

West Lothian Local Development Plan 2 Evidence Report

Schedule	1. Climate Change
<p>Information required by the Act and NPF4 regarding the issue addressed in this section</p>	<p>Town and Country Planning (Scotland) (Act) 1997, as amended:</p> <ul style="list-style-type: none"> • Section 15(5)(a) ‘the principal physical, cultural, economic, social, built heritage and environmental characteristics of the district’ • Section 3F Policies regarding low and zero-carbon generating technologies in new buildings. <p>Other statutory requirements:</p> <ul style="list-style-type: none"> • SEA (Environmental Report) • HRA (Habitats Regulation Appraisal) <p>National Planning Policy 4 (adopted 13 February 2023)</p> <ul style="list-style-type: none"> • Policy 1 - Tackling the climate and nature crises - LDPs must address the global climate emergency and nature crisis by ensuring the spatial strategy will reduce emissions and adapt to current and future risks of climate change by promoting nature recovery and restoration in the area. • Policy 2 – Climate Mitigation and Adaption - The LDP spatial strategy should be designed to reduce, minimise or avoid greenhouse gas emissions. The six spatial principles should form the basis of the spatial strategy, helping to guide development to, and create, sustainable locations. <p>This schedule aims not to repeat the content of other topics covered by the LDP2 Evidence Report. Other schedules which should be read alongside this schedule on Climate Change:</p> <ul style="list-style-type: none"> • 2 - Biodiversity • 3 - The Water Environment and Flooding • 4 - Blue and Green infrastructure and Open Space • 5 - Natural places and soils • 6 - Forestry, woodland and trees • 7 - Green belts • 9 - Health, Wellbeing and Equalities • 17 – Local Living • 26 - Zero Waste • 20 - Sustainable Transport
<p>Links to Evidence</p>	<ul style="list-style-type: none"> • Scottish Government, Scottish Climate Change Plan 2018-32 (updated in 2021) • Scottish Government, Scottish National Adaptation Plan 2024-29 (SNAP3)

referred to in this schedule

- Scottish Government, [Scotland's National Marine Plan](#), 2015
- Scottish Government, [Scotland's Zero Waste Plan](#)
- Adaptation Scotland, [Climate Change Projections for Scotland Summary](#) (2021)
- Public Health Scotland, [Strategic Plan](#) 2022-2025
- West Lothian Council, [Climate Change Strategy](#) 2021-2028
- West Lothian Council, [Climate Change, annual declaration](#) 2023
- West Lothian Council, [Adaptation Action Plan](#) (2022-2028)
- West Lothian Council, [Local Heat and Energy Efficiency Strategy](#) (2023-2028)
- West Lothian Council, [Local Outcomes Improvement Plan](#) (LOIP)
- West Lothian Council, [Local Climate Impact Profile](#) (LCLIP) 2015
- West Lothian Council, [Natural Capital Assessment](#) (2023)
- West Lothian Council, [Active Travel Action Plan](#) 2024-2029
- UK Government, [UK local authority and regional greenhouse gas emissions national statistics 2005-2021](#) (published 6 July 2023)
- Climate Just, [Neighbourhood Flood Vulnerability Index](#)

Summary of Evidence

Purpose, scope and structure of this schedule

This schedule focuses on climate change in West Lothian. This schedule and its evidence are set out in the following sections:

- 1 National strategies, priorities and evidence
- 2 Local strategies, priorities and evidence
- 3 Greenhouse Gas Emissions
- 4 Climate Change Adaption
- 5 Carbon Sequestration

Part 1 - National strategies, priorities and evidence

1.1 The **Scottish Climate Change Plan 2018-32 (updated in 2021)** sets out the Scottish Government's proposals and policies for meeting its climate change targets and identifies how Scotland could deliver its target of 75% by 2030 (compared with 1990) and to net zero by 2045. In April 2024 the Scottish Government accepted, following a report from the Climate Change Committee that this target was out of reach. A new Scottish Climate Change Plan is expected in 2025.

