as a guide for Local Authorities.<sup>17</sup> This notes that ‘As building standards and regulations start to reduce the operational emissions from buildings, embodied carbon emissions can make up as much as 50% of total emissions over a building’s lifetime’.<sup>18</sup> It argues that ‘Most embodied carbon emissions occur near the start of a building project, so local authorities have an important role to play in filling the gap left by national policy by setting their own requirements’.<sup>19</sup>

## **3 Preferred Strategy Consultation**

The *Preferred Strategy* consultation document include many policies to reduce environmental impacts of development, but falls short of what is needed on construction, which it scarcely considers.<sup>20</sup>

### **3.1 SP18, Securing Climate Resilience, De-Carbonisation and Renewable Energy in New Developments**

SP18 recognises the need to maximise energy efficiency and to mitigate the effects of climate change, including the increased risk of flooding. It appreciates how green infrastructure can both offset carbon emissions and mitigate their consequences. But the policy does not yet acknowledge that construction is itself a significant emitter of greenhouse gases and that the LDP should seek to reduce this.

SP18 advocates that ‘Buildings and related infrastructure should be designed to be flexible not only to climatic change but also to accommodate a variety of uses over their lifetime rather than being suitable for one sole application.’<sup>21</sup> This is positive as designing from the outset with repurposing in mind will make that easier in future.

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<sup>16</sup> RICS, p.2.

<sup>17</sup> Town and County Planning Association and Royal Town Planning Institute, *The Climate Crisis: A guide for Local Authorities on planning for climate change*, 4<sup>th</sup> edn (2023) <https://tcpa.org.uk/wp-content/uploads/2021/11/TCPA-RTPI-Climate-Guide-4th-edition.pdf>.

<sup>18</sup> TCPA and RTPI, p.23.

<sup>19</sup> TCPA and RTPI, p.23.

<sup>20</sup> Cardiff Council, *Cardiff Replacement LDP: Preferred strategy for consultation* (2023) <https://cardiffldp.consultation.ai/#preferred-strategy-document-1>

<sup>21</sup> *Preferred Strategy*, paragraph 10.117, pp.76-77.

However, creative architects have found ways to reuse buildings in ways never envisaged when first constructed, and the LDP should encourage that. The domination of development in Cardiff by a few large companies obstructs this as they favour corporate models designed for greenfield sites or for brownfield land razed of buildings. Smaller, more imaginative, companies should be encouraged to come forward with proposals for creative carbon neutral solutions, including repurposing. Masterplans should not over-prescribe but allow blocks to be individually designed, which might also accelerate construction on stalled sites.

### **3.2 SP19, Protecting, Compensating and Enhancing Green Infrastructure and Biodiversity**

SP19 recognises that biodiversity and the resilience of ecosystems should be considered at an early stage when considering development proposals. But it does not explicitly consider the impact of construction on ecosystems and biodiversity.

### **3.3 Other LDP Strategic Policies**

Reducing environmental impacts of construction cannot be achieved only through defining two stand-alone policies. Responding to the climate and nature emergencies declared by Cardiff Council must run as a consistent theme throughout the LDP. This is not yet the case. Many other policies define aims consistent with reducing the impact of construction on carbon emissions, waste and biodiversity loss, but they do not always recognise the climate and nature emergencies. Sometimes, this is a matter of gaps which should be filled but in some cases policies risk contradicting the objectives of SP18 or SP19.

### **SP1, Providing for Sustainable Growth**

SP1 recognises that homes and jobs should be delivered ‘in a managed and controlled manner protecting key elements of Cardiff’s environment’, but it does not follow this through by specifying what that implies for where and how these should be provided.<sup>22</sup> There is no mention of the impact of changes in land use for biodiversity, which can be important on some brownfield as well as greenfield sites.

SP1 notes that ‘maximising opportunities for refurbishment’ would help deliver ‘a wide range and choice of employment sites’.<sup>23</sup> But it does not note the scope for repurposing redundant commercial property to provide homes and does not include any contribution from this towards its housing targets.<sup>24</sup> This would also reduce demand for land.

### **SP2, Sustaining Economic Growth and Resilience**

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<sup>22</sup> Preferred Strategy, paragraph 10.6, p.45.

<sup>23</sup> Preferred Strategy, paragraph 10.12, p.49.

<sup>24</sup> Preferred Strategy, pp.47-48.

