

Thurrock Local Plan Integrated Impact Assessment Appendices

Local Plan Evidence Base

Thurrock Council

Final report

Prepared by LUC

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Appendix A

Consultation responses

Consultation responses received in relation to IIA Scoping Report (2022)

A.1 The three consultation bodies for SEA in England, namely Historic England, Natural England and the Environment Agency, were consulted on a draft of the IIA Scoping Report between May and June 2022. A summary of the comments and LUC's responses to these is provided below.

Historic England

A.2 The Scoping Report has identified the relevant plans and programmes to the development of the Thurrock Local Plan, has established a robust baseline and sets out an appropriate framework and IIA objectives against which the effects of proposals on the historic environment can be assessed. Overall, it provides an appropriate basis for assessing the significant effects of the emerging Local Plan on the historic environment.

A.3 We often see SA's concluding 'uncertain effects' in relation to sites – this is because there isn't sufficient information to understand what impact development would have on their significance. Paragraphs 199 and 200 of NPPF make it clear that great weight should be given to the asset's conservation. To this end we are pleased to see this issue acknowledged and addressed (paragraphs A.42 and Table A.13).

A.4 In order to demonstrate that an allocation is compatible with the requirements of NPPF, as part of the Evidence Base underpinning the Plan there needs to be an assessment (Heritage Impact Assessment (HIA)) of what contribution the currently undeveloped sites makes to those elements which contribute to the significance of nearby heritage assets and what effect the loss of this site and its subsequent development might have upon their significance. This should be proportionate and inform appraisal of sites in the IIA. While a high-level HIA may be sufficient for some sites, it is likely that some will require more detailed assessment.

A.5 Historic England's Advice Note 3 ('The Historic Environment and Site Allocation in Local Plans') sets out a suggested approach for assessing sites

and their impact on heritage assets. This could be applied to the assessment and selecting of sites within the Thurrock Local Plan. It is important that the Council:

- Identify any heritage assets that may be affected by site allocation;
- Understand what contribution the site makes to the significance of asset(s);
- Identify what impact allocation might have on that significance;
- Consider maximising enhancements and avoiding harm; and
- Determine whether the proposed allocation is appropriate in light of NPPF’s tests of soundness.

A.6 If a site is allocated, we would expect to see reference in the policy and supporting text to the need to conserve and seek opportunities to enhance the significance of on-site or nearby heritage assets, the need for high quality design and any other effects to the historic environment.

A.7 Historic England strongly advises that the conservation and archaeological team of your authority are closely involved throughout the preparation of the IIA of this Plan.

Response

Noted with thanks.

Natural England

A.8 The range of topics to be considered within the IIA is generally considered appropriate. As the Scoping Report does not identify the spatial planning consequences of predicted growth during the plan period (i.e. what is the likely location of housing growth/employment growth/infrastructure provision), the implications of the Local Plan for the natural environment are not evident at this stage. This means that the consideration of ‘key sustainability issues’ within each topic chapter is a rather abstract exercise. The spatial planning implications of the Local Plan will become clearer at the preferred options stage and this will need to be reflected in the IIA as it develops in tandem.

A.9 The Introduction to the Scoping Report sets out the principles that will guide and underpin the Local Plan and it is a concern that these do not include any

reference to the conservation and enhancement of the natural environment as required by NPPF (paras 174a, 149).

Response

Noted with thanks. The Local Plan's guiding principles are reproduced from the Issues and Options (Stage 2) document that was consulted on from December 2018 to March 2019. Council to consider whether it wishes to amend these principles to reflect Natural England's comment when preparing the next iteration of the Local Plan document.

A.10 The Scoping Report seems to identify the social implications of the Local Plan as the predominant focus rather than clearly integrating the social, environmental and economic considerations. For example, the key sustainability issues raised within the transport chapter and the air, land and water chapter don't include the risks to the natural environment. This could be addressed by expanding the scope of the biodiversity chapter to 'Biodiversity and Natural Environment'.

Response

Amendments have been made to the transport and the air, land and water chapters to ensure risks to the natural environment are clearly identified.

A.11 The Scoping Report makes it clear that the IIA does not incorporate the Habitats Regulations Assessment (HRA) of the emerging Local Plan as this will be developed as a separate exercise. As noted above, the environmental considerations of the Local Plan could be better integrated within the IIA and publishing the HRA concurrently might have helped in this respect. Nevertheless, the Scoping Report confirms that likely significant effects of the emerging Local Plan on the environment will be addressed at a later stage in the IIA process so the integration of social, environmental and economic issues should become clearer at that stage.

Response

Noted with thanks.

A.12 Depending on the scale and location of planned development there is the potential for the emerging Local Plan to give rise to environmental impacts that extend beyond Thurrock Council's administrative boundary. The potential for cross-boundary impacts does not appear to have been fully addressed in the scope of the IIA. While specific spatial planning impacts have yet to emerge, the potential for cross-boundary impacts should be acknowledged at this stage.

Response

The IIA will seek to identify the significant effects of the Local Plan regardless of where they arise, including beyond the administrative boundary. Changes have been made to the guiding questions of the IIA Framework to make this explicit in relation to potential air quality and water quality effects on protected biodiversity sites.

A.13 I could not find references to the emerging or adopted Local Plans for neighbouring Local Planning Authorities (and the relevant evidence base) which will need to be considered in relation to cross-boundary issues and the Duty to Cooperate.

Response

The policy context section for each topic chapter includes review of relevant sub-regional plans, policies and programmes, including for South Essex, Essex and the wider East region. The baseline information section for each chapter also draws on wider than district information, such as River Basin Management Plans. Should the IIA identify the potential for significant environmental effects at particular locations beyond the administrative boundary then appropriate consideration will be given at that time to the current state of the environment and its likely future evolution (including as a result of local planning policies) in those neighbouring areas.

A.14 The baseline information seems to be extensive. There are some areas where the baseline information could be enhanced:

- In relation to information on air quality, the Air Pollution Information System (APIS) should be interrogated for information on pollutants and their impacts for habitats and species at protected sites.
- In relation to green infrastructure, useful evidence on local provision is available through the England Green Infrastructure Mapping Database,

Natural England's Introduction to Green Infrastructure Framework and National England's Accessible Natural Greenspace Standards.

- In relation to Soils, the baseline information (Figure 5.2) classifies agricultural land within grades 1-5. The classification will need to distinguish between areas within Grade 3a and 3b to establish the extent of agricultural land classed as Best and Most versatile (Grades 1, 2 and 3a).

A.15 The IIA needs to fully explore the impacts of the Local Plan upon the natural environment. Recommendations are set out in response to question 5 below.

Response

In relation to information on air quality, a description has been added to the baseline section of the air, land and water quality chapter of the types of effect that relevant air pollutants may have on the natural environment, drawing on information in APIS.

In relation to green infrastructure, information has been added to the baseline section of the biodiversity chapter on local provision of natural greenspace.

In relation to soils, information is not available for the Plan area to sub-divide Grade 3 agricultural land into Grades 3a and 3b.

A.16 Natural England recommends the following additions or amendments to the proposed set of IIA objectives:

- Objective 1: Housing. Recommend the addition of objective to ensure that consideration is given to the impact of new housing (siting of allocations) on the natural environment (protected sites and priority habitats and species);
- Objective 7: Economy and Employment. Recommend the addition of an objective to ensure considerations is given to the impact of employment allocations on the natural environment (protected sites and priority habitats and species);
- Objective 9: Air Quality. Recommend the addition of an objective to ensure that the Local Plan does not cause adverse effects upon air quality at protected sites (within or beyond the Authority area);

- Objective 12: Water Resources and Quality. Recommend the addition of an objective to ensure that the Local Plan safeguards the quantity and quality of water at water-dependent protected sites (whether within or beyond the Authority area).
- Objective 15: Biodiversity and Geodiversity. Recommend the deletion of “where appropriate” in the first objective as national planning policy (NPPF) requires that Plans conserve and enhance the natural environment.
- Objective 17: Landscape, Townscape and Visual Impacts. Recommend that the objectives address “seascapes” as well as “landscapes”.

Response

The recommended changes to IIA objectives 9, 12, 15 and 17 have been made in the proposed framework for assessing significant effects chapter. No changes have been made to IIA objectives 1 or 7 since the potential for all aspects of the Local Plan, including housing allocations and employment allocations, to affect protected sites and priority habitats and species is already assessed under IIA objective 15: Biodiversity and geodiversity.

Environment Agency

Climate change

A.17 We would suggest the addition of the PPG for Community Infrastructure Levy as flood defences are one of the forms of infrastructure (listed in PPG paras 144, 155, and 179) that the levy can be used for. The TE2100 Plan is a climate change adaption plan and includes proposals for the upgrading of existing tidal flood defence infrastructure within the Borough.

A.18 We would suggest that the sentence reading “The Local Plan should also seek to ensure that risk from all sources of flooding as a result of climate change is managed effectively and ensure that development is resilient to future flooding” is amended to read “The Local Plan should also seek to ensure that risk from all sources of flooding as a result of climate change is avoided where possible, and where this is not possible, that the risks are managed effectively to ensure that development is resilient to future flooding” as this better reflects the policy laid out in the NPPF which emphasises avoidance as a primary goal and test (see paras 159 and 161-165 of the NPPF).

A.19 Para 6.44 - Thurrock Council Level 1 Strategic Flood Risk Assessment – Notes that SFRA needs updating for climate change as it currently uses outdated climate change allowances.

A.20 Paras 6.51 to 6.55 – These could make reference to the “Flood Risk Assessments: climate change allowances” in the context of flood risk. This will help to give the local (as opposed to the UK) context on climate change impacts on peak rainfall intensity, peak river flows and sea level rise.

Response

Reference to the PPG for Community Infrastructure Levy has been added.

The suggested amendments have been made to the text in the ‘Flood risk’ section to better reflect the policy laid out in the NPPF.

Reference to the “Flood Risk Assessments: climate change allowances” has been added to the following section ‘Flood risk’ (projected baseline information) and has been signposted in the ‘Climate change’ section.

Flood risk

A.21 Para 6.76 – These could make reference to the “Flood Risk Assessments: climate change allowances” in the context of flood risk. This will help to give local (as opposed to UK) context on climate change impacts on peak rainfall intensity, peak river flows and sea level rise.

A.22 Fluvial - New Peak River Flow Climate Change Allowances were published on gov.uk website on 20 July 2021.

A.23 Pluvial – The peak rainfall flow allowances in ‘Flood risk assessments: climate change allowances’ were updated 10 May 2022, so they reflect the latest projections in UKCP Local (2.2km) and subsequent research ‘FUTURE-DRAINAGE: Ensemble climate change rainfall estimates for sustainable drainage’.

A.24 Para 6.77 – within the “area vulnerable to flooding” section this should make reference to Coalhouse Fort (scheduled ancient monument) as well as Coalhouse Fort Park – both of which are explicitly referenced in para 1.4 R.E “areas of interest for archaeology” and also “destination for recreation in the Borough”. These assets are highly vulnerable to current-day tidal flood risk as the low-lying embankment adjacent to the Thames Estuary has now overtopped

at least once a year for the last three years, let along with the impacts of sea-level rise.

A.25 Para 6.79 – recommend that “... that protect Thurrock from tidal floods that occur once every 1,000 years is changed to read “... that protect Thurrock from tidal surge events with a magnitude of up to 0.1% chance of occurring in any one year”.

A.26 Para 6.79 – mentions Tilbury FSA and Thames Barrier. This document should consider future implications of strategic flood risk management infrastructure improvements, such as the safeguarding of land to ensure that future improvement can be made including to existing flood defences, flood risk infrastructure (e.g. pumping stations, outfalls etc.), future flood barriers and flood storage areas.

Response

Suggested amendments to wording have been made.

Reference has been added to ‘Flood Risk Assessments: climate change allowances’ in the projected baseline information section ‘Flood risk’ (Chapter 6).

Flood defences and future barriers

A.27 The Thames Estuary 2100 Plan - We expect the Thames Barrier to continue to protect London from tidal flooding up until 2070, but over the longer term the Plan sets out the strategic direction and several options for management of the Thames Estuary. Currently, all options included in the Plan continue to be investigated and assessed given that the decision on a preferred option is not planned until about 2040. Beyond 2070, two leading options are for modification of the existing Barrier at Woolwich or for siting a new barrier within the Long Reach area of the River Thames. However, with higher sea level rise scenarios, the Tilbury (Gravesend Reach) area could then become a preferred option. This ongoing work is something developers will need to be aware of, and we recommend the Local Plan has a suitable policy within it to ensure developers are aware of the need for securing land to reduce any disruption that may be experienced by landowners and other stakeholders that would occur if we leave securing land until a later point. We need to ensure that future land use takes account of the need for a future barrier and failure to consider this at an early stage could jeopardise the future flood protection of the District.

Response

Noted with thanks, however amending the Local Plan to include a policy relating to flood defences and future barriers is not within the scope of the IIA and therefore this recommendation has been forwarded to the Council for their consideration.

Tilbury Flood Storage Area (FSA)

A.28 The FSA, along with other key assets such as World's End Pumping Station and Botney Sluice, is an important asset in managing surface water flood risk and failure to protect it and its capacity will increase flood risk to Tilbury. It is recommended that a policy is included within the Local Plan which ensures the protection of the FSA from inappropriate development and ensures only 'water compatible' uses will be considered.

Response

Noted with thanks, however amending the Local Plan to include a policy relating to the Tilbury Flood Storage Area is not within the scope of the IIA and therefore this recommendation has been forwarded to the Council for their consideration.

Drainage infrastructure in Tilbury Town

A.29 The current drainage system within Tilbury Town is at capacity, and any new development is unlikely to be able to connect the existing infrastructure without increasing flood risk. The EA have reached the decision to stop the Worlds End Pumping Station (WEPSS) replacement project. To maximise value for money for the taxpayer the EA need to work with partners to collectively understand future drainage aspirations in the eastern half of Tilbury town to deliver a mutually agreeable climate change-resilient solution. Strategic development proposals or piece-meal development applications within the catchment should be made aware of this flood risk issue and provide details of how they propose to upgrade (including funding arrangements) the system, to facilitate development. We recommend this forms a policy of the new local plan, to ensure development only comes forwards once suitable drainage options, for the lifetime of development have been demonstrated and can be fully funded.

A.30 Paras 6.80 and 6.81 - Suggest that a reference is also made to “Flood Risk Assessments: climate change allowances “in the context of potential changes in local flood risk as a consequence of climate change. Also suggest reference to the loss of Coalhouse Fort and Park as a key recreation/heritage asset given the paragraph references “...communities, businesses and local authority services in coastal areas.”

A.31 Para 6.84 - suggest that useful NPPF policy links (paras 145(a) and 161(c)) could be made to the sentence “Opportunities exist for nature-based solutions such as carbon sequestration, flood retention, shading etc” to add useful weight to the need to consider these opportunities.

Response

Noted with thanks, however amending the Local Plan to include a policy relating to drainage infrastructure is not within the scope of the IIA and therefore this recommendation has been forwarded to the Council for their consideration.

Amendments have been made to the baseline information section ‘Flood risk’ (Chapter 6).

Historic environment

A.32 Second para – suggest amending “The IIA should appraise both policy and site options in terms of the potential effects on the historic environment” to read “The IIA should appraise both policy and site options in terms of the potential for effects on the historic environment, including those attributed to climate change.”

A.33 Para 8.27 – reference needs to be made to the current-day ‘actual’ flood risks posed to Coalhouse Fort as detailed in the comments above for Para 6.77, they are alluded to in para 8.31 but not strongly enough. Given the near three-year engagement with Thurrock Council regarding Coalhouse Point, we are unaware of the “repair scheme in progress”.

A.34 Para 8.33 – The wording for this paragraph needs to be stronger the “two Scheduled Monuments” - assume one is Coalhouse Fort. This text RE: Coalhouse Fort shouldn’t read “could be adversely affected by climate change”, it should read along the lines of “will be further impacted by the impacts of climate change given its very high current-day tidal flood risk”.

A.35 IIA objective 14: Flood Risk. Recommend the addition of a bullet point along the lines of “Does the Local Plan seek to manage current and future flood risks to the Historic Environment” in reference to the actual-day very high tidal flood risk posed to Coalhouse Fort.

Response

Amendments have been made to the suggested paragraphs to better reflect the connections between climate change, flood risk and the historic environment. The IIA Framework has also been updated to include the recommended IIA objective appraisal question.

Water quality

A.36 Water Framework Directive (WFD): The Local Plan should have suitable policies to cover the significant pressures posed by development on the water environment. The Local Plan should reference the WFD and its two key objectives. Local Authorities must have regard to the requirements of WFD when making their plans. These look to be covered in the IIA Scoping Report.

A.37 It would be really useful for the Local Plan to provide WFD baseline information on the local River Basin Management Plan, specifically relating to the status of WFD waterbodies surrounding the Thurrock district.

A.38 Bathing Water: Given Thurrock is a coastal Borough and has numerous designated bathing water sites with varying water quality – we would expect to see reference to the Bathing Water Directive in the Local Plan and considerations given to the impacts of developments on these designated areas. There is no mention of bathing water in the Scoping Report.

A.39 Shellfish Waters – protected areas: There are several shellfish water designations downstream of Thurrock so acknowledgement of these designations should be presented in the plan. This is currently missing. Similar to bathing water comments above, it should be ensured that growth and development does not cause adverse impacts or contamination of these designated waters mainly through runoff and discharges to the local water environment.

A.40 Habitats Regulations - These are addressed and acknowledged through the Scoping Report, with a full HRA being undertaken when necessary. Local conservation designations of SPAs/SSSIs should be highlighted and assessed

against potential impacts from development pressures within the district, however linking these sites should be a reference to the Habitats Directive which is responsible for these designations. It will be important to note that these sites have much more stringent WQ standards than those of WFD. It is fundamental that there is no deterioration in the ecological quality of these sites from any growth and development within the district and the Local Plan should highlight relevant safeguards in order to ensure the important features of these sites are protected.

A.41 We are aware of a Water Cycle Study (WCS) which was undertaken some time ago (2009/2010) for Thurrock - we see there are plans to update this which is good to see. The WCS will assess the likely impact of all proposed growth and development across all aspects of the water environment within the District and where necessary will detail necessary measures to ensure that environmental legislation will not be compromised. Usually, the WCS will serve as an evidence base to support the Local Plan and should suggest Policies and measures to enable the delivery of all proposed development. We would therefore usually expect to see the WCS referenced in the plan and a summary of the findings/recommendations highlighted to how development will be dealt with sustainably with regards to wastewater within this District.

Response

Noted with thanks, however amending the Local Plan to include policies relating to water quality is not within the scope of the IIA and therefore this recommendation has been forwarded to the Council for their consideration. Water quality matters have been fully addressed through the HRA and Water Cycle Study.

There are no designated bathing water sites within Thurrock therefore no information has been added in relation these designations in this IIA Report.

Reference to downstream designated shellfish waters has been added to the baseline section 'Water'.

The HRA of the Local Plan highlights the conservation objectives of the relevant European sites and assesses the potential for impacts from the implementation of the Local Plan. The findings of the HRA and the Water Cycle Study will be taken into account in the next iteration of the IIA.

Foul water infrastructure

A.42 Expect to see a section in the Local Plan looking at wastewater infrastructure and treatment. In general, the Local Plan should:

A.43 Demonstrate that adequate foul drainage infrastructure can be provided in a timely manner ahead of occupation of new properties – both for sewerage network and Water Recycling Centres (WRC).

A.44 Demonstrate that the proposed development can be delivered without causing a breach of environmental legislation – as mentioned above. Developments within the district and their associated increase in wastewater flows from Water Recycling Centres should not cause a deterioration in the receiving rivers / waterbodies.

A.45 Demonstrate the need for all developers to liaise with the local sewerage undertaker regarding capacity of the existing sewerage infrastructure in the area.

A.46 The plan will need to ensure there is sufficient volumetric capacity in the existing sewerage networks in each of the areas where development is planned. If no capacity is currently available, then provisions need to be in place ahead of the occupation of dwellings.

A.47 The Local Plan needs to highlight which WRC within the district are proposed to receive additional flows from planned development. A thorough assessment of existing capacity and future flows against the current discharge permit should be made (this is usually done via the WCS). Any WRC predicted to exceed its permitted Dry Weather Flow will require a new discharge permit to accommodate the additional growth – this may contain potential tighter permit limits which could provide a constraint on development.

Response

Noted with thanks, however amending the Local Plan to include policies relating to foul water infrastructure is not within the scope of the IIA and therefore this recommendation has been forwarded to the Council for their consideration. The Water Cycle Study has identified capacity within the Borough and informed the site allocations.

Groundwater protection

A.48 The more sensitive Source Protection Zones 1 and 2 with respect to groundwater protection are not shown in Figure 5.4.

A.49 We support the use of previously developed land over greenfield land when allocating sites for new development. Appropriate clean-up of contamination should be carried out to ensure the protection of the water environment.

Response

Figure has been amended to show Source Protection Zones 1, 2 and 3.

The IIA Framework will appraise the Local Plan policies and sites against the following appraisal questions to ensure the development of previously developed land in preference to greenfield land and the remediation of contaminated land:

Ecology

A.50 Feel that ecology has been considered in a comprehensive manner within the Scoping Report.

Response

Noted with thanks.

Consultation responses received in relation to IIA Report for the Initial Proposals Consultation (2023)

A.51 Consultation on the IIA of the Initial Proposals document was undertaken with a number of consultees between December 2023 and February 2024. A summary of the comments and LUC's responses to these is provided below.

Individuals

A.52 Some residents at Horndon on the Hill are concerned about development on Green Belt land.

Response

A separate, detailed Green Belt assessment has been prepared to support the Local Plan and inform final site selection.

A.53 Some residents at Blackshots have stated that no development should be provided in this location stating that management of traffic is an existing concern.

Response

Final site selection has been informed by consultation comments, stakeholder engagement and further technical work.

Infrastructure to support new development in this location would be delivered alongside growth. An Infrastructure Delivery Plan has been prepared which will set out what infrastructure will be delivered, where, when and by whom.

Studies on public transport provision and walking and cycling have also been prepared to inform the Local Plan.

A.54 Some residents have made general points about the lack of hospitals and health care provision in the plan area as well as issues relating to traffic and congestion.

Response

The Local Plan sets out requirements for infrastructure to be provided to support the new development. An Infrastructure Delivery Plan has been prepared which sets out what infrastructure will be delivered, where, when and by whom. Infrastructure will include new services and facilities, as well as road and transport improvements.

Studies on public transport provision and walking and cycling have also been prepared to inform the Local Plan.

A.55 Objections to more homes in Stanford-le-Hope. Requests homes to be built in other locations.

Response

Noted.

The NPPF requires local authorities to identify future housing need using a standard method as set out by Government and then bring forward sufficient land to meet this need within their area. Regeneration and development within towns and built-up areas is included in the proposals, however, this will not be sufficient to meet the borough's housing needs. The Local Plan identifies the most sustainable locations for growth that contribute to meeting this need.

A.56 Concerns about the new neighbourhood at Lampitts Hill (Corringham). Flooding already a problem in the area. Impossible to build another train station. More people would worsen town centre parking. Hospital at capacity as are GPs. Loss of green space.

Response

Infrastructure to support the new development would be delivered alongside growth. An Infrastructure Delivery Plan is to be prepared which will set out what infrastructure will be delivered, where, when and by whom.

The council will implement the recommendations of the Level 1 Strategic Flood Risk Assessment and will undertake a Level 2 assessment for specific areas.

Further work on Biodiversity Net Gain and the Local Nature Recovery Strategy as evidence for the local plan will consider wildlife habitats and nature across the borough.

A.57 Document is hard to read and understand

Response

Noted.

It is intended that the next version of the IIA will be designed to be easier to navigate.

Gambardella's Kitchen Ltd

A.58 Lack of public engagement in the process.

Response

Noted.

The ongoing IIA process has been informed by insights gathered during the Issues and Options (Stage 1) Local Plan consultation. Feedback received through the subsequent Local Plan Initial Proposals consultation will also contribute to its development. Furthermore, a series of Your Place, Your Voice drop-in events were held across the borough during January and February 2024, providing opportunities for residents to discuss the Local Plan proposals with the Council. The outcomes of these engagement activities will help to inform the forthcoming Regulation 19 iteration of the Local Plan.

The consultation on the IIA was fully integrated into the wider Local Plan consultation process. During the Initial Proposals consultation, the full IIA Report, non technical summary, and supporting documents were made available online alongside the Local Plan materials, with clear signposting to the relevant sections. Hard copies of the Local Plan and IIA documents were also made available at designated deposit locations, and officers were present at drop in events to support residents in understanding the proposals and the role of the IIA.

Best Holdings

A.59 Supports the strategic option approach pursued by the Council. In terms of growth at Corringham, the IIA compares the Initial Proposal with the alternative Option. The Initial Proposal performs best. We support these findings

Response

Supported noted.

Miller Homes & Broadland Properties

A.60 Support Section 1.

Response

Supported noted.

Individual

A.61 Local infrastructure does not support additional homes. No more development should be delivered until improvements are made, including to buses and access over the railway

Response

Infrastructure to support the new development would be delivered alongside growth. An Infrastructure Delivery Plan is to be prepared which will set out what infrastructure will be delivered, where, when and by whom.

Freeths

A.62 The Local Plan should consider alternative options for development in Purfleet-on-Thames that do not include this site as part of the allocation for a new neighbourhood. Stark own circa 9 hectares of land to the south of Purfleet-on-Thames. An alternative location is identified for a new tier 1 employment site adjacent to M25 Junction 31 and the A1306. Taking into account the failure to identify our clients land as employment land, there may not be a need to allocate additional employment development if the site is identified and retained in employment use.

Response

The IIA has appraised a range of reasonable alternatives including site options, as stated in Chapter 5. [EW1.1]. Purfleet-on-Thames regeneration was appraised as a reasonable alternative site option and has been allocated as a site within the Thurrock Local Plan. The site will deliver a mix of residential and commercial development. The exact layout of the site and specific designations within the site will be decided at planning application stage.

The site at land Adjacent to A1306 and Junction 31 of M25, Purfleet-on-Thames was considered as a reasonable alternative and has been allocated as a non-strategic allocation within the Thurrock Local Plan.

Anglican Water

A.63 There is the potential for negative effects from flood risk for all spatial options. Anglican Water supports the IIA recommendation for appropriate flood risk assessments and consideration of the effects of climate change. Options 1 and 2 for Chadwell St Mary, which avoid new neighbourhoods south of Linford Road that is in proximity to Flood Zone 3, are preferable.

Response

Noted with thanks.

Stantec

A.64 The IIA identifies opportunities to mitigate adverse impacts and enhance overall sustainability of development options for rural villages.

A.65 Stantec have responded to recommendations of the IIA in their visions for the Site in aim to create a landscape led development to the western edge of Horndon Hill.

A.66 The Local Plan IDP focusses on growth in places where it can help improve connectivity and facilitate improvements that would make places more resilient and sustainable in the future, which is supported by the findings of the Integrated Impact Assessment.

A.67 It is essential that the evidence base for any new settlements is robust and properly addresses all the issues to ensure it is justified, this is particularly important in relation to transport infrastructure, viability, employment provision, delivery mechanisms and sustainability appraisal, and as part of all these, the consideration of alternatives.

Response

Noted with thanks.

Bellway Strategic

A.68 It is agreed that Option 2 is the most appropriate strategy when considered against the alternatives and is aligned with NPPF. Bellway support the allocation of land to the west of North Road, South Ockendon as a proposed New Neighbourhood and the site is considered sustainable.

Response

Support noted.

Taylor Wimpey

A.69 Taylor Wimpey's vision document is informed by the technical work undertaken and related to the spatial options set out within the IP.

Response

Noted.

A.70 The Council note that spatial option 1 scores highly within the IIA. However, it does not provide the requisite minimum number of houses required within the plan period. As such, option 1 should be discounted accordingly.

Response

Thurrock Council identified six spatial options for the Thurrock Local Plan in relation to housing delivery. These were considered by the Council to be

the reasonable alternative options for meeting the need for housing development identified over the plan period. Significant positive effects were identified for all of the options other than Spatial Option 6 in relation to IIA objective 1: Housing in recognition of the significant contribution each would make to meeting housing need, including affordable need. The IIA also recognised that Spatial Option 1 did not perform as highly as Spatial Options 2 and 3 in this regard. However Spatial Option 1 ranks higher against more of the 17 IIA objectives than the other five options and was considered by the Council to be the most sustainable option for the reasons set out at paragraph 4.91 of the IIA of the Initial Proposals (see also Tables 4.2 and 4.3 and paragraphs 4.89-4.94 of the IIA of the Initial Proposals).

A.71 Option 6 assesses no Green Belt release. The consultation document notes the severe impact on the economy and the local housing impact this would have. This option should be discounted.

Response

Spatial Option 6 proposes only to include existing commitments, redevelopment within 'Opportunity Areas' within existing urban areas and windfall sites. The impact of no additional Green belt release on the delivery of housing are noted within the IIA appraisal of Spatial Option 6 against IIA objective 1: Housing. As stated at paragraph 4.95 of the IIA of Initial Proposals, Spatial Option 1 was identified by the Council as the most sustainable option for growth and chosen as its preferred approach

A.72 The methodology for understanding where growth should be located should factor in this key relationship between new homes and the location of strategic employment growth. At present, there is no evidence to show that this is the case.

Response

The Council undertook a process to understand where growth should be located and identified six spatial options directing growth to different areas at Initial Proposals stage. A further two options were identified at Publication stage. The six initial spatial options and two additional spatial options were all appraised through the IIA.

Identifying growth and spatial options was informed by the Employment Development Needs Assessment (EDNA), which identifies the key employment growth zones in Thurrock, particularly the port, logistics and industrial clusters in the south and east of the Borough and assesses their future role in supporting economic growth.

The six spatial options identified at the Initial Proposals stage were developed to test different ways of distributing residential and employment growth across the Borough. These options were designed to reflect varying degrees of alignment between new housing and the strategic employment growth areas identified in the EDNA.

Telescope Property Group

A.73 Option 6 should not be rated positively for housing as it would fail to provide anything close to the required number of homes needed to meet housing needs and provide those within the Borough with a suitable home.

Response

Thurrock Council identified six spatial options for the Thurrock Local Plan in relation to housing delivery. These were considered by the Council to be the reasonable alternative options for meeting the need for housing development identified over the plan period. Positive effects were identified by the IIA in relation to IIA objective 1: Housing for all of the options, in recognition of the substantial amounts of new homes that would be provided. However the effects for Option 6 were identified as minor positive, compared to significant positive for the other five options, reflecting the smaller amount of housing provided. In addition, the comparative assessment of the options ranked Spatial Option 6 last amongst the six options in relation to meeting this objective. The Council decided not to take Spatial option 6 forward.

A.74 The scoring / assessment in table 4.2 pages 156-157 of the IIA, whilst providing a useful guide, should similarly be used with caution given the need to give appropriate weighting to considerations and objectives when considering these as part of the planning process.

Response

The comparative assessment in Table 4.2 is by individual IIA objective. It is for the Council to consider the relative importance of these objectives and to weigh the IIA findings alongside other factors in selecting a preferred option. A summary of the Council's reasons for selection Spatial Option 1 as the preferred approach at Initial Proposals stage was provided at paragraph 4.91 of the Initial Proposals IIA.

A.75 Table 5.3 scores positively for Corringham Initial Proposal and Corringham Reasonable Alternative. But areas of the assessment do not properly reflect the opportunity or the site as it would come forward.

A.76 The IIA should recognise that some requirements will be specific to particular areas of the site. For example, considerations with regard to proximity to the A13 will only be relevant to that part of the site. Similarly ensuring a lack of impact on sites of biodiversity importance can also be achieved within individual parcels of the development.

Response

The high level appraisal undertaken for site options (using largely a distance based approach in GIS to assess the principle of development for a particular use within a defined site boundary) is considered robust and proportionate in light of the stage of plan-making, the large number of site options to be appraised and the need to appraise them all on a consistent and transparent basis. Further detail provided by any site allocation policy at a later stage of plan-making will be taken into consideration by the IIA at that stage. Detailed information about site proposals that is not contained within local plan policies is inappropriately detailed for the IIA and unlikely to be consistently available for all sites.

A.77 The findings of Corringham option one and option two performing similarly is agreed with as the land is relatively unconstrained. The scale of growth should not be too large, that they constrain suitable sites in the short term. This would negatively effect housing supply.

Response

Support noted.

Thames Crossing Action Group

A.78 The document is inadequate as the Local Plan is not at a point where accurate assessments can be made on the impacts on residents and communities. There have not been adequate assessments of things like traffic modelling, carbon emissions, biodiversity net gain, public transport and active travel etc.

Response

The IIA is an evolving document and updated at each stage of the plan making process. It will reflect the emerging Local Plan as policies are further developed and sites are allocated. To support the Local Plan the Council has been undertaking numerous evidence base studies in parallel with the IIA, which include a Flood Risk Assessment, Infrastructure Delivery Plan, Transport Assessment and Heritage Impact Assessment. The IIA provides a strategic assessment of the likely significant effects of the Local Plan as a whole. While it draws on high level findings of other evidence studies where these are relevant and available at the time of writing, the Council considers the findings of such technical studies alongside the high level findings of the IIA.

A.79 In paragraph 1.5 it is stated that Thurrock is a key regeneration area in the East of England.....due to the availability of large areas of former industrial land for redevelopment. So why is so much development within the proposed Local Plan falling on greenbelt?

Response

The extent of Green Belt release required to meet housing and employment needs is a matter for the Council, taking into account a variety of factors, including separate Green Belt evidence, development viability, development site availability and so on.

A.80 It is not helpful that the key to symbols and colour coding in the IIA featured in Table 2.2 on page 57/235, when the actual summary of effects in Table 4.1 for example did not appear in the document until page 116/235. It is not user friendly if you are trying to review the key points of such a large document.

A.81 This document and the Appendices is huge and technical so unlikely to be helpful to most members of the public. A summary that is clear and informative would have been helpful.

Response

The IIA Report has been split into two documents due to the size of both documents. The summary text below each IIA score table helps to provide detail on the exact scoring against each objective. Therefore, the summary text can be used to help understand the scoring within the IIA tables.

The IIA report is accompanied by a Non-Technical Summary which will provide a high level summary of the full IIA Report.

A.82 From what we have been able to review it seems to us that there is still a lot of uncertainty which gives no confidence and in our opinion shows that what is being proposed is not sound.

Response

The IIA is an evolving document and will be updated at each stage of the plan making process. The IIA has been updated to take account of the Publication Local Plan and therefore the strategic policies, development management policies and any place and site allocation policies have been appraised.

A.83 Thames Crossing Action Group raise concerns regarding the consultation relating to the IIA, with regards to paper copies of the IIA, the response forms and questions relating to IIA on the consultations online.

Response

The ongoing IIA process has been informed by insights gathered during the Issues and Options (Stage 1) Local Plan consultation. Feedback received

through the subsequent Local Plan Initial Proposals consultation will also contribute to its development. Furthermore, a series of Your Place, Your Voice drop-in events were held across the borough during January and February 2024, providing opportunities for residents to discuss the proposals with the Council. The outcomes of these engagement activities have been reflected in the forthcoming Regulation 19 iteration of the Local Plan.

The consultation on the IIA was fully integrated into the wider Local Plan consultation process. During the Initial Proposals consultation, the full IIA Report, non technical summary, and supporting documents were made available online alongside the Local Plan materials, with clear signposting to the relevant sections. Hard copies of the Local Plan and IIA documents were also made available at designated deposit locations, and officers were present at drop in events to support residents in understanding the proposals and the role of the IIA.

A.84 Thames Crossing does not want to see Orsett show threatened due to Orsett Showground being part of an alternative option. The maps don't show the alternative options very clearly.

Response

The map produced are at a high level to show the different site options across Thurrock. The clarity of the maps has been reviewed.

Thames Industrial Estate

A.85 The alternative option sets out no further growth for East Tilbury. Option has the potential to be detrimental for the long term future outlook of the Thames Industrial Park and should not be carried forward.

Response

Paragraph 5.85 of the IIA of Initial Proposals document concludes that the initial proposal for East Tilbury performs better than the (lower growth) reasonable alternative in relation to housing, education and transport infrastructure.

General comments

A.86 The council pursued a different option to option 6 which is a sound spatial strategy. The findings of the IIA are supported and these have been reflected in the Local Plan. The IIA suggests various potential opportunities to mitigate and minimise any potential adverse effects of the Initial Proposal Option.

Response

Support noted.

Best Holdings

A.87 Contention on councils approach to site allocation. Land North of the A13 opportunity area is not a sustainable location. The alternative option for Corringham cannot be supported as it would be a missed opportunity to provide a significant amount of housing in a sustainable location.

Response

The appraisal of the Corringham Initial Proposal and alternative option (which proposes reduced housing growth to the northeast of Corringham) concluded:

“On balance, the location of the additional growth identified in the Initial Proposal (Option 1) is relatively unconstrained and no more environmentally sensitive than the development shared by both options. Therefore, the benefits of the additional growth planned in the Initial Proposal (Option 1) are considered to outweigh the negative effects of the growth, resulting in the Initial Proposal (Option 1) performing better than the reasonable alternative (Option 2) overall.” [paragraph 5.83 of IIA of Initial Proposals document]

Specific site options will be appraised at a later stage of plan-making.

National Highways

A.88 Whilst highway / transportation issues are not specifically mentioned in the IIA, these principles include themes of ‘reducing the need to travel’, ‘promoting

sustainable travel' and ensuring that new sustainable infrastructure, such as cycle and public transport strategies, etc, are provided to accommodate the growth predicted.

Response

Consideration of highway and transportation issues is not within the scope of the IIA. However, the Local Plan is supported by a Transport Assessment which will consider any impacts on highway networks or transportation issues.

A.89 It is also acknowledged that the DfT C1/2022 is not referenced in the Policy Context section in Appendix B of the IIA, which sets out the international, national, regional and sub-regional levels of policy considered to be relevant to the scope of the Local Plan. This should be included.

Response

Reference to DfT C1/2022 has been included within Appendix B.

A.90 Section 5 of the IIA provides the strategic priorities of the Plan, effectively setting out the Plans vision. These make little reference to transport but acknowledge that these priorities will be refined and developed into policy for the next round of consultation. Under the section of 'Health Impact Assessment', the strategic policy IIA 8: Transport, does include an aim to 'reduce road traffic and congestion, pollution and accidents and improve health through physical activity by increasing the proportion of journeys made by public transport, cycling and walking'.

Response

Reference to the recommended aim has been included under IIA 8: Transport under Health Impact Assessment.

A.91 Based on IIA scoring, the Thurrock Council focus for development is intending to be provided in accordance with Spatial Option 2. From our perspective, we would favour sustainable development or development in locations that does not require primary access to the SRN.

Response

Noted.

WSP

A.92 The SA adopts a similar approach to the Site Connectivity Assessment. Appendix D of the IIA suggests that the assessment would only take account of proximity to existing facilities. Taking account of the potential for strategic sites to deliver new facilities (as the Site Connectivity Assessment does) would more accurately reflect the future outcome and aid comparison between a range of future growth strategies.

Response

The appraisal of site options by the IIA will use largely distanced based criteria to assess the principle of development for a specified use within a defined boundary. This is considered robust and proportionate in light of the stage of plan-making, the large number of site options to be appraised and the need to appraise them all on a consistent and transparent basis. Further detail provided by any site allocation policy at a later stage of plan-making, e.g. requirements to deliver new facilities, will be taken into consideration by the IIA at that stage. Detailed information about site proposals that is not contained within local plan policies is inappropriately detailed for the IIA and unlikely to be consistently available for all sites.

A.93 Spatial Option 2 is supported as the preferred option.

Response

Support noted.

Buglife

A.94 Buglife do not agree with the options or a neighbourhood in Purfleet-on-Thames as will lead to the loss of Th72 Purfleet Thames Side LoWS. Buglife are also concerned with the alternative options for Purfleet-on-Thames which is part of the Thames Estuary IIA and supports important invertebrate habitats.

Response

The IIA of the Initial Proposal for Purfleet-on-Thames identified the potential for significant adverse effects in relation to IIA objective 15: Biodiversity and geodiversity (paragraph 5.88). It went on to identify potential options for mitigation of such negative effects of development at Purfleet-on-Thames, including:

- Masterplanning and design to protect the nearby biodiversity sites including Langdon Ridge SSSI (also designated as the Northlands Wood Country Park) and the Grove House Wood Local Nature Reserve
- Enhancements for biodiversity and contribute to the protection and enhancement of the Nature Recovery Network.
- Adequate provision of recreational space to mitigate potential recreational pressures on existing wildlife areas.

IIA of specific site options and allocations will be carried out subsequent to the Initial Proposals stage, as will the effects of any mitigation provided by relevant development management policies.