1.2 The **Scottish National Adaptation Plan 2024-29 (SNAP3)** sets out the actions that the Scottish Government will take to prepare for and build Scotland's resilience to the impacts of climate change between 2024 and 2029. SNAP3 sets out five long term outcomes for climate change adaptation:

- **Nature connects** across our land, settlements, coasts and seas
- **Communities** are creating climate-resilient, healthy and equitable places
- **Public services** are collaborating in effective and inclusive adaptation action

- **Economies and industries** are adapting and realising opportunities in our Just Transition
- **Scotland's international role** supports climate justice and enhanced global action on climate adaptation.

- 1.3 SNAP3 requires development planning (including Local Development Plans and associated delivery programmes) to take current and future climate risks into account and act as key lever in enabling places to adapt.
- 1.4 The adaptation plan sets out the role of flood prevention, water management, and green blue infrastructure, carbon sequestration, Nature Networks and nature restoration (including invasive species and vector borne diseases), protecting soil functionality, open space provision, the integration of blue green networks in transport infrastructure, forestry and woodland, marine ecosystems, and bringing vacant and derelict land back into positive use for people and communities in adapting to climate change.
- 1.5 The **Scottish Marine Plan** covers the management of both Scottish inshore waters (out to 12 nautical miles) and offshore waters (12 to 200 nautical miles). The plan promotes an ecosystem approach, putting the marine environment at the heart of the planning process to promote ecosystem health, resilience to human induced change and the ability to support sustainable development and use.
- 1.6 Eleven Scottish Marine Regions have been created which cover sea areas extending out to 12 nautical miles. Regional marine plans will be developed by Marine Planning Partnerships, allowing more local ownership and decision making about specific issues within their area.
- 1.7 West Lothian forms part of the **Firth of Forth Scottish Marine Region** for which an assessment was carried out in 2020. In terms of climate change, sea surface temperature in the Forth and Tay SMR has increased since 1870 by 0.05 °C per decade on average. The rate of increase has not been constant, and in the last 30 years (1988-2017), the rate of change in temperature was +0.21 °C per decade.
- 1.8 The long-term average mean sea level change in the Forth and Tay SMR, as estimated from a historical climate model run (UKCP18), was 4 cm (likely range between 1 and 7 cm) higher in 2018 than the 1981-2000 average. For reference, the Scottish average is estimated to be 5 cm (likely range between 3 and 8 cm). By 2100, mean sea level in the Forth and Tay SMR is anticipated to be approximately 34 cm for a medium emissions scenario (UKCP18 RCP4.5; see also and [Climate change Sea level](#) assessment).
- 1.9 The Scottish Government has adopted Zero Waste as a goal and in 2010 published the **Zero Waste Plan (ZWP)**. The Zero Waste Plan sets a target that by 2025, 70% of Scotland's waste is to be recycled. Treatment is also required of unsorted waste materials prior to incineration or landfill and a maximum of 5% of waste is to go to landfill.
- 1.10 The waste hierarchy establishes that the prevention of waste is the preferred option followed by reuse, recycling, recovery and disposal. A zero waste Scotland will play an important role in helping to achieve the targets set in the Climate Change (Scotland) Act 2009 to reduce Scotland's greenhouse gas emissions.