SP2 does not recognise the nature crisis or potential biodiversity loss of providing new employment land. Illustrating this failure, it advocates a new business park near the proposed Cardiff Parkway station, without acknowledgement of the ecological sensitivity of this site and the resulting biodiversity loss highlighted by Natural Resources Wales, Gwent Wildlife Trust, and many others.<sup>25</sup> Ignoring such consequences for biodiversity is not compatible with Council’s declaration of a nature emergency. Paragraph 10.18 concerns a specific planning application and has no place in the *Preferred Strategy* policy list.

SP2 confirms the value of ‘extensive refurbishment of stock within existing employment areas’ and ‘seeks to encourage the intensification and refurbishment of existing employment land and premises which are under used, vacant or in decline’.<sup>26</sup> While seeking to protect employment land, SP2 states, ‘consideration will be given to the change of use to alternative uses (including housing) of lower quality office and industrial premises’.<sup>27</sup> SP2 recognises the ‘potential for higher levels of stock refurbishment in response to the need to reduce carbon emissions’.<sup>28</sup> Conversion or refurbishment would also often have lower impact on biodiversity than demolition and rebuild.

### **SP3, Ensuring a Masterplanning Approach**

SP3 does not consider either biodiversity or de-carbonisation.

### **SP4, Securing Good Quality and Sustainable Design**

SP4 advocates ‘Reuse of existing notable buildings’, arguing ‘Development must exploit the potential for sensitive and sustainable re-use of existing buildings where they form local landmark buildings that make a positive contribution to the character and appearance of the area, either individually and/or as part of a group’.<sup>29</sup>

SP4 acknowledges that good design should give ‘support for energy efficient and climate responsive development’ but does not recognise that this should apply to the whole life of a development, from construction through operation and possible repurposing to eventual replacement.<sup>30</sup>

### **SP5, Securing New Infrastructure**

SP5 does not explicitly consider either biodiversity or de-carbonisation. It should give greater priority to environmental protection.

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<sup>25</sup> *Preferred Strategy*, paragraph 10.18, pp.50-51.

<sup>26</sup> *Preferred Strategy*, paragraph 10.31, p.53.

<sup>27</sup> *Preferred Strategy*, paragraph 10.29, p.52.

<sup>28</sup> *Preferred Strategy*, paragraph 10.24, p.51.

<sup>29</sup> *Preferred Strategy*, p.55.

<sup>30</sup> *Preferred Strategy*, p.56.



### **SP7: Supporting the Central and Bay Business Area**

SP7 does not consider the need for green infrastructure and biodiversity in these areas.

### **SP10, Maintaining a Supply of Minerals**

SP10 recognises that ‘The re-use or recycling of construction and demolition material and industrial wastes serves not only to reduce the amount of waste produced but also conserves scarce non-renewable natural mineral resources and minimises environmental damage’.<sup>31</sup> But it does not consider which minerals or other materials are most appropriate for construction.

### **SP11: Delivering Sustainable Neighbourhoods, Social Cohesion and Affordable Housing**

SP11 does not mention the importance of local open biodiverse green spaces and tree canopy for well-being.

### **SP13, Protecting and Enhancing Built Heritage and Culture**

SP13 does not address the issue of repurposing. However, sensitive and appropriate reuse of historic buildings could not only save these from falling into ruin but also reduce the need for new construction elsewhere, saving land, carbon emissions and waste.

### **SP15: Managing Spatial Growth through Settlement Boundaries**

SP15 does not mention the importance of local open biodiverse green spaces and tree canopy for well-being within settlement boundaries.

### **SP16, Delivering Sustainable Transport and Active Travel**

SP16 recognises the importance to the people of Cardiff of tackling the climate emergency.<sup>32</sup>

### **SP20, Minimising Impacts on Natural Resources**

SP20 does not consider repurposing, but reuse of existing buildings would reduce many impacts of development on natural resources. SP20 does not mention the need to protect land of high biodiversity value.

### **SP21, Managing Waste**

SP21 does not explicitly consider construction, but it does promote ‘minimising the amount of waste produced and maximising high quality reuse, recycling and recovery, with the aim of minimising the amount of waste sent for disposal’.<sup>33</sup> This applies as much to construction as to any other activity.

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<sup>31</sup> *Preferred Strategy*, paragraph 10.69, p.64.

<sup>32</sup> *Preferred Strategy*, paragraph 10.102-03, pp.72-73.

<sup>33</sup> *Preferred Strategy*, paragraph 10.128, p.80.