CAD Enterprises

A.95 Owns The Tilbury site highlighted as an alternative option and believes that this additional site should also be included. As an opportunity for growth in the area, with a tier 1 employment site.

Response

Noted. An appraisal of the preferred and reasonable alternative site options will be undertaken subsequent to the Initial Proposals stage to inform the site selection process. The Council will use the results of the IIA to help inform their decision making on which sites to select.

Chelmsford Diocesan Board of Finance

A.96 Supports alternative options on the basis of consideration of Chelmsford Diocesan Board of Finance's site as forming an integral part of the option. This

Alternative Option proposes a higher level of growth at South Ockendon compared to the Initial Proposals.

Response

Support for alternative option noted. An appraisal of the preferred and reasonable alternative site options will be undertaken subsequent to the Initial Proposals stage to inform the site selection process. The Council will use the results of the IIA to help inform their decision making on which sites to select.

ICENI

A.97 The approach to consultation set out in IIA is inconsistent with the timeline set out in the Initial Proposals which indicates that the next consultation will be Regulation 19. This inconsistency should be clarified.

Response

This inconsistency is accepted. During the drafting of the IIA of the Initial Proposals document, the Council took the decision to proceed directly from Regulation 18 consultation on the Initial Proposals document to Regulation 19 consultation on the Publication Draft Local Plan. The Regulation 19 plan will be accompanied by a further iteration of the IIA.

A.98 It is not clear from the evidence base or the IIA how the Council has arrived at the growth options identified, and what has informed this strategy. In this respect the Plan remains in its infancy.

Response

Chapter 2 of the IIA report for the Initial Proposals described the spatial option identification process. An outline of the Council's reasons for choosing Spatial Option 1 as the preferred option at that stage were provided at paragraph 4.91 of the IIA of Initial Proposals.

Subsequent to the Initial Proposals consultation, the Council considered additional spatial options, including a hybrid combining elements of Spatial Options 1, 2 and 4. Taking into account the strong performance of Spatial

Options 1 and 2 in the Initial Proposals IIA Report, the Council decided that a hybrid approach of these options should form the basis of the preferred spatial strategy for inclusion in the Local Plan. The Council refined spatial options using evidence, including EDNA, and selected the hybrid as the most sustainable alternative

A.99 We note the IIA correctly identifies the flood risk constraints across the site, and notes that West Horndon does not benefit from flood defences. However, the PPG makes clear that in the application of the sequential test, flood defences should not be a determining factor (para. 023).

Response

The appraisal of the initial proposals and reasonable alternatives for 'West Horndon – New Place' are summarised in chapter 5 of the IIA of the Initial Proposals document. A significant negative effect was identified for both in relation to IIA objective 14: Flood risk. As detailed at paragraph G.344 of the IIA of Initial Proposals, these effects are due to the presence of areas of flood zones 2 and 3 to the south-west of West Horndon and land adjacent to small watercourses that has a high probability of surface water flooding. The Council will use the findings from the IIA along with other evidence to select sites for allocation in line with the sequential test set out in national policy.

ESAL

A.100 EASL concurs with Thurrock Council's findings contained in the IIA that South Ockendon is a prime service hub within the Borough – that is well catered for in terms of services and facilities. Its strategic location offers unmatched access to new employment opportunities and established transport link.

Response

Support noted.

East London Waste Authority

A.101 ELWA disagrees with the IIA.

A.102 The IIA goes to state that as part of its approach to addressing disparity in the Borough, the new Local Plan should seek to promote and access and opportunity to employment for all. This can be especially said for those in employment deprivation in the south and west of the borough. This understanding of need appears at odds with the proposed options considered by Thurrock to take forward, with development especially employment floorspace targeted away from the west with focus on the east near Tilbury and London Gateway. For Aveley, the proposed options for the Local Plan are limited with no employment allocations near Aveley.

Response

The strategy focuses employment development in the most connected and economically functional areas of Thurrock, particularly the south, where port related, logistics and manufacturing activity is already concentrated. This area is expected to deliver substantial employment growth with wider benefits for the whole borough, including the west.

Although no new employment land is allocated directly in the west, this approach is justified. The greatest concentration of employment floorspace and market demand is in the south, where infrastructure and operational requirements are best met. Focusing growth here supports sustainable development and strengthens Thurrock's role in the Thames Gateway.

The Plan is supported by skills, training and employability programmes to ensure residents in the west can access new jobs, alongside strong transport connections to key employment areas. Retaining and intensifying existing employment locations, rather than relocating them, ensures growth is viable and deliverable while still providing clear pathways for residents experiencing employment deprivation.

The concentration of employment land in the south of the Borough reflects the existing and future economic geography of Thurrock. The area around the port and associated logistics, manufacturing and distribution operations represents the largest and most dynamic part of the local economy, with significant projected employment growth and wider spill-over benefits for the Borough as a whole. Retaining and intensifying employment activity in this location supports sustainable economic development by building on established clusters, existing infrastructure and strong market demand.

While these employment areas are not immediately adjacent to communities experiencing higher levels of employment deprivation, the

Local Plan is supported by a package of interventions designed to ensure that local residents can access the opportunities created. This includes targeted skills training, upskilling programmes and employability support, alongside improved transport connectivity to key employment hubs. These measures are intended to ensure that residents in the south and west of the Borough can benefit directly from the growth generated in the port-related economy.

On this basis, the decision to retain and strengthen existing employment locations, rather than relocating employment allocations into areas of deprivation, is consistent with creating long-term, resilient and sustainable employment. It ensures that investment is focused where the necessary infrastructure, market strength and operational requirements already exist, while enabling residents experiencing employment-related deprivation to access high-quality job opportunities through enhanced employment pathways, training and transport connectivity. Importantly, the Plan also includes employment allocations between Aveley and West Thurrock, providing accessible opportunities for communities in the west and strengthening the overall spatial balance of employment provision.

A.103 ELWA supports the statement that access to the Purfleet Industrial Park for the residents of Aveley is good, this is similarly the case for the Site put forward within this representation.

Response

Support noted.

A.104 Whilst ELAW note that the Purfleet Industrial Park is in proximity, a higher positive impact for Objective 7 could be achieved through delivering of additional employment opportunities closer to Aveley, to the north of the established Tier 1 employment uses and through the allocation of the Site.

Response

Noted.

A.105 Option 6 provides opportunities for high-quality education and skills in deprived areas. Aveley is deprived, the current Local plan draft does not provide enough opportunities.

Response

Spatial option 7 which combines elements of Spatial options 1, 2 and 4 was found to be the most sustainable option. This option still directs growth towards towns without a train station which includes Aveley.

A.106 ELWA supports the greater growth option as they would be the most beneficial to uplifting skills and education in the most deprived areas.

Response

Support noted.

A.107 Ground condition Phase 1 assessments indicate Aveley site is not suitable for development is withdrawn from consultation. Although ground condition assessment has indicated that the Site is considered to have development potential within the Local Plan period.

Response

The high level appraisal undertaken for site options (using largely a distance based approach in GIS to assess the principle of development for a particular use within a defined site boundary) is considered robust and proportionate in light of the stage of plan-making, the large number of site options to be appraised and the need to appraise them all on a consistent and transparent basis. Further detail provided by any site allocation policy at a later stage of plan-making will be taken into consideration by the IIA at that stage. Detailed information about site proposals that is not contained within local plan policies (e.g. ground condition assessments) is inappropriately detailed for the IIA and unlikely to be consistently available for all sites. The Council will use the findings from the IIA along with other relevant evidence to inform selection of sites for allocation.

A.108 The summary of options assessed within the IIA recognise the need to release sites from Green Belt to achieve required growth. It is therefore considered that extension of the Purfleet Industrial Park to the north should be considered with further Green Belt review in line with the Site's important contribution to objectives 6 and 7 of the IIA in providing employment and skills opportunities.

Response

The IIA has appraised all the site options that could be potential allocations within the Local Plan. The findings of the IIA will inform the Councils site selecting process.

A.109 The IIA should be updated at the later stages of the Local Plan process with the latest available data to ensure accurate assessment of biodiversity and retail occupancy and vacancies to respond to the limitations stated.

Response

The IIA will continue to be updated to reflect the emerging Local Plan at each stage of the Local Plan process.

Essex City Council

A.110 The guiding principles outlined in the IIA are commendable, particularly the explicit support for wider determinants of health. Additionally, the inclusion of HIA in the IIA process is comprehensive and noteworthy.

Response

Support noted.

A.111 IIA13 could include a question such as the following: Does the Local Plan promote the use of multifunctional GI in the design by incorporating mitigation and adaptations that respond to the impacts of climate change?

A.112 With regard to the second bullet under IIA6 in Chapter 3, this should include consideration of school playing fields being designed to ensure multi-purpose and functional use to contribute to the wider curriculum (PE, science, English, maths, outdoor learning and forest schools). Such measures can improve staff and pupil health, wellbeing, learning and chances in life.

A.113 It is recommended that Nature Based solutions are considered under IIA9: Air Quality and IIA12: Water Resources and quality, as these provide opportunities for the environment (air quality, flood, water management and water quality).

Response

The proposed additional appraisal question has been included under IIA objective 13.

Reference to school playing fields has been included under IIA objective 6.

Reference to nature based solutions has been included as an appraisal question under IIA objective 12.

A.114 Green and Blue infrastructure should be referenced in 2nd bullet under IIA15, such as: 'Does the Local Plan maintain and enhance the Nature Recovery Network of ecological assets and green/blue Infrastructure spaces, taking into account the impacts of climate change and deliver wider environmental net gains?'

A.115 The 3rd bullet under IIA15 refers to 10% BNG but IP refers to 20% BNG. Inconsistencies have been found and clarity is required.

Response

Reference to the 10% has been removed from IIA objective 15 within the IIA Framework. The 2nd appraisal question under IIA objective 15 has been updated to refer to green/blue infrastructure spaces.

Essex Field Club

A.116 Alternative option 2 is the favoured option as it would provide the most new housing and avoids the Local Wildlife Sites and nationally important nature conservation landscape, and the Preferred New Route south of Linford Road.

Response

Noted.

Eurovia

A.117 The IIA states at paragraph 4.92 that Spatial Option 2 performs slightly better than Spatial Option 1 as it will deliver a higher level of growth. Both options are considered to ensure good access to existing employment sites and will support the economic viability and vitality of existing urban centres within Thurrock. Given the focus is to be on existing commitments and brownfield sites it is contrary to this aspiration to seek to alter the designation of the Site in the Proposals Map. And, while the IIA recognises on page 166 the potential importance of brownfield sites to invertebrate assemblages the Owner, through the sequence of planning application approvals, has demonstrated how its development aspirations can be compatible with this aspiration. Therefore, there is no need to alter the current designation and much evidence to retain it.

Response

The Council considered a number of different spatial strategy options at Initial Proposals stage. These options were appraised through the IIA, highlighting the positive and negative effects of each spatial strategy option. Following this the Council considered a further two spatial strategy options. One of these options, Spatial option 7: Hybrid option, is a combination of Spatial options 1,2 and 4. In order to meet the housing needs across Thurrock some level of greenfield land will be required to support growth across Thurrock.

The site in question, land to the east of their existing oil terminal off Burnley Road, West Thurrock, has been allocated as a non-strategic site allocation within the Thurrock Local Plan.

A.118 At paragraph 5.34 of the IIA the economy, employment and development sites strategic priorities directly support the strategic objectives and therefore are expected to have significant positive effects. Again, the Proposals Map is contrary to this and, in reviewing the whole of the IIA it does not make any reference to altering the policy designation for the Site.

Response

Paragraph 5.34 of the IIA Report details the findings of the appraisal of the site options against IIA objective 17: Landscape, townscape and visual impacts. It is understood that if the site is allocated then the policy designation of the area of land will be altered. However, the appraisal of

site options is a high level appraisal considering the potential social and environmental effects if a site is allocated using a largely distance based approach of evidence paper findings. In particular, the site options were considered in accordance with the Thurrock Landscape Study, as detailed within paragraph 5.33 and 5.34.

Appendix B

Policy context

International

B.1 Declaration on Climate, Relief, Recovery and Peace (COP28 Declaration) (2023) [\[See reference 1\]](#) – international commitment to address the complex challenges posed by climate change, particularly in the most vulnerable regions. Although non-binding and outside the formal UNFCCC negotiations, this declaration unites the concerns and proposed solutions of countries and institutions across humanitarian, development, climate, and peace sectors. It aims to urgently enhance climate resilience in vulnerable communities that are most affected by climate-related conflicts and crises.

B.2 Convention on Biological Diversity (2022) [\[See reference 2\]](#) – COP15 Kunming-Montreal adopted the “Kunming-Montreal Global Biodiversity Framework” (GBF), including four goals and 23 targets for achievement by 2030.

B.3 The Glasgow Pact (UN Framework Convention on Climate Change, (2021) – nations adopted the Glasgow Climate Pact [\[See reference 3\]](#). The package of decisions consists of a range of agreed items, including strengthened efforts to build resilience to climate change, to curb greenhouse gas emissions and to provide the necessary finance for both. Nations reaffirmed their duty to fulfil the pledge of providing \$100 billion annually from developed to developing countries. And they collectively agreed to work to reduce the gap between existing emission reduction plans and what is required to reduce emissions. They also agreed to phase down unabated coal power and inefficient subsidies for fossil fuels.

B.4 The 2030 Agenda for Sustainable Development (2015) [\[See reference 4\]](#): This initiative, adopted by all United Nations Member States, provides a shared blueprint for peace and prosperity for people and the planet and includes 17 Sustainable Development Goals (SDGs), designed to achieve a better and more sustainable future for all.

B.5 United Nations Declaration on Sustainable Development (the ‘Johannesburg Declaration’) (2002) [\[See reference 5\]](#): Sets broad framework for international sustainable development, including building a humane, equitable and caring global society aware of the need for human dignity for all,

renewable energy and energy efficiency, sustainable consumption and production and resource efficiency.

B.6 United Nations Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters (the ‘Aarhus Convention’) (1998) [\[See reference 6\]](#): Establishes a number of rights of the public (individuals and their associations) with regard to the environment. The Parties to the Convention are required to make the necessary provisions so that public authorities (at national, regional, or local level) will contribute to these rights to become effective.

B.7 There are no specific international economic policy agreements relevant to the preparation of the SEF and the SA, although there are a large number of trading agreements, regulations and standards that set down the basis of trade with the European Union and other nations.

B.8 United Nations Paris Climate Change Agreement (2015) [\[See reference 7\]](#): International agreement to keep global temperature rise this century well below 2 degrees Celsius above pre-industrial levels.

B.9 United Nations Declaration on Forests and Land Use (COP26 Declaration) (2021) [\[See reference 8\]](#): international commitment to halt and reverse forest loss and land degradation by 2030 while delivering sustainable development and promoting an inclusive rural transformation.

B.10 International Convention on Biological Diversity (1992) [\[See reference 9\]](#): International commitment to biodiversity conservation through national strategies and action plans.

B.11 European Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) (1979) [\[See reference 10\]](#): Aims to ensure conservation and protection of wild plant and animal species and their natural habitats, to increase cooperation between contracting parties, and to regulate the exploitation of those species (including migratory species).

B.12 International Convention on Wetlands (Ramsar Convention) (1976) [\[See reference 11\]](#): International agreement with the aim of conserving and managing the use of wetlands and their resources.

B.13 The European Habitats Directive (1992) [\[See reference 12\]](#) – together with the Birds Directive, sets the standard for nature conservation across the EU and enables all 27 Member States to work together within the same strong legislative framework in order to protect the most vulnerable species and habitat

types across their entire natural range within the EU. It also established the Natura 2000 network.

B.14 The United Nations Declaration on Forests (New York Declaration) (2014) [\[See reference 13\]](#) – sets out international commitment to cut natural forest loss by 2020 and end loss by 2030.

B.15 Valletta Treaty (1992) formerly the European Convention on the Protection of the Archaeological Heritage (Revisited) [\[See reference 14\]](#): Aims to protect the European archaeological heritage “as a source of European collective memory and as an instrument for historical and scientific study”.

B.16 European Convention for the Protection of the Architectural Heritage of Europe (1985) [\[See reference 15\]](#): Defines ‘architectural heritage’ and requires that the signatories maintain an inventory of it and take statutory measures to ensure its protection. Conservation policies are also required to be integrated into planning systems and other spheres of Government influence as per the text of the convention.

B.17 UNESCO World Heritage Convention (1972) [\[See reference 16\]](#): Requires signatories to identify and conserve World Heritage sites situated on its territory and protect its national heritage. The States Parties are encouraged to integrate the protection of the cultural and natural heritage into regional planning programmes, set up staff and services at their sites, and undertake scientific and technical conservation research.

B.18 The European Landscape Convention (2000) [\[See reference 17\]](#): Promotes landscape protection, management and planning. The Convention is aimed at the protection, management and planning of all landscapes and raising awareness of the value of a living landscape.

National

Population, health and wellbeing

B.19 The Department for Levelling Up, Housing and Communities, Levelling Up and Regeneration Act (2023) [\[See reference 18\]](#) sets out the direction for planning and makes provisions to support the levelling-up agenda. It seeks to streamline the planning process whilst attaching greater weight to development plans. It also aims to improve infrastructure delivery with a new levy system, improve alignment between plans to address cross-boundary

issues, and will introduce added protection for heritage assets. The Act also states that existing EU-generated systems of SEA, HRA and EIA will eventually be replaced by a simpler process known as 'Environmental Outcomes Reports'.

B.20 Natural England, The Green Infrastructure Framework (2023) [See reference 19] – the framework will help increase the amount of green cover to 40% in urban residential areas. The Green Infrastructure Framework provides a structure to analyse where greenspace in urban environments is needed most. It aims to support equitable access to greenspace across the country, with an overarching target for everyone being able to reach good quality greenspace in their local area. From parks to green roofs, and increased tree cover, the Green Infrastructure Framework will make a significant contribution to nature recovery by embedding nature into new developments. Increasing the extent and connectivity of nature-rich habitats will also help increase wildlife populations, build resilience to the impacts of climate change, and ensure our cities are habitable for the future

B.21 Department for Levelling Up, Housing and Communities and Homes Office Anti-Social Behaviour Action Plan (2023) [See reference 20] sets out a comprehensive strategy to combat anti-social behaviour (ASB) and restore public confidence in community safety. The plan emphasises a zero-tolerance approach and introduces several key measures, including increasing the use of hotspot policing and enforcement, and changing laws and systems to take a zero-tolerance approach to anti-social behaviour.

B.22 Environmental Improvement Plan 2023 [See reference 21] is the first revision of the 25 Year Environment Plan. It details ten-goals identifying how the Government will work with communities and businesses to leave the environment in a better state than it is presently. Those of relevance to the topics of population growth, health and wellbeing are goals 2 and 10. Actions that will be taken as part of these two goals are as follows:

- Goal 2 – Clean air:
 - Cut overall air pollution by tackling the key sources of emissions, including reducing the maximum limits for domestic burning appliances in Smoke Control Areas.
- Goal 7 – Mitigating and adapting to climate change:
 - Deliver our investment plan to improve coastal and flood defences, including £100 million on the most frequently flooded areas.
- Goal 10 – Enhance beauty, heritage and engagement with the natural environment:

- Work across government to fulfil a new and ambitious commitment that everyone should live within 15 minutes walk of a green or blue space.
- Invest in active travel, with a vision for half of all journeys in towns and cities to be cycled or walked by 2030.

B.23 National Design Guide (2021) [\[See reference 22\]](#): sets out the Government's priorities for well-designed places in the form of ten characteristics: context, identity, built form, movement, nature, public spaces, uses, homes and buildings, resources and lifespan.

B.24 Build Back Better: Our Plan for Health and Social Care (2021) [\[See reference 23\]](#) sets out the government's new plan for health and social care. It provides an overview of how this plan will tackle the elective backlog in the NHS and put the NHS on a sustainable footing. It sets out details of the plan for adult social care in England, including a cap on social care costs and how financial assistance will work for those without substantial assets. It covers wider support that the government will provide for the social care system, and how the government will improve the integration of health and social care. It explains the government's plan to introduce a new Health and Social Care Levy.

B.25 Department for Communities and Local Government, The Technical Housing Standards – Nationally Described Space Standard (2015) [\[See reference 24\]](#) sets out the Government's new nationally described space standard. The standard deals with internal space within new dwellings and sets out requirements for the Gross Internal (floor) Area of new dwellings at a defined level of occupancy, as well as floor areas and dimensions for key parts of the home.

B.26 Using the planning system to promote healthy weight environments (2020) [\[See reference 25\]](#), **Addendum (2021)** [\[See reference 26\]](#) provides a framework and starting point for local authorities to clearly set out in local planning guidance how best to achieve healthy weight environments based on local evidence and needs, by focusing on environments that enable healthier eating and help promote more physical activity as the default. The Addendum provides updates on the implications for planning for a healthier food environment, specifically on the hot food takeaways retail uses, and sets out recommended actions in light of changes to the Use Class Order (UCO) in England from 1 September 2020.

B.27 The Environmental Noise Regulations (2018) [\[See reference 27\]](#) apply to environmental noise, mainly from transport. The regulations require regular

noise mapping and action planning for road, rail and aviation noise and noise in large urban areas. They also require Noise Action Plans based on the maps for road and rail noise and noise in large urban areas. The Action Plans identify Important Areas (areas exposed to the highest levels of noise) and suggest ways the relevant authorities can reduce these. Major airports and those which affect large urban areas are also required to produce and publish their own Noise Action Plans separately. The Regulations do not apply to noise from domestic activities such as noise created by neighbours; at workplaces; inside means of transport; or military activities in military areas.

B.28 Planning Policy for Traveller Sites (2015) [\[See reference 28\]](#) sets out the Government's planning policy for traveller sites, replacing the older version published in March 2012. The Government's overarching aim is to ensure fair and equal treatment for travellers, in a way that facilitates the traditional and nomadic way of life of travellers while respecting the interests of the settled community.

B.29 Fair Society, Healthy Lives (2011) [\[See reference 29\]](#): investigated health inequalities in England and the actions needed in order to tackle them. Subsequently, a supplementary report was prepared providing additional evidence relating to spatial planning and health on the basis that there is "overwhelming evidence that health and environmental inequalities are inexorably linked and that poor environments contribute significantly to poor health and health inequalities". **Marmot Review 10 Years On** (2020) [\[See reference 30\]](#) revisits Fair Society, Healthy Lives. It found that, since 2010, life expectancy in England has stalled, which suggests society has stopped improving. In addition, there are marked regional differences in life expectancy – the more deprived the area, the shorter the life expectancy. Mortality rates are increasing in those aged 45-49, child poverty has increased and there is a housing crisis and rise in homelessness.

B.30 The Equality Act 2010 [\[See reference 31\]](#) requires public authorities to work to eliminate discrimination and promote equality in all their activities. Under Section 149 of the Equality Act a public authority has a duty to ensure that all decisions are made in such a way as to minimise unfairness, and do not have disproportionately negative impacts on people because of their protected characteristics or background. It protects everyone against unfair treatment, on the basis of protected characteristics: age, disability, gender reassignment, marriage and civil partnership, pregnancy and maternity, race, religion or belief, sex, and sexual orientation.

Economy

B.31 The UK's Modern Industrial Strategy (2025) [See reference 32]: The strategy is a 10 year plan to boost business investment and elevate the UK's performance in eight designated growth driving sectors: advanced manufacturing; clean energy industries; creative industries; defence; digital and technologies; financial services; life sciences; and professional & business services. The strategy aims to provide long term stability and certainty to encourage both domestic and international investment.

B.32 Infrastructure: A 10 Year Strategy (2025) [See reference 33]: An integrated plan to transform economic, housing and social infrastructure over the next decade. It commits to at least £725 billion in public investment, supplemented by private financing via carefully targeted public-private partnership models and a new National Wealth Fund. It aims to boost growth, align infrastructure with government missions, including housing, clean energy, public services and net zero, reduce planning delays, build institutional capacity, support supply chains and skills development, and provide stability and clarity to investors.

B.33 Agriculture Act 2020 [See reference 34] sets out how farmers and land managers in England will be rewarded in the future with public money for “public goods” – such as better air and water quality, thriving wildlife, soil health, or measures to reduce flooding and tackle the effects of climate change, under the Environmental Land Management Scheme. These incentives will provide a vehicle for achieving the goals of the government's 25 Year Environment Plan and commitment to reach zero emissions by 2050. The Act will help farmers to stay competitive, increase productivity, invest in new technology and seek a fairer return from the marketplace.

Transport

B.34 The Second Cycling and Walking Investment Strategy (2022) [See reference 35] sets out the objectives and financial resources for cycling and walking infrastructure. It states the Government's long-term ambition is to make walking and cycling the natural choices for shorter journeys. It aims to double cycling by 2025, increase walking activity, increase the percentage of children that usually walk to school and reduce the number of cyclists killed or seriously injured on England's roads.

B.35 Department for Transport (DfT) Circular 01/2022 [See reference 36] "Strategic road network and the delivery of sustainable development," is the

core policy document dictating how National Highways engages with the planning system.

B.36 The Department for Transport, Future of Transport: supporting rural transport innovation (2023) [\[See reference 37\]](#) shows how innovative and emerging transport technologies could address some of the major challenges in rural communities. It highlights the importance of transport to everyday life rural life and provides guiding principles for the introduction of new technologies and services.

B.37 Department for Transport, Future of freight plan (2022) [\[See reference 38\]](#) – the vision is to create a freight and logistics sector that is cost-efficient, reliable resilient, environmentally sustainable and valued by society. It identifies the main challenges, objectives and actions that need to be taken in the following 5 priority areas:

- National Freight Network (NFN)
- Enabling the transition to net zero
- Planning
- People and skills
- Data and technology

B.38 The Environment Act 2021 [\[See reference 39\]](#) sets statutory targets for the recovery of the natural world in four priority areas: air quality, biodiversity, water, and resource efficiency and waste reduction. It also establishes the Office for Environmental Protection which will act as an impartial and objective body for the protection and improvement of the environment. The Act sets out legislation which covers local air quality management frameworks and the recall of motor vehicles.

B.39 Decarbonising Transport: A Better, Greener Britain (2021) [\[See reference 40\]](#) sets out the Government's commitments and the actions needed to decarbonise the entire transport system in the UK. It follows on from the Decarbonising Transport: Setting the Challenge report published in 2020. The DTP commits the UK to phasing out the sale of new diesel and petrol heavy goods vehicles by 2040, subject to consultation, in addition to phasing out the sale of polluting cars and vans by 2035. The DPT also sets out how the government will improve public transport and increase support for active travel, as well as creating a net zero rail network by 2050, ensuring net zero domestic aviation emissions by 2040, and a transition to green shipping.

B.40 Decarbonising Transport: Setting the Challenge (2020) [See reference 41] sets out the strategic priorities for the new Transport Decarbonisation Plan (TDP), published in July 2021. It sets out in detail what government, business and society will need to do to deliver the significant emissions reduction needed across all modes of transport, putting us on a pathway to achieving carbon budgets and net zero emissions across every single mode of transport by 2050. This document acknowledges that while there have been recently published strategies to reduce greenhouse gas emissions in individual transport modes, transport as a whole sector needs to go further and more quickly, therefore the TDP takes a coordinated, cross-modal approach to deliver the transport sector's contribution to both carbon budgets and net zero.

B.41 The strategy also includes details on how the Government is using behavioural change methods to reduce or remove barriers to the use of sustainable transport and working closely with stakeholders to deliver a better-connected transport system.

Water, land and air

B.42 Natural England's Strategy: Recovering Nature for Growth, Health and Security (2025) [See reference 42] sets out the actions needed for nature to adapt and be more resilient to pressures such as climate change. It focuses on nature recovery contributing to housing delivery, public health, and national security, recognising nature as essential to sustaining growth and a healthy society. The Strategy is framed around four strategic outcomes for nature:

- Recovering Nature – Increased scale and quality of places where nature thrives.
- Building Better Places – Greener homes and infrastructure create healthier, more investible places, recognising we live better where nature thrives around us.
- Improving Health and Wellbeing – Build nature into everyday life so people can support, access and benefit from nature, wherever they live.
- Delivering Security through Nature – Nature helps us adapt to the threats of a changing climate and improves our national security, supporting more resilient food production, healthy soils, clean and plentiful water and clean air.

B.43 The National Framework for Water Resources 2025: Water for Growth, Nature and a Resilient Future (2025) [See reference 43]: Strategic blueprint for

managing England's long-term water needs. It emphasises the twin imperatives of securing resilient water supplies to support housing, energy, food production, economic growth, and a thriving natural environment, while safeguarding ecosystems through sustainable abstraction and nature-based solutions. It calls for integrated, multi-sector planning across national, regional, and local levels, combining demand management (such as leakage reduction and efficiency improvements) with development of new infrastructure and environmental enhancements.

B.44 Environmental Improvement Plan 2025 [See reference 44] is a long-term delivery plan setting out 10 goals, commitments and actions in relation to the natural environment. The plan sets out how the government will work with landowners, communities and businesses to deliver each goal for improving the environment, matched with interim targets to measure progress. Taking these actions will help to restore nature, reduce environmental pollution, and increase the prosperity of the country. The overarching goal of the plan is achieving "restored nature", including progress towards the commitment to protect 30% of UK land and sea for nature by 2030, alongside improving the condition and resilience of nature assets.

B.45 The Environment Act 2021 [See reference 45] sets statutory targets for the recovery of the natural world in four priority areas: air quality, biodiversity, water, and resource efficiency and waste reduction. It also establishes the Office for Environmental Protection which will act as an impartial and objective body for the protection and improvement of the environment. The Act sets out legislation which covers:

- Resource efficiency, producer responsibility, and the management, enforcement and regulation of waste;
- Local air quality management frameworks and the recall of motor vehicles etc; and
- Plans and proposals for water resources, drainage and sewerage management, storm overflows, water quality and land drainage.

B.46 HM Government, Environmental Damage (Prevention and Remediation) Regulations 2015 [See reference 46] – wide-ranging government regulations that can potentially apply to many businesses. The regulations oblige those who create environmental damage, whether by water pollution, adversely affecting protected species or sites of special scientific interest (SSSIs), or by land pollution that causes risks to human health, to not only cease the damage, but also to implement a wide variety of remedial measures to restore affected areas.

B.47 The Waste (Circular Economy) (Amendment) Regulations (2020) [See reference 47] seek to prevent waste generation and to monitor and assess the implementation of measures included in waste prevention programmes. They set out requirements to justify not separating waste streams close to source for re-use, recycling or other recovery operations, prohibit incineration and landfilling of waste unless such treatment process represent the best environmental outcome in accordance with the waste hierarchy. The Regulations set out when waste management plans and in waste prevention programmes are required. The Regulations focus on the circular economy as a means for businesses to maximise the value of waste and waste treatment.

B.48 Defra, The waste prevention programme for England: Maximising Resources, Minimising Waste (2023) [See reference 48] sets out government's priorities for managing resources and waste, in line with the resources and waste strategy for England.

B.49 Defra, 25 Year Environment Plan: progress reports (2023) [See reference 49] sets out the progress made in improving the environment through the 25 Year Plan and the indicator framework, which contains 66 indicators arranged into 10 broad themes.

B.50 Environment Agency, Working with nature (2022) [See reference 50] – discusses the importance of nature in providing ecosystem services and presents recent and historical trends in biodiversity. It outlines some of the main pressures affecting England's habitats, wildlife and ecosystems: land use; climate change; pollution; invasive non-native species; and hydrological change.

B.51 Defra, Establishing the Best Available Techniques for the UK (UK BAT) (2022) [See reference 51] sets out a new framework that aims to improve industrial emissions and protect the environment through the introduction of a UK BAT regime. It aims to set up a new structure of governance with a new independent body in the form of Standards Council and the Regulators Group, consisting of government officials and expert regulators from all UK nations. It aims to also establish a new UK Air Quality Governance Group to oversee the work of the Standards Council and the delivery of the requirements under this new framework. It is anticipated that the BATC for the first four industry sectors will be published in the second half of 2023.

B.52 Defra, Plan for Water: Our Integrated Plan for Delivering Clean and Plentiful Water (2023) [See reference 52] sets out actions to transform the management of the water system, deliver cleaner water for nature and people, and secure a plentiful water supply. The Plan also sets out measures to

address sources of pollution, and boost water supplies through more investment, tighter regulation, and more effective enforcement.

B.53 CIEEM, National Chalk Streams Strategy (2021) [\[See reference 53\]](#) – built around the “trinity of ecological health”: water quantity, water quality and habitat quality and included 30+ recommendations to Defra, the Environment Agency, Natural England, the water companies, NGOs and stakeholders.

B.54 Clean Air Strategy 2019 [\[See reference 54\]](#): The strategy sets out the comprehensive action that is required from across all parts of Government and society to meet these goals. This will be underpinned by new England-wide powers to control major sources of air pollution, in line with the risk they pose to public health and the environment, plus new local powers to take action in areas with an air pollution problem. These will support the creation of Clean Air Zones to lower emissions from all sources of air pollution, backed up with clear enforcement mechanisms. The UK has set stringent targets to cut emissions by 2020 and 2030.

B.55 The Environmental Noise Regulations (2018) [\[See reference 55\]](#) apply to environmental noise, mainly from transport. The regulations require regular noise mapping and action planning for road, rail and aviation noise and noise in large urban areas. They also require Noise Action Plans based on the maps for road and rail noise and noise in large urban areas. The Action Plans identify Important Areas (areas exposed to the highest levels of noise) and suggest ways the relevant authorities can reduce these. Major airports and those which affect large urban areas are also required to produce and publish their own Noise Action Plans separately. The Regulations do not apply to noise from domestic activities such as noise created by neighbours; at workplaces; inside means of transport; or military activities in military areas.

B.56 The waste prevention programme for England: Maximising Resources, Minimising Waste (2023) [\[See reference 56\]](#) sets out government’s priorities for managing resources and waste, in line with the resources and waste strategy for England.

B.57 The Water Environment Regulations (2017) [\[See reference 57\]](#) protect inland surface waters, transitional waters, coastal waters and groundwater, and outlines the associated river basin management process. These Regulations establish the need to prevent deterioration of waterbodies and to protect, enhance and restore waterbodies with the aim of achieving good ecological and chemical status.

B.58 Environment Agency, The Environment Agency's Approach for Groundwater Protection (2018) [\[See reference 58\]](#) contains position statements which provide information about the Environment Agency's approach to managing and protecting groundwater. They detail how the Environment Agency delivers government policy for groundwater and adopts a risk-based approach where legislation allows. Many of the approaches set out in the position statements are not statutory but may be included in, or referenced by, statutory guidance and legislation.

B.59 The UK Plan for Tackling Roadside Nitrogen Dioxide Concentrations (2017) [\[See reference 59\]](#) Sets out the Government's ambition and actions for delivering a better environment and cleaner air, including £1 billion investment in ultra-low emission vehicles, a £290 million National Productivity Investment Fund, a £11 million Air Quality Grant Fund and £255 million Implementation Fund to help Local Authorities to prepare Air Quality Action Plans and improve air quality, an £89 million Green Bus Fund, £1.2 billion Cycling and Walking Investment Strategy and £100 million to help improve air quality on the National road network.

B.60 The Nitrate Pollution Prevention Regulations (2016) [\[See reference 60\]](#) provides for the designation of land as nitrate vulnerable zones and imposes annual limits on the amount of nitrogen from organic manure that may be applied or spread in a holding in a nitrate vulnerable zone. The Regulations also specify the amount of nitrogen to be spread on a crop and how, where and when to spread nitrogen fertiliser, and how it should be stored. It also establishes closed periods during which the spreading of nitrogen fertiliser is prohibited.

B.61 The Water Supply (Water Quality) Regulations (2018) [\[See reference 61\]](#) focus on the quality of water for drinking, washing, cooking and food preparation, and for food production. Their purpose is to protect human health from the adverse effects of any contamination of water intended for human consumption by ensuring it is wholesome and clean.

B.62 The Environmental Permitting Regulations (2018) [\[See reference 62\]](#) streamline the legislative system for industrial and waste installations into a single permitting structure for those activities which have the potential to cause harm to human health or the environment. They set out how to prevent or, where that is not practicable, to reduce emissions into air, water and land and to prevent the generation of waste, in order to achieve a high level of protection of the environment and human health.

B.63 The Air Quality Standards Regulations (2016) [\[See reference 63\]](#) set out limits on concentrations of outdoor air pollutants that impact public health, most notably particulate matter (PM₁₀ and PM_{2.5}) and nitrogen dioxide (NO₂). It also sets out the procedure and requirements for the designation of Air Quality Management Areas (AQMAs).

B.64 National Planning Policy for Waste (NPPW) (2014) [\[See reference 64\]](#): Key planning objectives are identified within the NPPW, requiring planning Authorities to:

- Help deliver sustainable development through driving waste management up the waste hierarchy;
- Ensure waste management is considered alongside other spatial planning concerns;
- Provide a framework in which communities take more responsibility for their own waste;
- Help secure the recovery or disposal of waste without endangering human health and without harming the environment; and
- Ensure the design and layout of new development supports sustainable waste management.

B.65 National Policy Statement for Waste Water (2012) [\[See reference 65\]](#): sets out Government policy for the provision of major waste water infrastructure. The policy set out in this NPS is, for the most part, intended to make existing policy and practice in consenting nationally significant waste water infrastructure clearer and more transparent.

B.66 Building Regulations (2010) [\[See reference 66\]](#): requires that reasonable precautions are taken to avoid risks to health and safety caused by contaminants in ground to be covered by building and associated ground.

B.67 Safeguarding our Soils – A Strategy for England (2009) [\[See reference 67\]](#) sets out how England's soils will be managed sustainably. It highlights those areas which Defra will prioritise and focus attention on tackling degradation threats, including better protection for agricultural soils; protecting and enhancing stores of soil carbon; building the resilience of soils to a changing climate; preventing soil pollution; effective soil protection during construction and dealing with contaminated land.

B.68 Environmental Protection Act 1990 [\[See reference 68\]](#): makes provision for the improved control of pollution to the air, water and land by

regulating the management of waste and the control of emissions. Seeks to ensure that decisions pertaining to the environment are made in an integrated manner, in collaboration with appropriate authorities, non-governmental organisations and other persons.

Climate change adaptation and mitigation

B.69 The Onshore Wind Strategy (2025) [\[See reference 69\]](#) presents the country's first dedicated strategy to accelerate onshore wind deployment as a key component of its Clean Power 2030 mission. The strategy sets a target of deploying 27-29 GW of onshore wind capacity across Great Britain by 2030, significantly increasing from existing capacity of over 16 GW, and backed by over 40 actions to tackle barriers such as planning delays, aviation and defence conflicts, grid access, and community engagement. New measures include the creation of an Onshore Wind Council to oversee implementation, potential expansion of the Clean Industry Bonus to support UK-based supply chains, workforce and skills development initiatives, and a programme to repower ageing turbines while smoothing the consenting and survey process for new projects. The strategy also outlines mechanisms to ensure community benefit through up to £70 million annually (£5,000 per MW) in local investment, while projecting creation of up to 45,000 direct and indirect jobs by 2030. The overarching aim is to deliver affordable, home grown renewable energy, reduce reliance on volatile gas markets, and bolster energy security through rapid onshore wind expansion.

B.70 The Hydrogen Update to the Market (2025) [\[See reference 70\]](#) provides a detailed overview of the UK's hydrogen sector progress in the first half of 2025 and outlines forthcoming opportunities as part of the government's Clean Energy Superpower and Growth Missions. It reports substantial milestones, including the shortlist of 27 projects advancing to Hydrogen Allocation Round 2 (HAR 2), with HAR 3 and HAR 4 scheduled from 2026 and 2028 respectively; HAR 1 winners have begun construction, unlocking over 700 skilled jobs across industrial regions. Significant investment commitments include over £500 million allocated toward developing the first regional hydrogen transport and storage network, aiming for operation by 2031, supported by a forthcoming Hydrogen to Power Business Model in 2026. The report highlights plans to abolish Climate Change Levy charges on electricity used in hydrogen electrolysis, regulatory and sector development initiatives, including skills and infrastructure planning, and signals the intent to publish a comprehensive UK Hydrogen Strategy in autumn 2025.

B.71 Clean Energy Industries Sector Plan (2025) [\[See reference 71\]](#) is the UK government's strategic initiative, under the Modern Industrial Strategy, to position the nation as a global leader in frontier clean energy technologies by 2035. The Plan sets out an ambition to double investment across key clean energy industries, such as wind (onshore, offshore, floating), nuclear fission, fusion, hydrogen, carbon capture, usage and storage (CCUS), greenhouse gas removals, and heat pumps, to over £30 billion per year, while continuing to support other vital technologies like solar, long-duration energy storage and bioenergy. It aims to catalyse private sector engagement by deploying targeted public investment, including more than £8.3 billion through Great British Energy and Great British Energy-Nuclear up to 2029 and a Clean Energy Supply Chain Fund, and by reducing barriers to investment, thereby providing industry certainty and encouraging deployment and innovation.