Part 2 - Local strategies, priorities and evidence

- 2.1 West Lothian Council signed the Climate Change Declaration in 2007 and following on from its declaration of a Climate Emergency in September 2019, produced the **West Lothian Climate Change Strategy 2021-2028**.
- 2.2 The strategy provides a framework for the council's actions as a public sector organisation aimed at reducing greenhouse gas emissions and preparing for the unavoidable impacts of changing weather patterns through the period 2021-2028 while also considering the pathway to achieving a net-zero West Lothian by 2045 at the latest. The strategy contains six outcomes and 28 actions for the council to reduce emissions across areas such as energy, transport, waste and biodiversity.
- 2.3 The **West Lothian Council Adaptation Action Plan (2022)** focuses on how the council will adapt to both the current and future effects of climate change.
- 2.4 The **West Lothian Local Heat and Energy Efficiency Strategy (LHEES) (2023-2028)** focuses on energy efficiency and heat decarbonisation and LHEES aims to establish local authority area-wide plans. LHEES are core to the principle of a place based, locally-led and tailored approach to the heat transition. LHEES will underpin an area-based approach to heat and energy efficiency planning and delivery, setting out the long-term plan for decarbonising heat in buildings and improving their energy efficiency across an entire local authority area to help reach the net-zero goal.
- 2.5 **Heat networks** supply heat to homes and buildings from a central source, avoiding the need for individual heating systems. They can offer an efficient, environmentally friendly way to heat homes and businesses, and will play a key role in achieving wider climate change targets. The LHEES has identified 14 potential Heat Network Zones across West Lothian.
- 2.6 The **West Lothian Local Outcomes Improvement Plan (LOIP)** has four thematic pillars:
- Creating skills and jobs
 - Improving health and wellbeing
 - Creating net zero carbon communities
 - Creating affordable and sustainable housing
- 2.7 The LOIP aims to create net zero carbon communities by ensuring that:
- West Lothian wide emissions have reduced and a strong partnership approach to achieve net zero carbon has been implemented.
 - There is improved engagement with all sectors and communities, businesses and third sector play a lead part in achieving net zero carbon.
 - Approaches for carbon off-setting and energy have been implemented.
 - Nature-based solutions play a role in achieving net zero carbon and mitigating and adapting to climate change impacts.

2.8 The policies set out within the **West Lothian Local Development Plan 1 (2018)** aimed to minimise the area’s carbon footprint through promoting development in sustainable locations, supporting mitigation and adaptation measures, and ensuring sustainable design.

Part 3 - Greenhouse Gas Emissions in West Lothian

3.1 Statistical data for carbon dioxide emissions at a local authority level is published annually by the Department for Business, Energy & Industrial Strategy (BEIS) and includes estimated emissions from the industrial and commercial sector, domestic emissions including from gas and electricity consumption, emissions from transport, land use, land-use change and forestry (LULUCF).

3.2 A comparison of the per capita and per km2 emissions in West Lothian to Scotland is set out Table 1 below:

	West Lothian		Scotland	
	2005	2022	2005	2022
Total	1,816.40	1,109.10	62,227.9	38,856.6
Per Capita Emissions (tCO2e)	11	4.2	12.2	7.1
Emissions per km2 (kt CO2e)	6.1	2.6	0.8	0.5

Table 1, source: UK local authority and regional greenhouse gas emissions national statistics 2005-2021 (published 6 July 2023)

3.3 West Lothian’s emissions have decreased by 38.9% compared to Scotland as a whole at 37.5%. In terms of per capita, emissions have decreased much further at 68% compared to 40% across the whole of Scotland.

3.4 In terms of carbon emissions per sector, 32% of West Lothian’s emissions are from transport, followed by domestic at 25%. Other sectors are set out below.

	Industry	Commercial	Public Sector	Domestic	Transport	LULUCF Net Emissions	Agriculture	Waste Management T	Total (Kt-CO2-e)
Total	211.0	35.4	43.7	282.6	373.5	47.8	89.0	67.0	1,150.1
%	18%	3%	4%	25%	32%	4%	8%	6%	

Table 2, source: UK local authority and regional greenhouse gas emissions national statistics 2005-2021 (published 6 July 2023)

3.5 Transport is the only major sector where emissions have increased since the council’s baseline year. The Council’s climate change plan sets out that achieving our emissions targets can only be achieved with modal shift away from petrol/diesel car use, and significant improvements in the transport sector.