## 4 An alternative approach to construction

### 4.1 *The implications of Planning Policy Wales for construction*

The Section 6 Duty in the *Environment (Wales) Act 2016* requires that ‘A public authority must seek to maintain and enhance biodiversity in the exercise of functions in relation to Wales, and in so doing promote the resilience of ecosystems, so far as consistent with the proper exercise of those functions’.<sup>34</sup>

Welsh Government gives a prominent place to biodiversity and ecological networks in its *Planning Policy Wales*, arguing that ‘The planning system has a key role to play in helping to reverse the decline in biodiversity and increasing the resilience of ecosystems, at various scales, by ensuring appropriate mechanisms are in place to both protect against loss and to secure enhancement.’<sup>35</sup> To play that role, full consideration should be given to the impact of construction.

PPW states that statutorily designated sites, such as SSSIs, must be protected from damage and deterioration, with their important features conserved and enhanced by appropriate management.<sup>36</sup> PPW places obligations on planning authorities to protect ecosystems and species.<sup>37</sup>

As changes to land use are the biggest cause of biodiversity loss, development proposals that entail the destruction of sizeable areas of land of high biodiversity land should be rejected, in particular where that land has been designated as of importance to nature. While achieving a net benefit to biodiversity through well-designed small-scale development that includes full compensation for loss might be viable, large developments not only destroy the site itself but can disrupt ecosystems over a much larger area.

### 4.2 *The potential of repurposing to reduce environmental impacts*

Repurposing can reduce many of the environmental costs of construction. It does not require new land to build on, and it minimises demand for materials. Professionals are increasingly keen on exploring its potential to meet development needs. Repurposing will not always be possible, but it should be the first option to be considered when proposing to redevelop a site.

## Royal Institute of British Architects

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<sup>34</sup> *Environment (Wales) Act 2016*, section 6 <https://www.legislation.gov.uk/anaw/2016/3/section/6/enacted>.

<sup>35</sup> *PPW*, pp.136-38.

<sup>36</sup> *PPW*, pp.140-42.

<sup>37</sup> *PPW*, pp.142-45.

In recent years, RIBA has enthusiastically endorsed repurposing. Many of the 2021 National Award Winners showed sensitive reuse of existing structures and abandoned lands.<sup>38</sup> In its 2022 Exhibition, *Long Life, Low Energy: Designing for a Circular Economy*, RIBA tackled material waste and regenerative construction.<sup>39</sup> RIBA has this year launched its Reinvention prize to encourage refurbishment over demolition.<sup>40</sup>

### 4.3 Reducing the environmental impact of construction materials

Policy makers, planners and civil engineers are actively exploring how to reduce the impact of construction materials on the environment.

#### Welsh Government

Reducing carbon emissions is central to Welsh Government's *Net Zero* and *Future Wales* strategies.<sup>41</sup> That must include embodied carbon.

Welsh Government promotes the circular economy to minimise waste and environmental damage, recognising the need for innovation in materials use in *Beyond Recycling*.<sup>42</sup> This includes prioritising 'the use of sustainable and low carbon materials in construction in Wales to support progress towards whole life net zero carbon for construction projects'.<sup>43</sup>

In its *Net Zero Strategic Plan*, Welsh Government pledges to 'Explore opportunities to use existing space and buildings to avoid associated embodied carbon emissions from the creation of new buildings. To inform the decision, a life cycle carbon assessment will be explored when considering the replacement or retrofit of a building to meet net zero

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<sup>38</sup> '8 Adaptive Reuse Projects Win RIBA 2021 National Awards', *ARCH20* <https://www.arch20.com/8-adaptive-reuse-projects-win-riba-2021-national-awards/>.

<sup>39</sup> 'RIBA tackles material waste and regenerative construction in new exhibition', *RIBA* <https://www.architecture.com/knowledge-and-resources/knowledge-landing-page/riba-tackles-material-waste-and-regenerative-construction-in-new-exhibition>.

<sup>40</sup> Harrabin, Roger, 'RIBA launches Reinvention prize to encourage refurbishment over demolition', *Guardian*, 20 July 2023 <https://www.theguardian.com/artanddesign/2023/jul/20/riba-launch-reinvention-prize-to-encourage-refurbishment-over-demolition>

<sup>41</sup> Welsh Government, *Net Zero Strategic Plan* (2022) <https://www.gov.wales/sites/default/files/publications/2022-12/welsh-government-net-zero-strategic-plan.pdf>; Welsh Government, *Future Wales: The national plan 2040* (2021) <https://www.gov.wales/future-wales-national-plan-2040>.

<sup>42</sup> Welsh Government, *Beyond Recycling: A strategy to make the circular economy in Wales a reality* (2021) <https://www.gov.wales/sites/default/files/publications/2021-03/beyond-recycling-strategy-document.pdf>.