B.72 Climate and Nature Bill (2024) [\[See reference 72\]](#) is a proposed piece of legislation aimed at addressing the climate and ecological crises by setting legally binding targets to limit global heating and restore nature. It seeks to ensure that the UK does its fair share in reducing greenhouse gas emissions in line with the most up-to-date science, aiming to keep global temperature rises below 1.5°C. The bill also emphasises protecting and restoring biodiversity, requiring the government to develop and implement a strategy for nature recovery. A key aspect is the inclusion of a citizens' assembly to guide decision-making, ensuring public involvement in shaping climate and nature policies. The bill proposes stricter accountability measures, obliging the government to take action beyond existing net-zero commitments and biodiversity targets. It has gained support from environmental groups, scientists, and some MPs, though it has not yet been passed into law.

B.73 Plan for Change (2024) [\[See reference 73\]](#) outlines the UK Government's framework for long-term policy delivery across five priority areas: economic growth, healthcare, public safety, opportunity, and clean energy. It sets out specific targets within this Parliament, underpinned by aims to ensure economic stability, reform public services, and implement a more mission-focused approach to governance.

B.74 Met Office, State of the UK Climate (2024) [\[See reference 74\]](#) – the tenth in the annual series of reports that provide a summary of the UK weather and climate through the calendar year 2023, alongside the historical context for a number of essential climate variables. It provides an accessible, authoritative and up-to-date assessment of UK climate trends, variations and extremes based on the most up to date observational datasets of climate quality.

B.75 HM Government Clean Power 2030 Action Plan (2024) [See reference 75] – the action plan sets out a pathway to a clean power system, what government will do to support and accelerate delivery of the new infrastructure needed.

B.76 HM Government, The Carbon Budget Delivery Plan (2023) [See reference 76] – explains how the Government intends to meet its legally-binding climate goals, setting out a package of quantified and unquantified proposals and policies, and associated timescales and delivery risks this also includes:

- wider matters in connection with carbon budgets
- the contribution of these proposals and policies to sustainable development
- the impact the package has on sectors of the economy

B.77 The Environment Act 2021 [See reference 77] sets statutory targets for the recovery of the natural world in four priority areas: air quality, biodiversity, water, and resource efficiency and waste reduction. The Environment Act will deliver:

- Long-term targets to improve air quality biodiversity, water, and waste reduction and resource efficiency;
- A target on ambient PM2.5 concentrations;
- A target to halt the decline of nature by 2030;
- Environmental Improvement Plans, including interim targets;
- A cycle of environmental monitoring and reporting;
- Environmental Principles embedded in domestic policy making; and
- Office for Environmental Protection to uphold environmental law.

B.78 The Industrial Decarbonisation Strategy (2021) [See reference 78] aims to support existing industry to decarbonise and encourage the growth of new, low carbon industries to protect and create skilled jobs and businesses in the UK encouraging long-term investment in home-grown decarbonisation technology. The strategy builds in the Prime Minister's 10 Point Plan for a Green Industrial Revolution and sets out the government's vision for building a competitive, greener future for the manufacturing and construction sector and is part of the government's path to net zero by 2050.

B.79 The strategy aims to reduce emissions by two-thirds in just 15 years and support up to 80,000 jobs over the next thirty years and includes measures to produce 20 terawatt hours of the UK industry's energy supply from low carbon alternatives by 2030. It also aims to introduce new rules on measuring the energy and carbon performance of the UK's largest commercial and industrial buildings, providing potential savings to businesses of around £2 billion per year in energy costs in 2030 and aiming to reduce annual carbon emissions by over 2 million tonnes – approximately 10% of their current emissions. Other key commitments within the Strategy include:

- The use of carbon pricing to drive changes in industry to focus on emissions in business and investment decisions;
- To establish a policy framework to accelerate the switch from fossil fuels to low carbon alternatives such as hydrogen, electricity, or biomass;
- New product standards, enabling manufacturers to clearly distinguish their products from high carbon competitors;
- To ensure the land planning regime is fit for building low carbon infrastructure;
- Support the skills transition so that the UK workforce benefits from the creation of new green jobs;
- An expectation that at least 3 megatons of CO₂ is captured within industry per year by 2030; and
- That by 2050, there will be zero avoidable waste of materials across heavy industries.

B.80 The **Heat and Buildings Strategy** (2021) [\[See reference 79\]](#) sets out the government's plan to significantly cut carbon emissions from the UK's 30 million homes and workplaces. This strategy aims to provide a clear direction of travel for the 2020s, set out the strategic decisions that need to be taken this decade, and demonstrate how the UK plans to meet its carbon targets and remain on track for net zero by 2050.

B.81 The **UK Hydrogen Strategy** (2021) [\[See reference 80\]](#) sets out the approach to developing a substantial low carbon hydrogen sector in the UK and to meet the ambition for 5GW of low carbon hydrogen production capacity by 2030.

B.82 The **Energy Performance of Buildings Regulations** (2021) [\[See reference 81\]](#) seek to improve the energy efficiency of buildings, reducing their carbon emissions and lessening the impact of climate change. The Regulations

require the adoption of a standard methodology for calculating energy performance and minimum requirements for energy performance, reported through Energy Performance Certificates and Display Energy Certificates.

B.83 Flood and Coastal Erosion Risk Management: Policy Statement

(2020) [\[See reference 82\]](#): This policy statement sets out the government's long-term ambition to create a nation more resilient to future flood and coastal erosion risk, and in doing so, reduce the risk of harm to people, the environment and the economy. The Policy Statement sets out five policy areas which will drive this ambition. These are:

- Upgrading and expanding our national flood defences and infrastructure;
- Managing the flow of water more effectively;
- Harnessing the power of nature to reduce flood and coastal erosion risk and achieve multiple benefits;
- Better preparing our communities; and
- Enabling more resilient places through a catchment-based approach.

B.84 The National Flood and Coastal Erosion Risk Management Strategy

for England (2020) [\[See reference 83\]](#): This Strategy sets out the national framework for managing the risk of flooding and coastal erosion. It sets out the roles for risk management authorities and communities to help them understand their responsibilities. The strategic aims and objectives of the Strategy are:

- climate resilient places: working with partners to bolster resilience to flooding and coastal change across the nation, both now and in the future in the face of climate change;
- today's growth and infrastructure resilient in tomorrow's climate: making the right investment and planning decisions to secure sustainable growth and environmental improvements, as well as infrastructure resilient to flooding and coastal change;
- a nation ready to respond and adapt to flooding and coastal change: ensuring local people understand their risk to flooding and coastal change, and know their responsibilities and how to take action.

B.85 The Flood and Water Management Act 2010 [\[See reference 84\]](#) and **The Flood and Water Regulations 2019** [\[See reference 85\]](#) sets out measures to ensure that risk from all sources of flooding is managed more effectively. This includes incorporating greater resilience measures into the design of new buildings; utilising the environment in order to reduce flooding;

identifying areas suitable for inundation and water storage to reduce the risk of flooding elsewhere; rolling back development in coastal areas to avoid damage from flooding or coastal erosion; and creating sustainable drainage systems (SuDS).

B.86 HM Government, Flood Risk Regulations (2009) [See reference 86] – these Regulations outline a set of tasks, which the county council is required to follow between now and approximately 2015. The regulations also implement the 2007 EU Floods Directive. In accordance with the regulations the council has a series of new responsibilities, these are:

- The preparation of a Preliminary Flood Risk Assessment (PFRA) Report, including the identification of flood risk areas
- The preparation of Flood Hazard Maps and Flood Risk Maps
- The preparation of Flood Risk Management Plans
- Cooperating with the Environment Agency and other Lead Local Flood Authorities.

B.87 Climate Change Committee, Net Zero – The UK’s contribution to stopping global warming (2019) [See reference 87] – responds to a request from the Governments of the UK, Wales and Scotland, asking the Committee to reassess the UK’s long-term emissions targets. Our new emissions scenarios draw on ten new research projects, three expert advisory groups, and reviews of the work of the IPCC and others. The report’s key findings are that:

- The Committee on Climate Change recommends a new emissions target for the UK: net-zero greenhouse gases by 2050.
- In Scotland, we recommend a net-zero date of 2045, reflecting Scotland’s greater relative capacity to remove emissions than the UK as a whole.
- In Wales, we recommend a 95% reduction in greenhouse gases by 2050.

B.88 The National Adaptation Programme and the Fourth Strategy for Climate Adaptation Reporting (2023) [See reference 88] sets out a series of actions for the following sectors over a 5-year period:

- Infrastructure - new commitments on resilience standards, investment in water quality and a new transport adaptation strategy
- Nature environment - Local Nature Recovery Strategies, incorporate climate change adaptation into the design of Environmental Land Management schemes and Nature Recovery Projects

- Health, communities and the built environment - investment in flood and coastal erosion schemes, Adverse Weather & Health Plan, update the National Planning Policy Framework to support both adaptation and mitigation efforts and provide local climate projections
- Business and industry - Green Finance Strategy 2023, new strategy on supply chains and imports and survey business readiness for climate impacts.
- International impacts – the government will adapt and build resilience in vulnerable communities to climate related disasters and continue to drive international action and consensus in negotiations on climate adaptation.

B.89 HM Government, UK Climate Change Risk Assessment 2022 [See reference 89] – outlines the UK government and devolved administrations' position on the key climate change risks and opportunities that the UK faces today. The risk assessment considers sixty-one UK-wide climate risks and opportunities cutting across multiple sectors of the economy and prioritises the following eight risk areas for action in the next two years:

- risks to the viability and diversity of terrestrial and freshwater habitats and species from multiple hazards
- risks to soil health from increased flooding and drought
- risks to natural carbon stores and sequestration from multiple hazards
- risks to crops, livestock and commercial trees from multiple climate hazards
- risks to supply of food, goods and vital services due to climate-related collapse of supply chains and distribution networks
- risks to people and the economy from climate-related failure of the power system
- risks to human health, wellbeing and productivity from increased exposure to heat in homes and other buildings
- multiple risks to the UK from climate change impacts overseas

B.90 Department for Energy Security and Net Zero, Prime Minister's Office, 10 Downing Street, and Department for Business, The British Energy Security Strategy (2022) [See reference 90] – sets out how the UK will enhance its energy security, setting out plans for future deployment of wind, new nuclear, solar and hydrogen, and for supporting the production of domestic oil and gas in the nearer term. The strategy builds on the Prime Minister's 'Ten point plan for a

green industrial revolution', and the 'Net zero strategy'. Key aims and commitments include:

- New commitments to supercharge clean energy and accelerate deployment, which could see 95% of Great Britain's electricity set to be low carbon by 2030.
- Supporting over 40,000 more jobs in clean industries, totalling 480,000 jobs by 2030.
- Accelerated expansion of nuclear, wind, solar, hydrogen, oil and gas, including delivering the equivalent to one nuclear reactor a year instead of one a decade.
- Offshore wind – Aim of providing up to 50GW by 2030, of which 5GW is planned to be from floating offshore wind in deeper seas. This is aimed to be underpinned by new planning reforms to cut the approval times for new offshore wind farms from 4 years to 1 year and an overall streamlining which will aims to reduce the time it takes for new projects to reach construction stages while improving the environment.
- Oil and gas – A licensing round for new North Sea oil and gas projects is planned to launch in Autumn, with a new taskforce providing bespoke support to new developments.
- Onshore wind – The Government plans to consult on developing partnerships with a limited number of supportive communities who wish to host new onshore wind infrastructure in return for guaranteed lower energy bills.
- Heat pump manufacturing – The Government aim to run a Heat Pump Investment Accelerator Competition in 2022 worth up to £30 million to make British heat pumps, with hopes to reduce demand for gas.

B.91 The UK Renewable Energy Strategy (2009) [See reference 91]: Sets out the ways in which we will tackle climate change by reducing our CO₂ emissions through the generation of a renewable electricity, heat and transport technologies.

B.92 Climate Change Act 2008 [See reference 92]: Sets targets for UK greenhouse gas emission reductions of at least 100% by 2050, against a 1990 baseline (this was previously 80% but was updated to a net zero target in June 2019).

B.93 Planning and Energy Act 2008 [See reference 93]: enables local planning authorities to set requirements for carbon reduction and renewable

energy provision. It should be noted that while the Housing Standards Review proposed to repeal some of these provisions, at the time of writing there have been no amendments to the Planning and Energy Act.

Biodiversity

B.94 Natural England's Strategy: Recovering Nature for Growth, Health and Security (2025) [\[See reference 94\]](#) sets out the actions needed for nature to adapt and be more resilient to pressures such as climate change. It focuses on nature recovery contributing to housing delivery, public health, and national security, recognising nature as essential to sustaining growth and a healthy society. The Strategy is framed around four strategic outcomes for nature:

- Recovering Nature – Increased scale and quality of places where nature thrives.
- Building Better Places – Greener homes and infrastructure create healthier, more investible places, recognising we live better where nature thrives around us.
- Improving Health and Wellbeing – Build nature into everyday life so people can support, access and benefit from nature, wherever they live.
- Delivering Security through Nature – Nature helps us adapt to the threats of a changing climate and improves our national security, supporting more resilient food production, healthy soils, clean and plentiful water and clean air.

B.95 The Environment Act 2021 [\[See reference 95\]](#) sets statutory targets for the recovery of the natural world in four priority areas: air quality, biodiversity, water, and resource efficiency and waste reduction. Biodiversity elements in the Act include:

- Strengthened biodiversity duty. Both onsite and offsite enhancements must be maintained for at least 30 years after completion of a development;
- Biodiversity net gain to ensure developments deliver at least 10% increase in biodiversity;
- Local Nature Recovery Strategies to support a Nature Recovery Network;
- Duty upon Local Authorities to consult on street tree felling;
- Strengthen woodland protection enforcement measures;

- Conservation Covenants;
- Protected Site Strategies and Species Conservation Strategies to support the design and delivery of strategic approaches to deliver better outcomes for nature;
- Prohibit larger UK businesses from using commodities associated with wide-scale deforestation; and
- Requires regulated businesses to establish a system of due diligence for each regulated commodity used in their supply chain, requires regulated businesses to report on their due diligence, introduces a due diligence enforcement system.

B.96 The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 [\[See reference 96\]](#) protect biodiversity through the conservation of natural habitats and species of wild fauna and flora, including birds. The Regulations lay down rules for the protection, management and exploitation of such habitats and species, including how adverse effects on such habitats and species should be avoided, minimised and reported.

B.97 Environment Agency, Working with nature (2022) [\[See reference 97\]](#) – discusses the importance of nature in providing ecosystem services and presents recent and historical trends in biodiversity. It outlines some of the main pressures affecting England's habitats, wildlife and ecosystems: land use; climate change; pollution; invasive non-native species; and hydrological change.

B.98 Natural Environment and Rural Communities Act 2006 [\[See reference 98\]](#): Places a duty on public bodies to conserve biodiversity.

B.99 Defra, Biodiversity 2020: A strategy for England's wildlife and ecosystem services (2011) [\[See reference 99\]](#) – guides conservation efforts in England up to 2020 by requiring a national halt to biodiversity loss, supporting healthy ecosystems and establishing ecological networks.

B.100 HM Government, Wildlife and Countryside Act 1981 (as amended) [\[See reference 100\]](#) – enacted primarily to implement the Birds Directive and Bern Convention in Great Britain. The Act received royal assent on 30 October 1981 and was brought into force in incremental steps. It is supplemented by the Wildlife and Countryside (Service of Notices) Act 1985, which relates to notices served under the 1981 Act. The act contains four parts and 17 schedules, which cover:

- Part 1: Wildlife (includes protection of birds, animals and plants; and measures to prevent the establishment of non-native species which may be detrimental to native wildlife).
- Part 2: Nature conservation, the countryside and National Parks (including the designation of protected areas).
- Part 3: Public rights of way.
- Part 4: Miscellaneous provisions of the act.

B.101 HM Government, The National Parks and Access to the Countryside Act 1949 [See reference 101] – an Act of Parliament to make provision for National Parks and the establishment of a National Parks Commission; to confer on the Nature Conservancy and local authorities' powers for the establishment and maintenance of nature reserves; to make further provision for the recording, creation, maintenance and improvement of public paths and for securing access to open country.

Historic environment

B.102 The Environment Act 2021 [See reference 102] sets out the UK's new framework for environmental protection. It includes the creation of Conservation Covenant agreements between a landowner and a responsible body for the purposes of conservation. This can include to preserve land as a place of 'archaeological, architectural artistic, cultural or historic interest'.

B.103 Historic England, Corporate Plan 2023-2026 (2023) [See reference 103] – contains the action plan which sets out how the aims of the corporate plan will be delivered. The plan includes priorities to demonstrate how Historic England will continue to work towards delivering the heritage sector's priorities for the historic environment.

B.104 Sustainability Appraisal and Strategic Environmental Assessment, Historic England Advice Note 8 (2016) [See reference 104]: Sets out requirements for the consideration and appraisal of effects on the historic environment as part of the Sustainability Appraisal/Strategic Environmental Assessment process.

B.105 Planning (Listed Buildings & Conservation Areas) Act 1990 [See reference 105]: An Act of Parliament that changed the laws for granting of planning permission for building works, with a particular focus on listed buildings and conservation areas.

B.106 Ancient Monuments & Archaeological Areas Act 1979 [See reference 106]: A law passed by the UK government to protect the archaeological heritage of England & Wales and Scotland. Under this Act, the Secretary of State has a duty to compile and maintain a schedule of ancient monuments of national importance, in order to help preserve them. It also creates criminal offences for unauthorised works to, or damage of, these monuments.

B.107 Historic Buildings and Ancient Monuments Act 1953 [See reference 107]: An Act of Parliament that makes provision for the compilation of a register of gardens and other land (parks and gardens, and battlefields).

B.108 Historic England, Sustainability Appraisal and Strategic Environmental Assessment, Historic England Advice Note 8 (2016) [See reference 108] – sets out requirements for the consideration and appraisal of effects on the historic environment as part of the Sustainability Appraisal/Strategic Environmental Assessment process.

B.109 HM Government, The Government's Statement on the Historic Environment for England 2010 [See reference 109] – sets out the Government's vision for the historic environment. It calls for those who have the power to shape the historic environment to recognise its value and to manage it in an intelligent manner in light of the contribution that it can make to social, economic and cultural life. Includes reference to promoting the role of the historic environment within the Government's response to climate change and the wider sustainable development agenda.

B.110 HM Government, The Planning (Listed Buildings and Conservation Areas) Act 1990 [See reference 110] – an Act of Parliament that changed the laws for granting of planning permission for building works, with a particular focus on listed buildings and conservation areas.

B.111 HM Government, The Historic Buildings and Ancient Monuments Act 1953 [See reference 111] – an Act of Parliament that makes provision for the compilation of a register of gardens and other land (parks and gardens, and battlefields).

Landscape

B.112 The Environment Act 2021 [See reference 112] sets out the UK's new framework for environmental protection. It includes the creation of Conservation Covenant agreements between a landowner and a responsible body for the

purposes of conservation of the natural environment of the land or its natural resources, or to conserve the place or setting of the land for its 'archaeological, architectural, artistic, cultural or historic interest'.

B.113 Countryside and Rights of Way Act 2010 [See reference 113]: An Act of Parliament to make new provision for public access to the countryside.

B.114 Defra, Landscapes Review (2019) [See reference 114] – explores the fragmented and often marginalised system of managing National Parks and AONBs recommends actions to achieve structural reform. The review looks at:

- The existing statutory purposes for National Parks and AONBs and how effectively they are being met.
- The alignment of these purposes with the goals set out in the 25 Year Environment Plan.
- The case for extension or creation of new designated areas.
- How to improve individual and collective governance of National Parks and AONBs, and how that governance interacts with other national assets.
- The financing of National Parks and AONBs.
- How to enhance the environment and biodiversity in existing designations.
- How to build on the existing eight point plan for National Parks and connect more people with the natural environment from all sections of society and improve health and wellbeing.
- How well National Parks and AONBs support communities.
- The process of designating National Parks and AONBs and extending boundary areas, with a view to improving and expediting the process.

B.115 Defra Right of Way Circular (1/09) (2011) [See reference 115] – gives advice to local authorities on recording, managing and maintaining, protecting and changing public rights of way.

B.116 National Parks and Access to the Countryside Act 1949 [See reference 116]: An Act of Parliament to make provision for National Parks and the establishment of a National Parks Commission; to confer on the Nature Conservancy and local authorities' powers for the establishment and maintenance of nature reserves; to make further provision for the recording, creation, maintenance and improvement of public paths and for securing access to open country.

Regional

B.117 Transport East Active Travel Strategy (2021) [See reference 117]:

The vision for the region is that half of all journeys within towns and cities (up to three miles from the urban centre) will be made by walking and cycling. By 2050, half of all trips in the Transport East region will be made by walking or cycling. In Thurrock, a “Go Dutch” scenario (which applies Dutch rates for cycle commuting in England adjusting for distance and hilliness) would result in almost a twelve-fold increase of the population who could commute to work by cycle, to 24.9%.

B.118 Draft Essex Air Quality Strategy January 2025 [See reference 118]:

The Strategy brings together the 15 councils across Essex to work together to improve air quality. The strategy aims to improve air quality for our health and to manage any factors that can negatively affect air quality. The strategy is accompanied by an Action Plan which sets out a number of actions to improve air quality.

B.119 Everyone's Essex: Our Plan for Levelling Up the County 2021-2025

[See reference 119] sets out 20 commitments which seek to enhance the quality of life for all people in Essex. It focuses on four areas; the economy, the environment, children and families and promoting health, care and wellbeing for all ages.

B.120 Thames Estuary Hydrogen Investment Routemap (2021) [See reference 120]: The routemap aims for the Thames Estuary, including the section within Thurrock, to become a “hydrogen ecosystem”, highlighting that the Estuary is uniquely placed to support and realise the governments hydrogen ambitions.

B.121 South East Inshore Marine Plan (2021) [See reference 121]: The Plan introduces a strategic approach to planning within the inshore waters between Suffolk and Kent, including the Thames Estuary. This includes building resilience and adaptations to climate change, as well as consideration of renewable energy and potential for carbon capture and storage.

B.122 South Essex Green and Blue Infrastructure Strategy: Resilient by Nature (2020) [See reference 122]: This strategy sets out a vision for and integrated green and blue infrastructure (GBI) network across South Essex and sets out key objectives and projects to achieve this. This includes improving connectivity within and across the landscape through active travel links such as walking and cycling.

B.123 Essex Healthy Weight Strategy 2024 [\[See reference 123\]](#) outlines how the County will support Essex residents to achieve and maintain a healthy weight, including by creating an environment and culture where making a healthy choice is the easy choice.

B.124 Meaningful Lives Matter: Our plan for a more inclusive Essex [\[See reference 124\]](#) seeks to enhance the lives of people with disabilities over the next four years. The plan focuses on four key aspirations: fostering meaningful relationships within the community, ensuring suitable living accommodations, promoting health and wellbeing, and providing access to fulfilling daily activities such as education, employment, and volunteering.

B.125 Water Strategy for Essex [\[See reference 125\]](#) aims to address the county's significant water challenges. It outlines 30 key recommendations to safeguard Essex's water future. These include reducing water consumption through efficient appliances and public awareness campaigns, changing land use to increase natural green infrastructure, and developing new water sources like reservoirs and desalination.

B.126 Essex Minerals Local Plan [\[See reference 126\]](#): The Plan provides a policy framework for all parties involved in future minerals and minerals related development as it provides a picture of how Essex County Council see minerals development in the County taking place up to 2029, the steps needed to make this happen and the measures necessary to assess progress on the way

B.127 Essex County Council Tree Management Plan [\[See reference 127\]](#) focuses on managing, improving, and extending the council's tree stock. It outlines objectives for tree planting, including increasing species diversity and retrofitting urban spaces with green infrastructure.

B.128 Essex Coast Recreational disturbance Avoidance and Mitigation Strategy (RAMS) 2018-2038 (2018) [\[See reference 128\]](#) This Strategy aims to deliver the mitigation necessary to avoid significant adverse effects from 'in-combination' impacts of residential development that is anticipated across Essex; thus protecting the European sites on the Essex coast, including the Thames Estuary and Marshes Ramsar site and Special Protection Area, from adverse effects on site integrity. This includes a detailed programme of strategic mitigation measures which are to be funded by developer contributions from all new residential developments within the zone of influence. The **Essex Coast RAMS Supplementary Planning Document** (2020) [\[See reference 129\]](#) prepared in 2020 accompanies the strategic approach to mitigation set out in the RAMS 2018-2038.

B.129 Green Essex Strategy (2019) [See reference 130]: This Strategy seeks to enhance, protect and create an inclusive and integrated network of high-quality green infrastructure in Greater Essex, to create a county-wide understanding of green infrastructure – its functions and values, and to identify opportunities for implementing green infrastructure. The Strategy promotes the use of the green infrastructure network for sustainable and active modes of transport such as walking and cycling.

B.130 While not a plan or policy, the **Essex Design Guide (2018) [See reference 131]** provides a reference to help create high quality places with an identity specific to its Essex context. The Design Guide covers a number of aspects of environmental and socio-economic considerations and therefore relates to a number of sustainability topics, including landscape.

B.131 Thames Estuary Growth Commission 2050 Vision (2018) [See reference 132]: The 2050 Vision for the Thames Estuary seeks to celebrate the character and heritage of the Thames Gateway area, including the rivers and recognises that heritage assets can help build economic prosperity and create quality of life.

B.132 Essex Historic Landscape Characterisation Project (2013) [See reference 133]: This project seeks to characterise the distinctive historic dimension of the current rural landscape. The project identifies 54 Historic Landscape Characterisation (HLC) types across Essex which are broadly categorised into 10 categories (enclosed land, open land, woodland, parks & gardens, coastal, settlement, industrial, horticulture, military and land use).

B.133 Thames Estuary 2100 (2012) [See reference 134]: The document sets out the Environment Agency's recommendations for flood risk management for London and the Thames Estuary through to the end of the century and beyond. The Plan sets out the future shape of flood risk management, strategic action that is needed and options to achieve this, local actions that are needed, and how the impact of rising sea levels needs to be addressed. Action Zones 5, 6, 7 and 8 covers the sub-region. Actions have been identified which include hard and soft measures including a floodplain management programme, partnership arrangements to ensure that new development is safe, review and maintain future partnership arrangements and principles and management of defences.

B.134 The Thames Estuary 2100 Plan includes policy recommendations for public realm and access improvements, coinciding with other initiatives such as the Thames Gateway Parklands vision, which envisages improved access and connections with local communities. The Plan introduces the riverside strategy approach. This integrates improvements to flood risk management defences

into wider redevelopment, enhancing the social, environmental and commercial aspects of the riverside.

B.135 The Plan is also an example of a managed adaptive strategy approach for varying rates of climate change, which is made up of a combination of different interventions that act together to achieve the recommended policy.

B.136 The Essex Climate Action Annual Report [See reference 135] highlights the progress made towards creating a cleaner, greener, and healthier environment in Essex. Key achievements include the adoption of a new 30-year Waste Strategy and the launch of a pioneering Water Strategy. Significant investments have been made in nature recovery, rewilding, and biodiversity, alongside commitments to deliver 30,000 net-zero new homes

Local

B.137 Draft Thurrock Transport Strategy (internal draft, currently unpublished): The Interim Draft Transport Strategy builds on the existing Transport Strategy (2013 – 2026), taking into account much of the rapid change Thurrock is undergoing, including major regeneration projects and proposed development which will fundamentally alter the way people and goods move around Thurrock and the wider region over the next 20 years. Key projects include Grays Town Centre regeneration, the port expansion of Tilbury and London Gateway, proposed development of a logistics ‘superhub’ at Thames Enterprise Park, the Thames Freeport, Purfleet regeneration, and the proposed construction of the Lower Thames Crossing (LTC). The Draft Transport Strategy outlines key challenges and opportunities for Thurrock which include supporting sustainable economic growth, supporting the health and wellbeing of Thurrock’s residents and addressing the Climate Emergency. These factors inform the Transport Vision Statement (‘Connecting Thurrock’), as well as 10 interconnected overarching goals and nine strategic focus areas specified in the Draft Transport Strategy. The Draft Transport Strategy will be supported by a series of shorter-term delivery documents, setting out more specific actions that aim to achieve the overarching vision and goals.

B.138 Thurrock Health and Wellbeing Strategy 2022-2026 (2022) [See reference 136]: The Strategy aims to ‘level the playing field’ and reduce health inequalities in Thurrock by addressing the wider determinants of health including high-quality education, access to employment, warm and safe homes, access to leisure and green space, strong and resilient communities and effective public protection.

B.139 Thurrock Climate Change Scoping Study (2020) [See reference 137]:

The Thurrock Climate Change Scoping Study was commissioned in 2019 to inform the integration of climate change into the Council's planning policy, in accordance with NPPF. The study's aims are to provide a baseline assessment of the Borough's current climate impacts (emissions) and risks (hazards); summarise existing climate change legislation and policy; review existing documents, local plan processes, policy and operation; outline initiatives to focus on in the Local Plan; and to define what the requirements should be if a climate change strategy were to be developed for the Borough. The study provides a series of recommendations and next steps for the process including stakeholder engagement and establishing timescales and accountability. It also highlights core focus areas and priorities for the Borough including land-use and access issues, carbon emissions relating to buildings, retail and industry, transport infrastructure, natural resources, the environment and waste.

B.140 Thurrock Active Place Strategy (2020) [See reference 138]: An Active Place strategy has been developed by Thurrock Council to inform the development of the Thurrock Local Plan. The strategy outlines three studies that present a planning related evidence base relating to the Borough's open spaces, indoor sports facilities and playing pitches. It also outlines an Active Travel Strategy for Thurrock which reviews the existing cycle network in the Borough. The strategy presents a number of detailed key objectives and recommendations for open spaces, indoor facilities, playing pitches, as well seven geographical priority areas where physical improvements to active travel routes should be made. Recommendations to address mental barriers to active travel in the Borough are also included in the strategy.

B.141 Southend Essex and Thurrock Mental Health Strategy [See reference 139] focuses on promoting good emotional and mental health for everyone in Southend and Thurrock, reducing health inequalities, and improving life outcomes for those with mental ill health.

B.142 Municipal Waste Strategy for Thurrock 2021-2031 (2020) [See reference 140]: The Municipal Waste Strategy is a 'living document' and acts as the tool to improve and increase the Borough's recycling performance. The strategy outlines the current local picture of waste in the Borough, provides analysis of public consultation, and identifies the Council's strategic objectives. Key actions that will be undertaken to succeed include effective engagement and communications with local residents providing information and education to households; ensuring a reliable carbon-efficient collection service; and engagement with front-line staff to deliver the changes needed.

B.143 Thurrock Council Homelessness Prevention and Rough Sleeping Strategy 2020-25 (2020) [\[See reference 141\]](#): The strategy demonstrates Thurrock Council's response to key changes to homelessness legislation, such as the introduction of the Homelessness Reduction Act 2017 and sets out the strategic direction and key priorities from 2020-2025.

B.144 Thurrock Green Belt Assessment Stages 1a and 1b (2019) [\[See reference 142\]](#): The Thurrock Green Belt Assessment was conducted on behalf of Thurrock Council with the aim of assessing the Green Belt. Stage 1a of the assessment relates to the identification of strategic Green Belt parcels and the assessment of each parcel against the purposes of the Green Belt, as set out in NPPF. Stage 1B of the assessment relates specifically to the proposed new Lower Thames Crossing route, and the implications for the Green Belt. This report is a precursor to Stage 2 of the assessment, which will identify detailed assessment of sites and boundaries in the Green Belt to identify defensible long-term boundaries and provide recommendations on detailed boundary changes.

B.145 Thurrock Scheduled Ancient Monuments Assessment of Settings (2019) [\[See reference 143\]](#): This report provides a detailed assessment of the significance of the setting of the Scheduled Monuments in Thurrock in response to developing the Thurrock Local Plan. The monument types range from the large and imposing, as is the case with Tilbury and Coalhouse Fort, to belowground archaeological remains which have a less visual presence in the landscape.

B.146 Thurrock Highways Asset Management Strategy (2018) [\[See reference 144\]](#): The purpose of this strategy is to set out strategies for investment in key highways asset groups, define affordable service standards, improve how the highway asset is managed, enable more effective and efficient value for money highways services, and align asset management practices to the corporate plan and vision for Thurrock Council.

B.147 Thurrock Council Level 1 Strategic Flood Risk Assessment (2018) [\[See reference 145\]](#): The SFRA provides an overview of flood risk from all sources across Thurrock. It identified the tidal and fluvial flood plains associated with the River Thames, main rivers and some ordinary watercourses. A revised Level 2 SFRA will be produced in the near future.

B.148 Thurrock Landscape Character Assessment (2018) [\[See reference 146\]](#): Thurrock Landscape Character Assessment was commissioned in 2015 by Thurrock Council to review and update the existing landscape character evidence base, providing context for policies, proposals and strategic decision-

making. The assessment provides an overview of the evolution of the Borough's landscape over time, including physical and historical influences, and summarises current forces for change. The study identifies seven strategic-scale landscape types/areas in the Borough. Within these character areas, the study identifies a further 12 local-level landscape types/areas. Volume II of the study provides in-depth profiles of the landscape character types and areas within the Borough, including descriptions and evaluative information.

B.149 Thurrock Local Flood Risk Management Strategy (2015) [See reference 147]: This strategy sets out how Thurrock Council, alongside other Risk Management Authorities (RMAs), are responding to identified flood risk in Thurrock. Among other things, the strategy specifies the flood and coastal erosion risk management functions that may be exercised by RMAs, objectives and measures for managing local flood risk and implementation details for these.

B.150 Thurrock Transport Strategy 2013-2026 (2013) [See reference 148]: The strategy sets out the aims, objectives and policies for delivering transport improvements in Thurrock, including (but not limited to) to respond to large scale growth at Lakeside, Tilbury Port and London Gateway. The strategy focusses on the need to address the following key areas: Delivering Accessibility, Tackling Congestion, Improving Air Quality and Addressing Climate Change, Safer Roads and Facilitating Regeneration. This strategy also sets out the long-term approach to walking and cycling in the Borough.

B.151 Thurrock Unitary Historic Environment Characterisation Project (2009): The project considers the sensitivity, diversity and value of historic environment resources within Thurrock and aims to facilitate development of positive approaches to the integration of historic environment objectives into spatial planning.

B.152 As part of the preparation of the Local Plan, Thurrock Council is currently preparing/updating the following documents/strategies which will be taken into account in the IIA as they become available:

- Heritage Impact Assessment
- Landscape Character Assessment
- Green and Blue Infrastructure Strategy
- Stage 2 Green Belt Assessment
- Habitats Regulation Assessment of the Local Plan

- Local Wildlife Sites Study (a Local Nature Recovery Strategy for Essex is also due to be prepared but is in the very early stages of development)
- Climate Change Strategy
- Energy Strategy
- Transport Assessment
- Level 2 Strategic Flood Risk Assessment
- Water Cycle Study
- Minerals and Waste Local Plan
- Health and Wellbeing Strategy
- Strategic Growth Location Infrastructure Needs Assessment
- Housing Urban Capacity Study
- Housing Delivery Strategy
- Housing Strategy
- Housing Land Availability Assessment
- Economic Development Needs Assessment Update
- Employment Land Availability Assessment
- Infrastructure Delivery Plan

Neighbouring plans

B.153 Castle Point Borough Council (1998) Castle Point Local Plan - Castle Point Borough Council adopted its local plan in November 1998 which makes provision for the level of housing provision contained in the Essex Structure Plan which made provision for 1,600 additional dwellings in the Borough between 1986 and 2001, as well provision for the allocation of four new residential sites. Two of these sites are located in the settlement of Canvey Island, and two in Thundersley. The local plan identifies that land exists or is likely to come forward within the remainder of the Plan period for the development of approximately 733 new dwellings. The plan sets a commercial development requirement of 20.2ha (50 acres) of land, all of which has been allocated on land to the south of Northwick Road, Canvey Island.

B.154 At a meeting of the Council on 15th June 2022, the Council agreed to withdraw the new Local Plan 2018-2033 and work commenced on the new

Castle Point Plan commenced on 30th November 2022. The Castle Point Plan was submitted for examination on the 31st January 2026.

B.155 Basildon Council (2007) Basildon District Local Plan Saved Policies 2007 - Basildon Council adopted the Basildon District Local Plan Saved Policies 2007 in September 2007 which makes provision for 265 dwellings that are required over the plan period to meet needs. The housing requirement is split across the following settlements: Basildon (20 dwellings), Billericay (125), and Laindon (20). The Plan sets a commercial development requirement of at least 16.2 hectares (40 acres) of land for employment purposes at an area of Land West of Gardiners Lane South, as well as 3.5 hectares (8.6 acres) in Terminus Drive, Pitsea and 1.5 Hectares (3.7 acres) of Land North of Courtauld Road.

B.156 On 3rd March 2022, the Council resolved to withdraw the Basildon Borough Revised Publication Local Plan 2014 – 2034 from examination. On 17th November 2022, the Council adopted the Local Development Scheme (LDS) 2022 - 2027 as the timetable for preparing the Local Plan. A Call for Sites ran from October to December 2022, and submissions received during this period are currently being assessed for the annual Housing and Economic Land Availability Assessment (HELAA) 2022 and Brownfield Land Register (BLR) 2022. The Council are currently preparing for Regulation 19 following consultation on the Regulation 18 part 3 between November 2025 and January 2026. .

B.157 Brentwood Borough Council (2022) Brentwood Local Plan 2016-2033 - Brentwood Borough Council adopted the Brentwood Local Plan 2016-2023 on 23rd March 2022 which makes provision for 7,752 net new residential dwellings to be built in the borough over the Plan period. The Plan sets a commercial development requirement of about 46.64 ha of new employment land which is met through Local Plan allocations. The majority of this new development is directed to the borough's two strategic transit growth corridors: the South Brentwood Growth Corridor and the Central Brentwood Growth Corridor where three strategic residential-led, mixed-use sites are allocated, including Dunton Hills Garden Village which makes provision for around 5.5 hectares of employment development and 1,650 homes in the plan period.

B.158 London Borough of Havering (2021) Havering Local Plan 2016-2031 - Havering London Borough Council adopted the Havering Local Plan 2016 – 2031 in November 2021 which makes provision for 18,930 dwellings that are required over the plan period to meet needs. This includes major sites in the Romford Strategic Development Area (5000); major sites in the Rainham and Beam Park Strategic Development Area (3000); sites through the intensification

and renewal of existing Council housing estates outside of the Strategic Development Areas (300); other major sites outside of the Strategic Development Areas and Council housing estates (1,500); and small sites across the borough and through vacant units returning to use (1,500). The Plan sets a commercial development requirement of a minimum of 20,722 square metres of comparison floorspace, 10,881 square metres of convenience floorspace, and 10,619 square metres of commercial leisure floorspace in Havering's metropolitan and district centres, as well as delivery of additional 17,132 square metres of B1 floorspace in Havering over the Plan Period.

B.159 London Borough of Bexley (2023) adopted their Local Plan in 2023 which sets out the planning framework for the borough for the period to 2038. The Bexley Local Plan seeks to meet the Mayor's 10-year (2019-2029) housing target for Bexley of 6,850 new homes and to make sufficient provision for new homes for the remainder of the plan period between 2030 and 2038. The Council aims to support the economic growth of at least 10,800 new jobs over the plan period, of which approximately 1,900 to 2,700 of these will be located within Bexley's designated industrial locations. The Plan sets a commercial development requirement of an additional 147,200m² to 195,400m² of industrial floor space needed for the new jobs identified.

Appendix C

Baseline information

Population, health and wellbeing

Population

Current baseline information

C.1 The population of Thurrock was 176,000 in 2021 [\[See reference 149\]](#), increasing by 11.6% from 157,000 in 2011. This is in comparison to the 6.6% increase in England as a whole. There are 66,375 households in Thurrock [\[See reference 150\]](#).

C.2 Thurrock lies within the East of England comprising of 165 sq. km. Thurrock is located on the north side of the River Thames, immediately to the east of London.

C.3 The Borough has several main settlements, including Grays, Stanford-le-Hope, Corringham, Purfleet-on-Thames, South Ockendon, Chadwell St Mary and Tilbury. Thurrock also contains the relatively new community of Chafford Hundred and also the Lakeside Regional Shopping Centre, located west of Grays and east of the M25. With the exception of the principal urban area of Thurrock and the towns and villages, all of the land within the Borough is designated as Green Belt [\[See reference 151\]](#).

C.4 Much of the population of Thurrock lives within and around Purfleet-on-Thames, Chafford Hundred, Aveley, Ockendon and Grays. These are mainly the settlements that are within closest proximity to London on the western edge of the Borough. **Table C.1** presents the most recent estimates of population by ward in Thurrock [\[See reference 152\]](#).