- 3.6 However, West Lothian's strategic location at the heart of the national road and rail network means that a significant proportion of movements between Glasgow and Edinburgh and other parts of the central belt of Scotland travel through the area. A large proportion of the transport related emissions in this area – almost 70% - are generated by national traffic using the 'A' road and motorway networks and are therefore outwith the Council's direct influence.
- 3.7 The Council can, however, influence the travel patterns of residents and businesses within the area using a range of positive measures to help encourage a reduction in car use in line with national targets.
- 3.8 Measures include improved walking and cycling opportunities through the **West Lothian Active Travel Action Plan 2024-2029** working with bus operators to enhance public transport, expanding the network of Park and Ride facilities and expanding the network of Electric Vehicle (EV) Charging Points. Through these actions, the Council will contribute to the national target of reducing vehicle kilometres by 20% (by 2030).
- 3.9 The Council's approach to Local Living, as set out in Schedule 17 will also help reduce car kilometres and resultant emissions. The Council's approach to zero waste is also helping to reduce emissions.
- 3.10 Emissions from the public sector are 4.8% of West Lothian's total. The council reports on its annual emissions figures in its [Annual Declaration Report](#). Since its baseline year (2013/14) West Lothian Council has decreased its own carbon emissions by 55%. West Lothian Council aims to achieve a net-zero position by 2045 at the latest, in line with Scottish Government targets set out above.
- 3.11 In terms of West Lothian's main emitters of GHGs. These are:
- National Grid Gas Plc, gas compressor, Avonbridge, Bathgate (384.3tn total emissions in 2021)
 - Wyman-Gordon Limited, forged components, Livingston (3.3tn total emissions in 2021)
 - Source: [UK Emissions Interactive Map](#)

Part 4 – Climate Change Adaption

- 4.1 In terms of the impacts of climate change, for Scotland and West Lothian, the Adaptation Scotland programme has published a **Climate Change Projections for Scotland Summary** (2021) which anticipates that:
- Average temperatures will increase across all seasons.
 - Weather will remain variable and may become more variable
 - Typical summers will be warmer and drier.
 - Typical winters will be milder and wetter.
 - Intense, heavy rainfall events will increase in both winter and summer.
 - Sea levels will rise.
 - There will be reduced frost and snowfalls.

- 4.2 **West Lothian's Local Climate Impact Profile (LCLIP) (2018)** found that the council has already experienced a range of adverse impacts on property and services as a result of extreme weather events. The findings identified that between 2000 and 2015, the council spent approximately £40 million on maintenance and repair costs as either a direct or indirect result of extreme weather events, not accounting for loss of staff time and costs due to impairment of service delivery. Evidence on flood events in West Lothian is set out in Schedule 3 - Water Environment and Flood Risk.
- 4.3 The **Climate Ready South East Scotland (CERES)** project was launched in April 2024. CERES aims to assess the risks and opportunities from climate change in the South East region. CRSES will carry out a detailed assessment of the climate risks and opportunities faced by the Edinburgh and South East Scotland City Region. Drawing on the best available scientific evidence, and working with communities across the region. The assessment will inform decision-making across the region, laying the foundation for collaborative climate adaptation action. The outcomes of this project will inform the council's risk assessment and the Local Development Plan going forward.
- 4.4 The development of the **Adaptation Action Plan 2022-28** required current and future climate change risks to be assessed. Some of those identified include:
- Climate change may exacerbate pre-existing vulnerabilities or inequalities in individuals/communities
 - Increased risks of water logging of greenspaces
 - Increased risks of pests and diseases, and wind-throw of trees
 - Risk of fallen trees on strategic highway corridors
 - Increased costs associated with flooding
 - Increased risks of fire on dry heath and woodland in times of drought
- 4.5 Climate change may exacerbate pre-existing vulnerabilities or inequalities and adaptation actions should be guided by the principles of climate justice. Understanding how climate impacts may affect vulnerable groups can help make action to reduce poverty and inequalities more effective.
- 4.6 Climate Just have produced a **Neighbourhood Flood Vulnerability Index** which assesses community susceptibility, ability to prepare, respond, and recover, and community support. Mapping and data are available for data zones in West Lothian.
- 4.7 **Public Health Scotland's Strategic Plan** sets out that 'neighbourhood design is a vital way to support Scotland to achieve net zero carbon emissions and mitigate the adverse health impacts of climate change. As fuel prices rise, people living in poor-quality housing with less insulation are more at risk of being pushed into fuel poverty'.
- 4.8 Outcome 4 of **West Lothian's Climate Change Plan (2022)** sets out that the council will, "continue to build a resilient and well adapted West Lothian where natural ecosystems are protected, sustainably used and strengthened while services, communities and places are adapting to cope with climate change impacts (including land use, buildings and infrastructure).
- 4.9 The **West Lothian Adaptation Action Plan 2022-2028** sets out that in West Lothian:

- Most existing buildings, assets and infrastructure are not designed to cope with the climate that we are now experiencing. Severe weather damage, overheating and damp conditions are challenges that need to be addressed through improved maintenance and retrofit.
- A healthy natural environment is vital in order to sustain biodiversity, productive land and water supply and provide protection from flooding and overheating. Increased risks of pests and diseases, water logging of greenspaces and wind throw of trees are just a few of the challenges increasingly affecting our natural environment.
- Disruption caused by landslides, flooding, and severe weather regularly disrupt transport infrastructure and networks.

4.10 In terms of actions for development planning, the Action Plan includes requirements to:

- Integrate blue and green networks and open space as part of core development areas, asset transfers and major regeneration initiatives.
- Increase the creation of sustainable urban drainage systems (SUDS) to help soak up excess water and reduce flooding in new housing developments.
- Design, construct and manage new buildings, assets and infrastructure to be resilient to current climate impacts and able to adapt in future.
- Reduce transport and travel trips to assist in reduction in emissions and implementing strategic, as well as local, active travel measures linking towns and villages and within settlements will help reduce or change journeys and tie into the 20-minute neighbourhood concept.
- Implement flood protection schemes in Broxburn & Linlithgow to provide enhanced protection to homes and may deliver additional benefits such as green network creation.
- Produce guidance for developers on species selection, planting and green infrastructure that aids biodiversity and climate resilience “Opportunities for biodiversity enhancement in development” (or Planning Guidance needed in conjunction with NPF4 / Nature scot ‘Planning with Nature’ Guidance.

4.11 Evidence on flooding and water management in respect of climate change is set out in the Schedule 3 - Water Environment and Flood Risk Schedule, evidence on Waste is set out in the Schedule 26 - Zero Waste Schedule.

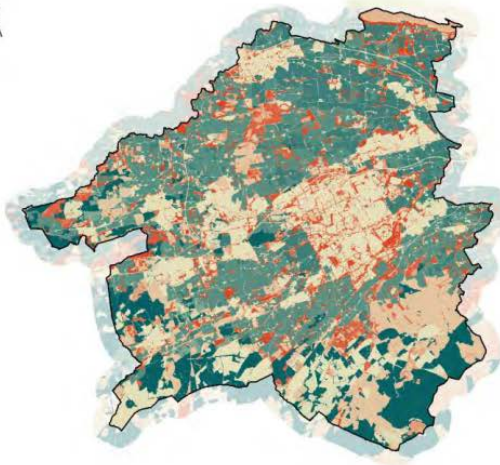
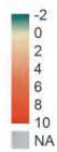
Part 5 - Carbon sequestration

- 5.1 Managing West Lothian’s land for carbon capture can support the mitigation of climate change. Carbon Sequestration refers to the capture and storage of carbon into natural systems such as trees, soils and peatland.
- 5.2 West Lothian Council’s **Natural Capital Assessment (2023)** models eleven ecosystem services: carbon storage and sequestration, air purification, noise regulation, local climate (urban heat) regulation, pollination capacity, water flow regulation, water quality (sediment yield and nutrient deposition) regulation, food production, timber production and accessible nature.
- 5.3 For every ecosystem service, the current capacity of the natural environment to deliver that service was mapped. These ‘heat maps’ show broadly which habitats/areas are currently

giving us the most benefit for each function e.g. which areas best regulate water flow, have the ability to store the most carbon (over the long term), to sequester the most carbon (year on year), etc.