<sup>43</sup> *Beyond Recycling*, p.17.

standards'.<sup>44</sup> In *Working Together to Reach Net Zero*, it promises that 'new homes will massively reduce embodied up front carbon in their manufacture and installation'.<sup>45</sup>

## UK Government

Recognising that supply chains contribute significantly to total emissions, UK Government is encouraging supply chain decarbonisation by insisting that those bidding for infrastructure contracts must publish a Carbon Reduction Plan.<sup>46</sup>

## House of Commons Environmental Audit Committee

The House of Commons Environmental Audit Committee made several recommendations in its 2022 Report, *Building to Net Zero*.<sup>47</sup> Those relevant to issues around embodied carbon, waste and materials include:

- 'The first step must be a requirement to undertake whole-life carbon assessments for buildings so the industry can start measuring and then controlling for this carbon'.<sup>48</sup>
- 'The most effective way overall to encourage resource efficiency and the development and use of low-carbon materials, whether low-carbon concrete, steel, timber, or any other material, is to establish a mandatory requirement to measure whole-life carbon and introduce progressively more stringent carbon targets on buildings'.<sup>49</sup>
- 'Retrofit and reuse of existing buildings, where practicable, should be prioritised over new build to conserve resources, minimise embodied carbon emissions, reduce demolition waste and deliver cost-effective solutions to delivering on housing demand'.<sup>50</sup>

Some recommendations would require action by UK or Welsh Government, but the Report observes that 'Local authorities are mandating [Whole Life Carbon] assessments of their own accord, noting that 'evidence so far shows that the policy is achievable and is working, with

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<sup>44</sup> Welsh Government, *Net Zero Strategic Plan* (2022), p.10

<https://www.gov.wales/sites/default/files/publications/2022-12/welsh-government-net-zero-strategic-plan.pdf>.

<sup>45</sup> Welsh Government, *Working Together to Reach Net Zero: All-Wales Plan 2021-2025* (2022), p.26

<https://www.gov.wales/sites/default/files/publications/2022-04/working-together-to-reach-net-zero-all-wales-plan-april-22-update.pdf>.

<sup>46</sup> UK Government, *Promoting Net Zero Carbon and Sustainability in Construction: Guidance note* (2022), p.8

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/1102389/20220901-Carbon-Net-Zero-Guidance-Note.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1102389/20220901-Carbon-Net-Zero-Guidance-Note.pdf)

<sup>47</sup> House of Commons Environmental Audit Committee, *Building to Net Zero: Costing carbon in construction* (UK Parliament, 2022) <https://publications.parliament.uk/pa/cm5803/cmselect/cmenvaud/103/report.html>.

<sup>48</sup> Environmental Audit Committee, p.65.

<sup>49</sup> Environmental Audit Committee, p.69.

<sup>50</sup> Environmental Audit Committee, p.70.

few barriers to its introduction'.<sup>51</sup> It advocates, 'Local authorities should be encouraged and supported to include this requirement within their Local Plans ahead of the introduction of national planning requirements'.<sup>52</sup> Cardiff's LDP should do so for all sizeable developments.

### **National Engineering Policy Centre**

The National Engineering Policy Centre, led by the Royal Academy of Engineering, has recognised the need for 'urgent transformation' of the construction sector in its 2021 report, *Decarbonising Construction*.<sup>53</sup> In its Mission 3, Construction and Reuse, NEPC recognises that 'The current linear economy (take, make and throw away) operated by the construction sector is unsustainable, and increasing the reuse of materials in construction is urgently required', within a wider need to decarbonise construction.<sup>54</sup> NEPC argues, 'Industry must begin to demonstrate best practice by considering materials reuse as standard and it must be made a requirement to provide a justification for when materials are not reused'.<sup>55</sup> Further, 'a whole range of novel materials will need to be deployed to reduce emissions'.<sup>56</sup>

### **Town and County Planning Association / Royal Town Planning Institute**

TCPA and RTPI recommend that local authorities set requirements for all new homes:<sup>57</sup>

- All developments shall demonstrate actions taken to reduce embodied carbon and maximise opportunities for re-use through the provision of a circular economy statement.
- Major developments (10 or more dwellings or 1,000 sqm floorspace) should calculate whole-lifecycle carbon emissions (including embodied carbon emissions) through a nationally recognised whole-lifecycle carbon methodology and should demonstrate actions taken to reduce lifecycle carbon emissions.
- Performance changes should be monitored through updated as-designed and as-built embodied carbon assessments. Developments should not only measure performance, but also submit whole-lifecycle data to public databases.