Table C.1: Estimated populations by ward in Thurrock

Ward	Estimated Population (2023)
Aveley and Uplands	10,768
Belhus	10,545
Chadwell St Mary	10,759

Ward	Estimated Population (2023)
Chafford and North Stifford	7,931
Corringham and Fobbing	5,653
East Tilbury	7,910
Grays Riverside	13,283
Grays Thurrock	9,825
Little Thurrock Blackshots	7,077
Little Thurrock Rectory	6,384
Ockendon	12,197
Orsett	6,519
South Chafford	7,562
Stanford East and Corringham Town	8,677
Stanford le Hope West	7,716
Stifford Clays	6,798
The Homesteads	8,417
Tilbury Riverside and Thurrock Park	8,189
Tilbury St Chads	6,875
West Thurrock and South Stifford	13,792

C.5 In 2021, Thurrock had a higher proportion of people under the age of 65 (86.5%) compared to the national average (81.5%), so has fewer people over the age of 65 compared to the national average. The median age in Thurrock is 36, lower than the England median age (40). Between 2011 and 2021, Thurrock has seen a 0.9% increase in people aged 65 years and over. This is below the 2% increase seen at national level in England [\[See reference 153\]](#).

C.6 White British is the most common ethnicity in Thurrock (76.7%) while the second largest ethnic group is Black, Black British, Black Welsh, Caribbean or African (11.9%) [\[See reference 154\]](#).

Projected baseline information

C.7 By 2047, it is estimated that the population of Thurrock will increase to 199,363, which equates to an approximately 13.0% increase from the 2022-estimate [\[See reference 155\]](#). The older population (65 and over), is projected to grow significantly by 2047, moving more in line with but still below the national average, placing additional pressures on housing and social care services [\[See reference 156\]](#) [\[See reference 157\]](#).

Housing

Current baseline information

C.8 The 2024 property price to earnings ratio for Thurrock is 9.2 which is higher than the average for England where full-time workers could expect to pay an estimated 7.9 times their annual workplace-based earnings on purchasing a home [\[See reference 158\]](#).

C.9 The average price for a property in Thurrock in November 2025 was £323,000 which is a result of a fluctuating upward trend over the past 10 years. In November 2025 the average price of housing in Thurrock housing was down by 0.8% from November 2024. Across the East of England, the average house price rose slightly by 1.8% to £338,000 over the same period [\[See reference 159\]](#). Properties in Thurrock are therefore lower than the regional average price.

C.10 Affordability of accommodation in Thurrock is an ongoing challenge, both in the private rental sector and for those aiming to purchase properties:

- **Rental Market:** Housing affordability can be assessed using the private rental affordability ratio, which measures median private rent as a proportion of median household income for private-renting households. In 2024, around two-thirds of local authorities in England and Wales recorded private rents at or below 30% of median household income. Thurrock's affordability ratio of 38.7% [\[See reference 160\]](#). While Thurrock is not among the least affordable authorities nationally, this figure is higher than the national average, suggesting that private renting is less affordable than in many other parts of England and Wales.
- **Purchasing Market:** Research undertaken as part of the Housing Strategy [\[See reference 161\]](#) assesses the proportion of first-time buyer and existing owner-occupier households in Thurrock that are priced out of the housing market, based on a borrowing assumption of four times household income, local property prices and national loan-to-value ratios. The analysis indicates that 92% of first-time buyer households are priced out of detached houses, 82% of semi-detached houses, 73.9% of terraced houses and 48.6% of flats. This suggests that a substantial proportion of households are unable to access home ownership, increasing pressure on both the private rented and affordable housing sectors.

C.11 Within the East of England as a whole, 9,180 households were assessed as homeless during July to September 2024. During the same period, 247

households in Thurrock were assessed as homeless which is above the East of England average [\[See reference 162\]](#).

C.12 There were 173 net additional dwellings completed between 1st April 2022 and 31st March 2023. 67.2% of the 173 dwelling completions that took place were on previously developed/brownfield land. 9 affordable houses were completed during 2022/2023, 6% of the total number of completions. 35% of affordable housing was provided on land south of the A1303, Stanford-le-Hope. Some schemes built during the year had no affordable housing due to the economic viability of the site or because the affordable houses had been built during a different phase of the site's development.. Housing provision in Thurrock has seen significant fluctuations between 2011 and 2023. Housing completions have dropped since an increase in annual completions between 2015 and 2018 [\[See reference 163\]](#).

Gypsy, Traveller and Travelling Showpeople

C.13 **Table C.2** shows the number of current Gypsy, Traveller and Travelling Showpeople pitches within Thurrock [\[See reference 164\]](#). Currently there are 134 pitches for Gypsies and Travellers and 7 plots for Travelling Showpeople in Thurrock.

Table C.2: Gypsy, Traveller and Travelling Showpeople pitches in Thurrock

Type	Category	Sites/Yards	Pitches/Plots
Gypsies and Travellers	Public sites	3	64
Gypsies and Travellers	Private sites with permanent planning permission	9	24
Gypsies and Travellers	Private sites with temporary planning permission	1	1
Gypsies and Travellers	Sites tolerated for planning purposes	4	10
Gypsies and Travellers	Unauthorised sites	7	35
Gypsies and Travellers	Sub-total	23	134
Travelling Showpeople	Private yards	2	7

Type	Category	Sites/Yards	Pitches/Plots
Travelling Showpeople	Sub-Total	2	7
Total	N/A	25	141

Projected baseline information

C.14 Thurrock needs to accommodate a substantial number of additional new homes over the period to 2040 in order to provide a 15-year supply to meet Government requirements (to be confirmed at time of writing).

C.15 The Essex Gypsy and Traveller and Travelling Showpeople Accommodation Assessment [\[See reference 165\]](#) identified that for the period 2013-2033 there is a requirement for 104 additional pitches in Thurrock to meet the needs of Gypsy and Traveller households. In relation to Travelling Showpeople, an additional need of 165 pitches is identified between 2013-2033. **Table C.3** sets out the identified need for additional pitches and plots for Gypsy, Traveller and Travelling Showpeople households in Thurrock.

Table C.3: Additional need for Gypsy, Travellers and Travelling Showpeople households

Years	2016-21	2021-26	2026-31	2031-36	Total
Gypsy and Traveller Households	49	17	18	20	104
Travelling Showpeople Households	131	11	11	12	165

Health

Current baseline information

C.16 Health is a cross-cutting topic and as such many topic areas explored in the Scoping Report influence health either directly or indirectly. Thurrock ranked around average among local authority areas in England for health in 2021. The Health Index score for the plan area during this period was 100.0, which was an increase of 1.0 point from the previous year [\[See reference 166\]](#).

C.17 Thurrock's best score across all subdomains was 126.9 for health relating to "physical health conditions". "Physical health conditions" looks at cancer, cardiovascular conditions, dementia, diabetes, kidney and liver disease, musculoskeletal conditions, and respiratory conditions. The second highest scoring subdomain was "mental health", while Thurrock's worst score was for "physiological risk factors".

Life expectancy

C.18 Life expectancy at birth in 2024 in Thurrock was 78.9 years for males and 82.7 years for females, which is slightly lower than the England average of 79.1 for males but the same as the England average of 82.7 for females [\[See reference 167\]](#). Reporting from 2020 shows that life expectancy at birth in Thurrock was 9.4 years lower for men and 6.5 years lower for women in the most deprived areas of Thurrock when compared to the least deprived areas [\[See reference 168\]](#). This is the same as the average for England where the gap in life expectancy at birth between the least and most deprived areas was 9.4 years for males, but lower than the average for England which was 7.7 years for females [\[See reference 169\]](#). The ratio of deaths from cancer, circulatory disease, coronary heart disease and respiratory disease are all 'significantly worse' than the England averages [\[See reference 170\]](#).

Obesity

C.19 Being overweight or obese carries numerous health risks, including increased likelihood of type 2 diabetes, cancer, heart and liver disease, stroke and related mental health conditions. It is estimated this health issue places a cost of at least £5.1 billion on the NHS and tens of billions on the wider UK society every year. Thurrock has a high percentage of adults classified as overweight or obese at 69.7%. This is higher than the regional and national averages of 63.9%. The proportion of year 6 children in Thurrock who are overweight or obese between 2020/21 and 2022/23 is 40.0%, similar to the England proportion (36.6%). [\[See reference 171\]](#), [\[See reference 172\]](#).

C.20 The number of hospital admissions with the primary diagnosis of obesity within Thurrock is 22 per 100,000 in 2019/20. This figure is higher than the regional figure of 14 and equal to the national figure of 19.7 persons per 100,000 [\[See reference 173\]](#).

Perception of wellbeing

C.21 Health indicators in which figures up to 2024 for Thurrock are significantly worse than national and regional averages are life expectancy at birth (males and females); under 75 mortality from cancer; smoking status at time of delivery; baby's first feed breastmilk; infant mortality rate; year 6 prevalence of obesity; percentage of physically active adults; and violent crime (hospital admissions for violence).

C.22 The plan area performs significantly better than the national and regional averages in terms of suicide rate; killed and seriously injured casualties on England's roads; emergency hospital admissions for intentional self-harm; admission episodes for alcohol-specific conditions (under 18s); children in relatively low income families (under 16s); children in absolute low income families (under 16s); and new sexually transmitted infections [\[See reference 174\]](#).

Social isolation/loneliness

C.23 The Office of National Statistics mapped loneliness rates by local authorities between October 2020 to February 2021 during the COVID-19 pandemic. Areas with higher concentrations of younger people and higher rates of unemployment tended to have higher rates of loneliness during the study period. Local authorities in more rural areas had a lower loneliness rate than urban, industrial, or other types of areas. Unfortunately, Thurrock had too small a sample size to record this data [\[See reference 175\]](#).

Overview of health indicators for the Borough

C.24 Health indicators in which figures for Thurrock are significantly worse than national and regional averages are life expectancy at birth (males); killed and seriously injured casualties on England's roads; smoking prevalence in adults; percentage of physically active adults; percentage of adults classified as overweight or obese; Year 6: prevalence of obesity; and violent crime (hospital admissions for violence).

C.25 The plan area performs significantly better than the national and regional averages in terms of suicide rate; emergency hospital admissions for intentional self-harm; and admission episodes for alcohol-specific conditions (under 18s) [\[See reference 176\]](#).

C.26 The COVID-19 pandemic has highlighted health inequalities including the differences in people's health and well-being that result from the conditions in which they are born, grow, live, work and age. For example, the pandemic has impacted social and community networks, showing that lack of social contact has a detrimental impact on mental health (causing or facilitating anxiety and depression). It has also had a negative impact on individual lifestyle factors such as lack of exercise and unhealthy diet, causing other health issues.

Projected baseline information

C.27 Given that Thurrock has performed poorly for some health indicators against regional and national averages, it is likely it will continue to do so without substantial intervention. There are a range of potential changes in determinants that will affect health in the UK, and Thurrock, in the future including climate change. Summers are expected to become hotter and sunnier and this may increase the excess mortality rate for vulnerable groups.

Access to services and facilities

Current baseline information

C.28 Services and facilities include hospitals and GPs, recreational resources, food retailers, employment and education centres, and other aspects of social infrastructure such as community centres and places of worship. Good and equitable accessibility and the provision of sufficient community facilities is a vital part of development's role in improving the health and well-being of a community.

C.29 Development which alters access to services and facilities can affect health and well-being in a number of ways. It can have direct links in terms of providing access to healthcare facilities, it can encourage walking or cycling, which may help to prevent or reduce obesity and the risk of cardiovascular disease, or it can restrict accessibility by non-car modes of transport, which may be particularly detrimental for certain social groups. Having suitable access to employment, education, places of worship and community centres is also important for well-being.

C.30 According to the most recent Department for Transport 'journey time statistics' [See reference 177], the average journey time taken to reach the nearest key services in Thurrock by car was 10.4 minutes, which is less than

the regional average for East of England (11.3 minutes) but marginally above the national average for England (10.3 minutes). The average journey time by public transport/walking was 18.4 minutes which is below the regional average for East of England (20.7) but again is above the national average (17.9 minutes). The same pattern exists for cycling, where the average journey time of 16.3 minutes was lower than the East of England average of 18.6 minutes but above the national average (15.6 minutes). The average journey time by walking was 31.4 minutes which is also below the East of England average (34.1 minutes) but is above the national average of 28 minutes.

C.31 These results suggest that access to key services and facilities in Thurrock is above average for the East of England region but below the national average.

Projected baseline information

C.32 Access to key services and facilities could become more challenging as the population in Thurrock continues to grow and age.

Open spaces, sports and recreation

Current baseline information

C.33 Thurrock has a variety of parks across the Borough, which include a number of Nature Parks; a variety of Riverside Parks; Langdon Hills Country Park and Belhus Woods Country Park. The RSPB maintains Rainham Marshes Nature Reserve, which consists of an ancient, low-lying grazing marsh that is important for wildlife.

C.34 Friends of the Earth has used official data to map the availability of green space for people living in neighbourhoods across England. The map has been created by combining official data on public green space, garden space, and open access land such as mountain, moor, heath, down or common land, with data on neighbourhood populations, ethnicity and income. Local authorities were assessed against the three categories and a rating from A to E was assigned. E rated neighborhoods are those most deprived of green space, including gardens and parks, whereas A rated neighborhoods get the health and nature benefits from plenty of green space.

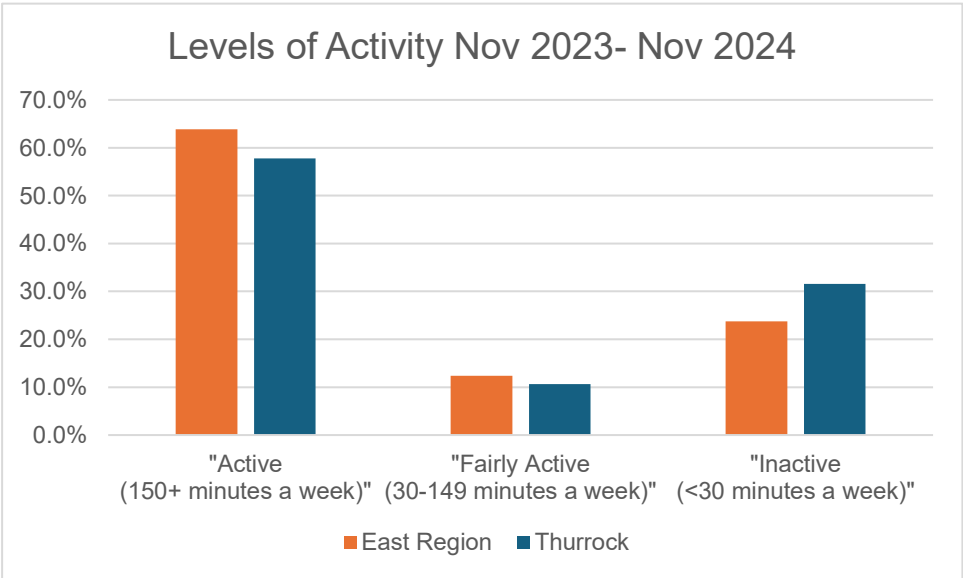
C.35 Two areas within Thurrock (Orsett, Bulphan & Hordon-on-the-Hill and Corringham North & London Gateway) received an A rating. These areas fall

within the more rural parts of Thurrock. The lowest rating given was a D at Purfleet, South Stifford & Lakeside; Tilbury; and Grays Town. Generally, the more urbanised areas within Thurrock received a lower rating [See reference 178].

C.36 A further study conducted by Friends of the Earth identified adequate and equitable access to high-quality green and blue environments as an issue in Thurrock, with 22% of Thurrock neighbourhoods having poor access to nature and 47% having only moderate access, particularly affecting disadvantaged neighbourhoods [See reference 179].

C.37 Thurrock has the highest percentage of adults who are inactive (34.6%), doing less than 30 minutes of activity a week and the lowest number of active adults (53.1%) who are doing over 150 mins of activity a week in the Greater Essex area. Furthermore, Thurrock is the second worst performing local authority in Greater Essex in relation to child inactive levels, with 34.4% children reported as inactive (less than 30 mins of activity on average a day) and only 46.3% reported as active (an average of 60 mins of activity a day) [See reference 180]. As illustrated in **Figure C.1**, the population of Thurrock are generally less active / more inactive than averages for the East of England region.

Figure C.1: Active Lives Survey results for Thurrock and East Region



C.38 In 2019, between 64.1% of adults from the borough walked at least once a week and 6.1% cycled. The walking average was lower than the national average which was 71.1%. In terms of bicycle travel, Thurrock is lower than the national average of 11.2%. However, the percentage of the adult population

cycling at least once a week was generally low across all authorities [See reference 181]. Data from Census 2021 shows that 5.1% of the Thurrock population walked to work and 1.2% cycled. This compares to the national figures of 7.6% and 2.1%, respectively [See reference 182].

Projected baseline information

C.39 Development pressure could lead to the loss of some existing open space and sports/recreation facilities while projected population increases are likely to increase demand for such facilities.

Crime

Current baseline information

C.40 Reported crime rates in Thurrock are fourth highest in Essex after Harlow, South-end-on-Sea and Basildon. [See reference 183]. Within Thurrock, the highest rates of crime were reported in Grays, followed by West Thurrock, South Ockendon, Tilbury, Aveley and Stanford-le-Hope in the year ended March 2025 [See reference 184].

Table C.4: Crime rates for local authority areas in Essex (crimes per thousand residents for year period up to March 2025)

Local Authority	Crime Rate
Rochford	46.32
Maldon	48.04
Castle Point	53.66
Uttlesford	56.20
Braintree	61.77
Brentwood	66.24
Epping Forest	70.84
Chelmsford	78.55
Colchester	82.01
Tendring	87.67
Thurrock	88.75
Basildon	90.28

Local Authority	Crime Rate
Southend-on-Sea	93.18
Harlow	106.96

C.41 Total recorded crime within Thurrock saw a decrease of 4.42% between March 2024 and March 2025. This period saw decreases in the total level of recorded crime in the Essex (6.12%) and England (1.7%). In Essex, the overall decrease in crime included decrease in robbery (14.7%); theft (5.0%); criminal damage and arson (5.1%) and possession of weapons offences (14%). During the same period, instances of violence against the person (3.0%); theft offences (7.7%); shoplifting (44.3%) and sexual offences (27%) increased [\[See reference 185\]](#).

Projected baseline information

C.42 Crime rates are influenced by such a large number of variables that it is very difficult to anticipate future trends. Spatial variation that currently exists in relative crime deprivation across Thurrock is likely to remain for the foreseeable future, and for the most part will likely mirror overall deprivation trends.

Education

Current baseline information

C.43 Across Thurrock there is a total of 43 primary schools, with 69% of pupils meeting the ‘expected standard’ which is higher than the national average of 62% [\[See reference 186\]](#). 45.1% of the 18 secondary schools in Thurrock have achieved a favourable attainment 8 score (based on how well pupils in a school have performed in up to 8 qualifications, which include English and maths) compared to national average of 43.7%. More than 80% of schools in Thurrock are achieving either ‘outstanding’ or ‘good’ Ofsted ratings [\[See reference 187\]](#). There is a major sixth form centre at Palmer’s College, plus a state-of-the-art South Essex College campus for post-16 opportunities. Thurrock’s two special schools – Beacon Hill Academy, for children with learning difficulties, and Treetops School, for socially disadvantaged children – both achieve an ‘outstanding’ Ofsted rating.

Projected baseline information

C.44 Higher skilled sectors such as advanced manufacturing and environmental technologies are expected to become more prevalent in Thurrock in coming years. Many companies within the area anticipate significant future growth, but many employers are already experiencing difficulties in attracting suitably skilled candidates and many report dissatisfaction with existing further education and higher education provision. Increasingly businesses are also referencing lack of numbers i.e. not enough people for the number of jobs that are being created, as a critical recruitment issue [\[See reference 188\]](#).

Deprivation

Current baseline information

C.45 The Index of Multiple Deprivation (IMD) [\[See reference 189\]](#) comprises seven standalone indexes which are combined and weighted together to form the Index of Multiple Deprivation. The domains are: income; employment; education, skills and training; health and disability; crime; barriers to housing and services; and living environment. The IMD uses Lower layer Super Output Areas (LSOA) to measure deprivation at local authority level.

C.46 Thurrock is more deprived overall than 61% of local authority districts. The most deprived areas within Thurrock lie around the more built-up centres of South Ockendon, Grays and Tilbury. There are three LSOAs (Thurrock 012F, 018H and 018D) in the Chadwell St Mary and Tilbury that fall within the 10% most deprived areas in England. There are also ten LSOAs within the 10% to 20% most deprived areas in England. The rural parts of Thurrock to the north and east, and parts of South Chafford, fall within the least deprived areas. Thurrock 010C (in Little Thurrock) is the only neighbourhood within Thurrock that falls within the 10% least deprived.

C.47 The latest Census data available determines that average car ownership in Thurrock is 1.27 per household, which is slightly higher than the national average of 1.16. Areas such as Ockendon, Tilbury and Chadwell St Mary have low levels of car ownership, limiting resident's mobility and access to services and opportunities in the wider area. These areas also have higher levels of deprivation compared to the rest of the borough [\[See reference 190\]](#). Mobility and accessibility inequalities are highly correlated with social disadvantage [\[See reference 191\]](#) and improvements in transport networks is key to improving access for all residents – not just those with access to a car.

Income Deprivation Domain

C.48 This type of deprivation reflects how many people have a low income, including people who are out of work, and people who are working but have low earnings. It contributes to 22.5% of a neighbourhood's overall deprivation score. In terms of income deprivation, Thurrock is more deprived than 69% of local authority districts in England [\[See reference 192\]](#).

Employment Deprivation Domain

C.49 This type of deprivation reflects how many working-age people are involuntarily out of work due to circumstances like sickness, disability or caring responsibilities. It contributes to 22.5% of a neighbourhood's overall deprivation score. In terms of employment deprivation, Thurrock is more deprived than 56% of local authority districts in England [\[See reference 193\]](#).

Education, Skills and Training Deprivation Domain

C.50 This type of deprivation refers to low levels of education and skills attainment in children, young people and adults. It contributes to 13.5% of a neighbourhood's overall deprivation score. In terms of education, skills and training deprivation, Thurrock is more deprived than 77% of local authority districts in England [\[See reference 194\]](#).

Health Deprivation and Disability Domain

C.51 This type of deprivation reflects the risk of premature death and reduced quality of life due to poor physical or mental health. It contributes to 13.5% of a neighbourhood's overall deprivation score. In terms of health deprivation and disability, Thurrock is more deprived than 50% of local authority districts in England [\[See reference 195\]](#).

Crime Domain

C.52 This type of deprivation reflects the risk of experiencing personal or property-related offences. It contributes to 9.3% of a neighbourhood's overall deprivation score. In terms of crime, Thurrock is more deprived than 76% of local authority districts in England [\[See reference 196\]](#).

Barriers to Housing and Services Domain

C.53 This type of deprivation is a measure of the financial and physical barriers to accessing housing and local services. It contributes 9.3% of a neighbourhood's overall deprivation score. In terms of barriers to housing and services, Thurrock is more deprived than 78% of local authority districts in England [\[See reference 197\]](#).

Living Environment Deprivation Domain

C.54 This type of deprivation includes measures such as the standard of housing, access to private outdoor space, pollution and traffic hazards. It contributes 9.3% of a neighbourhood's overall deprivation score. In terms of living environment deprivation, Thurrock is less deprived than 62% of local authority districts in England [\[See reference 198\]](#).

Income Deprivation Affecting Children Index

C.55 This type of deprivation reflects how many children ages 0 to 15 are living in income deprived families. In terms of income deprivation affecting children, Thurrock is more deprived than 60% of local authority districts in England [\[See reference 199\]](#).

C.56 According to Public Health England, 17.3% (7,064) children live in absolute low income families within Thurrock [\[See reference 200\]](#). It is estimated that 9,000 residents of Thurrock are in fuel poverty. At 13.4%, fuel poverty is marginally higher than in England as a whole (11.7%) [\[See reference 201\]](#).

C.57 Low-income households are at a greater risk of fuel poverty, contributing to social and health inequalities. Cold homes can affect or exacerbate respiratory, circulatory and mental health problems. Cold homes can also affect wider determinants of health, such as educational performance among children and absence from work. Vulnerable groups such as young children, older people and those with pre-existing health problems are particularly susceptible to cold-related illnesses [\[See reference 202\]](#).

Income Deprivation Affecting Older People Index

C.58 This type of deprivation reflects how many people aged 60 or over experience income deprivation. In terms of income deprivation affecting older

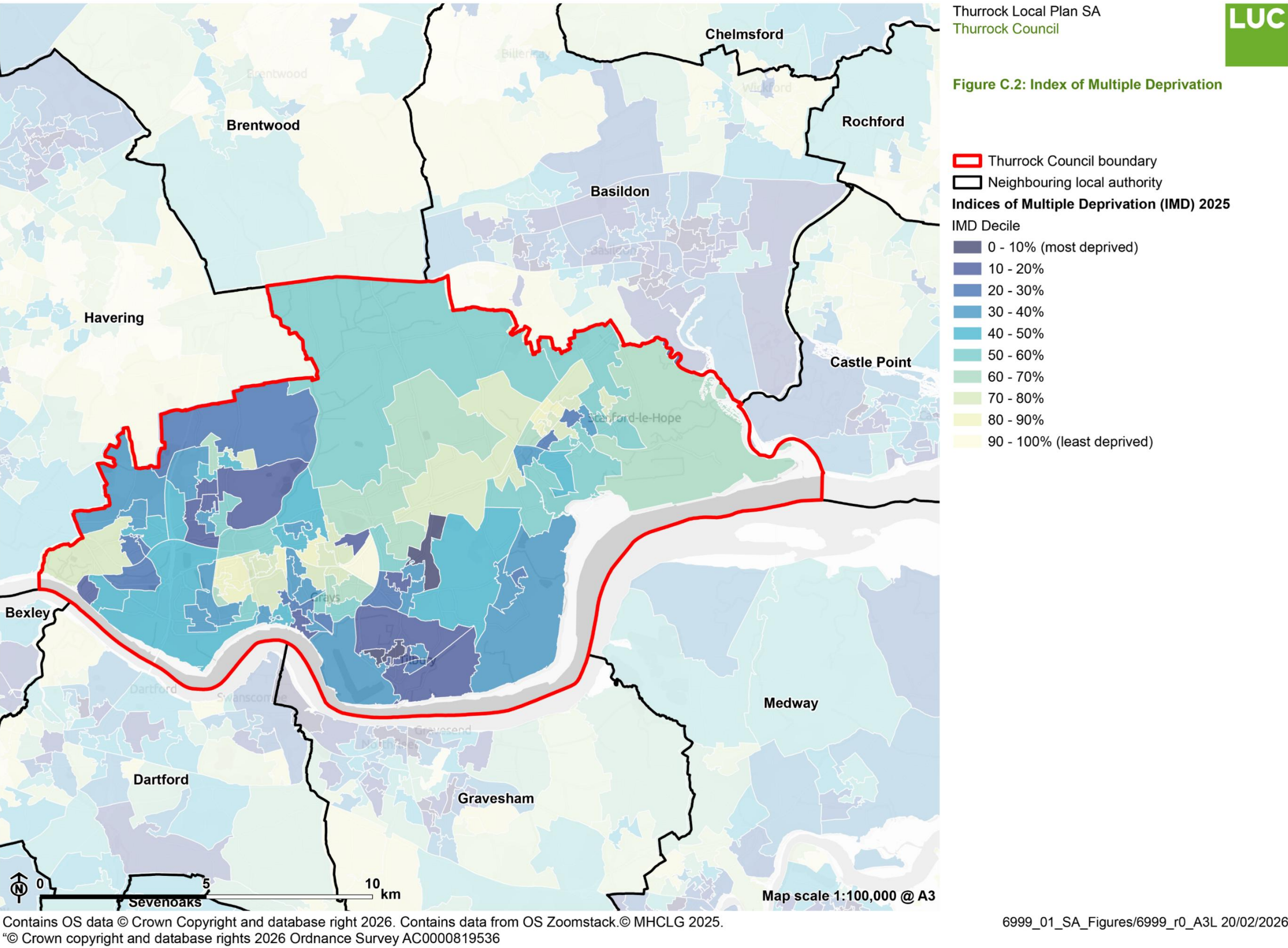
people, Thurrock is more deprived than 72% of local authority districts in England **[See reference 203]**.

C.59 Among older people, cold temperatures can increase the likelihood of strokes, circulatory problems, respiratory problems, hospital admissions, and lower strength and dexterity leading to falls and accidental injuries. In addition to the general risks associated with deprivation, older people are at more risk of being admitted to hospital or dying if they suffer from “fuel poverty” in the winter months **[See reference 204]**.

Projected baseline information

C.60 In the 2019 IMD, Thurrock ranked 120th most deprived local authority out of 317 in England (1 being the most deprived and 317 being the least deprived). In the 2025 IMD, Thurrock ranked 78th most deprived local authority out of 153 in England (1 being the most deprived and 153 being the least deprived) – therefore placing it near the middle **[See reference 205]**. As shown in **Figure C.2**, levels of deprivation continue to vary spatially across the Borough, with the east generally experiencing less relative deprivation than areas in the west. The 2025 data indicates that deprivation is widespread across England, with 65% of local authorities containing at least one highly deprived neighbourhood, up from 61% in 2019.

Figure C.2: Index of Multiple Deprivation



Equalities

Current baseline information

C.61 The Equality Act 2010 identifies nine ‘protected characteristics’ and seeks to protect people from discrimination on the basis of these characteristics. It presents three main duties: to eliminate discrimination, harassment, victimisation and other conduct that is prohibited under the Act; to advance equality of opportunity between persons who share relevant protected characteristics and persons who do not share it; and to foster good relations between persons who share a relevant protected characteristic and persons who do not share it. The nine protected characteristics identified through the Act are:

- Age;
- Disability;
- Gender reassignment;
- Marriage and civil partnership;
- Pregnancy and maternity;
- Race;
- Religion or belief;
- Sex; and
- Sexual orientation.

C.62 The potential effects of the plan in relation to groups covered by the nine ‘protected characteristics’ will be assessed separately in addition to the SA. This work will comprise the EqIA which will be presented in an appendix to the IIA Report.

C.63 While socio-economic status is not a characteristic protected by the Equality Act 2010, the Council is committed to also considering the effects that the plan will have on groups affected by these types of issues. The EqIA will therefore also consider the potential effects on socio-economic groups not limited to but including the following:

- People on low incomes;
- Young and adult carers;

- People living in deprived areas/rural areas; and
- Groups suffering multiple disadvantages.

Age

C.64 According to the 2021 Census, the average (median) age for Thurrock is 36. This is lower than the average (median) age for the East of England (41) and England (40). Based on figures from 2021, the age profile for Thurrock was broadly similar to that for England as a whole. A more detailed breakdown of the estimated age make-up of the population is provided in **Table C.5** [See [reference 206](#)].

Table C.5: Percentage of usual residents by age group

Age Group	Thurrock Population (%)	England Population (%)
4 years and under	7.0	5.4
5 to 9 years	7.2	5.9
10 to 15 years	8.4	7.2
16 to 19 years	4.6	4.6
20 to 24 years	5.4	6.0
25 to 34 years	14.7	13.6
35 to 49 years	21.6	19.4
50 to 64 years	17.6	19.4
65 to 74 years	7.7	9.8
75 to 84 years	4.3	6.1
85 years and above	1.6	2.4

Disability

C.65 Thurrock saw the East of England's largest percentage-point fall in the proportion of residents who were identified as being disabled and limited a lot (from 9.2% in 2011 to 7.2% in 2021). According to the 2021 Census, 83.3% of residents are not disabled, 9.5% are disabled and limited a little and 7.2% are disabled and limited a lot. Every local authority area across the East of England saw a fall in the proportion of residents who were identified as being disabled and limited a lot, as the regional proportion fell from 7.8% to 6.6%. The 2021 Census was undertaken during the COVID-19 pandemic, which may have

influenced how people perceived their health status and activity limitations [See reference 207].

Marriage and civil partnership

C.66 According to the 2021 Census, 45.0% of Thurrock’s population were married or registered in a civil partnership and 38.6% never married and never registered in a civil partnership. The increase in the percentage of people aged 16 years and over who had never been married or in a civil partnership was greater in Thurrock (4.7 percentage points) than across the East of England (3.7 percentage points, from 31.3% to 34.8%). Across England, the percentage increased by 3.3 percentage points, from 34.6% to 37.9% [See reference 208].

Pregnancy and maternity

C.67 In 2024, the total fertility rate in Thurrock was 1.62. This is higher than the East of England (1.50) and England (1.42). In 2024, there was a total of 2,106 live births in Thurrock [See reference 209].

Race

C.68 Historically, there has been substantial movement of people from London to Thurrock, particularly from geographically close boroughs, including Havering, Barking and Dagenham, and Newham. Between mid-2021 and mid-2022, net internal migration out of Thurrock was 872 and net internal migration into Thurrock was 877 [See reference 210].

C.69 In 2021 there were 2,559 Thurrock residents who arrived in the UK in the previous two years [See reference 211]. **Table C.6** below shows the country of birth of Thurrock’s residents in 2021 and **Table C.7** shows the ethnicity of residents in 2021.

Table C.6: Country of birth of Thurrock’s population (2021)

Country of Birth	Count	Percentage
United Kingdom	139,059	89.6%
Europe: EU countries (member countries in March 2001; Ireland)	813	0.5%
Europe: other Europe (excluding Ireland)	17,785	10.1%
Africa	9,926	5.6%

Country of Birth	Count	Percentage
Middle East and Asia	6,762	3.8%
The Americas and the Caribbean	1,485	0.8%
Antarctica and Oceania	170	0.1%

Table C.7: Ethnicity of Thurrock residents (2021)

Ethnicity	Count	Percentage
Asian, Asian British or Asian Welsh	12,205	6.9%
Black, Black British, Black Welsh, Caribbean or African	20,877	11.9%
Mixed or multiple ethnic groups	5,252	3.0%
White	134,984	76.7%
Other ethnic group	2,675	1.5%

Religion/belief

C.70 In 2021, the majority of Thurrock's population considered themselves to be Christian, with 90,940 residents falling within this classification (51.7%). The second largest group within Thurrock is 61,043 (34.7%) residents who classify themselves as having no religion. **Table C.8** shows the breakdown of all recorded religions within Thurrock in 2021. In line with national trends, the number of residents reporting to have no religion has grown significantly since 2011 and the number of residents recorded as Christian has fallen [\[See reference 212\]](#).

Table C.8: Religion breakdown

Religion	Number of People in Thurrock	Percentage of Population
No religion	61,043	34.7%
Christianity (all denominations)	90,940	51.7%
Buddhist	703	0.4%
Hindu	2,376	1.4%
Jewish	225	0.1%
Muslim	8,586	4.9%

Religion	Number of People in Thurrock	Percentage of Population
Sikh	2,030	1.2%
Any Other Religion	901	0.5%
Not answered	9,196	5.2%

Sex

C.71 Based on Census 2021 figures [\[See reference 213\]](#), there are 86,213 males (49%) and 88,787 females (51%) in Thurrock.

There is little baseline information available that is directly relevant to other protected characteristics including gender reassignment and sexual orientation.

Projected baseline information

C.72 A review of the baseline information suggests that Thurrock has an ageing population, growing ethnic and religious diversity, and a low birth rate but with an increase in mothers over the age of 35.

C.73 It is expected that the ratio of those residents over the age of 65 will increase in the future across the UK. Thurrock presently has a relatively low old age dependency ratio at 220.8 compared to the East of England ratio (325.4) which indicates that the number of people of state pension age per 1,000 people of working age is comparatively lower. In Thurrock, this figure is expected to rise to 240.4 by 2043, while the East of England figure is expected to increase to 400.3 by this time [\[See reference 214\]](#). An aging population will put additional pressure on health and social care infrastructure in the Borough.

Implications for health

C.74 Some areas of the Borough experience significant health challenges, with high levels of obesity and risk of associated health problems. The UK Chief Medical Officers advise that for good physical and mental health, adults should aim to be physically active every day. Over the course of a week adults should accumulate at least 150 minutes of moderate intensity activity; or 75 minutes of vigorous intensity activity day; or even shorter durations of very vigorous

intensity activity; or a combination of moderate, vigorous and very vigorous intensity activity [\[See reference 215\]](#).

C.75 Similarly, open spaces and recreational facilities provide residents space in which they can undertake physical activity to the benefit of public health, including lowering the risk of specific health conditions such as depression, anxiety, cortisol, blood pressure, pre-term birth, low birthweight, and type 2 diabetes. There is generally positive evidence relating to the impacts of activities in natural environments on children's mental health and their cognitive, emotional and behavioural functioning. These health benefits are thought to arise through a range of pathways, including providing opportunities and safe spaces for physical activity, for restoration and relaxation, and for socialising with friends and family. Exposure to green and blue space is also associated with higher levels of life satisfaction. Impacts appear to differ according to socio-economic status and other demographic factors such as age or gender.

C.76 Similarly, encouraging active travel, such as walking and cycling can have a wider range of positive implications for health, including increased physical activity and opportunities for social interaction. In addition, an increase in active travel would be associated with a decrease in vehicular transport and an associated decrease in air pollutants that can be harmful to human health.

Economy and employment

Current baseline information

C.77 The economy within Thurrock has been growing. In 2013, the GVA (Gross Value Added) of the Thurrock economy was around £2.8billion. This has increased to around £4.1billion in 2019 [\[See reference 216\]](#). Thurrock is at the heart of global trade and logistics, with no fewer than three international ports. Thurrock is well positioned on the M25 and A13 corridors, with excellent transport links west into London, north and east into Essex, and south into Kent [\[See reference 217\]](#). Thurrock is the largest regeneration area in the UK with its riverside location and transport links, it has the fastest growing economy supported by major developments. The area falls within the Thames Gateway Redevelopment Zone. The major projects are concentrated on six growth hubs. Each hub is crucial to the economy of the Borough. Their programmes are underpinned by a vital economic development, community engagement and environmental initiatives that will ensure growth is sustainable and beneficial regeneration. The six growth hubs are:

- Purfleet-on-Thames – Home of High House Production Park.
- Lakeside and West Thurrock – Already a major retail and leisure destination and set to expand to become a regional town centre.
- Grays – The administrative hub of Thurrock will build upon the current projects to improve economic growth and enhance the public realm.
- Tilbury – A new vision will build on the strengths of the close community and expansion of the port.
- London Gateway – The largest inward investment project in the UK saw DP World's high tech deep-sea container port open in 2013 and become home to a high-tech logistics business park, creating thousands of new jobs.
- Thames Enterprise Park – Creating an Environmental Technologies and Energy Hub alongside a new import/export and blending facility for oil products on the site of the former Coryton Oil Refinery, it will include the world's first bio jet fuel plant converting landfill waste into jet fuel in a partnership between Solena Fuels and British Airways.

C.78 As part of the Thurrock Employment Land Review [\[See reference 218\]](#), 33 of the 36 employment clusters within Thurrock were surveyed. The 36 employment clusters included approximately 250 separate business and industrial sites, occupying an approximate total area of 1,386 ha of land. Of the 36 surveyed employment clusters, 22 were considered to be in good or very good condition. The main industrial estates in Thurrock are:

- Stanhope Industrial Estate;
- Thurrock Park Industrial Estate;
- Purfleet Industrial Park;
- Milehams Industrial Estate;
- Aveley Industrial Estate;
- Magnet Works Industrial Estate;
- Frogmore Industrial Estate;
- Motherwell Way Industrial Estate; and
- Riverside Industrial Estate.

C.79 Within the borough's existing employment areas there are 51 available sites with a combined total gross site area of 377 hectares and an estimated net

developable area of 311 hectares. Some available employment sites are within employment areas which due to age, quality or changes in the local economy could be considered unsuitable for continued employment purposes. When measured against past take-up of employment land of 16.93 hectares per annum, this equates to 17 years supply [\[See reference 219\]](#).

C.80 The borough’s commercial activity is dominated by the industrial and logistics sector. Data from the Valuation Office Agency identifies that office floorspace is less than 5% of employment floorspace in Thurrock. There are 79,000 sq m of offices compared to 1,658,000 sq m of industrial floorspace. The importance of the industrial and logistics sectors to the borough is due to geography and transport links [\[See reference 220\]](#).

C.81 London Gateway has been very successful in attracting national industrial and logistics occupiers to the borough, combining a container terminal and logistics park. The logistics park benefits from a local development order meaning that it can respond quickly to occupier demands for bespoke premises and can accommodate future expansion options. The data shows that 50% of take-up of industrial floorspace in the borough for the period 2017 to 2022 has been at London Gateway [\[See reference 221\]](#).