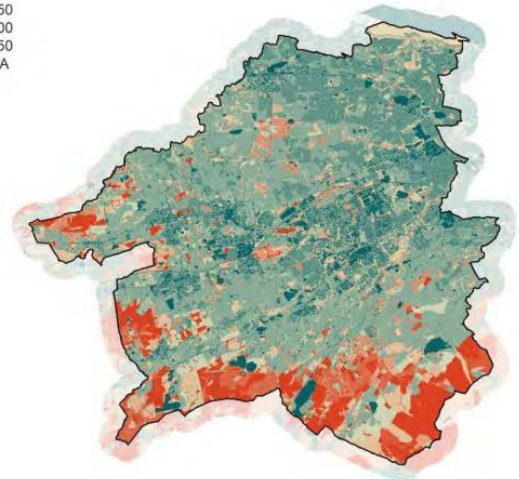
Carbon sequestration capacity

tCO₂e/ha/year



Carbon storage capacity

tC/ha



5.4 The assessment shows that West Lothian land is on average a *source* of yearly carbon emissions at a rate of -0.33 tCO₂e/ha/yr. This is mainly due to emissions associated with agriculture and degraded bog habitats, which are not currently offset by the presence of good condition semi-natural habitats. This is a good reason to improve the condition of habitats across the area. The land owned by WLC, in comparison, sequesters (takes in) carbon across the whole landholding with an average of 2.4 tCO₂e/ha/yr; this is because woodland is common on WLC ground and emissions from farming and degraded peat habitats are much less common on council land.

5.5 For West Lothian as a whole, the presence of large areas of deep peat in blanket and raised bogs in the south and west mean there is significant capacity for long-term carbon storage within the soil of West Lothian. Woodlands are shown as important for the provision of many ecosystem services (carbon sequestration, air quality, local climate and noise regulation, pollination, water flow and quality). These also lie mostly to the south and west of the region.

Summary of Stakeholder Engagement

This will summarise the steps taken by the planning authority to seek the views of all relevant stakeholders. This will also summarise the views expressed, and explain how they have been taken account of in the Evidence Report. (hyperlinks to records of engagement may be added where appropriate)

Statements of Agreement / Dispute

This will include statements from stakeholders highlighting their agreement or the areas they dispute.

Summary of Implications for the Proposed Plan

This section covers what the evidence means for the plan, e.g. the spatial strategy, the Delivery Programme or plan preparation.

Based on the evidence the proposed plan will be required to:

1. Support a modal shift away from private petrol/diesel car use reducing transport and travel trips to assist in reduction in emissions and implementing strategic, as well as local, active travel measures linking towns and villages and within settlements to help reduce or change journeys and tie into local living. 2% of West Lothian's emissions are from transport and it is the only major sector where emissions have increased since the council's baseline year.
2. Support climate change adaptation by integrating the Central Scotland Green Network and identify and deliver local blue and green networks and open space as part of new development, and, increase the creation of sustainable urban drainage systems (SUDS) to help soak up excess water and reduce flooding in new housing developments, mitigate and manage flooding.
3. Require new development needs to minimise the West Lothian's carbon footprint through promoting development in sustainable locations, supporting mitigation and adaptation measures, and ensuring sustainable design. LDP2 will need to ensure communities, buildings, assets and infrastructure need to be resilient to current climate impacts and able to adapt in future.
4. Recognise that climate change may exacerbate pre-existing vulnerabilities or inequalities. Adaptation actions should be guided by the principles of climate justice. The Neighbourhood Flood Vulnerability Index (Climate Just) will be used to address where climate impacts may affect vulnerable groups and help identify actions for LDP2 to reduce climate impacts, poverty and inequalities.
5. Manage West Lothian's land for carbon capture to support the mitigation of climate change. Carbon Sequestration refers to the capture and storage of carbon into natural systems such as trees, soils and peatland. The Proposed Plan will use the Council's Natural Capital Assessment mapping to protect carbon rich environments including areas important for carbon sequestration including tree planting and peatland restoration.
6. Implement heat networks supply heat to homes and buildings from a central source, avoiding the need for individual heating systems. They can offer an efficient, environmentally friendly way to heat homes and businesses, and will play a key role in achieving wider climate change targets. West Lothian Council's LHEES has identified 14 potential Heat Network Zones across West Lothian which require to be implemented within the Proposed Plan.