#### **4.4 Other Local Authorities**

Most Local Authorities recognise the necessity of responding to climate change and loss of biodiversity, and several now try to reduce embodied carbon and waste in construction, or to

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<sup>51</sup> Environmental Audit Committee, p.65.

<sup>52</sup> Environmental Audit Committee, p.66.

<sup>53</sup> National Engineering Policy Centre, *Decarbonising Construction: Building a new net zero industry* (2021) <https://nepc.raeng.org.uk/policy-work/net-zero/decarbonising-construction>.

<sup>54</sup> NEPC, p.8.

<sup>55</sup> NEPC, p.19.

<sup>56</sup> NEPC, p.17.

<sup>57</sup> TCPA and RTPI, p.23.

promote repurposing. These examples illustrate that it would be viable for Cardiff to tackle these issues in its replacement LDP.

## London

Since 2021, the *London Plan* requires whole life-cycle carbon emission assessments (including unregulated and embodied emissions) for development proposals referable to the Mayor. It explains that ‘Operational carbon emissions will make up a declining proportion of a development’s whole life-cycle carbon emissions as operational carbon targets become more stringent.’<sup>58</sup>

The *London Plan* recommends a development preference hierarchy of retain, refurbish, reclaim/reuse, remanufacture, recycle.<sup>59</sup> Regeneration projects should always consider alternative options to demolition first.<sup>60</sup> Developers must provide a Circular Economy Statement explaining how a design will reduce material demands.<sup>61</sup> Supporting guidance explains that buildings should be designed for minimal waste, longevity, adaptability and disassembly, and built in replaceable layers, with reusable or recyclable elements and systems.<sup>62</sup> Construction and demolition should reuse, recycle or recover 95 per cent of waste and material.<sup>63</sup>

## West Midlands

The West Midlands Combined Authority *Repurposing to Zero* framework starts from the principle that ‘The most sustainable building is one that is already built’.<sup>64</sup> It argues that repurposing offers financial, environmental and social benefits.<sup>65</sup> Each building presents its own unique opportunities, and the framework defines a process to determine if repurposing is a valid option.<sup>66</sup>

## City Centre recovery

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<sup>58</sup> Mayor of London, *The London Plan: The spatial development strategy for Greater London* (2021), pp.345-46 [https://www.london.gov.uk/sites/default/files/the\\_london\\_plan\\_2021.pdf](https://www.london.gov.uk/sites/default/files/the_london_plan_2021.pdf).

<sup>59</sup> *London Plan*, pp.114-15.

<sup>60</sup> *London Plan*, p.187.

<sup>61</sup> *London Plan*, p.366.

<sup>62</sup> Mayor of London, *London Plan Guidance: Circular economy statement*, p.7 [https://www.london.gov.uk/sites/default/files/circular\\_economy\\_statements\\_lpg\\_0.pdf](https://www.london.gov.uk/sites/default/files/circular_economy_statements_lpg_0.pdf).

<sup>63</sup> *London Plan*, p.365.

<sup>64</sup> West Midlands Combined Authority, *Repurposing to Zero: A framework for the repurposing of buildings across the West Midlands* (2023), p.2 <https://www.wmca.org.uk/media/dlsovig0/repurposing-to-zero-framework.pdf>.

<sup>65</sup> WMCA, pp.4,6.

<sup>66</sup> WMCA, pp.7,9-15.

Many councils have recognised the need for repurposing buildings to encourage city centre recovery. The **Local Government Association** has produced guidance on how to repurpose shopping centres.<sup>67</sup> **Glasgow City Council** has a 2023 *Action Plan* to drive repurposing.<sup>68</sup>

## 5 Strengthening the LDP

Many more examples could be provided of how policy makers and professionals are stepping up to the challenges posed by construction to the environment. The Replacement LDP is Cardiff's opportunity to join them.

### 5.1 Strategic Policy objectives

There are several ways to reduce carbon emissions, to promote the circular economy, and to reverse biodiversity loss, to reduce the environmental impact of construction. LDP strategic policies should strongly encourage:

- Repurposing and extension of existing buildings, in preference to demolition and new construction.
- Reuse of components and materials resulting from any demolition or refurbishment, rather than disposing waste in landfill.
- Designing for the possibility of future repurposing and for recovery of materials when eventually replaced.
- Use of alternative building materials with lower embodied carbon and hence lower emissions, and with less damaging ecological impacts.
- Avoidance of construction on sites with biodiversity value, including Sites of Special Scientific Interest and Sites of Interest for Nature Conservation.
- Insistence on biodiversity net benefit, ensured over the short as well as long term, for all developments.