C.82 The Office for National Statistics (ONS) reported a 4.5% decrease in the number of businesses in Thurrock between 2022 and 2023 with a 4.7% decrease in the number of businesses across the East of England [\[See reference 222\]](#). Thurrock contains a range of businesses in sectors including those in the professional, scientific and technical, retail, construction, information and communication, and health sectors. **Table C.9** shows the breakdown of employee jobs by industry within Thurrock, which is predominantly dominated by wholesale and retail trade, construction, and human health and social work services [\[See reference 223\]](#).

Table C.9: Employee jobs by industry in Thurrock (2021)

Industry	Number of Employees	Percentage of Workforce (%)
Agriculture, forestry and fishing	150	0.2
Mining and quarrying	89	0.1
Manufacturing	4,312	5.0
Electricity, gas, steam and air conditioning supply	399	0.5

Industry	Number of Employees	Percentage of Workforce (%)
Water supply; sewerage, waste management and remediation activities	796	0.9
Construction	10,722	12.5
Wholesale and retail trade; repair of motor vehicles and motorcycles	16,044	18.7
Transportation and storage	8,982	10.5
Accommodation and food service activities	3,277	3.8
Information and communication	2,655	3.1
Financial and insurance activities	4,138	4.8
Real estate activities	1,164	1.4
Professional, scientific and technical activities	4,201	4.9
Administrative and support service activities	4,714	5.5
Public administration and defence; compulsory social security	4,350	5.1
Education	6,936	8.1
Human health and social work activities	10,021	11.7
Other	2,991	3.5

C.83 In 2014/15 there were around 80,000 residents in employment. This has increased to nearly 85,000 in 2019/20. In the meantime, the number of workless households dropped from 15.2% (7,800 in 2015) to 11.3% (5,900 in 2019). The number of jobs in Thurrock has also increased from 68,000 in 2014 to 78,000 in 2018 and the jobs density increased from 0.64 to 0.72 – albeit still lower than the East of England or Great Britain average [\[See reference 224\]](#).

C.84 Between January 2024 and December 2024, the rate of economically active residents in Thurrock was 79.8%. During the same period, the figure for East of England was 80.3%. In Thurrock, the unemployment rate between January 2024 and December 2024 was 4.2%, which is higher than East of England's unemployment rate at 3.3%. Furthermore, 8.1% of people who were economically active were self-employed, and in terms of the ratio of labour demand this equated to 67.1% of people in full time employment and 31.6% in part-time employment. The proportion of adults who were self-employed also increased from 7.9% in 2015 to 12% in 2022. [\[See reference 225\]](#).

C.85 The claimant count in Dec 2022 was 3.8% or more than 4,100 people. This is higher than the claimant count for the east of England (3.0%) and for Great Britain as a whole (3.7%).

C.86 In 2024, gross weekly pay in Thurrock was around £699.40. The regional average during that year was £724.60 and the national average was £729.60, demonstrating that Thurrock has higher average pay than the regional and national averages [\[See reference 226\]](#).

C.87 **Table C.10** shows the number of people employed by occupation within Thurrock between January 2024 and December 2024. The most significant employee jobs by occupation are professional occupations; associate professional and technical; administrative and technical [\[See reference 227\]](#).

C.88 Some parts of Thurrock have particular issues with broadband connectivity making it more difficult for businesses and for employees to work remotely. In July 2021 Thurrock was behind the national average for Full Fibre coverage, however by November 2022 Thurrock was significantly ahead of the national average at 56.16% as opposed to 42.2%. The biggest issue to achieving full fibre coverage in Thurrock is likely to be in addressing ‘not spots’, areas where businesses and residents can’t get a ‘decent broadband connection’, defined by Ofcom as a download speed of at least 10 Mbit/s and an upload speed of at least 1 Mbit/s. These areas exist in both rural and urban settings across Thurrock including some areas of Grays and Purfleet-on-Thames. However, the overall level of superfast broadband connectivity across Thurrock is generally strong with mainly 90-100% connectivity to superfast broadband. With around 60% of the Borough classed as rural there are some isolated areas of lower connectivity to superfast broadband to the north and centre of the Borough [\[See reference 228\]](#).

C.89 There are relatively low rates of home working.

Table C.10: Employee jobs by occupation in Thurrock

Occupation	Number of Employees
Managers, Directors and Senior Officials	7,900
Professional Occupations	15,100
Associate Professional and Technical	14,100
Administrative and Secretarial	14,700
Skilled Trades Occupations	7,700
Caring, Leisure and Other Service Occupations	5,400

Occupation	Number of Employees
Sales And Customer Service Occupations	5,600
Process Plant and Machine Operatives	10,200
Elementary Occupations	9,900

C.90 As of 2024 there were a total of 7,005 active enterprises within Thurrock. Over a five-year period between 2016 and 2021, the number of enterprises in Thurrock has increased faster than for both the East of England and Great Britain [\[See reference 229\]](#). The vast majority of businesses in Thurrock are micro businesses employing fewer than nine people equating to roughly 92.1% of businesses in 2022. As of 2022, there are 15 businesses within Thurrock employing for than 250+ employees [\[See reference 230\]](#).

C.91 Thurrock falls within the 40% most deprived areas in England for employment deprivation (ranking 116 out of 317 local authorities), with the south and west of the Borough being the most deprived (among the 10% most deprived) and the central areas of the Borough being the least deprived (among the 20% least deprived areas in England) [\[See reference 231\]](#).

The full economic impact of the COVID-19 pandemic will not be known for some time and there are many different forecasts about the severity and duration of the downturn, the impact it is having on particular businesses and on jobs, and how long the impacts will last. However, certain issues have emerged:

- Different sectors of the economy have been impacted in different ways. Retail, hospitality, culture and the arts, leisure and aviation are some sectors that have been badly hit. The most resilient parts of the economy are those where workers are most able to work from home.
- Some sectors and businesses have grown during the pandemic. The move to online retail and impact on the distribution industries are of particular note to Thurrock.
- Some parts of Thurrock have particular issues with broadband connectivity making it more difficult for businesses and for employees to work remotely. There are relatively low rates of home working.

Projected baseline information

C.92 According to data from the East of England Forecasting Model [\[See reference 232\]](#) Thurrock's Gross Value added is forecast to grow by an average of 1.7% per annum between 2020 and 2045, and total employment by an average of 1.0% per year, equating to 20,900 jobs.

C.93 Potential investments in the local economy, particularly associated with identified economic hubs such as the London Gateway, Port of Tilbury and Lakeside, offer the potential for faster jobs growth in the coming years.

C.94 As noted above, the full economic impact of the COVID-19 pandemic will not be known for some time. However, anecdotal evidence suggests that office-based staff will work remotely/at home more frequently, consequently businesses are likely to reduce their office space.

Town centres and retail

Current baseline information

C.95 Much of the riverside area of Thurrock is highly urbanised, with a mixture of industrial and residential development at the western and eastern ends. The Borough has a number of main settlements, including Grays, Stanford le Hope, Corringham, South Ockendon and Tilbury, together with a number of villages in the Green Belt. Thurrock also contains the relatively new community of Chafford Hundred.

C.96 Within Thurrock, Grays is the major town centre. Grays was the dominant retail centre in the Borough until the opening of Lakeside Shopping Centre in 1990. Lakeside Shopping Centre has ten times more floorspace than Grays. Grays is the administrative centre for Thurrock and for service and cultural facilities. Of the local centres, Corringham and South Ockendon are the largest.

C.97 Town centres, and particularly retail, were severely affected during the COVID-19 pandemic. In the week ending 26 June 2020, retail footfall across the UK was 75% of the equivalent week in 2019.

C.98 The overall retail unit vacancy rate in the UK at the end of 2021 was 14.4%, with shopping centre vacancies at 19.1%, high street vacancies at 14.4%, and retail park vacancies at 11.3%, making it the location with by far the lowest rate [\[See reference 233\]](#). This is due to the COVID-19 pandemic

accelerating a shift towards online shopping with shopping centres being hardest hit.

C.99 Total UK footfall decreased by 15.4% in March 2022 with footfall on the high street declining by 17.8%, in retail parks by 7.3%, and in shopping centres by 35.8% [\[See reference 234\]](#).

C.100 Thurrock Council monitors the number of empty retail units in Thurrock's town centres and neighbourhoods, and also changes to the total retail floorspace. The status of retail units was most recently checked in December 2016 and June 2017. **Table C.11** shows the retail unit vacancy rates in Thurrock's town centres [\[See reference 235\]](#). Tilbury and South Ockendon had the highest number of vacant retail units in 2017. **Table C.12** shows the change in retail floorspace as a result of planning applications completed from 2015 to 2017. Overall, retail floorspace has decreased within Grays town centre and all other local centres. The largest decrease in retail floorspace is within A1, however, there was an increase in A3 retail use class. It is likely that the impact of the COVID-19 pandemic will have altered these figures, however, there is no data available to reflect the current situation in Thurrock.

Table C.11: Number of vacant units in Thurrock's town centres

Town Centre	Vacant Units December 2016	Vacant Units June 2017
Grays town centre	13 (5.7%)	13 (5.7%)
Aveley local centre	3 (12.5%)	3 (12.5%)
South Ockendon local centre	9 (18.8%)	8 (16.7%)
Corringham local centre	3 (4.9%)	2 (3.3%)
Socketts Heath local centre	3 (8.3%)	3 (8.3%)
Stanford le Hope local centre	11 (11.2%)	9 (9.2%)
Tilbury local centre	12 (14.0%)	15 (18.3%)

Table C.12: Changes to retail floorspace from 2015-2017

Retail Use Class	Change in Floorspace in Grays Town Centre (square metres)	Change in Floorspace in Other Local Centres (square metres)
A1	-534	-149
A2	-65	0

Retail Use Class	Change in Floorspace in Grays Town Centre (square metres)	Change in Floorspace in Other Local Centres (square metres)
A3	495	100
A5	0	45
Total change	-104	-4

Projected baseline information

C.101 As previously noted, the COVID-19 pandemic has adversely impacted the health of town centres, exacerbating long-term trends of increased empty retail units and reduced footfall. However, long-term impacts following the pandemic are uncertain. Town-centres in the Borough may see some improvement with a renewed focus, new investment and regeneration schemes (e.g. Grays Town Centre Framework) targeted at revitalising town centres.

Implications for health

C.102 Some areas of the Borough experience significant health challenges, with high levels of obesity and risk of associated health problems. The UK Chief Medical Officers advise that for good physical and mental health, adults should aim to be physically active every day. Over the course of a week adults should accumulate at least 150 minutes of moderate intensity activity; or 75 minutes of vigorous intensity activity; or even shorter durations of very vigorous intensity activity; or a combination of moderate, vigorous and very vigorous intensity activity [\[See reference 236\]](#).

C.103 Similarly, open spaces and recreational facilities provide residents space in which they can undertake physical activity to the benefit of public health, including lowering the risk of specific health conditions such as depression, anxiety, cortisol, blood pressure, pre-term birth, low birthweight, and type 2 diabetes. There is generally positive evidence relating to the impacts of activities in natural environments on children's mental health and their cognitive, emotional and behavioural functioning. These health benefits are thought to arise through a range of pathways, including providing opportunities and safe spaces for physical activity, for restoration and relaxation, and for socialising with friends and family. Exposure to green and blue space is also associated with higher levels of life satisfaction. Impacts appear to differ according to socio-economic status and other demographic factors such as age or gender.

C.104 Similarly, encouraging active travel, such as walking and cycling can have a wider range of positive implications for health, including increased physical activity and opportunities for social interaction. In addition, an increase in active travel would be associated with a decrease in vehicular transport and an associated decrease in air pollutants that can be harmful to human health.

Transport infrastructure

Current baseline information

Public transport network

C.105 The transport network in Thurrock is shown in **Figure C.3** and **Figure C.4**.

C.106 Public transport in the Borough offers a range of connections provided by bus and train services. In general, there are good levels of accessibility by public transport to key services in Thurrock compared to the East of England region, but journey times are greater than the national average.

C.107 There are seven train stations in Thurrock located at Purfleet, Ockendon, Chafford Hundred, Grays, Tilbury Town, East Tilbury, and Stanford-le-Hope, providing services between Southend-on-Seas and London. The rail line forms part of Network Rail's Anglia region. The Essex Thameside route runs from London Fenchurch Street to Shoeburyness, carrying a mixture of commuter and leisure traffic, along with container traffic to and from the ports at Tilbury and London Gateway. However, overall capacity of the rail network is nearing capacity, including potential issues on freight services from Tilbury Port and London Gateway in future. Plans are underway for the redevelopment of Stanford-le-Hope railway station, which will comprise improved access for connecting buses and other travel links to and from the station. The redevelopment scheme will enhance access to new jobs at London Gateway and the proposed Thames Enterprise Park development, as well as local residential need **[See reference 237]**.

C.108 Bus networks in the borough are focused around the densely populated areas and routes between them. This translates to a high frequency network in the south and west of Thurrock, and across the centre to Stanford-le-Hope.

C.109 In Thurrock, the proportion of people using bus to travel to work is relatively low, with the majority of areas below 5% mode share. In general, mode shares are higher in areas with higher population and employment densities and lower in more rural areas.

C.110 There are four bus service providers in Thurrock: Ensignbus, First Essex, NIBS Buses/Stephensons and Transport for London. The number of passenger trips recorded in the borough by the Department for Transport bus statistics had shown a rise in the two years prior to the Covid-19 pandemic. During 2020/21, the number of journeys by bus decreased significantly before rising again in 2021/22 and 2022/23. In 2022/23, the number of journeys reported was 5.0 million, which is comparable to the figure for 2019/20 (5.1 million).

C.111 There are a total of 612 bus stops in Thurrock. 140 of these are currently equipped with a passenger waiting shelter. TfL has noted that the condition of some of the bus stop infrastructure is of a lower quality than generally provided in Greater London, such as kerb heights, lighting availability and information.

C.112 Bus priority infrastructure provision is limited in Thurrock. Currently there are only three areas with significant bus priority measures:

- Askews Farm Land/London Road, South Stifford eastbound, close to the junction for Askews Farm Lane:
- High Road, North Stifford (next to the North Stifford interchange):
- There is also a developer provided bus link between Meadow Drive and Park Lane in Aveley. However, this is not in use at this time as no buses currently serve this residential area.

C.113 The Traffic Commissioners set a reliability target that 95% of bus services should be within a window of tolerance of one minute early and five minutes late. Between 2020/21 and 2022/23 the figure for Thurrock fell from 96.9% to 85.7%. The general characteristic of bus service time keeping in Thurrock is that most services run punctually much of the time; but that any significant disruption the adjoining trunk roads (M25 and A13) has a disproportionate effect on congestion on the conventional street network in Thurrock. In extreme circumstances this can result in buses running many hours late [\[See reference 238\]](#).

C.114 Up to April 2024, a regular foot passenger ferry service was in operation on the River Thames connecting the town and port of Tilbury with Gravesend, Kent. Kent County Council have been involved in discussions led by the Thames Estuary Growth Board to explore how the ferry service might be

reinstated, however, at present the ferry service is not in operation [\[See reference 239\]](#).

C.115 There are several notable public transport projects, that are either planned, programmed or underway in Thurrock:

- Stanford-le-Hope Station redevelopment, including better access for connecting buses and other travel links to the station. Works are expected to begin in 2025.
- The Thurrock Bus Service Improvement Plan (BSIP) 2024 [\[See reference 240\]](#) follows the UK Government's National Bus Strategy [\[See reference 241\]](#), setting out improved collaboration between Thurrock Council and bus operators through Enhanced Partnership, improvements in bus routes, frequencies and fares.
- Thurrock Council has also been exploring opportunities for a Mass Rapid Transit (MRT) service linking key residential and employment hubs in the borough with fast bus links [\[See reference 242\]](#).

Walking and cycling

C.116 In Thurrock, 51.4% of employed people travel to work via car (including passengers). In Thurrock, walking levels are significantly below the average for neighbouring local authorities and the national average for England. Census 2021 data revealed that people in Thurrock were less likely to travel to work by foot or bike (6.3%) in comparison to England average (9.7%) [\[See reference 243\]](#).

C.117 The 2021 Census showed that 21.4% of Thurrock residents live less than 5km from their workplace. Additionally, just over 50.0% of pupils living within the walking and cycling threshold currently walk, and over 1,500 of those living within the walking threshold are driven to school by car [\[See reference 244\]](#).

C.118 The level of people cycling in Thurrock at least twice in the last 28 days has fallen slowly since 2019, while the level of walking has stayed relatively flat, apart from a decline in walking for travel during 2019/20 and 2020/21 (presumably due to Covid). However, there has been a noticeable decline in those cycling at least once a year, falling by almost one-third from 2017/18 to 2022/23. This is mainly due to a significant fall in cycling for leisure, from 25% of adults in 2017/18 to just 8% in 2021/22. Walking remains more or less at the same level during the same period, apart from a Covid-related dip. [\[See reference 245\]](#).

C.119 Thurrock has a fragmented walking and cycling network. Two significant ‘gap’ areas are Purfleet/West Thurrock and South Ockendon. Gaps are also noted at Stanford-le-Hope, Aveley, East Tilbury and Chadwell St Mary. Priorities for the improvement of networks include reducing physical barriers and reducing mental barriers to active travel. Based off analysis of desire lines include, physical priorities include:

- West/east connections across the borough, particularly in the Purfleet/West Thurrock area;
- South Ockendon and the surrounding area;
- North/south connections between Purfleet and Aveley (with connection able to further link South Ockendon);
- Between Stanford-le-Hope and Corringham;
- Between Chadwell St Mary and Tilbury;
- Between Blackshots and the surrounding area; and
- Along sections of the coastal network [\[See reference 246\]](#).

C.120 Various cycle facilities are scattered around Thurrock. Most of these are shared use paths and shared use footways. However, many of these facilities significantly restrict the use of wheelchairs, mobility scooters and pushchairs, as well as non-standard cycles such as cargo bikes. Route analysis identified that Thurrock has 156km of public footpaths and 17km of bridleway, as well as 293km of cycle ways (categorised as advisory (158km), bridleway (11km), cycle lanes (11km), official (26km) and traffic-free (87km)).

C.121 Progress has been made to invest in more sustainable transport options in the borough. In particular, the Council has implemented a range of cycle improvement schemes through the £5 million Cycle Infrastructure Delivery Plan between 2014-19, and more recently the £3.3 million South Essex Active Travel Programme. A £900,000 Emergency Active Travel Fund (Tranche 1) provided some traffic calming measures in the borough to promote safer travel for all during the Covid pandemic, however some of these measures have since been removed.

Road network

C.122 Thurrock’s location at the edge of Greater London means that it is a key location in terms of the strategic highway network, with the M25 and A13 acting as a crossroads of national importance.

C.123 The key components of the road network in Thurrock are:

- The M25 (London Orbital motorway) passes through the west of Thurrock, connecting the borough with the major road network encircling most of Greater London.
- The A13 is an important route that links Central London with south Essex, passing through Thurrock.
- The M25 and A13 intersect in the west of the borough, forming a crossroads of both national and regional importance (the Mar Dyke Interchange).
- The A282 creates a link between the M25 (north of the River Thames) and M25 (south of the River Thames). It connects at the M25/A13 crossroads and connects Thurrock with Dartford and areas south of the River via the Dartford Crossing.
- The A1090, A126, A1012, A1013 and A1306 connect the urban areas of Purfleet and Grays with the surrounding major road network.
- The A1089 connects the town of Tilbury and Tilbury port with the A13.
- The A128 connects the village of Bulphan with the A13 to the south and the A127 to the north.
- The A1014 connects areas of Stanford-le-Hope, Corringham and London Gateway with the A13, in the east of the borough.
- The remainder of the road network in Thurrock comprise primarily B roads and rural roads.

C.124 Thurrock suffers from congestion on its strategic road network in certain areas, particularly along the A13. This is largely because a high proportion of the workplace and resident population travel by car. In addition, there is a high proportion of HGVs on the network. The M25 and A13 are routes of national and regional importance. Adverse traffic conditions on these routes often have knock-on effects on local roads, leading to localised gridlock on occasion and impacting negatively on economic productivity. The Lakeside Basin and its surrounding road network (A126, A1206, B126) suffers significantly with traffic during peak hours, weekends and holidays. It creates a pinch-point which has an impact on the wider West Thurrock strategic road network. The Dartford Crossing adds an additional element of traffic risk, as the bridge and tunnels are more sensitive to accidents and congestion, which also leads to widespread effects on Thurrock's local road network [\[See reference 247\]](#).

C.125 In 2024, 1.13 billion vehicle miles were travelled in roads in Thurrock. Since 2003, vehicles miles within Thurrock for all vehicles have been gradually increasing up to 2019 when there was a sudden drop in vehicles miles from 1168.3 million miles to 996.1 million miles in 2020. This sudden drop in vehicle miles between 2019 and 2020 is likely due to travel restrictions imposed during the COVID-19 pandemic [\[See reference 248\]](#).

C.126 Between 2019 and 2024 the number of casualties on Thurrock's roads fell from 382 to 277. During the same period the number of casualties reported across Essex Fell from 3,897 to 3,604.

C.127 The majority of reported casualties are car users. However, more vulnerable road users (including motorcyclists, cyclists and walkers) make up a higher proportion of casualties in accidents that result in serious injuries or fatalities. Road casualties are concentrated in urban centres in the south and west of Thurrock as well as towards more important junctions in the borough. [\[See reference 249\]](#), [\[See reference 250\]](#).

C.128 In 2023 the Council produced the Thurrock Local Transport Plan draft Vision 2050 which focused on a better connected, more integrated and less congested Thurrock. It aims to provide journey reliability and safety that will lead to fewer accidents, with the number of people killed or seriously injured approaching zero [\[See reference 251\]](#).

Projected baseline information

C.129 The effects of climate change are predicted to result in increased disruption to transport infrastructure and services in the future. For instance, this could possibly include reduced capacity of the rail network due to hot track conditions.

C.130 The predicated growth of Thurrock's population will increase pressure on the borough's public transport systems.

C.131 Given that active travel levels in the borough have performed poorly relative to regional and national averages for a number of years, it is likely that this will continue unless there is substantial intervention. Many new jobs created in the borough in coming years, such as at London Gateway, are located away from the main urban areas, limiting the opportunities for associated active travel.

C.132 Thurrock and South Essex have seen major investment in recent years, including the opening of the DP World London Gateway port and Logistics facility. There are a number of major schemes proposed that will influence the development of transport networks in Thurrock.

C.133 There are several notable transport projects, that are either planned, programmed or underway in Thurrock, including:

- Lower Thames Crossing led by National Highways as a NSIP, with construction expected to start in 2026 and open to traffic in the early 2030s. The scheme would connect to the A2 and M2 in Kent to the A13 in Thurrock and junction 29 of the M25 in the London Borough of Havering. It would be approximately 14.3 miles long, with 2.6 miles of this in two tunnels under the Thames. The tunnels would be located to the east of the village of Chalk on the south side of the Thames, and to the west of East Tilbury on the north side. The scheme will potentially introduce new challenges but aims to relieve congestion west of the borough by reducing demand at the existing Dartford Crossing.
- A13 widening (A128 to A1014) led by Thurrock Highways, recently completed.
- The expansion of London Gateway Port led by DP World, via a series of Local Development Orders (most recently January 2025), expected by 2029.
- Tilbury Link Road led by National Highways (no longer part of the Lower Thames Crossing NSIP, now a standalone project), the Council is exploring opportunities for a Tilbury Link Road, which would improve access to the Tilbury Growth Area. The scheme would provide connection between port activities in Tilbury and the proposed Lower Thames Crossing route.
- A13 / East Facing Slip Road – Installation of the East Facing Access Road on the A13 will provide access improvements between Lakeside and A13 East and will enhance capacity at J30 of the M25, reducing congestion issues in the area. The project is a long-held ambition for the Council and will improve operation of the local road network.

C.134 Thurrock's location 32km east of central London means there are competing pressures for land in the borough, including housing, employment and transport infrastructure. The predicated growth of Thurrock's population will increase pressure on the borough's transport systems, increasing congestion and road maintenance requirements [\[See reference 252\]](#). Further to this, the

effects of climate change are predicted to result in increased disruption to transport infrastructure and services in the future. Potential impacts include deterioration of road surfaces, impacting local transport networks and businesses.

Figure C.3: Transport network in Thurrock (public and active transport)

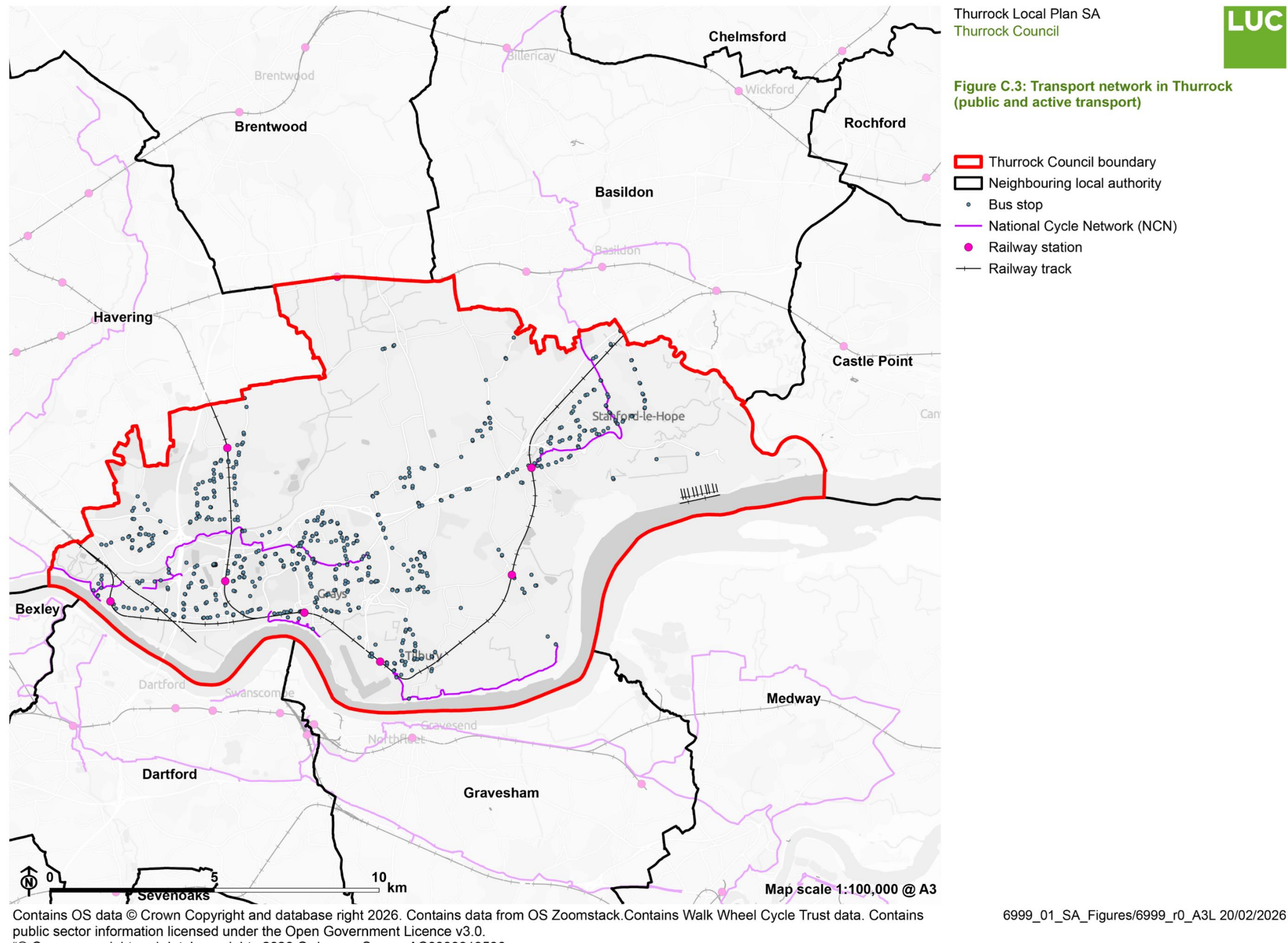
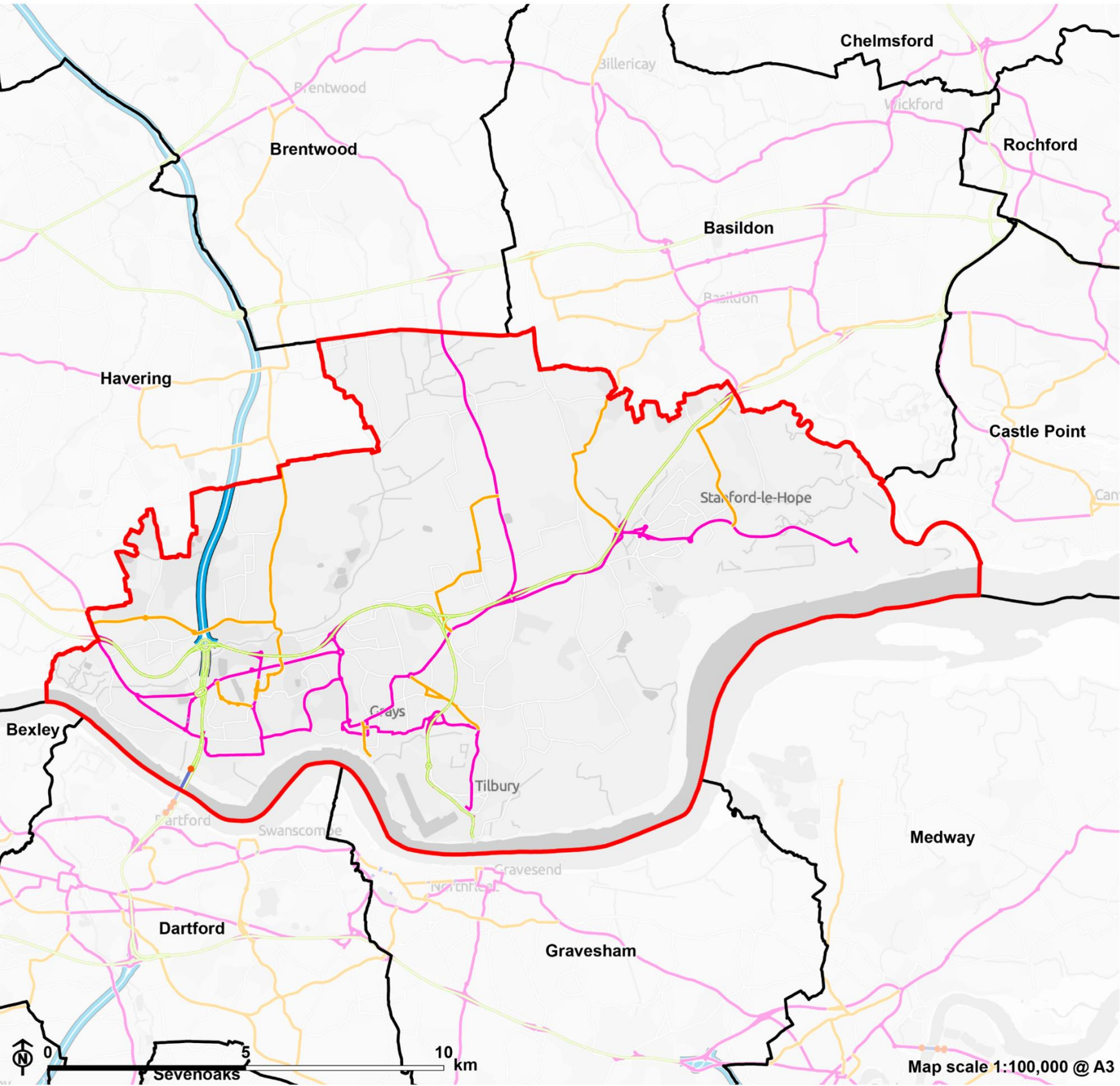


Figure C.4: Transport network in Thurrock (road network)



Thurrock Local Plan SA
Thurrock Council



Figure C.4: Transport network in Thurrock
(road network)

- Thurrock Council boundary
- Neighbouring local authority
- Motorway
- A road
- B road
- Primary road
- Road tunnel

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Air, land and water quality

Geology and minerals

Current baseline information

C.135 The County of Essex, including Thurrock, has extensive deposits of sand and gravel. There are more localised deposits of silica sand, chalk, brickearth and brick clay. There are no rock deposits in the County, so this material must be imported into Essex.

C.136 Thurrock is a unitary authority, required to plan for an adequate and steady supply of mineral resource to meet its own need, and contribute to the region's need. At present, minerals planning in Thurrock is guided by relevant policies in the adopted Core Strategy (2015) [\[See reference 253\]](#).

C.137 Thurrock lies on four main types of underlying geology in the north of the Borough: the Thames Group (clay, silt, sand and gravel); the Lambeth Group (clay, silt, sand and gravel); Thanet formation (sand, silt and clay); and the White Chalk Subgroup (chalk) [\[See reference 254\]](#). In the south of the Borough, near Purfleet and Grays, there is a band of upper chalk, exposed at the surface. This is the oldest rock in the Borough and was extensively quarried for the Portland cement industry, particularly around West Thurrock and Grays [\[See reference 255\]](#).

C.138 The Borough contains safeguarded mineral resources including two operational sand and gravel quarries in Thurrock at Dansand Quarry and Orsett Quarry. Mill House Farm ceased operation in 2020. There are two non-operational sand and gravel quarries at Medina Farm and East Tilbury Quarry [\[See reference 256\]](#). The River Thames has been a major route for transshipment and distribution of aggregates. Hard rock and marine dredged aggregates are landed in Thurrock with the material distributed within the Borough, the wider region and London. There are a total of 11 transshipment facilities in Thurrock at Port of Tilbury, Tilbury 2, Tilbury Docks, Purfleet Wharf, Thurrock Marine Terminal, DP World Berth [\[See reference 257\]](#).

C.139 There are currently four mineral sites in Thurrock with permitted extraction of sand and gravel although not all are operational:

- Dansand Quarry, Orsett – This site is operational and continues with limited mineral extraction of sand and gravel as well as recycling of

aggregates. Permission includes the restoration of the quarry site after extraction of minerals by 2025.

- Orsett Quarry – This site is currently a mothballed sand and gravel quarry. Current activity includes the restoration of the south western part of the site as a wildlife area. An outstanding application submitted to the Council seeks extension southwards and for further mineral extraction of sand and gravel.
- Mill House Farm, West Tilbury – Permission granted for mineral extraction of sand and gravel as part of the provision of an agricultural reservoir. This application is being implemented.
- Medina Farm, South Ockendon – Permission granted by Thurrock Council for limited mineral extraction prior to restoration of land. The permission has not yet been implemented. Part of the proposed site falls within London Borough of Havering, which has yet to grant permission for a separate application.

C.140 In association with the extraction of minerals, there are also four marine wharfs (at London Gateway Berth 7 DP World; Thurrock Marine Terminal, Tilbury Docks and Port of Tilbury); three rail terminals (at Purfleet Rail Depot; Tilbury Bulk Rail Terminal; Tilbury 2 Rail Terminal); and 10 aggregate recycling sites.

Projected baseline information

C.141 There are several notable major development/construction projects, that are either planned, programmed or underway in Thurrock, which will require significant amounts of mineral resources in the future:

- Lower Thames Crossing led by National Highways as a NSIP, expected to open to traffic in the early 2030s.
- London Gateway Port led by DP World, via a Local Development Order, expected in 2029 or beyond.
- Thames Enterprise Park, Thames Enterprise Park Ltd, completion date hasn't been set yet.
- Tilbury Link Road – Led by National Highways (no longer part of the LTC NSIP, now a standalone project).
- A13 East Facing Slip Road – The project is a long-held ambition for the Council and will improve operation of the local road network.

Soils

Current baseline information

C.142 The County of Essex, including Thurrock, has extensive deposits of sand and gravel. There are more localised deposits of silica sand, chalk, brickearth and brick clay. There are no rock deposits in the County, so this material must be imported into Essex. Thurrock lies on four main types of underlying geology in the north of the borough: the Thames Group (clay, silt, sand and gravel); the Lambeth Group (clay, silt, sand and gravel); Thanet formation (sand, silt and clay); and the White Chalk Subgroup (chalk) [\[See reference 258\]](#). In the south of the borough near Purfleet and Grays there is a band of upper chalk, exposed at the surface. This is the oldest rock in the borough and was extensively quarried for the Portland cement industry, particularly around West Thurrock and Grays [\[See reference 259\]](#). There are four geological SSSIs in Thurrock: Lion Pit SSSI; Purfleet Chalk Pits SSSI; Grays Thurrock Chalk Pit SSSI; and Globe Pit SSSI.

C.143 The Agricultural Land Classification (ALC) system classifies agricultural land in five categories according to versatility and suitability for growing crops. The main settlements are classified as 'urban'. A number of areas are classified as 'other land primarily in non-agricultural use'. Thurrock also contains a large amount of productive agricultural land:

- The majority of land north of the A13 in Thurrock is Grade 3 (i.e. good to moderate);
- Land south of the A13, surrounding urban areas is a mixture of Grade 2 and 3 (i.e. very good and good to moderate); and
- There are areas of Grade 1 (excellent) land near the M25, north of South Ockendon and surrounding Aveley [\[See reference 260\]](#).

C.144 **Figure C.5** shows the range of agricultural land grades in the Borough.

C.145 Soils published by Cranfield University [\[See reference 261\]](#) shows what the likely soil conditions are in the landscape by reference to one of 27 different broad types of soil. The main soil types in Thurrock include:

- Large areas north of the A13 have slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils. This soil has moderate fertility.

- Loamy and clayey floodplain soils with naturally high groundwater. This soil has moderate fertility.
- Loamy soils with naturally high groundwater. This soil has low fertility.
- Freely draining slightly acid loamy soils. This soil has low fertility.
- Freely draining slightly acid but base-rich soils. This soil has high fertility.
- Slightly acid loamy and clayey soils with impeded draining. This soil has moderate to high fertility.
- Loamy and clayey soils of coastal flats with naturally high groundwater, along the coast of the River Thames. This soil has lime-rich to moderate fertility.

C.146 Thurrock has an extensive industrial, quarrying and land-filling past. Due to this, the area has a legacy of contaminated land. In accordance with Section 78R of the Environmental Protection Act 1990, the Council is required to maintain a public register of contaminated land, which serves as a permanent record of all regulatory action undertaken to ensure remediation of any site that has been classified as contaminated. There are several contaminated sites in Thurrock including waste and former landfill sites, dockyards, power stations, cement or asbestos manufacturers, petrochemical installations, petroleum storage sites, diesel storage tanks, paper manufacturers and agricultural activities (mainly north of the A13) [\[See reference 262\]](#).

Projected baseline information

C.147 Soil is a finite natural resource which regenerates only over extremely long geological timescales and provides many essential services including food production, water management and support for valuable biodiversity and ecosystems. It also plays a role in preventing climate change as a larger storer of carbon.

C.148 Soils in England have degraded significantly over the last two decades due to intensive agricultural production and industrial pollution and continue to face threats. These are:

- Soil erosion by wind and rain, affects the productivity of soils as well as water quality and aquatic ecosystems;
- Compaction of soil, reduces agricultural productivity and water infiltration, and increased flood risk through higher levels of runoff; and

- Organic matter decline, affects the supply of nutrients in soil moisture (particularly during summer and autumn months) in the future, which is likely to affect the natural environment and landscape.

C.149 Given the technical challenges and associated costs of developing contaminated sites, these are likely to remain in their current state in the absence of policies that support appropriate opportunities to remediate contaminated land.