### 5.2 Cardiff Council Scrutiny Committees Recommendation

On 23 September 2021, the Chairs of five Scrutiny Committees wrote to Cllr. Caro Wild, then Cabinet Member for Strategic Planning and Transport, after examination by those

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<sup>67</sup> Local Government Association, 'Repurposing Shopping Centres: Review and best practice guide' <https://www.local.gov.uk/publications/repurposing-shopping-centres-review-and-best-practice-guide>.

<sup>68</sup> Glasgow City Council, 'Action Plan and new powers call to drive the essential repurposing of properties in Glasgow' <https://www.glasgow.gov.uk/index.aspx?articleid=30047#:~:text=The%20Action%20Plan%20is%20for,office%20space%20in%20older%20office%20%2F>.

Committees of the initial proposals for a Replacement LDP.<sup>69</sup> The LDP Vision, Issues and Objectives and Integrated Sustainability Appraisal Scoping were discussed that day by Cabinet.<sup>70</sup>

The Scrutiny Committees' Recommendations in their letter included 'The LDP objectives be revised to include the importance of addressing embodied carbon, particularly in existing buildings and to acknowledge and give due consideration to carbon use when demolishing existing buildings'.<sup>71</sup>

On 1 March 2022, Cllr. Wild replied to this letter, giving the Cabinet's responses to the Recommendations.<sup>72</sup> That on embodied carbon was said to be 'Accepted', with the Response, 'The final version of the RLDP Vision and Objectives to be included within the Preferred Strategy will be considered by Cabinet and Council in September 2022 and this proposed amendment can be considered as part of this process. Scrutiny Members can also be updated on progress with this as part of the ongoing Task and Finish Group on the RLDP'.<sup>73</sup>

Despite this response, the *Preferred Strategy* still has no policy on embodied carbon.

### 5.3 CCS proposed changes to the Preferred Strategy

To reduce the environmental impacts of development and construction, SP18 and SP19 must be strengthened, as should other policies which also impact on this, removing elements which could undermine responding to the climate and nature emergencies. Those policies must then be implemented through the Deposit Plan in a rigorous manner to achieve this objective.

We propose the following changes (additions in *green italic*, deletions in ~~struck-through red~~) to the Strategic Policies.

#### **SP1, Providing for Sustainable Growth**

Extend paragraph 10.9 to read:

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<sup>69</sup> Joint Scrutiny Chairs, 'Letter to Cllr. Caro Wild', 23 September 2021, *Correspondence following the Environmental Scrutiny Committee Meeting of 22 September 2021*  
<https://cardiff.moderngov.co.uk/documents/b17918/Correspondence%20following%20the%20Committee%20Meeting%2022nd-Sep-2021%2016.30%20Environmental%20Scrutiny%20Committee.pdf?T=9&LLL=0>.

<sup>70</sup> Wild, Caro, *Cardiff Replacement Local Development Plan: Vision, Issues and Objectives & Integrated Sustainability Appraisal Scoping Report*, 23 September 2021  
<https://cardiff.moderngov.co.uk/documents/s51773/Cabinet%2023%20Sept%202021%20LDP.pdf?LLL=0>.

<sup>71</sup> Joint Scrutiny Letter, recommendation 2, *Correspondence*, p.12.

<sup>72</sup> Wild, Caro, *Letter to Cllr Ramesh Patel, Chairperson, Environmental Scrutiny Committee*, 1 March 2022  
<https://cardiff.moderngov.co.uk/documents/s56737/Item%204%20Appendix%20E.pdf?LLL=0>.

<sup>73</sup> Wild, *Letter*, 1 March 2022, p.2.



This would demonstrate a 50:50 brownfield/greenfield split and will provide for market and affordable housing on a range and choice of housing types and locations across the city. *Conversion into housing of redundant commercial property on land not reserved for employment will be encouraged to optimise brownfield development and to reduce waste and carbon emissions.*

Insert new paragraph:

*There is sufficient land within the city to meet both housing and employment demand without building on designated sites (such as SSSIs) or other greenfield or brownfield sites with high biodiversity value. These sites will be preserved and protected in their current use.*

## **SP2, Sustaining Economic Growth and Resilience**

After, ‘Provision will be made for a range and choice of employment sites for different types of employment and in different geographical locations which will effectively contribute towards the delivery of the level of growth set out in the plan.’, insert:

*Designated sites (such as SSSIs) or other greenfield or brownfield sites with high biodiversity value will not be chosen as employment sites.*

Remove paragraph ~~10.18~~.

Extend paragraph 10.22 to read:

In quantitative terms the existing supply of office and research and development (R&D) floorspace across the range of contributing areas (current stock of vacant premises, confirmed pipeline and strategic site allocations) is more than sufficient to meet core requirements. *To reduce carbon emissions and waste, proposals to repurpose, extend or upgrade existing premises will be favoured over those for demolition followed by new construction.*

Amend bullet 7 of paragraph 10.31 to read:

Adopt a flexible policy approach to support employment proposals on land not identified for employment use *and not of high biodiversity value*, to support additional employment windfall sites coming forward over the plan period.

## **SP3, Ensuring a Masterplanning Approach**

Add new point under i (d) to read:

*Explain how biodiversity net benefit will be achieved over both the short and long terms.*

Add new point under i (d) to read:

*Explore opportunities for repurposing existing structures and explain how the development will comply with the principles of de-carbonisation and the circular economy.*

#### **SP4, Securing Good Quality and Sustainable Design**

Amend point xiii to read:

Support for energy efficient and climate responsive development: Developments must be energy efficient and be designed to be climate responsive *over their whole life-cycle*, so they maximise renewable energy generation, provide sustainable waste and water management solutions that protect water quality, minimise emissions *and waste* from transport, *construction*, homes and industry and reduce the impact of climate related impacts such as heat and flooding.

#### **SP5, Securing New Infrastructure**

Re-classify as Essential/Enabling Infrastructure rather than Necessary Infrastructure:

*Protection, management, enhancement and mitigation measures relating to the natural and built environment*

#### **SP7: Supporting the Central and Bay Business Area**

Add new paragraph:

*Protecting and providing green infrastructure will improve the attractiveness of the Central and Bay Business Area to those living, working or visiting there. It will help mitigate the effects of climate change by providing shade and reducing the creation of 'heat islands'. The design and materials of buildings and public spaces will comply will the principles of de-carbonisation and the circular economy, and seek to minimise excessive heat. Wildlife corridors and migratory routes will be protected to reduce biodiversity loss.*

#### **SP10, Maintaining a Supply of Minerals**

Amend paragraph 10.69 to read:

The Policy promotes *the repurposing of buildings and other facilities and* the increased use of alternatives to naturally occurring minerals. The re-use or recycling of construction and demolition material and industrial wastes serves not only to reduce the amount of waste produced but also conserves scarce non-renewable natural mineral resources and minimises environmental damage.

### **SP13, Protecting and Enhancing Built Heritage and Culture**

Add new paragraph:

*Appropriate repurposing of empty or underused heritage buildings will be encouraged both to preserve the fabric of buildings and the city's distinctive character, and to reduce the environmental impact of new construction. Such repurposing should be historically, culturally and architecturally sensitive.*

### **SP11: Delivering Sustainable Neighbourhoods, Social Cohesion and Affordable Housing**

Add new point:

*Protect and provide biodiversity, local open green spaces and tree canopy for the well-being of communities and to protect the environment.*

Expand paragraph 10.78 to read:

In order to further support the regeneration of deprived communities within the city the LDP will support implementation of the Council's Neighbourhood Renewal Schemes programme, which aims to close the gap between the most deprived neighbourhoods and the city as a whole. *This will include increasing biodiversity, local open green spaces and tree canopy where there is under-provision of these.*

### **SP15: Managing Spatial Growth through Settlement Boundaries**

Add new paragraph:

*Settlement boundaries will not imply a presumption that all developments within those boundaries will be acceptable. Existing biodiverse land, open green spaces, tree canopy and wildlife corridors will be protected, and new developments and regeneration schemes will be expected to include these, including on brownfield sites.*

### **SP18, Securing Climate Resilience, De-Carbonisation and Renewable Energy in New Developments**

Amend point i to read:

Reducing *whole life* carbon emissions and preventing development that places an additional de-carbonisation burden on the city *through construction, operation and demolition.*

Add new paragraph (prior to existing 10.114):

*New developments will seek to reduce their whole life carbon emissions: construction, operation and demolition. Proposals should first consider repurposing or extending existing buildings to achieve their objective. Only when this is not possible, or where*

*whole life emissions through repurposing would be higher, should demolition and new build be considered. Building systems, components and materials should be reused or recycled. New buildings should be designed to be durable and adaptable for changing future needs, and should aim to minimise the environmental impact of their eventual disassembly or demolition.*

Amend paragraph 10.114 to read:

~~In the first instance,~~ *An operational* reduction in carbon emissions will be achieved by means of controlling the energy demand associated with development through maximising energy efficiency. ~~Secondly,~~ *Sustainable* sources of energy should be incorporated, without reliance on fossil fuels.