Contaminated land

Current baseline information

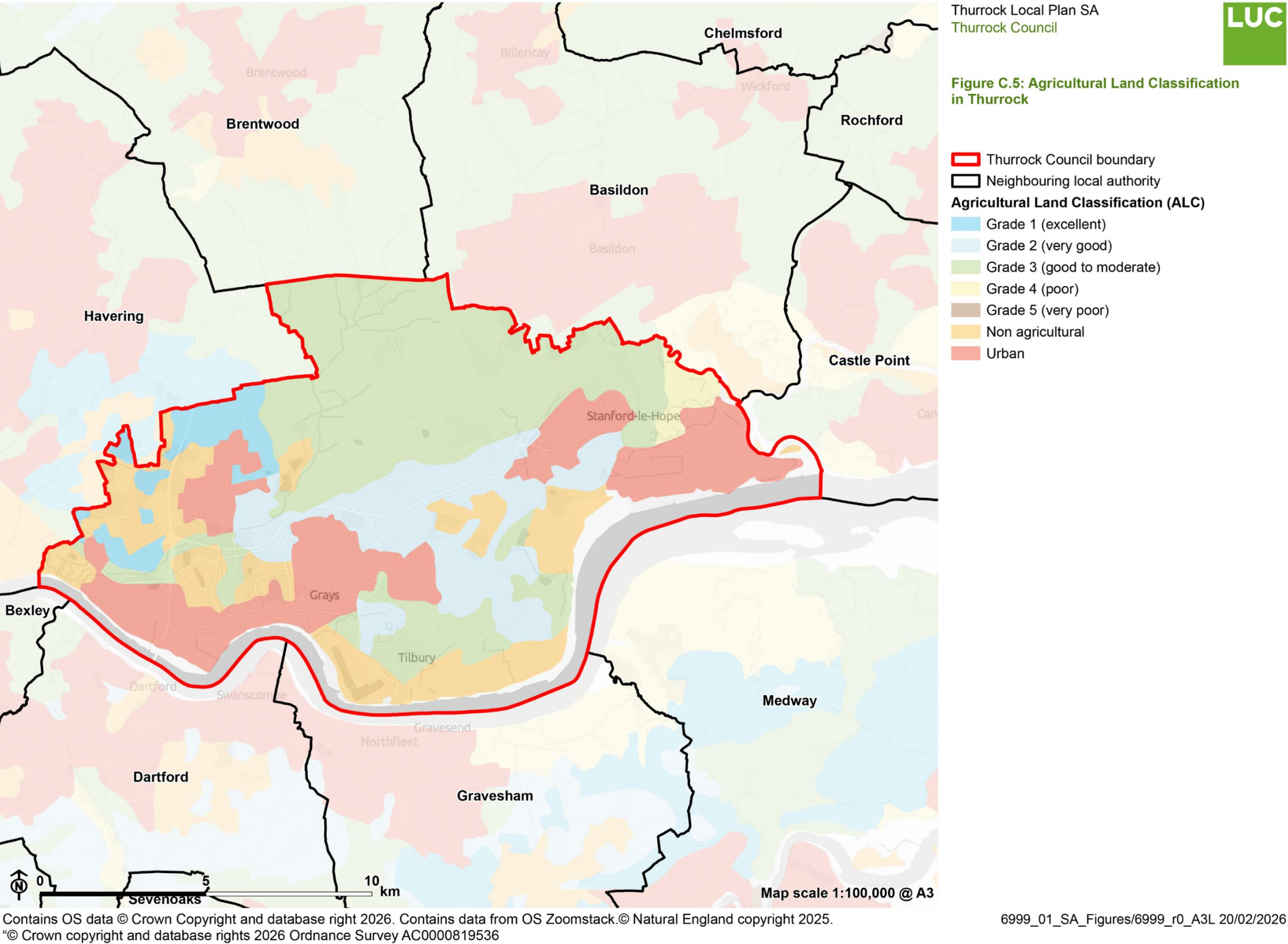
C.150 Thurrock has an extensive industrial, quarrying and land-filling past. Due to this, the area has a legacy of contaminated land. In accordance with Section 78R of the Environmental Protection Act 1990, the Council is required to maintain a public register of contaminated land, which serves as a permanent record of all regulatory action undertaken to ensure remediation of any site that has been classified as contaminated.

C.151 Contaminated sites identified within Thurrock include waste and former landfill sites, which previously accepted waste from London and the southeast, dockyards, power stations, cement or asbestos manufacturers, petrochemical installations, petroleum storage sites, diesel storage tanks, paper manufacturers and agricultural activities (mainly north of the A13) [\[See reference 263\]](#).

Projected baseline information

C.152 Given the technical challenges and associated costs of developing contaminated sites, these are likely to remain in their current state in the absence of policies that support appropriate opportunities to remediate contaminated land.

Figure C.5: Agricultural Land Classification in Thurrock



Waste

Current baseline information

C.153 The Municipal Waste Strategy for Thurrock 2021-2031 [\[See reference 264\]](#) sets out the current status of waste management in Thurrock. The Council currently provides a weekly collection of refuse, recycling and garden and food waste. Thurrock also have a successful commercial/trade waste collection from which the waste-tonnages collected contribute to the Council's overall targets.

C.154 The total amount of waste collected by the Council was 76,481 tonnes in 2023/24, with 68,455 tonnes of household waste collected during this time. In Thurrock 381.7kg of waste were collected per person during this period and 30.0% of waste was sent for reuse, recycling or composting. This compares to 31.8% across England during the same period [\[See reference 265\]](#).

C.155 The Municipal Waste Strategy for Thurrock states that Thurrock's recycling performance has not improved over the six years up to 2021 and has seen a steady decline to stagnation since 2014/15. Recycling waste from Thurrock is disposed of in East London, restricting the capacity and frequency of collections in the Borough. The Strategy states that renewal of disposal contracts offers the opportunity to redress this issue. The Council's core objective is to increase Thurrock's recycling to 45% by 2025 and 50% by 2030.

Projected baseline information

C.156 In terms of how waste arisings are managed, recent trends are predicted to continue; with gradual reductions in the proportion landfilled and gradual increased in the amount incinerated. Recycling trends since 2014/15 suggest the recycling rates will remain at a similar level without significant intervention. These projections are also highly dependent on other variables, including population growth, implementation of large regeneration and infrastructure projects, and the amount of waste that is imported from outside the Borough.

Water

Current baseline information

C.157 Thurrock is located within the South Essex Catchment Partnership (SECP) area [\[See reference 266\]](#). The South Essex Catchment covers

Mardyke Valley in the west of Thurrock, and a number of small tributaries of the Thames Estuary to the east. The SECP Plan (2021) [\[See reference 267\]](#) outlines the key features of the catchment area and the main threats it is facing. The SECP prioritises projects that seek to tackle issues involving water quality, flood risk, habitats and wildlife and health and wellbeing, aligning with improving the catchment's Water Framework Directive status. It is further supported by the Thames River Basin District River Basin Management Plan. Thurrock is also partially located within the Thames Estuary 2100 plan area [\[See reference 268\]](#), which sets out how the Environment Agency and partners can work together to manage flood risk, adapt to the challenges of climate change, ensure sustainable and resilient developments, protect social, commercial and cultural value, and enhance and restore ecosystems within the Thames estuary.

C.158 Thurrock is located on the River Thames however, the main watercourse flowing through Thurrock is the River Mardyke. This flows for 18km from its source near little Warley, through the borough until it meets the River Thames at Purfleet. The flow from the Mardyke to the Thames is controlled by a sluice located at the confluence of the two rivers, and the Mardyke becomes tide-locked for several hours each tidal cycle. This exacerbates the low flow conditions and can result in low dissolved oxygen concentrations during the summer months. Other watercourses in the borough are Stanford Brook and Vange Creek/Holehaven Creek.

C.159 The Water Framework Directive, transposed by the Water Framework Regulations, aims to achieve high or good status for surface water in all member states by 2027. The Thames Lower and Thames Middle waterbodies were of 'moderate' ecological status [\[See reference 269\]](#), [\[See reference 270\]](#) in 2019. The chemical status for both sections of the river was 'fail'. Reasons for not achieving good ecological and chemical status are largely related to contamination from industry, landfill leaching, sewage discharge, urban development, transport, as well as physical modification from various activities. The Mardyke and its tributaries were also considered to be in 'moderate' ecological health. The chemical status for the river and its tributaries in 2019 was also 'fail'. The main reasons for the water body and its tributaries not achieving good ecological and chemical status were sewerage discharge from the water industry, physical modification of the river, land drainage, high levels of phosphate from agricultural runoff from rural areas, industry discharge and a number of other unknown activities that are pending investigation [\[See reference 271\]](#).

C.160 Groundwater within the South Essex Catchment is held within a chalk aquifer to the south and a gravel aquifer to the north. Within Thurrock, the

overall groundwater status is generally poor. Although quantitative status (the amount of groundwater) is largely good aside from the far south of the catchment, the chemical status is poor throughout.

C.161 There are a number of water-dependent Sites of Special Scientific Interest (SSSI) in the Mardyke Valley, at Grays Chalk Pit and West Thurrock Lagoon and Marshes. The coastal strip to the east of the borough also contains a number of internationally important habitat sites, including the Thames Estuary and Marshes Special Protection Area and Ramsar site and a number of grazing marsh SSSIs.

C.162 Much of northern Thurrock is within a surface water Nitrate Vulnerable Zone (NVZ) (i.e. the Mardyke NVZ). These zones are designated where land drains and contributes to the nitrate found in 'polluted' waters.

C.163 Source Protection Zones (SPZs) are defined around large and public potable groundwater abstraction sites, and they provide additional protection to safeguard drinking water quality by constraining the proximity of an activity that can impact the quality of drinking water. There are two SPZs within Thurrock, in Linford and North Stifford. The entire catchments of these two zones fall within the borough boundary [\[See reference 272\]](#).

C.164 The location of SPZs and the main watercourses in the borough are shown in **Figure C.6**.

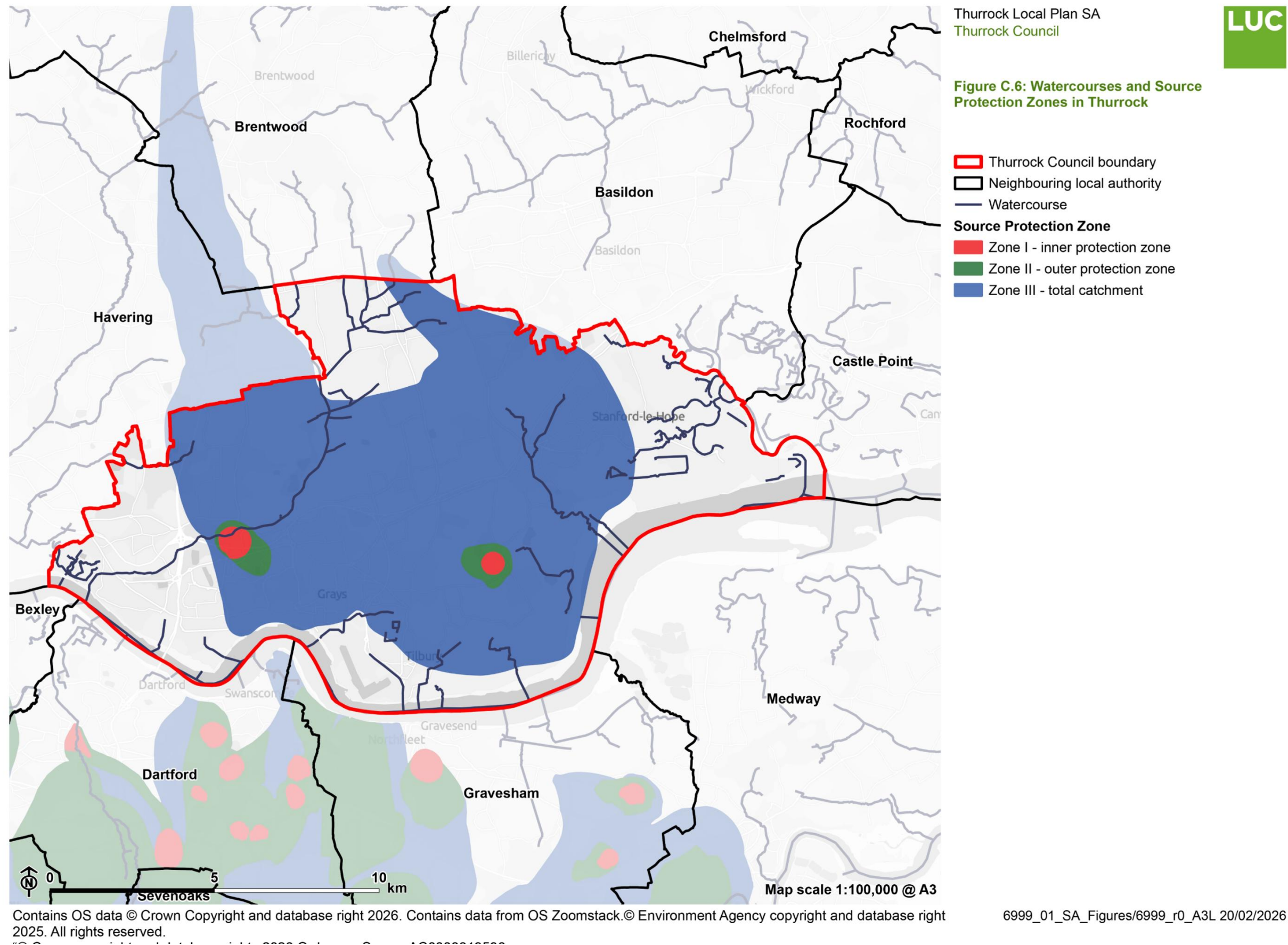
C.165 Eastern England is classified as severely water stressed, yet demand for water is growing with one of the highest rates of new housing development in the country. On average the population in Essex consumes larger volumes of water per person than most of England. Only three fifths of the drinking water consumed in Essex comes from the county itself. It is estimated that by 2050 the East of England will experience a public water supply shortage of around 730 million litres of water per day (Ml/d), equal to over a third of the predicted future need [\[See reference 273\]](#).

Projected baseline information

C.166 Under predicted climate change scenarios, more frequent drought conditions are expected in the East of England, along with increased demands on water resources. Future developments will create additional demand for water abstraction from surface and groundwater sources in Thurrock. At a high level, it is broadly assumed that the quality of water bodies including the Thames and Mardyke will improve in line with WFD objectives. However, water

quality is influenced by a wide range of internal and external factors, including climate change, geology and soils, human consumption and population change, and pollution from human activities such as industry and agriculture. Future development, particularly in areas close to water bodies, may present a challenge in improving water quality.

Figure C.6: Watercourses and Source Protection Zones in Thurrock



Air

Current baseline information

C.167 Thurrock's Air Quality Annual Status Report 2023 [\[See reference 274\]](#)

outlines the status and key issues associated with air quality in Thurrock.

Thurrock currently has 18 Air Quality Management Areas (AQMA). These are located mainly in the west of the Borough, close to major transport routes such as the M25 and A13 and are a result of traffic related pollution along busy roads used for commuter traffic or logistical purposes. The routes are often saturated with traffic during peak hours and there are many areas where there is relevant public exposure, predominantly in the form of residential dwellings in close proximity.

C.168 The main pollutant of concern in Thurrock is nitrogen dioxide (NO₂) and to a lesser extent, particular matter (PM₁₀) – both of these pollutants arise from road traffic emissions. Thurrock only has AQMA declared for road traffic-based emissions; there are no industrial based AQMA. The AQMA are all declared for exceedance of the long-term objective for the protection of human health for NO₂ (40 µg/m³).

C.169 In 2022, Thurrock Council monitored PM_{2.5} at two locations: TK3 and TK9 monitoring stations, in Stanford-le-Hope and Tilbury respectively. While concentrations at both sites are higher than the newly introduced air quality objective for this pollutant, they were compliant with the applicable air quality target at the time. Concentrations at both sites have remained stable over the last five years, where data is available.

C.170 There is also currently one location monitoring sulphur dioxide (SO₂) in the Borough located in Grays. SO₂ concentrations were below air quality objectives in 2019 and 2020, with no exceedances reporting in either year.

C.171 In addition to their potential negative effects on human health, emissions of nitrogen oxides (NO_x) and particulate matter (PM) can affect ecosystems. It is likely that the strongest effect of emissions of nitrogen oxides across the UK is through their contribution to total nitrogen deposition. All plants need nitrogen to grow but if too much nitrogen is present, it becomes a pollutant and can result in biodiversity change. Nitrogen deposition can also increase the risk from abiotic factors (e.g. drought and frost) or cause acidification of soils. As well as these effects of nitrogen deposition, direct effects can occur on habitats and species where there is high exposure (e.g. habitats adjacent to motorways and large highways, and habitats in and around urban centres). Particulates (i.e.

PM₁₀, PM_{2.5}) are essentially dust emissions that can settle on vegetation [See reference 275].

C.172 Figure C.7, Figure C.8 and Figure C.9 shows air quality (including concentrations of NO₂, PM_{2.5} and PM₁₀) in the Borough. Figure C.10 shows where AQMAs are designated in the Borough and surrounding areas.

Projected baseline information

C.173 If pollutant concentrations continue to fall, it will be the Council's aim to review some of its AQMAs with the intention of either reducing the current size of them or revoking some entirely. In 2016 the Council undertook a detailed modelling assessment to re-determine the extent of NO₂ and PM₁₀ exceedances over most of the Borough, including all AQMAs. It found that eight AQMAs should be revoked for NO₂ and all four for PM₁₀. The Council planned to monitor these locations for at least three years and make a determination in 2020. Due to the COVID-19 pandemic, the decision to revoke these AQMAs has been delayed.

C.174 There is a possibility that air quality may worsen in the long-term as a result of climate change, due to a greater likelihood of prolonged periods of still, dry days, and to-date this relationship has been difficult to predict. This will need to be taken into account in the development of air quality action plans and monitoring regimes, as will the effects of major infrastructure developments such as the Lower Thames Crossing and London Gateway.

Figure C.7: Air quality (concentrations of NO2) in Thurrock

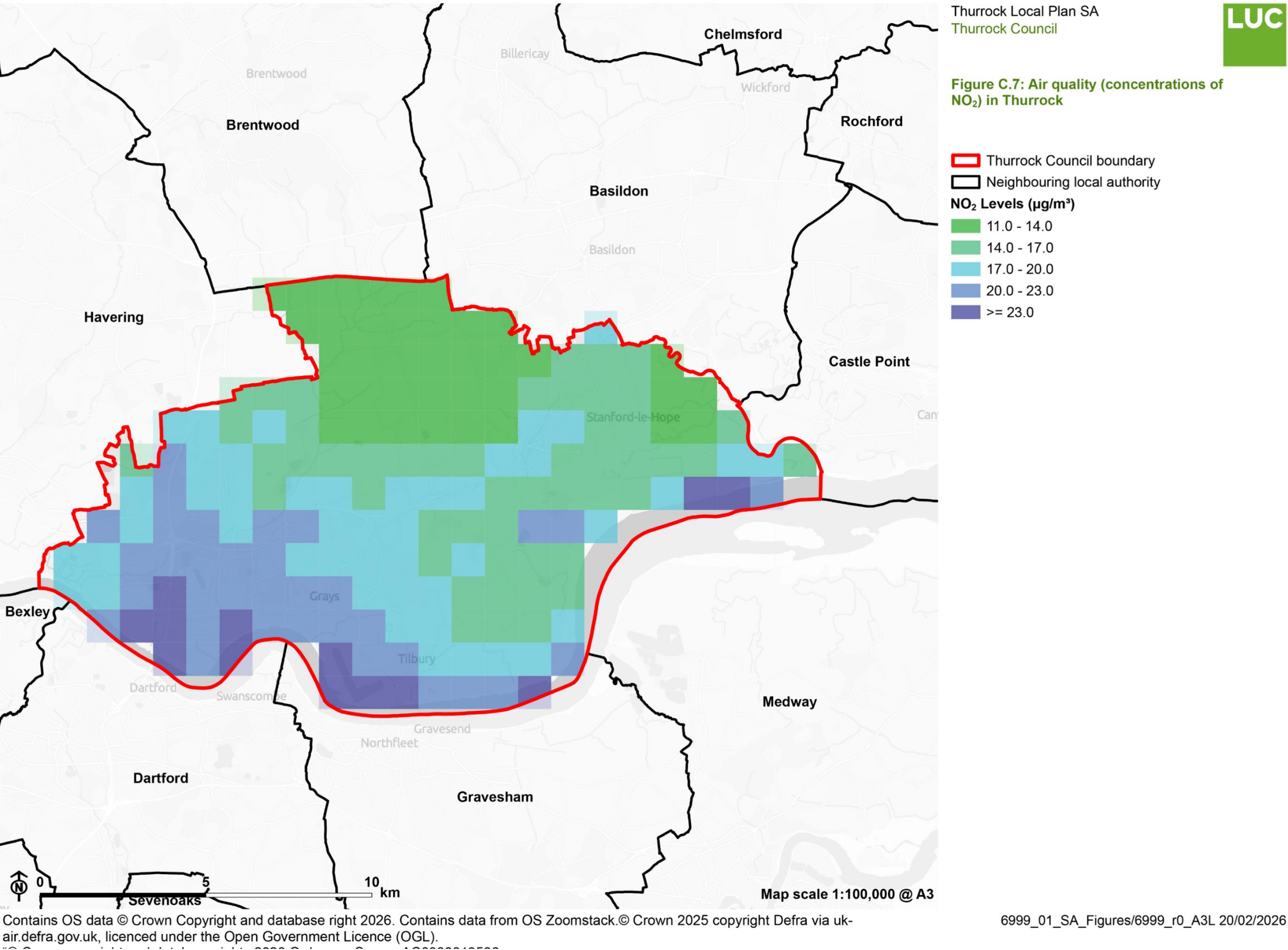


Figure C.8: Air quality (concentrations of PM2.5) in Thurrock

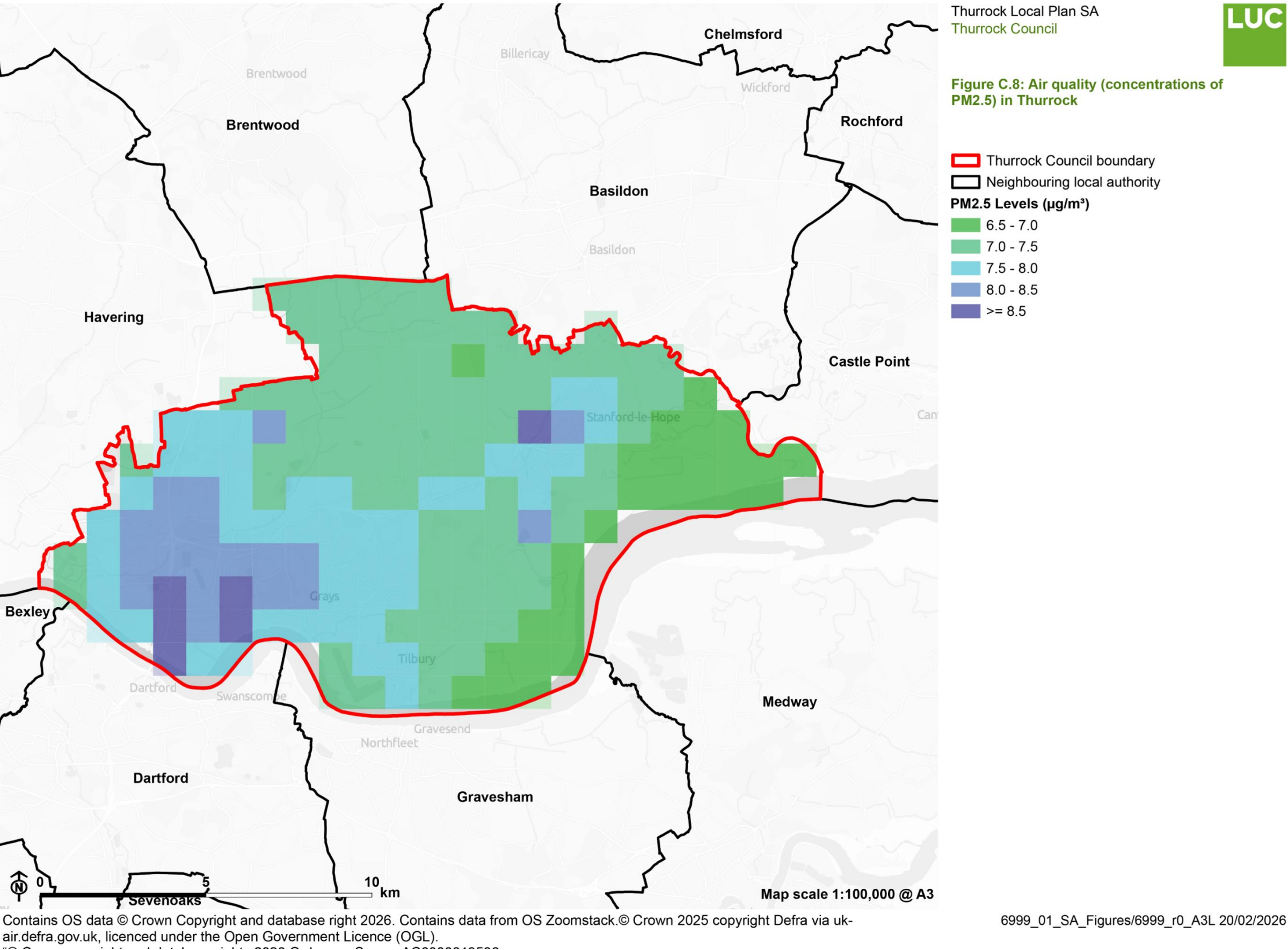


Figure C.9: Air quality (concentrations of PM10) in Thurrock

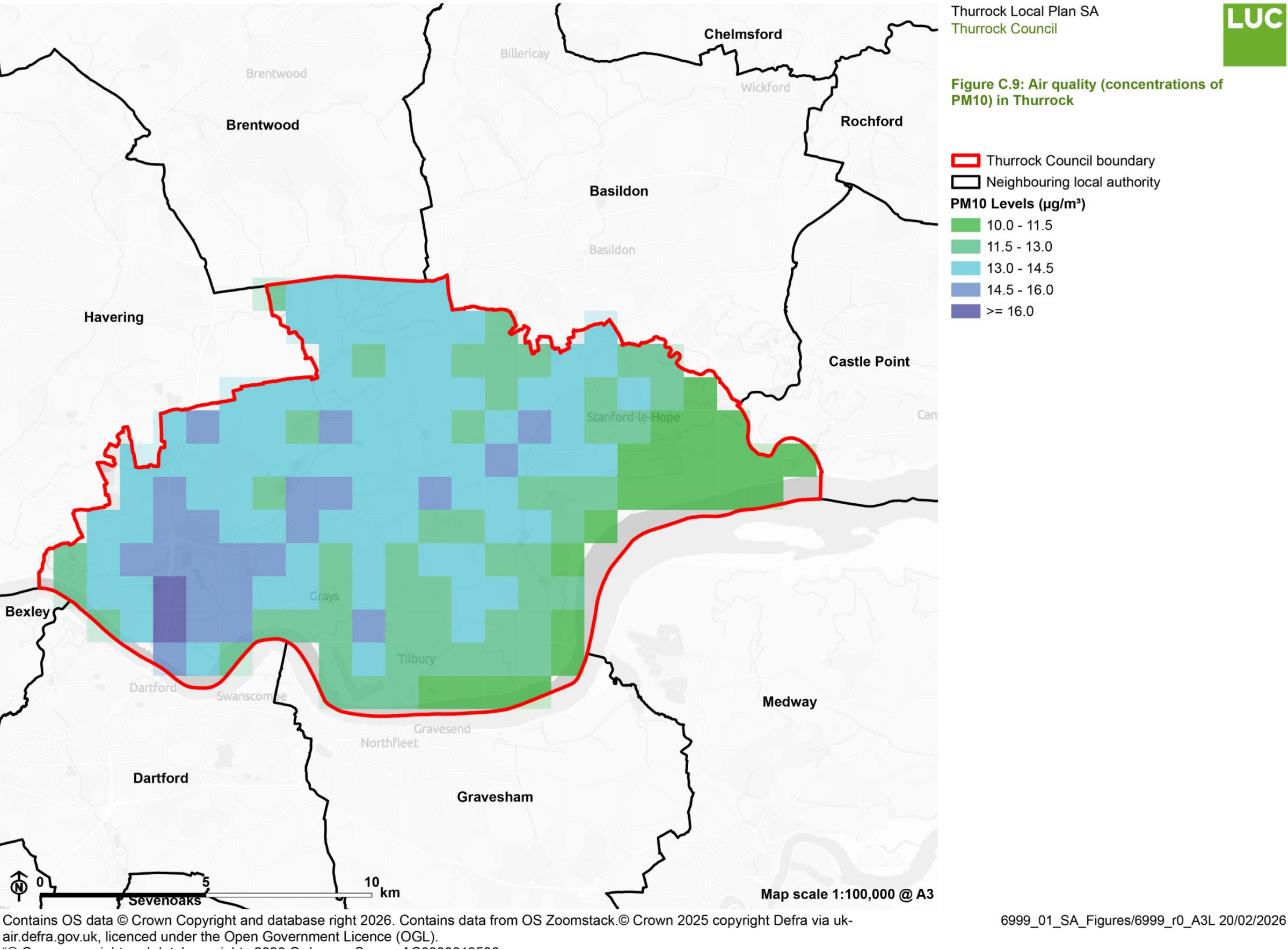
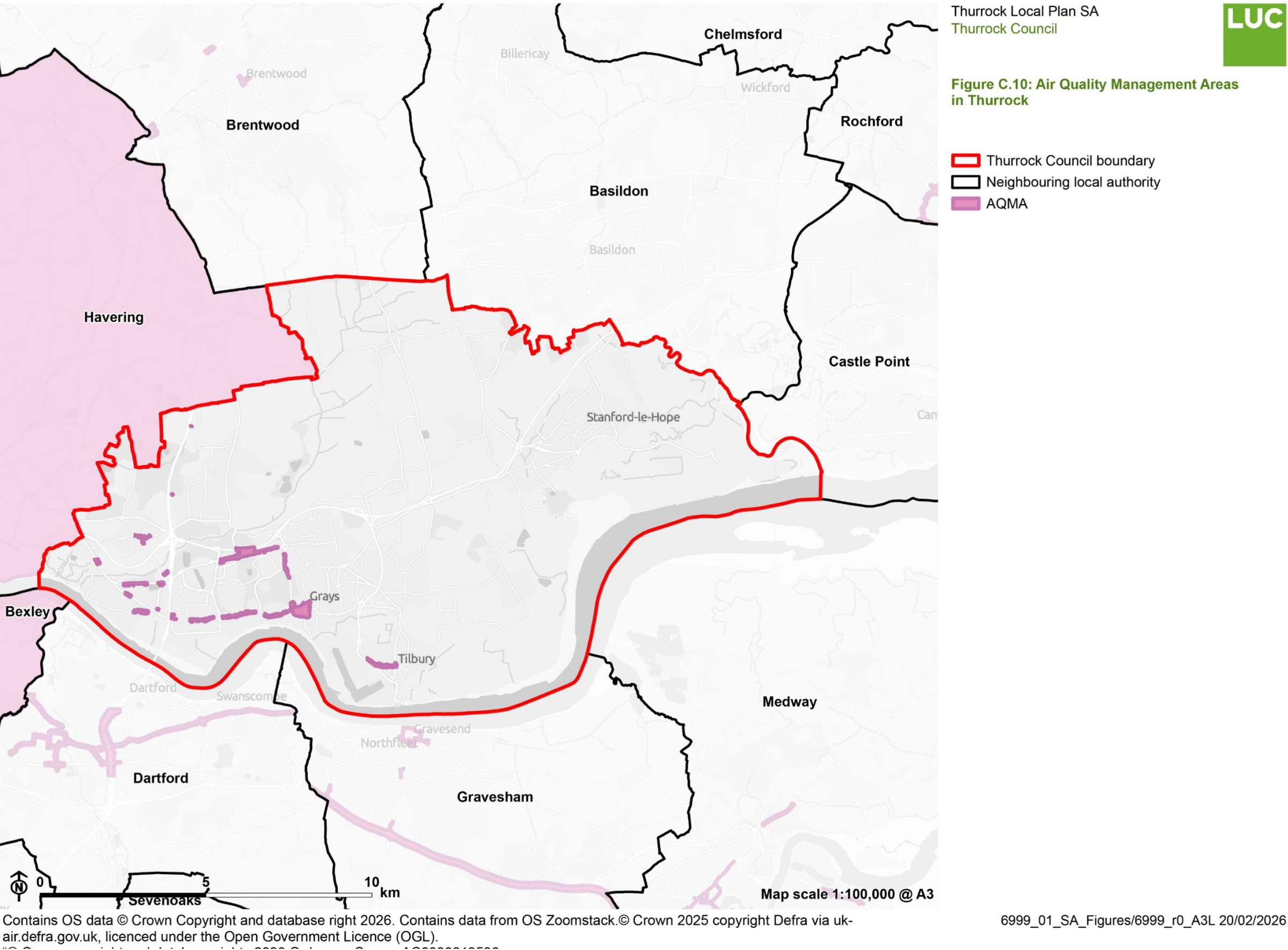


Figure C.10: Air Quality Management Areas in Thurrock



Implications for health

C.175 Air pollution is associated with a number of adverse health impacts and is recognised as a contributing factor in the onset of heart disease and cancer. Pollution particularly affects the most vulnerable in society such as children, the elderly, and those with existing heart and lung conditions. There is also often a strong correlation between poor air quality areas and less affluent areas. Thurrock Air Quality and Health Strategy [\[See reference 276\]](#) sets out the Council's overarching objectives, policies and actions to improve air quality.

C.176 Research from the British Lung Foundation [\[See reference 277\]](#) highlighted that background PM_{2.5} levels (2018) were at 11.45µg/m³, which is in breach of WHO limits (10µg/m³) and is considered dangerously high. The worst performing location was on the A282 Dartford Crossing. The research suggests that in 2018 an estimated 6.14% of deaths were attributable to PM_{2.5} air pollution, which was equivalent to 78.6 deaths. Further to this, Thurrock has 67 nurseries, schools and colleges in areas where levels of fine particulate matter (PM_{2.5}) are above the World Health Organisation's recommended limit.

C.177 A correlation can be observed between recorded health issues within Thurrock and the presence of AQMAs. For instance, declared AQMAs in areas such as Tilbury Riverside and Thurrock Park Way alongside West Thurrock and South Stifford have above average incidences of lung cancer within their populations. Similarly, West Thurrock, South Stifford, Purfleet, Aveley and Tilbury, all of which have one or more AQMAs, had extremely high emergency admissions for Chronic Obstructive Pulmonary Disorder (COPD). AQMAs within Purfleet, West Thurrock and Aveley also fall within the 20% most deprived areas in the country for living environment, which includes air pollution indicators. There is a prevalence of HGVs in nearly all of these areas [\[See reference 278\]](#).

C.178 Poor water quality can increase the risk of water-borne disease. In addition, there is potential for negative health effects from exposure to heavy metals in soils and contaminated soil.

Climate change mitigation and adaptation

Climate change predictions

Current baseline information

C.179 Climate change presents a global risk, with a range of different impacts that are likely to be felt within Thurrock across numerous receptors. The Intergovernmental Panel on Climate Change (IPCC) special report on global warming outlines that, under emissions in line with current pledges under the Paris Agreement, global warming is expected to surpass 1.5°C, even if these pledges are supplemented with very challenging increases in the scale and ambition of mitigation after 2030. This increased action would need to achieve net zero CO₂ emissions in less than 15 years [\[See reference 279\]](#).

C.180 In light of the IPCC work, Thurrock Council declared a Climate Emergency in October 2019. With this, the Council has committed to reduce its net CO₂ emissions to zero by 2030. Carbon neutrality, therefore, needs to be fully woven into the new Local Plan and key part of the IIA process. A Climate Change Partnership Group has now been established in Thurrock. This group is tasked with determining how and when the Council can achieve net zero carbon emissions, as well as how to best leverage the benefits of climate action for other socio-economic goals, leading to the development of targets, pathways, and an action plan for Thurrock to reduce its greenhouse gas emissions in line with the UK's net zero goal [\[See reference 280\]](#).

C.181 Thurrock Council Climate Change Scoping Study highlighted that Thurrock Council is positioned well to integrate climate priorities in its plans as it is a unitary authority. But that because climate issues are transboundary it will be crucial for the Borough to be cooperative across sectors, stakeholders and the public. The study also notes that this level of cooperation could be aided in part by its membership in the Association of South Essex Local Authorities [\[See reference 281\]](#).

Projected baseline information

C.182 The Tyndall Centre for Climate Change Research [\[See reference 282\]](#) has undertaken work to calculate the 'fair' contribution of local authorities towards the Paris Climate Change Agreement. Based on the analysis undertaken the following recommendations have been made for Thurrock:

- The Borough should stay within a maximum cumulative carbon dioxide emissions budget of 5.5 million tonnes (MtCO₂) for the period of 2020 to 2100. It should be noted that at 2017 carbon dioxide emission levels, Thurrock would use this entire budget within seven years from 2020;
- The Borough should also initiate an immediate programme of carbon dioxide mitigation to deliver cuts in emissions averaging a minimum of - 12.9% per year to secure a Paris aligned carbon budget; and
- The Borough should reach zero or near zero carbon no later than 2042.

C.183 In general, climate change projections (through UK Climate Projections) indicate a greater chance of hotter, drier summers and warmer, wetter winters in the UK [\[See reference 283\]](#). The UK has experienced a general trend towards warmer average temperatures in recent years with the most recent decade (2009–2018) being on average 0.3C warmer than the 1981–2010 average and 0.9C warmer than 1961–1990. The 21st century is reported so far as being warmer than the previous three centuries.

C.184 Heavy rainfall and flooding events have been demonstrated to have increased potential to occur in the UK as the climate has generally become wetter. For example, the highest rainfall totals over a five-day period are 4% higher during the most recent decade (2008-2017) compared to 1961-1990. Furthermore, the amount of rain from extremely wet days has increased by 17% when comparing the same time periods. In addition, there is a slight increase in the longest sequence of consecutive wet days for the UK. The Environment Agency has developed 'Local flood risk assessments: climate change allowances' [\[See reference 284\]](#) indicating climate change impacts on peak rainfall intensity, peak river flows, and sea level rise allowances for local areas. These are outlined later in this Chapter under 'Flood Risk – projected baseline information'.

C.185 UK Climate Projections 18 (UKCP18) for the East of England identify the following main changes (relative to 1981-2000) to the climate by the end of the plan period (2038) [\[See reference 285\]](#):

- Increase in mean winter temperature by 1.0°C;
- Increase in mean summer temperature by 1.2°C;
- Increase in mean winter precipitation by 5.0%; and
- Decrease in mean summer precipitation by 10.0%.

C.186 The UK Climate Risk Independent Assessment (CCEA3) identifies a set of 61 specific risks and opportunities to the UK from climate change, some of which are as follows [\[See reference 286\]](#):

Risks

- The number of incidents of food poisoning, heat stress and heat related deaths may increase in summer.
- Domestic energy use may increase during summer months as refrigeration and air conditioning demand increases.
- Wetter winters and more intense rainfall events throughout the year may result in a higher risk of flooding from rivers.
- More intense rainstorms may in some locations result in the amount of surface water runoff exceeding the capacity of drainage systems, consequently leading to more frequent and severe localised flash flooding.
- More frequent storms and floods may cause increased damage to property and infrastructure, resulting in significant economic costs.
- Periods of drought in summer could lead to soil shrinking and subsidence, causing damage to buildings and transport networks. Drought may also impact negatively on agriculture, industry and biodiversity.
- Warmer and drier summers are likely to affect the quantity and quality of water supply, which will need careful management.
- The changing climate will impact on the behaviour and distribution of species and may encourage the spread of invasive species.

Opportunities

- Milder winters should reduce the costs of heating homes and other buildings, helping to alleviate fuel poverty and reducing the number of winter deaths from cold.
- Domestic energy use may decrease in winter due to higher temperatures.
- Warmer and drier summers may benefit the recreation and tourism economy.

- UK agriculture and forestry may be able to increase production with warmer weather and longer growing seasons.

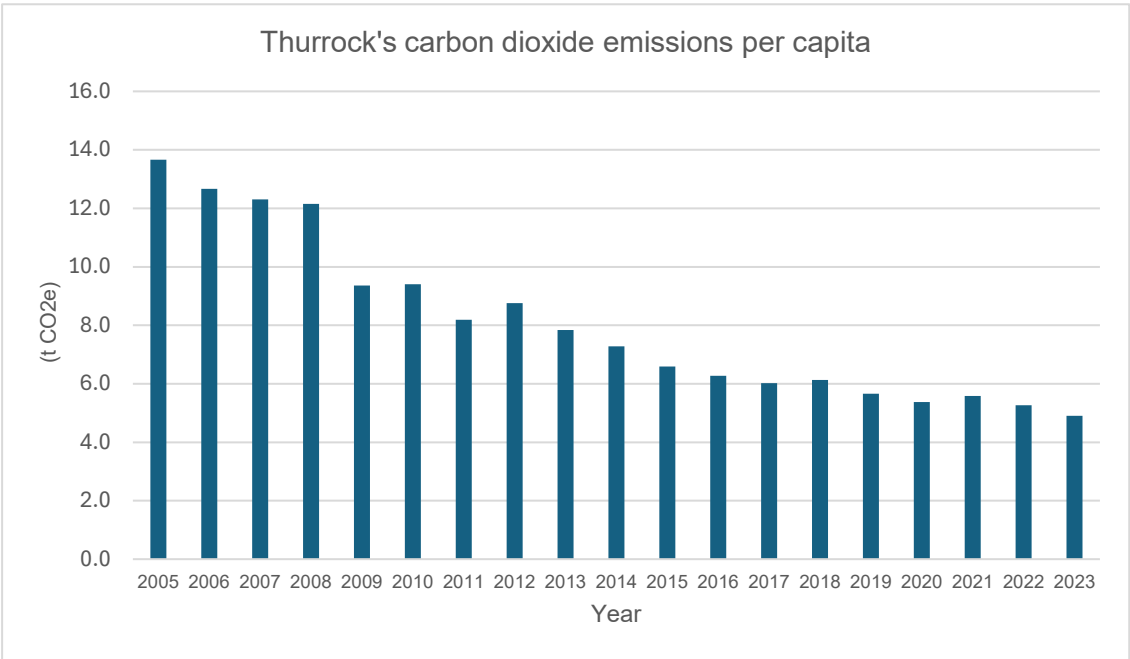
Emissions and energy

Current baseline information

C.187 In recent years, in line with the UK as a whole, the East of England has seen a decrease in carbon dioxide emissions. One of the main drivers for reduced levels of emissions has been a decrease in the use of coal for electricity generation, accounting for a decrease in emissions for domestic electricity.

C.188 In the East of England, carbon dioxide emissions have fallen from 8.5t per capita to 4.4t per capita (equivalent to a 48% reduction) from 2005 to 2023. Emissions for Thurrock are now similar to those of East of England falling steadily from 13.7t per capita to 4.9t per capita over the same period (a 64% reduction), with the exception of 2012, 2018 and 2021 where emissions rose slightly. This reduction has been more dramatic in Thurrock compared to the East of England statistics. This is also despite the Borough's population increasing by 19% in this period from 148,600 to 178,200. This could be due to larger scale deindustrialisation in the Borough during this period, as reductions in industrial CO₂ emissions from 2005 to 2023 are greatest compared to other sources of emissions in Thurrock at 82.15%, while the East of England saw a 62.9% reduction. Reductions in CO₂ emissions from public sector sources are also significantly greater in Thurrock than the East of England average at 76%, compared with 61% for the East of England. Per capita emissions in the plan area within the scope of influence of the local authority fell most years between 2005 and 2023 as shown in **Figure C.11** [\[See reference 287\]](#).

Figure C.11: Carbon dioxide emissions estimates in Thurrock per capita 2005-2023



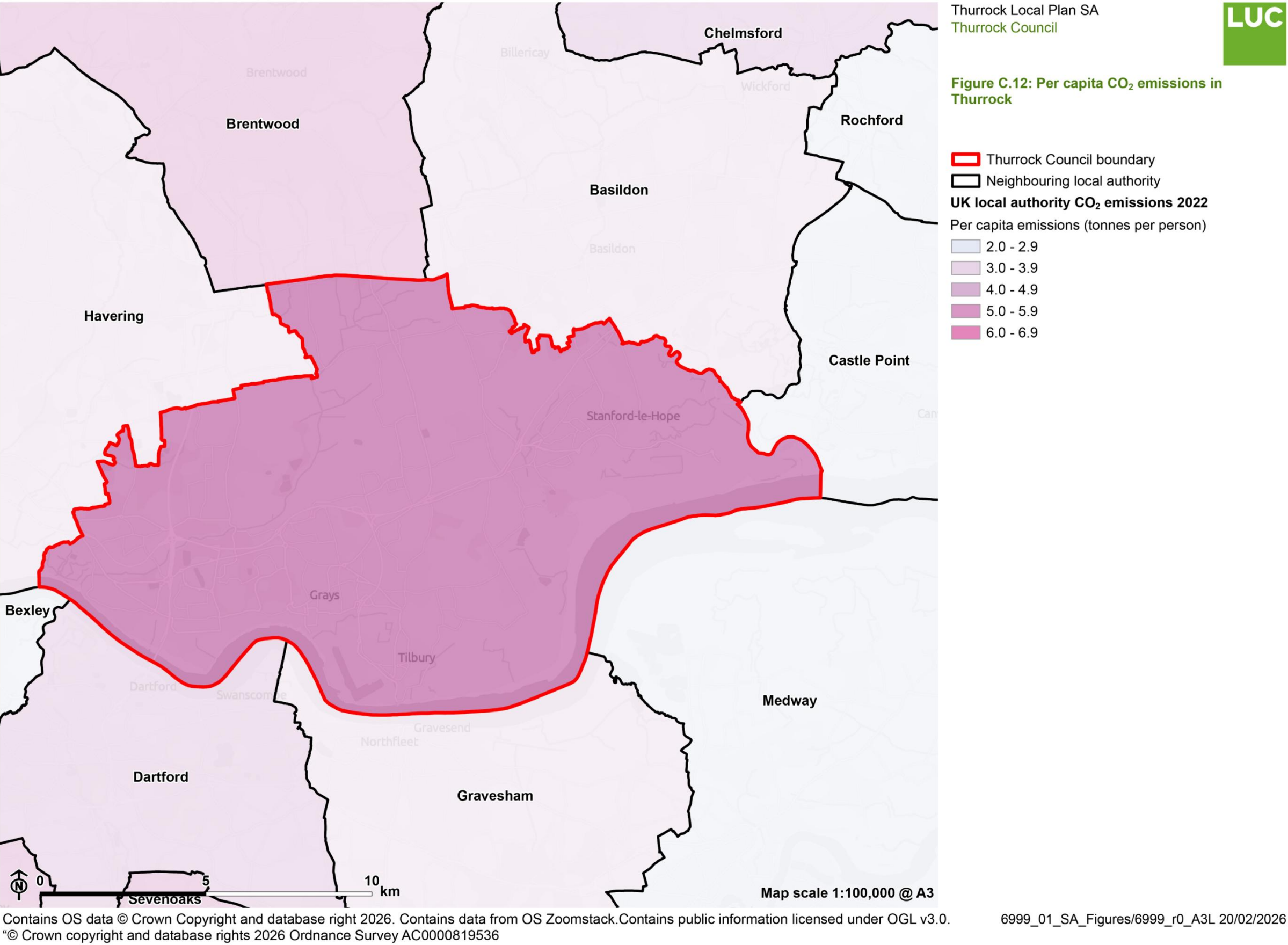
C.189 Although industry was the biggest contributor of CO₂ emissions in 2005, this sector has seen the largest decrease of total CO₂ emissions which is likely due to decline in heavy industry and the closure of Tilbury Power Station [See reference 288]. In 2023 transport was the biggest contributor to CO₂ emissions in Thurrock as shown in Table C.13 [See reference 289].

Table C.13: Changes in carbon dioxide emissions by sector for the region and Borough between 2005 and 2023

Source of Emissions (kt)	East England – 2005	East England – 2023	Thurrock – 2005	Thurrock – 2023
Industry	6,490.8	2,406.1	633.6	113.1
Commercial	6,665.6	2,475.9	403.3	120.1
Public Sector	2,058.7	811.9	49.2	11.8
Domestic	14,329.9	6,935	336.8	289.6
Transport	14,376.7	12,245.4	593.2	452.1
Grand Total	47,425.7	28,268.2	2,029.6	874.4

C.190 Figure C.12 shows the per capita carbon dioxide emissions for Thurrock compared to the surrounding areas.

Figure C.12: Per capita CO2 emissions in Thurrock



Energy consumption and generation

C.191 The Department for Business, Energy & Industrial Strategy produced the following consumption figures for Thurrock in 2022 [\[See reference 290\]](#) (see **Table C.14**):

- Coal – A total of 2.5ktoe (thousands of tonnes of oil equivalent) predominantly through domestic use.
- Manufactured fuels – A total of 1.8ktoe predominantly through domestic use.
- Petroleum – A total of 149.2ktoe predominantly from road transport.
- Gas – A total of 113.6ktoe predominantly through domestic use.
- Electricity – A total of 76.7ktoe predominantly through industrial and commercial use.
- Bioenergy and wastes – A total of 17.8ktoe, predominantly through road transport.

C.192 Between 2005 and 2022 the total reported energy consumption for the Borough fell from 1,331.8ktoe to 361.6ktoe. The changes in consumption by energy type are shown in **Table C.14**. With the exception of energy from biomass and wastes, the consumption of all energy types fell during the same period [\[See reference 291\]](#).

Table C.14: Energy consumption in Thurrock by type

Energy Type	Energy Consumption in ktoe (2005)	Energy Consumption in ktoe (2022)
Coal	20.6	2.5
Manufactured fuels	139.8	1.8
Petroleum	740.2	149.2
Gas	330.7	113.6
Electricity	97.5	76.7
Bioenergy and wastes	2.9	17.8
Total	1,331.8	361.6

C.193 Thurrock has increased its capacity to generate electricity from renewable sources from 2014 to 2023 from 68.6MW installed capacity to 152.7MW installed capacity. Capacity for solar power, onshore wind and plant

biomass has accounted for the majority of installed renewable energy capacity in Thurrock during this period. Solar power saw the largest increase in this time from 15.63MW to 61.6MW [\[See reference 292\]](#).

C.194 In 2023, renewable electricity generation in Thurrock totalled 152.7MWh of which 61.6MWh is photovoltaics, 41.1MWh is plant biomass, 39.8MWh is landfill gas, and 10.2MWh is onshore wind [\[See reference 293\]](#).

Road travel and associated energy consumption

C.195 Carbon emissions for the UK in 2023 fell by 3.5% from 2021 levels. Carbon dioxide made up approximately 80% of the 2020 UK total emissions. Despite a 19.2% decrease from 2019 due to the impacts of COVID-19, transport was still the largest source of carbon dioxide in the UK in 2022, accounting for 28% of total greenhouse gas emissions. The majority of emissions from transport in the UK are from road transport [\[See reference 294\]](#).

C.196 Thurrock benefits from good transport and connectivity to the wider Essex region, Kent, east and central London, and international destinations via the Port of Tilbury. The Borough is served by significant road transport networks, included being intersected by two of the country's busiest major roads, the M25 and A13 [\[See reference 295\]](#).

C.197 Based on 2021 Census data, 61,917 Thurrock residents work within the Borough, while 82,297 people worked within the Borough. This includes 36,718 who work from home and 25,199 who commute locally. Additionally, 20,380 people travel into Thurrock for employment, the largest number coming from Basildon (3,749), followed by Havering (2,702), and Barking and Dagenham (2,008). In terms of outflow, 3,905 residents commute to Basildon for work, followed by 3,079 people to Havering, and 1,974 people to Barking and Dagenham for work. The significant proportion of Thurrock residents that out-commute for work is due in particular to the Borough's close proximity to the capital and may also be contributed to by rising house and office prices pushing people out of London [\[See reference 296\]](#).

C.198 As seen in **Table C.15**, as of 2021, the most popular method of travel to work in Thurrock was driving a car or van (50.3%), a significant increase on 41.4% in 2011.

Table C.15: Method of travel to work by residents of Thurrock (2011 and 2021 Census)

Method of Travel to Work	Percentage of Thurrock Residents (2011)	Percentage of Thurrock Residents (2021)
Work mainly at or from home	2.0%	24.5%
Underground, metro, light rail, tram	1.2%	2.3%
Train	10.5%	7.0%
Bus, minibus or coach	2.5%	3.0%
Taxi	0.4%	0.6%
Motorcycle, scooter or moped	0.7%	0.6%
Driving a car or van	41.4%	50.3%
Passenger in a car or van	3.7%	4.1%
Bicycle	1.0%	1.2%
On foot	4.0%	5.1%
Other method of travel to work	0.4%	1.2%

C.199 Road transport accounts for more than half of oil demand in the UK and relies on petrol and diesel to meet around 98% cent of its energy needs. This has implications for carbon emissions considering the regular need to travel for both residents and those undertaking business.

C.200 The overall road energy consumption in Thurrock increased between 2005 and 2023 from 144,398t of equivalent oil to 147,900t of equivalent oil. This change was most influenced by the increasing energy consumption in freight uses which rose from 56,603t of equivalent oil to 73,400t of equivalent oil. During this period, energy consumption recorded in Thurrock for personal road travel decreased from 87,860t of equivalent oil to 74,586t of equivalent oil [\[See reference 297\]](#).

C.201 Recent trends across the UK indicate that diesel consumption excluding biodiesel fell in 2018 for the first time since 2009. The trend is due in part to a slowing of growth in the diesel vehicle fleet following sharp drops in new registrations as well as increased efficiencies. It is expected that the UK will diversify in road transport to include more electric and ultra low emissions vehicles in the coming years [\[See reference 298\]](#).

C.202 As of April 2025, there were 76,507 public electric vehicle charging devices available in the UK and of these, of these, 15,446 were 50kW and

above. Within Thurrock there are a total of 158 public electric vehicle charging devices and 68 of these are 50kW or above. There are approximately 89.3 charging devices per 100,000 population. The Borough performs worse than the UK average of 108 charging devices per 100,000 population. Thurrock is within the bottom 20% of local authorities in terms of this measure [\[See reference 299\]](#) [\[See reference 300\]](#).

Projected baseline information

C.203 Given the trends in carbon emissions and energy consumption at both national and local level, carbon emissions in Thurrock are likely to continue declining and trends in renewable energy generation indicate future growth in the sector. However, growth in traffic levels, largely as a result of ongoing development, is a continuing long-term trend in Thurrock. This means that the difference between Thurrock's per capita road transport emissions and the national average is likely to continue widening. This could conflict with Thurrock's attempts to meet its carbon emission targets.

Flood risk

Current baseline information

C.204 Flood risk in the Borough is implicitly linked to climate change considering the changes predicted in weather patterns and the impact this will have on sea level rise and subsidence, both of which could lead to more frequent flooding in Thurrock. According to UK Climate Change Projections made in 2018, the East of England region including Thurrock is predicted to experience an increase in winter rainfall of 5% and a decrease in summer rainfall of 10% by 2038 [\[See reference 301\]](#).

C.205 Thurrock is affected by flooding from several sources: tidal, fluvial, surface water, ordinary watercourses, sewer and groundwater (see Figure C.27). Tidal and fluvial sources are likely to be the main risk of future flooding in Thurrock, particularly from high tidal water levels in the Thames Estuary and in the north of the Borough from the River Mardyke from storm surges coupled with high spring tides. Flooding has been an issue in Thurrock, especially in recent years, with large areas of the Borough located within flood risk zones 2 and 3, especially in areas immediately adjacent to the River Thames and along the River Mardyke [\[See reference 302\]](#). Approximately 11,000 properties in Thurrock are estimated to currently be at risk of tidal flooding, and several

hundred at risk of fluvial flooding, particularly in the areas of Tilbury, Purfleet and West Thurrock. Other areas vulnerable to flooding include commercial and industrial developments such as the Port of Tilbury, DP World London ports, Lakeside Retail Park, and transport assets including the c2c mainline, the A13 and the Thames Lower Crossing [\[See reference 303\]](#). Coalhouse Fort (Scheduled Monument) and Coalhouse Fort Park are assets that are highly vulnerable to current-day tidal flood risk as the low-lying embankment adjacent to the Thames Estuary has overtopped at least once a year for the past three years. This risk will increase with the impacts of projected sea-level rise [\[See reference 304\]](#).

C.206 Surface water flood risk is widespread across Thurrock, with the highest risk located in the more urbanised areas, with Stanford le Hope and parts of Grays expected to see the largest amounts of surface water flooding in an extreme rainfall event [\[See reference 305\]](#).

C.207 There are currently a number of flood defences in place, including the Thames Barrier, which is located seven kilometres upstream from Thurrock, and concrete seawalls that protect Thurrock from tidal surge events with a 0.1% chance of occurring in any one year. The present defence height along the Thurrock foreshore, according to the Environment Agency, varies between 6.9m AOD (above ordnance datum) and 7.2m AOD. This provision roughly resembles the 1 in 1,000-year peak tide range for the year 2019. A large flood storage area to the north of Tilbury town strategically protects the town from pluvial run-off coming from higher ground to the north [\[See reference 306\]](#). The Tilbury Flood Storage Area, along with other key assets such as World's End Pumping Station and Botney Sluice, is an important asset in managing surface water flood risk and failure to protect it and its capacity will increase flood risk to Tilbury.

Projected baseline information

C.208 As previously outlined in the 'Climate Change Predictions' section of this chapter, the climate in Thurrock is expected to change, presenting a series of risks for the Borough. These include wetter winters, more intense rainfall events and more frequent storms and floods, leading to increased damage to property and infrastructure and significant economic costs. The Environment Agency has provided 'Local flood risk assessments: climate change allowances' [\[See reference 307\]](#) indicating climate change impacts on peak rainfall intensity, peak river flows for the South Essex Management Catchment and sea level rise allowances for the South East (see **Table C.16**, **Table C.17** and **Table C.18**).

Table C.16: South Essex Management Catchment peak river flow allowances

Year	Central	Higher	Upper
2020s	6%	11%	22%
2050s	5%	11%	27%
2070s	17%	26%	48%

Table C.17: South Essex Management Catchment peak rainfall allowances

Peak Rainfall Allowances	Epoch	Central Allowance	Upper End Allowance
3.3% annual exceedance rainfall event	2050s	20%	35%
3.3% annual exceedance rainfall event	2070s	20%	35%
1% annual exceedance rainfall event	2050s	20%	45%
1% annual exceedance rainfall event	2070s	25%	40%

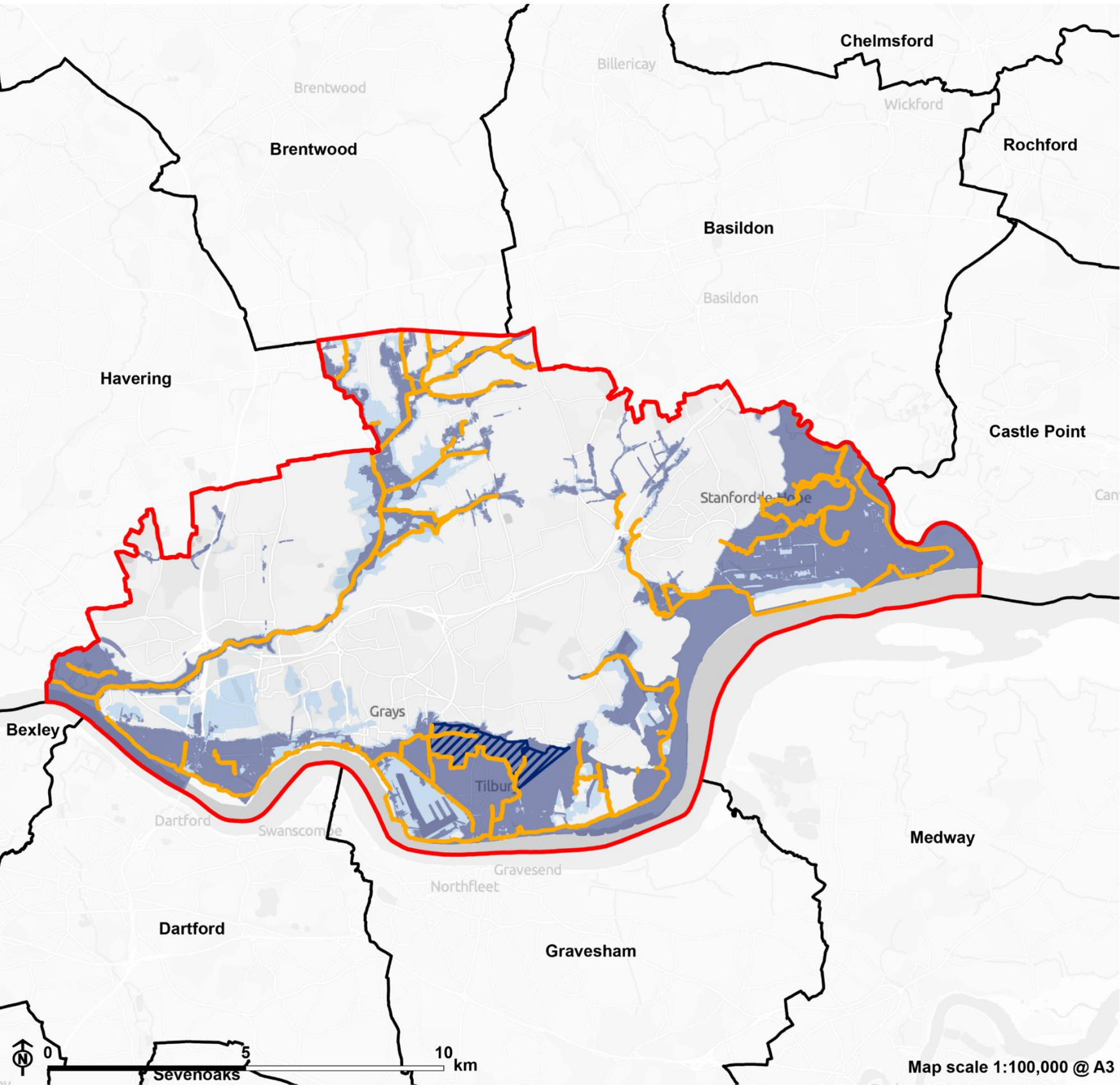
Table C.18: Sea level allowances for the South East for each epoch in mm for each year (based on 1981 to 2000 baseline)

Allowance	2000-2035 (mm)	2036-2065 (mm)	2066-2095 (mm)	2096-2125 (mm)	Cumulative Rise 2000-2124 (metres)
Higher central	5.7 (200)	8.7 (261)	11.6 (348)	13.1 (393)	1.20
Upper end	6.9 (242)	11.3 (339)	15.8 (474)	18.2 (546)	1.60

C.209 Due to the geography of the Borough, flooding (including flash, fluvial and tidal flooding) is one of the greatest risks to Thurrock from climate change. Climate change will likely result in sea level rise and subsidence which could

lead to more frequent flooding in Thurrock and impact communities, businesses and local authority services in coastal areas. Recreation and heritage assets such as Coalhouse Fort and Park will be further impacted by the impacts of climate change given their very high current-day tidal flood risk. Additionally, incidences of heavy rainfall are expected to continue to rise and will present challenges in terms of drainage and flood risk.

Figure C.13: Fluvial flood risk in Thurrock



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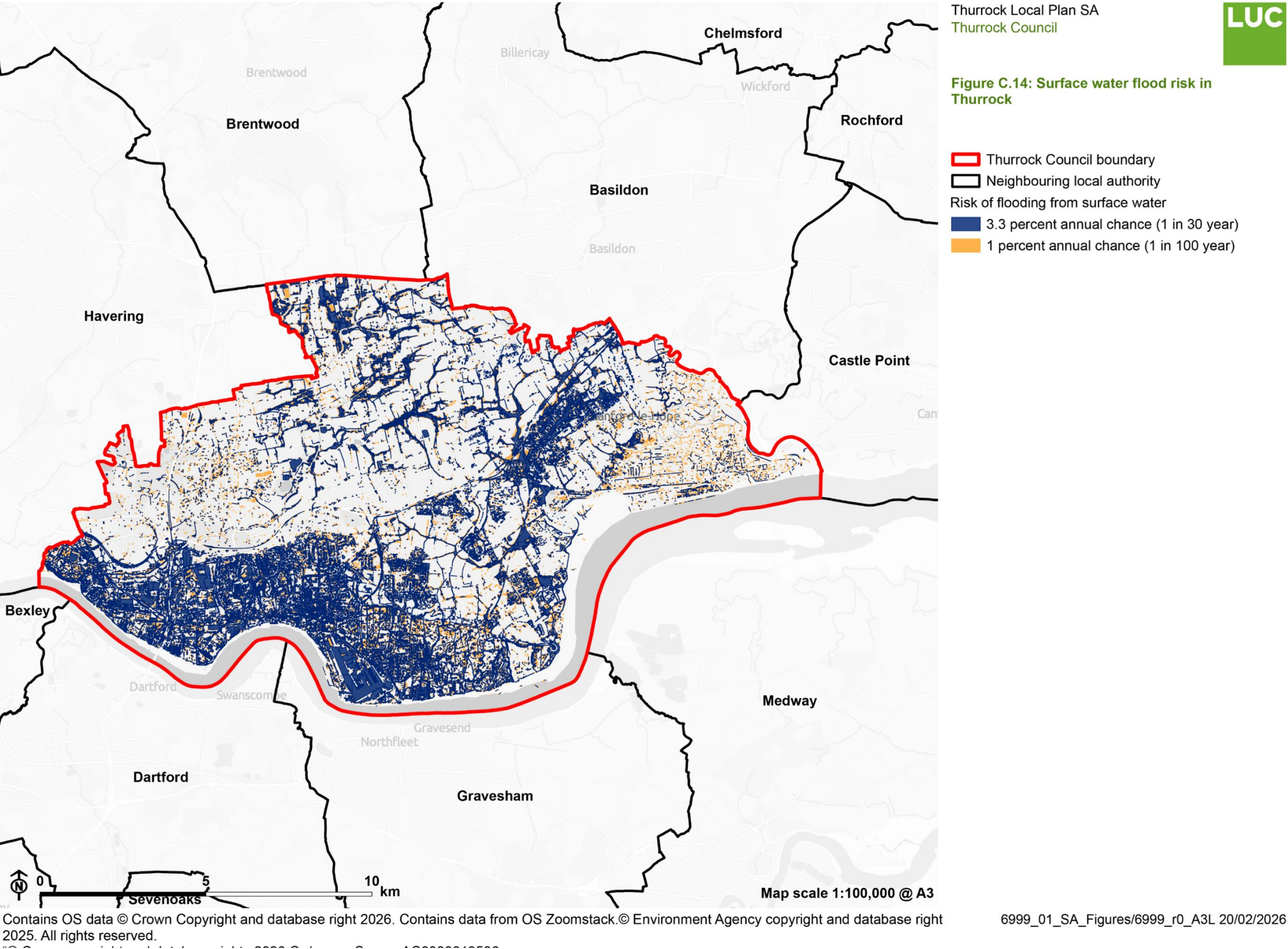
Figure C.13: Fluvial flood risk in Thurrock

- Thurrock Council boundary
- Neighbouring local authority
- Flood defence
- Flood storage area
- Flood Zone 2
- Flood Zone 3

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Figure C.14: Surface water flood risk in Thurrock



Implications for health

C.210 Climate change has potential for substantial implications on human health, including:

- Disruption to health, social care and emergency management services and schools provision, from flooding, heatwaves and storms.
- Flooding poses multiple risks to people's health, such as heart attacks, trauma, an increase in waterborne infectious diseases, and common mental and post-traumatic stress disorders. Damp housing and damage to water and sanitation infrastructure can further reinforce the adverse effects on health.
- Climate change may bring increase in both cold weather excess mortality and heat-related deaths and illness occurring in the summer. Excess heat represents a serious threat for the entire population, but the elderly and small children, and people with pre-existing cardiovascular, respiratory and renal diseases, diabetes and neurological disorders, are more susceptible. Prolonged periods (at least three days) of extremely high air temperatures, called heatwaves, directly affect people's health and an increase in the daily mortality rate is the major measurable impact of a heatwave. Urban areas tend to be at greater risk due to the "urban heat island" effect. The number of excess deaths in England resulting from heatwaves in 2020 was 2,556. Cumulative excess deaths resulting from heatwaves in summer 2020 was the highest recorded on record since the heatwave plan for England was introduced [\[See reference 308\]](#).
- Cases of food poisoning in the UK that are linked to warm weather have been increasing rapidly.
- Wildfire likelihood and severity set to increase due to climate change.

C.211 The likely increase in occurrence of severe winter gales is a cause for concern. Deaths during severe gales are commonplace, as are severe injuries. The likely loss of electrical power supplies during severe storms adds very significantly to these problems. Better forecasting of gales and better design and more frequent exercising of disaster plans may well help to mitigate the worst effects.

Biodiversity

Current baseline information

C.212 Thurrock is notable for its biodiversity due to several of its characteristics, such as its geology, orientation, and microclimate, as well as past and contemporary land usage. **Figure C.15** illustrates the location and extent of the designated biodiversity sites in Thurrock. Notable among these is the Thames Estuary and Marshes Ramsar site and Special Protection Area (SPA) which lies partly within Thurrock. It covers approximately 5,500 hectares from the north bank of the outer estuary from Coalhouse Point in East Tilbury to the most western part of the reclaimed land at Mucking Flats. Much of the site is brackish grazing marsh, although some parts have been converted to arable use. The estuary and adjacent marsh areas support an important assemblage of wintering water birds including grebes, geese, ducks and waders. Over winter, the area regularly supports a large population of waterfowls and is also important during spring and autumn for migratory birds [\[See reference 309\]](#). Further detail regarding the qualifying features and key sensitivities of this European designated site and others within 15km of the Borough is provided in the HRA Report.

C.213 Thurrock contains 12 Sites of Special Scientific Interest (SSSIs), covering a total area of over 1,300 hectares. Out of the 12 SSSIs within Thurrock, only three are in entirely favourable condition, namely Hangman's Wood SSSI, Lion Pit SSSI and Holehaven Creek SSSI. Mucking Flats and Marshes SSSI is almost entirely in favourable condition (94.13%) with the rest of the site classed as unfavourable and recovering. The following SSSIs were found to be partly or entirely in unfavourable condition [\[See reference 310\]](#):

- Purfleet Chalk SSSI: 56.57% of this SSSI is in favourable condition, with 35.48% unfavourable and declining and 7.96% destroyed.
- Inner Thames Marshes SSSI: 42.37% of this SSSI is in favourable condition, 31.36% is unfavourable and declining, and 17.8% is unfavourable and recovering.
- West Thurrock Lagoon and Marshes SSSI: 66.69% of this SSSI is in unfavourable and declining condition, with 33.31% designated as unfavourable with no change.
- Purfleet Road, Aveley SSSI: 75.34% of this SSSI is in unfavourable condition with no change, and 24.66% favourable.

- Langdon Ridge SSSI: 80.50% of this SSSI is in unfavourable and recovering condition, with the rest in favourable condition.
- Vange & Fobbing Marshes SSSI: 91.54% of this SSSI is in unfavourable and recovering condition, with the rest designated as favourable.
- Grays Thurrock Chalk Pit SSSI: 100% of this SSSI is in unfavourable and recovering condition.
- Globe Pit SSSI: 100.00% of this SSSI is in unfavourable and declining condition.

C.214 There are two designated Local Nature Reserves (LNRs) within Thurrock at Linford Wood and Grove House Wood. Linford Wood LNR in Linford is an area of woodland covering 3.46 hectares. It consists of a hedge bank, mixed woodland, willow plantation, ditches and an open area surrounded by arable farmland. The wood provides a habitat for wildlife, including tawny owls, great spotted woodpeckers and green woodpeckers, as well as migrant birds in spring and autumn. Grove House Wood in Stanford le Hope is a 2.24 hectares area with a mixture of habitats including reed beds, a pond and brook as well as the woods. The site is an important haven for wildlife in an area where no similar large habitats are found, while dead elms in the wood provide nesting sites for woodpeckers.

C.215 There are currently 70 Local Wildlife Sites (LWSs) (making up approximately 9.4% of the Thurrock area) [See reference 311], 12 wildlife corridors and 11 habitat chains/clusters in Thurrock [See reference 312]. According to Natural England [See reference 313], there are 20 ancient woodland sites in Thurrock, the largest being Millard's Garden and Brannetts Wood in South Ockenden, and Northlands Woods in Langdon Hills Country Park (see **Figure C.16**) [See reference 314]. The majority of ancient woodlands in the Borough are also designated as LWSs.

C.216 Thurrock contains a number of national Priority Habitats. The Thurrock Biodiversity Action Plan (albeit currently out of date) identified nine priority habitats that support nature conservation and biodiversity in Thurrock [See reference 315]:

- Ancient woodland – UK and Essex biodiversity priority habitat.
- Calcareous grassland – UK biodiversity priority habitat.
- Coastal grazing marsh – The main areas of marshland in Thurrock are located at the eastern and western ends of the Borough. UK and Essex biodiversity priority habitat.

- Brownfield wildlife land – Thurrock holds important areas of high value brownfield wildlife land, which often supports large numbers of reptiles, rare and scarce plants and invertebrates.
- Lowland heathland – UK priority habitat of European importance and included in the Essex Biodiversity Action Plan.
- Reedbeds – UK and Essex biodiversity priority habitat. Thurrock has approximately 15ha of reedbeds that support birds and insect species that are dependent on this habitat.
- Roadside verges – In Thurrock roadside verges contain some of the most important Thames Terrace Grassland invertebrate assemblages that support a rich variety of species.
- Thames Terrace grasslands – These grasslands support a diverse collection of invertebrate species that have been identified as of national importance by English Nature.
- Urban habitats – Grays/Chafford, Stanford/Corringham and Ockendon contain open spaces and green infrastructure which are valuable for plants and insects. UK and Essex biodiversity priority habitat.

C.217 Priority species identified within the Thurrock Biodiversity Action Plan are brown hare, bats, hedgehogs, water vole, black redstart, skylark, song thrush, adder, grass snake, great crested newts, glow-worm, hornet robberfly, shrill carder-bee, stag beetle, black poplar and broadleaved cudweed.

C.218 Significant plant and invertebrate communities have resulted from the large quantity of brownfield land that has been left unmanaged. The ecology of these brownfield sites should be considered prior to decisions about the sites' future. The River Thames, remnants of the Thames Terrace grasslands, and coastal marshes all sustain a diverse range of marine and terrestrial species, but much of it has been lost to agriculture or industrial usage [\[See reference 316\]](#). Thurrock is home to a diverse assemblage of invertebrates, many of which are nationally rare. While certain species are legally protected, many Red Data Book and/or UK Biodiversity Action Plan species are not. It is important that sites with unusually diverse assemblages are safeguarded.

C.219 Thurrock Council published its Public Land Maintenance Strategy [\[See reference 317\]](#) which aims to increase biodiversity and habitats through long grass/wildflowers/meadow planting; planting low maintenance schemes; and tree planting “of appropriate trees, where it is possible do so and where they will have a positive impact on the environment”.

C.220 Thurrock contains a 'Greengrid' spanning the Borough which comprises a sustainable network of multi-functional greenspace and linking Thurrock's towns and countryside. The green and blue infrastructure (GBI) network provides valuable habitats and ecological corridors for movement of species. The Greengrid overlaps and connects with other sub-regional green infrastructure frameworks, primarily the South Essex Greengrid, the Thames Chase Community Forest in the north and west of the Borough, and the Green Arc which extends out from London and encompasses the north western area of the Borough.

C.221 Natural England's Green Infrastructure Database [\[See reference 318\]](#) provides an overview of Thurrock's GBI provision. Thurrock has sufficient provision of natural/semi-natural greenspace, with a current provision of 7.82 hectares per 1,000 population compared with the Field In Trust (FIT) standard of 1.8ha per 1,000. The majority of natural and semi-natural greenspace in Thurrock (69%) can be attributed to a handful of large sites; Belhus Wood Country Park, Corringham Marches, Fobbing Marsh, Langdon Hill Country Park and Rainham & Aveley Marshes. Thurrock currently has a deficiency in Local Nature Reserves based on Natural England's Accessible Natural Greenspace Standard (ANGSt).

Projected baseline information

C.222 At UK level, the recent publication of the State of Nature Report [\[See reference 319\]](#) provides an overview of the health of the country's wildlife and how human impacts are driving sweeping changes in the UK. It looks back over 50 years of monitoring to see how nature has changed since the 1970s, averaging a 13% decline in the average abundance of wildlife in the UK since the 1970s, with key drivers for change being agricultural productivity, climate change and increasing average temperatures, urbanisation and hydrological changes. The report finds that on average, metrics suggest that decline in species abundance and distribution of species has continued in the UK throughout the most recent decade.

C.223 At local level, many of Thurrock's most important wildlife sites are located in urban areas, with Langdon Hills' complex of woods and grassland on either side of One Tree Hill being the main exception. Sites of importance for invertebrate populations can be found in the urban areas of Grays, Purfleet, West Thurrock, and Tilbury, posing a considerable risk of conflict with the development pressures in the Thames Gateway, which is one of the Government's Growth Areas. It is difficult to predict future changes in the

baseline for biodiversity, flora and fauna. However, previously trends have shown development can have both adverse and beneficial impacts on biodiversity, flora and fauna. Development can cause loss of and damage to habitats, but innovative design and the creation of green corridors can help offset such impacts and even enhance biodiversity at local level.

Implications for health

C.224 A strong link exists between access to nature and biodiversity and associated health and societal benefits. In light of the COVID-19 pandemic, the importance of safe, accessible and well-connected green and blue spaces for improving quality of life has also never been more pertinent.

C.225 According to the recently published World Health Organisation report 'Nature, Biodiversity and Health: An Overview of Interconnections' [\[See reference 320\]](#) increased exposure to nature has been associated with a lower risk of specific health conditions including depression, anxiety, cortisol, blood pressure, pre-term birth, low birthweight, type 2 diabetes, and reduced risk of death from all causes. There is generally positive evidence relating to the impacts of activities in natural environments on children's mental health and their cognitive, emotional and behavioural functioning. These health benefits are thought to arise through a range of pathways, including providing opportunities and safe spaces for physical activity, for restoration and relaxation, and for socialising with friends and family. Exposure to green and blue space is also associated with higher levels of life satisfaction. Impacts appear to differ according to socio-economic status and other demographic factors such as age or gender.

C.226 Increased urbanisation, growing populations and changes in land use are leading to reduced availability of high-quality green and blue spaces. Adequate and equitable access to high-quality green and blue environments is an issue in Thurrock, with 22% of Thurrock neighbourhoods having poor access to nature and 47% having only moderate access, particularly affecting disadvantaged neighbourhoods [\[See reference 321\]](#). Insufficient provision of urban parks and other nature areas can result in overuse of existing nature areas, leading to damage and loss of habitats for biodiversity. Figure C.15: Designated biodiversity assets in Thurrock.