### **SP19, Protecting, Compensating and Enhancing Green Infrastructure and Biodiversity**

See CCS submission on Green Infrastructure and Biodiversity.

### **SP20, Minimising Impacts on Natural Resources**

Add new point:

*Protecting designated sites (e.g. SSSIs) and other land with high biodiversity value.*

Add new paragraph:

*At a time of nature emergency and accelerating biodiversity loss, land with high biodiversity value is a valuable natural resource. New developments should not damage such land, and should ensure that any biodiversity loss on any land is fully compensated to provide net biodiversity benefit.*

### **SP21, Managing Waste**

Add new point:

*Minimising waste from construction through repurposing, reuse, and recycling.*

## **5.4 Implications for the Deposit Plan**

Strategic Policies to promote repurposing and the circular economy must be realised through the Deposit Plan. Detailed policies are required that will ensure:

- Demolition of buildings above a small minimum size should no longer be a Permitted Development Right but instead require approval of a formal planning application that can be assessed by the LPA for its de-carbonisation implications.

- Any planning application for land hosting existing buildings should be obliged to show that the benefits offered by the development could not be delivered by repurposing or extending the existing structures.
- Any proposal requiring demolition must demonstrate that it is following circular economy principles in its use of materials. All sizeable new constructions should show that they are using materials chosen to minimise their carbon emissions and ecological impact.
- In the interests of the well-being of future generations, all large developments should be obliged to demonstrate that they are minimising whole life carbon emissions, and that the designed buildings will be durable, adaptable for changing future needs, and eventually replaceable with negligible environmental impact.
- The LDP must be sufficiently rigorous to provide legally defensible justification for the Planning Committee or planning officers to reject applications which fail to demonstrate that they have followed the repurposing assessment process, or have not achieved circular economy objectives, or which would place an additional de-carbonisation burden on the city as measured over their whole life.

### 5.5 *Environmental Impact Assessments*

LDP policies to reduce emissions and waste, and to reverse biodiversity loss, will not be effective without careful professional assessment and measurement. Environmental Impact Assessments should include:

- A mandatory Whole Life Design and Access Statement explaining how the development will be constructed, how it will be maintained, the scope for future repurposing to meet changing needs, its expected lifetime, and how it could eventually be dismantled or demolished in line with circular economy principles.
- A mandatory Whole Life Carbon assessment to measure the expected carbon impact of the proposed development, through land clearance, construction, operation and eventual demolition. While there is not yet an official methodology for Whole Life Carbon assessments, the RICS approach is a widely recognised standard.<sup>74</sup> Tools to support this are available and it is likely that some standardisation will emerge.
- Clear explanation of how the development will conform to circular economy principles. London's *Circular Economy Guidance* includes a spreadsheet for developers to complete explaining how their application will conform.<sup>75</sup> Such a spreadsheet, or similar data

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<sup>74</sup> Environmental Audit Committee, p.65.

<sup>75</sup> Mayor of London, *Circular Economy Guidance Statement* <https://www.london.gov.uk/programmes-strategies/planning/implementing-london-plan/london-plan-guidance/circular-economy-statement-guidance>.

gathering tool, should be mandatory for large planning applications with the results published in the public domain alongside the other application documentation.

- Mandatory qualitative and quantitative assessments of the existing biodiversity on the site, the expected biodiversity loss from the development (both within and beyond the ‘red line’), the expected biodiversity benefit from remedial measures, the timeline over which that benefit will be delivered, and the risks to achieving an overall net benefit over both short and long term. Biodiversity loss should include that induced by changes in land use, by proposals for new construction rather than repurposing, by the choice of building materials, and by the construction process.

## **6 Conclusion**

The advantages of repurposing, the need to reduce embodied carbon, and the ecological impacts of construction have become more widely understood since the process to replace Cardiff’s LDP commenced. Most of the many policy and guidance documents cited in this submission have been written or updated over the past couple of years.

Some other local authorities are now more advanced than Cardiff in understanding the vital need to protect biodiversity, and to reduce carbon emissions and waste across the whole life cycle of a development. The replacement Local Development Plan is an opportunity for the city to achieve or exceed best practice, in line with Cardiff Council’s declarations of climate and nature emergencies and its One Planet Cardiff aspiration of a carbon neutral city.