Figure C.15: Designated biodiversity assets in Thurrock

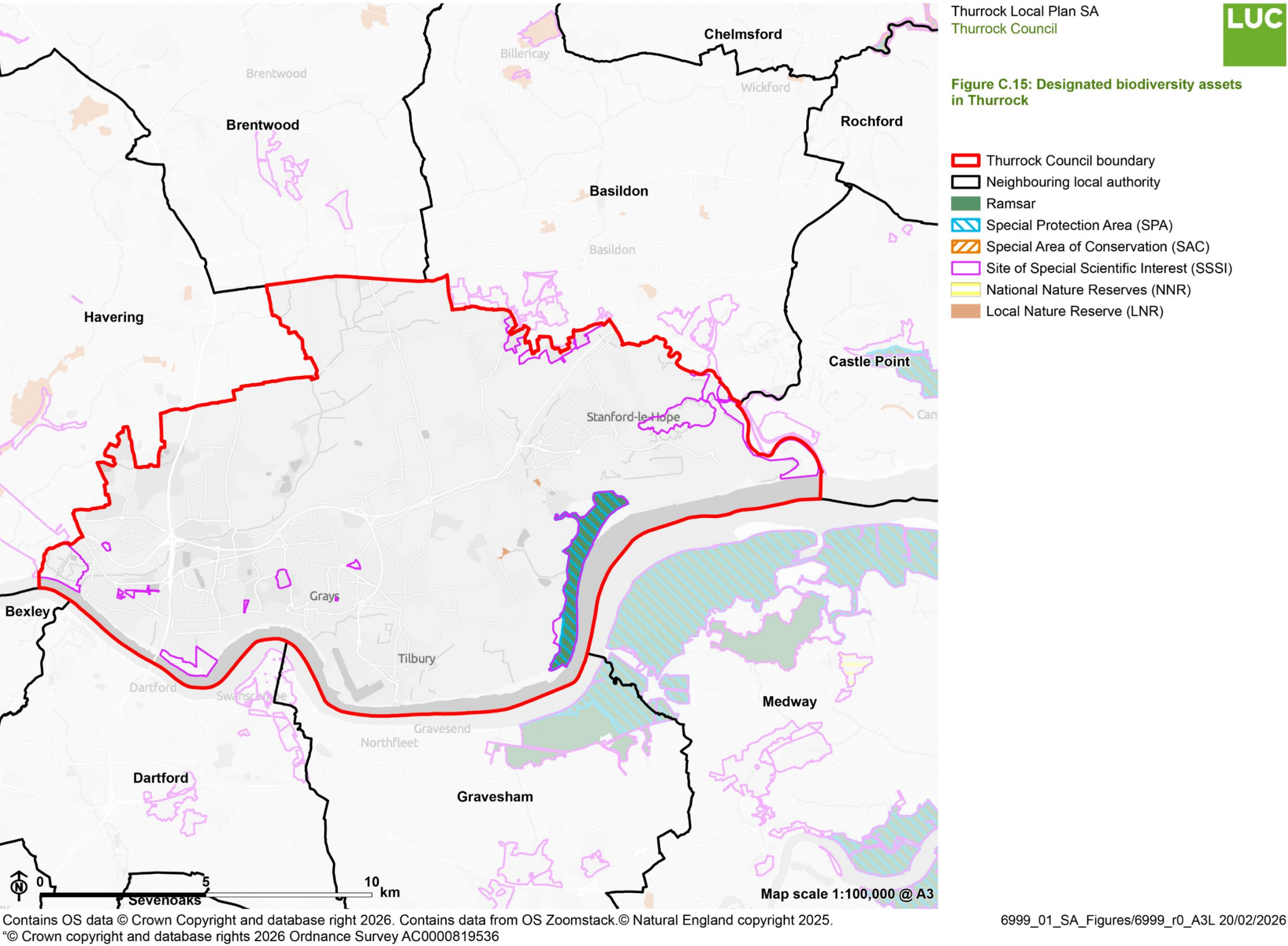
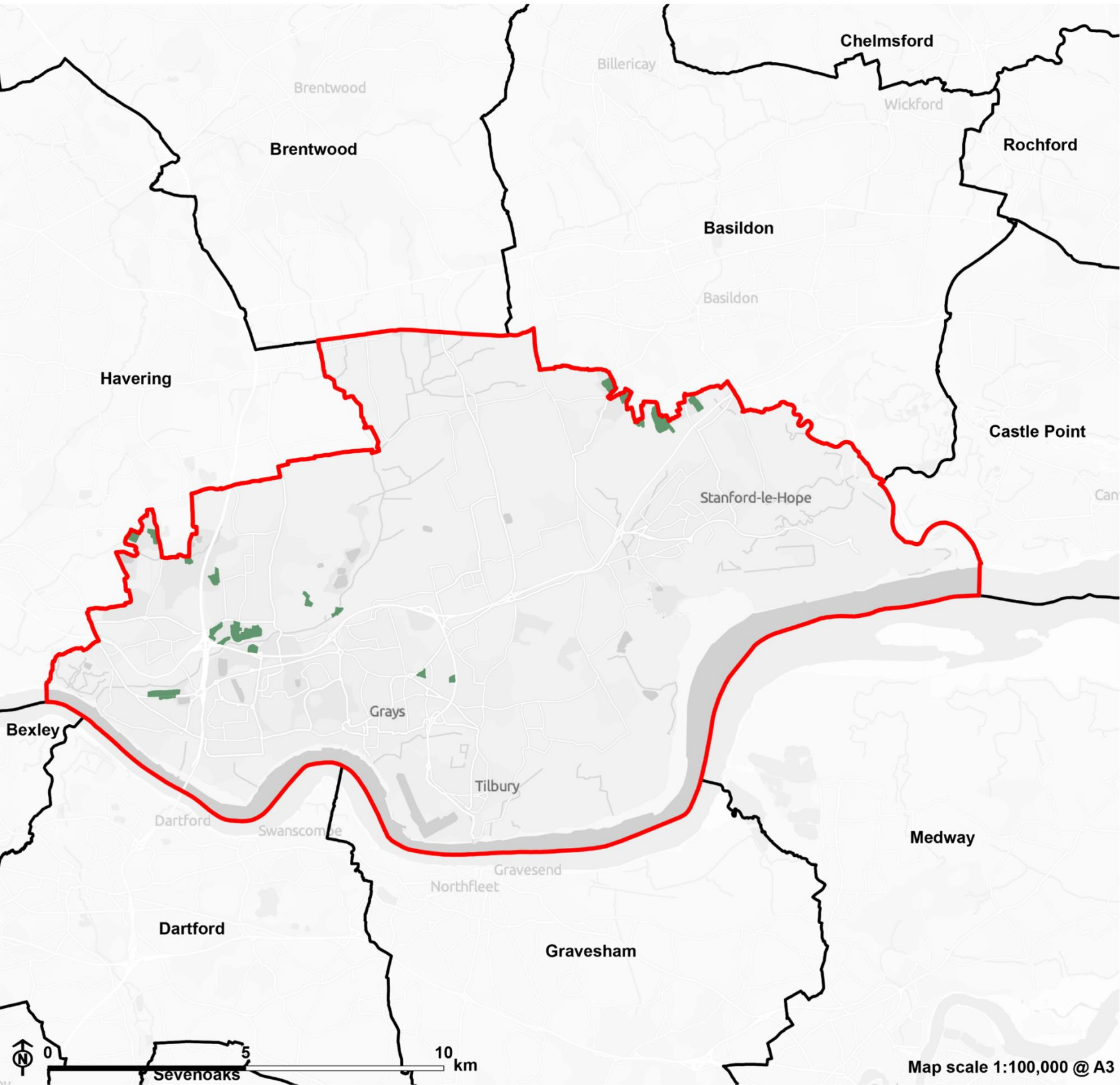


Figure C.16: Ancient woodland sites in Thurrock



Thurrock Local Plan SA
Thurrock Council



Figure C.16: Ancient woodland sites in Thurrock

- Thurrock Council boundary
- Neighbouring local authority
- Ancient woodland

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Historic environment

Heritage assets

Current baseline information

C.227 The Essex Historic Landscape Characterisation Project [\[See reference 322\]](#) identifies the predominant Historic Landscape Characterisation (HLC) types in Thurrock as 20th century agriculture; built up areas; coastal – drained enclosure; coastal – managed wetland; mineral; industry; pre-18th century enclosure; and parks and gardens.

C.228 Thurrock has a range of unique heritage assets that contribute to the character of the Borough. The assets include Scheduled Monuments, Listed Buildings (Grade I, Grade II* and Grade II), Conservation Areas and a Registered Park and Garden. These assets are shown in **Figure C.17** and **Figure C.18**.

C.229 Highlighted in the National Planning Policy Framework, non-designated heritage assets are singular buildings, structures and monuments or landscapes that are believed to have a degree of heritage significance and make a significant impact to local character, identity and sense of place. However, despite their level of heritage significance, these sites do not meet the criteria set out for statutory listing through Historic England [\[See reference 323\]](#).

C.230 Thurrock contains a number of important historic assets including [\[See reference 324\]](#):

- Seven Conservation Areas:
 - Horndon-on-the-Hill;
 - Corringham;
 - Orsett;
 - Fobbing;
 - Purfleet;
 - West Tilbury; and
 - East Tilbury.
- 242 entries in the List of Buildings of Special Architectural or Historic Interest (13 Grade I, 212 Grade II and 19 Grade II*);

- 17 Scheduled Monuments;
- One Registered Park and Garden at Belhus Park;
- 20 ancient woodland sites; and
- 1,101 Archaeological records on the Essex Historic Environment Record [See reference 325].

Heritage at risk

C.231 Historic England has a Heritage at Risk Register [See reference 326] which includes historic buildings, listed buildings, sites and Conservation Areas at risk of being lost through neglect, deterioration or decay. The register aims to highlight those places and buildings in greatest need of repair.

C.232 There are eight heritage assets at risk according to the register. East Tilbury Conservation Area, which consists of the former factor complex of British Bata Shoe Company and a large housing development in a 'garden village' setting. Its condition is described as 'very bad' and 'deteriorating'.

C.233 Belhus Park is the only Registered Park and Garden in Thurrock. Its condition is described as 'generally unsatisfactory with major localised problems' and it is 'declining' in condition. The M25 cut through the east of Belhus Park and surviving features are in very poor condition. The Park supports a golf course and other formal and informal recreational uses.

C.234 Three Scheduled Monuments are included in the Register. These are:

- The crop mark complex in Orsett is "generally unsatisfactory with major localised problems" with medium vulnerability.
- Coalhouse Fort, Tilbury is in very bad condition with high vulnerability.
- Dovecote to the east of High House on London Road in Purfleet is in poor condition with medium vulnerability.

C.235 Thurrock has three Listed Buildings on the Heritage at Risk Register, namely the State Cinema on George Street (Grade II*) and Church of St Nicholas on South Road – both of which are in Grays. Additionally, the former Church of St John the Baptist in Stanford-le-Hope. The condition of all three buildings is categorised as 'very bad'.

Projected baseline information

C.236 The historic environment can be considered a finite resource. It cannot be replaced and is susceptible to decline over time as historic features experience degradation and decay. However, cultural heritage as a whole can evolve and change, and features which are not currently considered a valued part of the historic environment may become so in the future, either due to their uniqueness, past use, or historic or cultural significance.

C.237 At local level, new developments, infrastructure and environmental pressures, such as extreme weather and flooding, present the greatest risk to cultural heritage assets.

Implications for health

C.238 Historic England explored the links between the historic environment and health in Wellbeing and the Historic Environment [\[See reference 327\]](#). This identified mental and social wellbeing benefits of the historic environment, including opportunities to meet people and expand knowledge through volunteering or visiting historic sites and giving people a sense of place, community and belonging.

Figure C.17: Designated heritage assets in Thurrock (Listed Buildings)

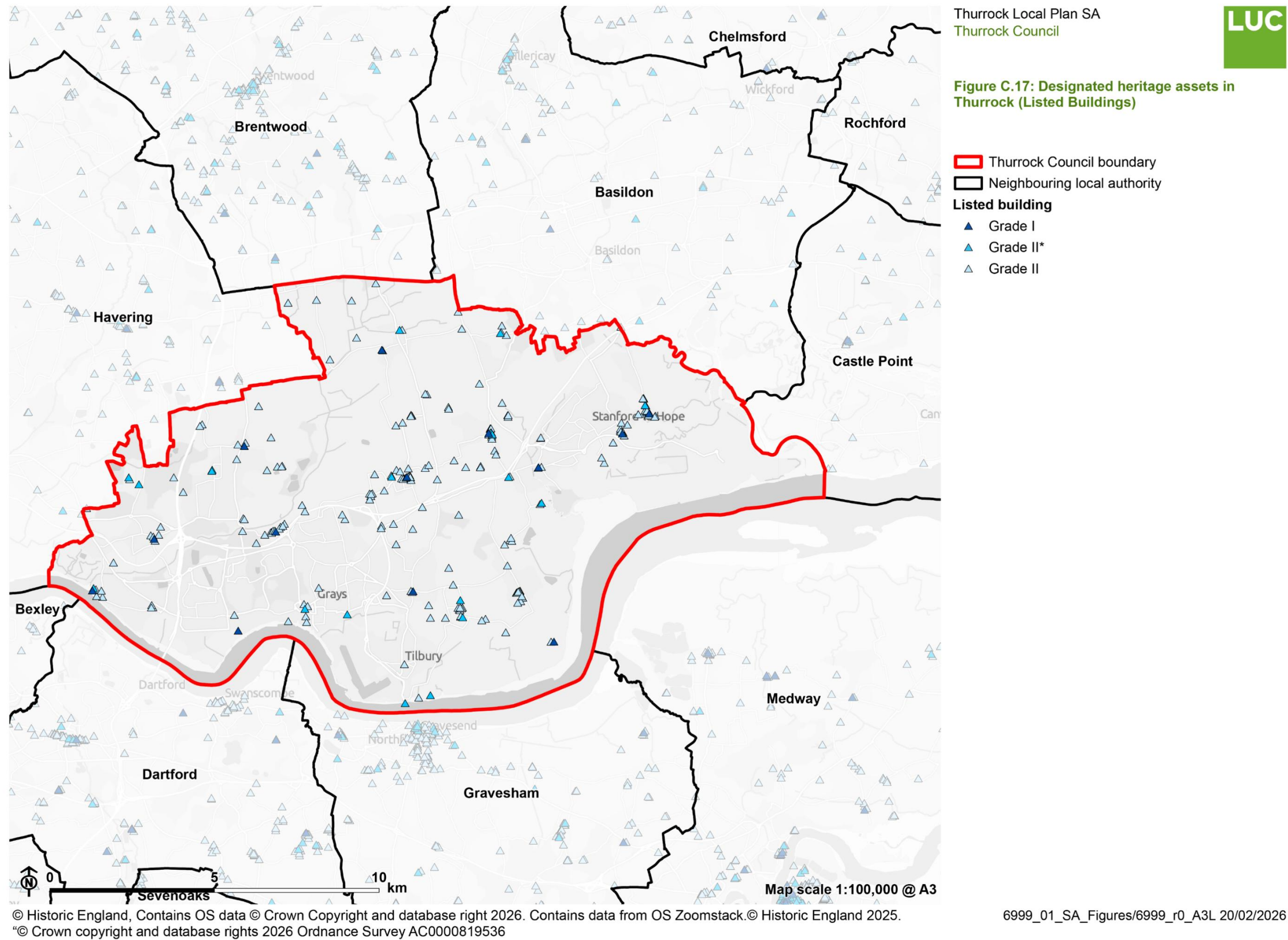
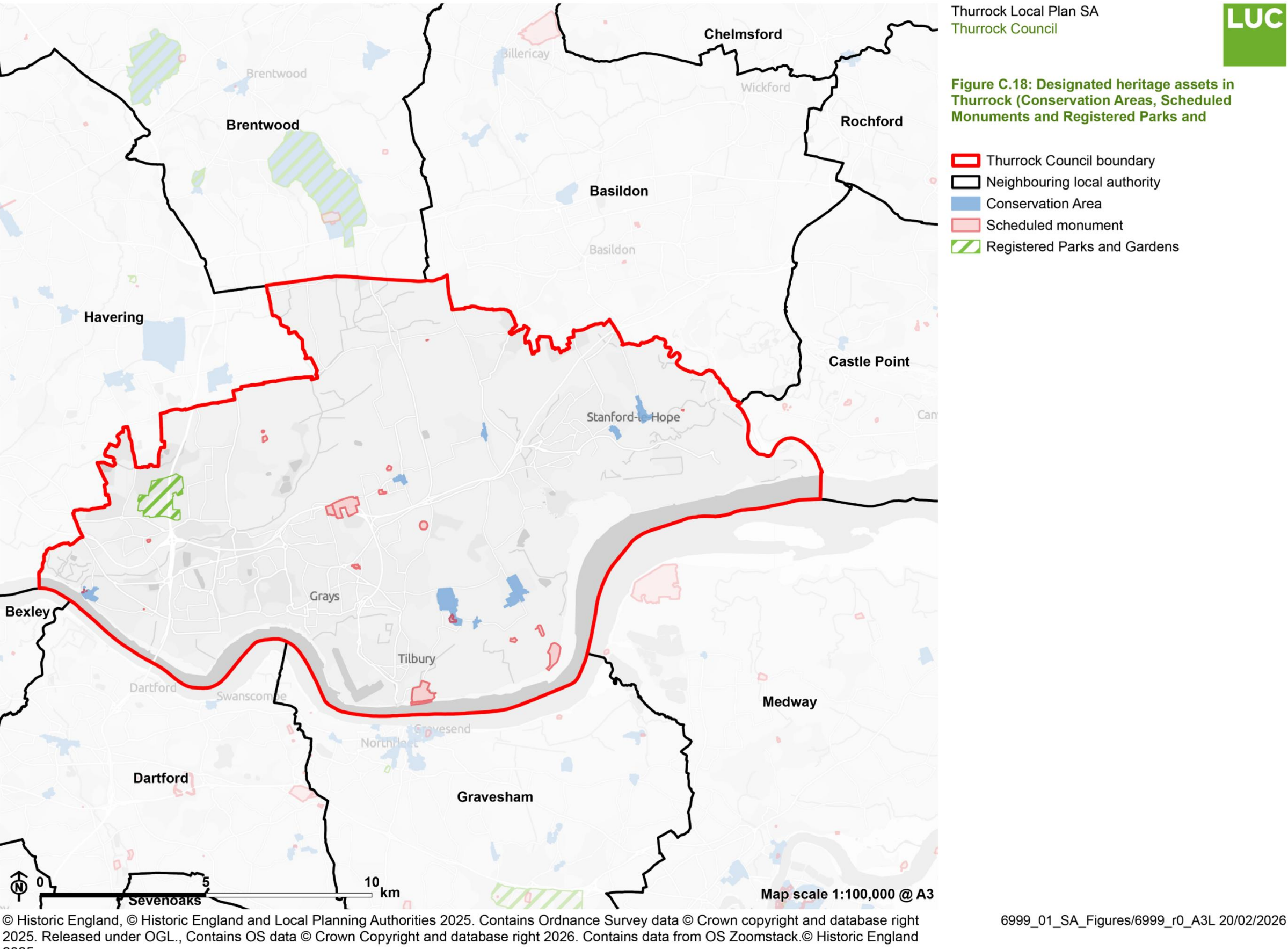


Figure C.18: Designated heritage assets in Thurrock (Conservation Areas, Scheduled Monuments and Registered Parks and Gardens)



Landscape and townscape

Current baseline information

Landscape character

C.239 Thurrock is generally a low-lying area with a ridge running through from Langdon Hills Country Park on the Basildon boundary, through Horndon on the Hill and Grays to Aveley and Kennington Park in the west of the Borough. There are two main rivers: the Thames which flows along the southern side, and the Mardyke which flows through the west of the Borough from north to south, meeting the Thames at Purfleet. Thurrock exhibits a mosaic of markedly contrasting landscapes; from open and relatively tranquil and undeveloped farmland in the rural parts of the Borough to the north, to the densely developed urban areas and industrial development adjacent to windswept grazing marshes along the Thames riverside [\[See reference 328\]](#).

C.240 The Thames forms a distinctive 'rivers cape' along the southern edge of the Borough. In the west near Aveley Marshes, the Thames is narrow, widening towards Holehaven Creek in the east. Numerous jetties, wharfs and piers punctuate the northern bank, which is heavily industrialised for most of its length between Aveley Marshes and Tilbury, and again around Holehaven Creek. The presence of industry creates a dramatic riverscape of angular machinery and buildings, dock activity, river traffic and changing light reflected on the constantly moving water of the Thames. This contrasts with adjacent open and low-lying marshes that accentuate the vertical features of the docks. Settlement has sprawled along an east-west band to the north of the river and at South Ockendon. Road and rail infrastructure, pylons and power lines are prominent features within the urban fringe landscapes. In contrast to the densely settled and industrialised areas, northern parts of the Borough are rural in character and the topography more undulating. Large, open prairie fields are a distinctive feature of the large scale and exposed landscape character in this area.

C.241 National Character Area (NCA) profiles created by Natural England are used to define the specific combination of landscape, geodiversity, biodiversity, history, culture and economic activity in an area. NCAs follow natural lines in the landscape instead of administrative boundaries [\[See reference 329\]](#). The National Character Areas are shown in **Figure C.19**. Thurrock contains two National Character Areas, namely the Northern Thames Basin (111) and the Greater Thames Estuary (81):

- The Northern Thames Basin NCA is a diverse area which extends from Hertfordshire in the west to the Essex coast in the east. It is separated from the North Sea and Thames Estuary by a narrow band of land that makes up the Greater Thames Estuary National Character Area (NCA). Although arable agriculture is a large industry in the area the soil quality ranges from good to poor quality. The London Clay provides poor quality soil that becomes waterlogged in winter and cracks and shrinks in summer. Better quality soil is found in areas that contain alluvial deposits from the Thames and other rivers in the area as they formed and changed position over time. The Northern Thames Basin is an area rich in geodiversity, archaeology and history and diverse landscapes. Urban expansion has historically been a feature in this area which has put increased pressure on the landscape from housing developments, schools and other necessities for expanding populations, with a consequential reduction in tranquillity. Though tranquil areas are still found in many parts of South Essex in areas with a more dispersed settlement pattern. There are a wider variety of semi-natural habitats in this area, which support important species. However, the habitats have become fragmented over time. [\[See reference 330\]](#).
- The Greater Thames Estuary NCA is a predominantly remote and tranquil landscape of shallow creeks, drowned estuaries, low-lying islands, mudflats and broad tracts of tidal salt marsh and reclaimed grazing marsh that lies between the North Sea and the rising ground inland. It forms the eastern edge of the London Basin and encompasses the coastlines of South Essex and North Kent, along with a narrow strip of land following the path of the Thames into East London. NCA contains some of the least settled areas of the English coast, with few major settlements and medieval patterns of small villages and hamlets on higher ground and the marsh edges. This provides a stark contrast to the busy urban and industrial areas towards London where population density is high and development pressures are increasing. Sea defences protect large areas of reclaimed grazing marsh and its associated ancient fleet and ditch systems, and productive arable farmland. Historic military landmarks are characteristic features of the coastal landscape [\[See reference 331\]](#).

C.242 An Integrated Landscape Character Assessment of Thurrock Borough was undertaken in 2018 [\[See reference 332\]](#). The assessment identified seven strategic scale landscape types, 12 local landscape types and 24 local scale character areas. Landscape types identified include:

- River valley catchment – River Mardyke valley catchment.

- Wooded and farmed river terrace gravels – Aveley and South Ockendon wooded and farmed river terrace gravels.
- Low chalk ridge – Grays conurbation low chalk ridge.
- Marshland – Thurrock marshland.
- Undulating farmland – Orsett to Chadwell undulating farmland.
- Strategic river corridor – River Thames strategic river corridor.

Landscape designations

C.243 Thurrock does not fall within or close to a designated National Landscape (formerly referred to as an Area of Outstanding Natural Beauty or AONB) or National Park; however, the Kent Downs National Landscape lies approximately 5km to the south of the River Thames.

C.244 With the exception of the principal urban area of Thurrock, and the towns and villages, all of the land within the Borough is designated as Green Belt. The Stage 1a and 1b Green Belt Assessment [\[See reference 333\]](#) identifies that in Thurrock, areas surrounding the urban areas towards the west of the Borough unsurprisingly contribute most to the first purpose of the Green Belt, i.e., to check the unrestricted sprawl of large built-up areas. With regard to the purpose of preventing neighbouring towns from merging, the designated Green Belt north of Purfleet and Grays fulfil this purpose by preventing merger with the towns of South Ockendon and Aveley. Similarly, parcels between Stanford le Hope, Corringham and Basildon serve the same function. In general, throughout the Borough, Green Belt boundaries are defined along weak features rather than clearly defined barriers, demonstrating the need for policies enhancing Green Belt boundaries and strengthening of green infrastructure.

C.245 The national demands for transport and energy networks have led to major infrastructure bisecting the rural landscape between historic village settlements. This has led to a distinctive feature of farmland edges to settlements and main roads. The tranquillity of the rural landscape has been diminished by national infrastructure however the visual separation of rural edge settlements remains highly valuable. The use of roads as Green Belt edges has led to higher landscape and visual impacts. The use of Green Belt road boundaries and resulting urban development and large industrial units on the settlement edges has reduced the visual separation of settlements.

Landscape sensitivity and capacity

C.246 As outlined in other chapters of this report, many features and areas within the Borough's landscape have been designated for their nature conservation, heritage and other environmental value, and are key assets of Thurrock's landscape [See reference 334]. Thurrock has long been under pressure for development of industry, housing, transport and defensive sites, and there continues to be pressure for development due to Thurrock's prime location for trade and transport connections [See reference 335].

C.247 A Thurrock Landscape Capacity Study was conducted in 2005 [See reference 336] with the purpose of assessing the landscape to accommodate potential development scenarios. The study concluded that, at strategic scale, much of the Borough's landscape is highly sensitive to most scales of urban development without substantial investment in green infrastructure provision. In more detail, it concludes that there is scope within the urban fringe and selected settlement edges to accommodate varying scales of development without significant adverse effects on important qualities of the landscape. The study also identifies a range of opportunities for positive enhancement and creation of green infrastructure within these development locations.

Landscape drivers for change

C.248 Within the Greater Thames Estuary NCA, there are several drivers for change that will put pressure on the flat estuary landscape. These include:

- New industrial complexes and major transport links such as the Lower Thames Crossing and Tilbury Energy Centre in Thurrock;
- Housing provision urban expansion within the main settlements;
- Major port developments such as Tilbury 2 and London Gateway;
- Increased tourism and recreation-related uses of the Estuary, such as nature parks, boating, water and jet skiing, new marinas, which may increase visitor pressure and reduce the feeling of remoteness and wilderness in some areas;
- Sea level rise is likely to result in significant losses of salt marsh and other habitats (including sand dunes, coastal vegetated shingle and mudflats) through coastal squeeze, with increased pressure on coastal defence structures due to reduced wave attenuation by the salt marsh and pressure on active dynamic coastal processes;

- A substantial alteration of estuary morphology may occur due to changes in sedimentary processes, with extensive mudflats likely to become sandier, affecting composition of bird species, changes in community composition of estuarine habitats due to increased submergence levels and a continuing and potentially accelerating reduction in sediment supply to recharge shingle beach systems;
- Increased sedimentation and barrier breaches would result in the loss of saline lagoons. Increased saline intrusion would potentially result in a significant alteration to, and the loss of, other species and habitats, including a reduction in quality of coastal arable farmland;
- Likely impacts of climate change on grazing marsh habitat include the loss of species due to saline intrusion, drying out in summer, and unpredictable inundation due to wetter winters and more frequent storm events with increased silt loading and loss of breeding habitat for wetland birds; and
- A change in the arable landscape may also occur, with the appearance of species and crops adapted to new climatic conditions and a longer growing season potentially leading to double cropping.

C.249 Within the Northern Thames Basin NCA, drivers for change include:

- Continued urban expansion of settlements putting pressure on their landscape setting;
- Provision of new open space to improve health and wellbeing, which could lead to habitat fragmentation and an altered landscape character;
- Increased development of infrastructure (transport, logistics and industrial), particularly in proximity to the London area. The Lower Thames Crossing, which will run through the Thurrock area;
- Continued demand for minerals across South Essex;
- Climate change will lead to increased wind erosion in hotter and drier periods and water erosion in the wetter, colder periods;
- Loss of brownfield sites in developed areas putting pressure on invertebrate habitats; and
- Decreased water availability with potential loss of specific drought intolerant species and water quality of water bodies.

Projected baseline information

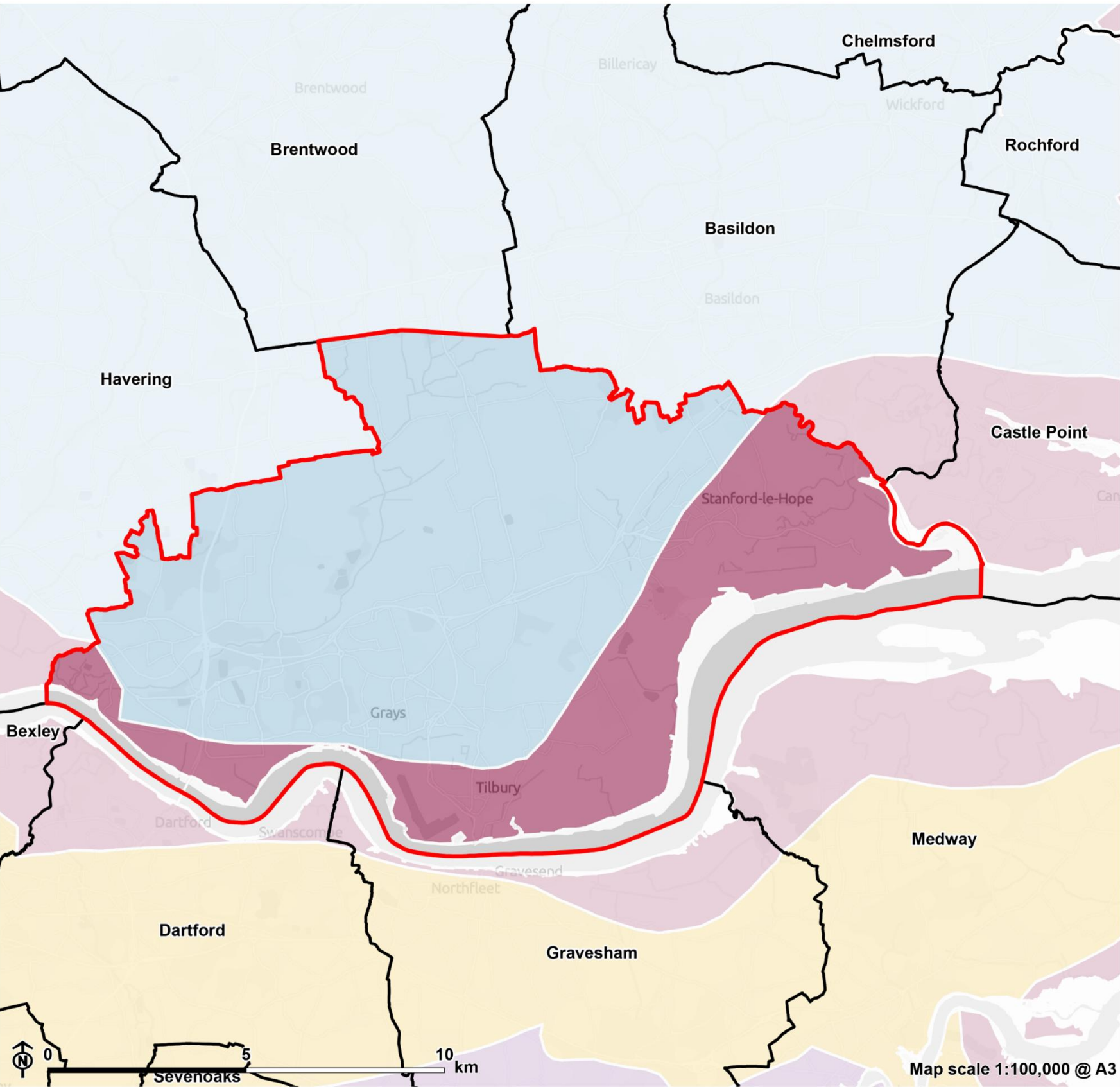
C.250 Significant future influences on Thurrock's landscape are likely to include major transport developments such as Lower Thames Crossing (LTC) and a continuation of the current urban regeneration programme, with the latter having more potential to be influenced by the Local Plan. This programme has already had an effect on Thurrock's landscape and townscape, with the expansion of retail services through Lakeside Shopping Centre, the creation of a huge container port at London Gateway, the regeneration of Purfleet, the continuation of the High House Production Park Housing, the Royal Opera House development and the expansion of the Port of Tilbury being key drivers for the change.

C.251 The proposed LTC route intersects the Borough and will undoubtedly have significant implications on areas of the rural landscape. The most significant impacts will be encroachment on the open countryside and the creation of a major enduring boundary within the Green Belt. In some cases, the proposed LTC route will provide a more defined barrier close to the boundaries of existing towns. The intervening land may become subject to increased development pressure as it may be viewed as less important to fulfilling the purposes of the Green Belt.

Implications for health

C.252 The landscape can benefit mental health and wellbeing in providing a pleasant setting and identifying and enhancing local landscape contributes to sense of place and belonging. Sensitive landscape management can also improve social and physical health by encouraging physical recreation, including providing a pleasant environment for activities such as walking and cycling, providing good public access links and helping people to feel safe and confident in navigating landscapes.

Figure C.19: National Character Areas in Thurrock



Thurrock Local Plan SA
Thurrock Council



Figure C.19: National Character Areas in Thurrock

- Thurrock Council boundary
- Neighbouring local authority
- National Character Area
 - 81: Greater Thames Estuary
 - 111: Northern Thames Basin
 - 113: North Kent Plain
 - 119: North Downs

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Appendix D

Site assessment framework

D.1 The site assessment framework is designed to identify the potential for significant effects of development at a particular site, and to ensure that all sites are appraised consistently, objectively and using a transparent methodology.

D.2 Reference is made to distances in the site assessment framework. The most sustainable and easily achievable mode of transport is walking, and the distances relate to walking distances.

D.3 There are a number of pieces of research that give a variety of recommended guidance distances for walking. For example, the Institute of Highways and Transportation found that the average length of a walk journey is one kilometre. The Institute of Highways and Transportation categorises distances depending upon location and purpose of the trip, and ‘desirable’, ‘acceptable’, and ‘preferred maximum’ (see **Table D.1**).

Table D.1: Institute of Highways and Transportation walking distances

Category	Town Centres (m)	Commuting/School/Sight-seeing (m)	Elsewhere (m)
Desirable	200	500	400
Acceptable	400	1,000	800
Preferred maximum	800	2,000	1,200

D.4 For the purposes of the appraisal, distances in the appraisal will be measured as the straight-line distance from the edge of the site option to existing services and facilities, and therefore actual walking distances are likely to be greater (e.g. depending on the house location within a larger site and the availability of a direct route).

D.5 Given the wide range of services and facilities normally considered in IIAs, LUC has developed some guideline distances that it uses in its IIA work, which are reflected in the site assessment framework for the Thurrock Local Plan. These are outlined in **Table D.2**.

Table D.2: Walking distance assumptions

Site Assessment Criterion: Proximity to...	Desirable	Acceptable	Preferred Maximum
GP surgeries/health centres	<= 400m	401-800m	801-1,200m
Primary or middle schools	<= 400m	401-800m	801-1,200m
Secondary schools	<= 500m	501-1,000m	1001-2,000m
Further and higher education facilities	<= 500m	501-1,000m	1001-2,000m
Local centres	<= 200m	201-400m	401-800m
Town centres	<= 400m	401-800m	801-1,200m
Railway stations	<= 500m	501-1,000m	1001-2,000m
Bus stops	<= 200m	201-400m	401-800m
Cycle paths	<= 200m	201-400m	401-800m
Open spaces and sports centres	<= 400m	401-800m	801-1,200 m
Public rights of way (PRoW)	<= 200m	201-400m	401-800m

IIA objective 1: Housing

D.6 IIA objective 1 was scoped out of the appraisal of residential site options. Performance of the Local Plan in relation to this IIA objective relates to factors such as its ability to deliver the right types and tenures of housing at prices that people can afford, as well as addressing the needs of specialist groups and promoting good design principles. These factors do not depend on the location of the site and will be taken into account by the IIA through appraisal of development management policies and site-specific requirements set out in allocation policies.

IIA objective 2: Health, wellbeing and safety

D.7 The effects of site options in relation to IIA objective 2 will be tested by spatial analysis of their proximity to areas likely to have negative (e.g. high levels of noise pollution) or positive (e.g. access to open space) effects on health and wellbeing. Footpath and cycle path networks are more likely to constitute a recreational resource if they are in or easily link to rural areas but those in urban areas may be important for commuting by active modes therefore both will be considered.

D.8 It is assumed that any area of open space within a site would be lost to development with negative effects on this IIA objective. However, it is also possible that the design of new developments may allow for the incorporation of open space. It is assumed that any existing PRoW or cycle path crossing a site would be retained, diverting its route if necessary, in line with national legislation.

D.9 If there are any sites with particular access issues due to the topography of the site or the presence of barriers such as main roads, this will be taken into account in the appraisal. Therefore, in some cases sites that are within 800m of a GP surgery or area of open space or within 400m of a PRoWs/cycle route will score a minor negative effect.

D.10 Many other factors within the scope of the Local Plan could affect the achievement of this IIA objective but these will be tested by the IIA of Local Plan policies (for instance in relation to the provision of new or enhancement to existing healthcare facilities/open spaces/sports and recreation facilities, and designing sites that are safe, inclusive and accessible, etc.).

Significance scoring for IIA objective 2 criteria

Each criterion will score:

- Major positive +3
- Minor positive +1
- Negligible 0
- Minor negative -1
- Major negative -3

Scores will be totalled and then averaged (i.e. total score divided by number of criteria). Significance of the effect vs. the IIA objective will then be scored as follows:

- Significant positive $\geq +2$
- Minor positive >0 to <2
- Minor negative <0 to <-2
- Significant negative ≥ -2

Table D.3: IIA site assessment criteria for IIA objective 2

Criteria	Major Positive	Minor Positive	Negligible	Minor Negative	Major Negative	Unknown/ Uncertain (?)	Datasets
2a AQMAs	N/A	N/A	All other sites	Site <=500m from an AQMA	Site within an AQMA	N/A	Air Quality Management Areas (from Defra)
2b Noise pollution from roads, railways, ports	N/A	N/A	All other sites	Lnight 50.0-54.9 dB or Laeq,16 55.0-59.9 dB	Lnight >=55.0 dB or Laeq,16 >=60.0 dB	N/A	Strategic noise mapping (from Defra)
2c Odour from waste facilities	N/A	N/A	All other sites	N/A	<=400m to wastewater treatment works or <=500m to anaerobic digestion (AD) facility or <=250m to waste management facility	N/A	Waste water treatment works Anaerobic digestion facilities Waste management sites (from TC and Environment Agency)

Criteria	Major Positive	Minor Positive	Negligible	Minor Negative	Major Negative	Unknown/ Uncertain (?)	Datasets
2d GP surgeries	<=400m from nearest NHS GP surgery	401-800m from nearest NHS GP surgery	N/A	801-1,200m from nearest NHS GP surgery	>1,200m from nearest NHS GP surgery	N/A	GP surgeries (excludes opticians, pharmacies, hospitals, any private healthcare facilities) (from TC)
2e Open space	<=400m from open space, open country or registered common land	401-800m from open space, open country or registered common land	N/A	801-1,200m from open space, open country or registered common land or Loss of open space, open country or registered common land (<25% development site area)	>1,200m from open space, open country or registered common land or Loss of open space, open country or registered common land (>=25% development site area)	N/A	Open spaces Open country Registered common land (from TC and Natural England)

Criteria	Major Positive	Minor Positive	Negligible	Minor Negative	Major Negative	Unknown/ Uncertain (?)	Datasets
2f Public Rights of Way (PRoW)/Cycle paths	<=200m from PRoW/Cycle paths	201-400m from PRoW/Cycle paths	N/A	401-800m from PRoW/Cycle paths	>800m from PRoW/Cycle paths	N/A	PRoW Cycle paths (from TC)

IIA objective 3: Community cohesion

D.11 IIA objective 3 was scoped out of the appraisal of site options.

Performance of the Local Plan in relation to this IIA objective relates to factors such as its ability to deliver development that integrates well with existing neighbourhoods, that meets the needs of specific groups, that will benefit both new residents and existing ones, that is designed to provide spaces for informal interaction, and that is designed to reduce crime and the fear of crime. These factors do not depend on the location of the site and will be taken into account by the IIA through appraisal of development management policies and site-specific requirements set out in allocation policies.

IIA objective 4: Access to services and facilities

D.12 The effects of site options in relation to IIA objective 4 will be tested by analysis of their proximity to essential services and facilities, public transport, active travel routes, open spaces, and employment sites. It is considered that there is more limited potential for travel patterns to be greatly influenced by proximity of employment site options to services and facilities. These sites will be considered making use of 2011 Census data available on the method of travel to work by Middle-layer Super Output Area (MSOA).

D.13 People often travel much longer distances to access employment than other services and facilities and there is no guarantee that a major employment site close to where people live will offer jobs that are suited to those local residents. Rather than proximity to major employment sites, accessibility of residential sites allocations to employment will be appraised by reference to 2011 Census data indicating the main commuting destinations from each MSOA in the plan area. Residential development in areas with relatively low average commuting distances will be rated as having better access to employment than residential development in areas with relatively high average commuting distances.

D.14 Note that Census 2021 was conducted during a time of unparalleled change because of the coronavirus pandemic. On Census Day, 21 March 2021 several programmes and restrictions were in place to tackle the Covid-19 pandemic. These included a nationwide lockdown, instructions for reduced use of public transport, the closure of non-essential businesses and placing of up to 5.6 million people in England and Wales on national job support scheme known as furlough. As such travel to work data from Census 2021 can be seen to be of

limited utility in measuring pre- or post-pandemic travel patterns [\[See reference 337\]](#).

D.15 Other aspects of the Local Plan affecting access to services and facilities will be assessed via the IIA of development management policies, for example requirements to provide parking in appropriate locations to enable access to services and facilities for those with limited mobility.

Significance scoring for IIA objective 4 criteria (excluding employment sites for which only criterion 4L applies)

Each criterion will score:

- Major positive +3
- Minor positive +1
- Negligible 0
- Minor negative -1
- Major negative -3

Scores will be totalled and then averaged (i.e. total score divided by number of criteria). Significance of the effect vs. the IIA objective will then be scored as follows:

- Significant positive $\geq +2$
- Minor positive >0 to <2
- Minor negative <0 to <-2
- Significant negative ≥ -2

Significance scoring for employment sites 4L

If the criterion scores major positive, then the significance of the effect of the site vs. the IIA objective will be significant positive.

If the criterion scores minor positive, then the significance of the effect vs. the IIA objective will be minor positive.

If the criterion scores major negative, then the significance of the effect vs. the IIA objective will be significant negative.

If the criterion scores minor negative, then the significance of the effect vs. the IIA objective will be minor negative.

All other sites will have a negligible effect vs. the IIA objective.

Table D.4: IIA site assessment criteria for IIA objective 4

Criteria	Major Positive	Minor Positive	Negligible	Minor Negative	Major Negative	Unknown/ Uncertain (?)	Datasets
4a GP surgeries	<=400m from nearest NHS GP surgery	401-800m from nearest NHS GP surgery	N/A	801-1,200m from nearest NHS GP surgery	>1,200m from nearest NHS GP surgery	N/A	GP surgeries (excludes opticians, pharmacies, hospitals, any private healthcare facilities) (from TC)
4b Primary schools	<=400m from primary school	401-800m from primary school	N/A	801-1,200m from primary school	>1,200m from primary school	N/A	Primary schools (excludes private schools) (from TC)
4c Secondary schools	<=500m from secondary school	501-1,000m from secondary school	N/A	1,001-2,000m from secondary school	>2,000m from secondary school	N/A	Secondary schools (excludes private schools) (from TC)
4d Further and higher education facilities	<=500m from further and higher education facility	501-1,000m from further and higher education facility	N/A	1,001-2,000m from further and higher education facility	>2,000m from further and higher education facility	N/A	Further and higher education facilities (from TC)

Criteria	Major Positive	Minor Positive	Negligible	Minor Negative	Major Negative	Unknown/ Uncertain (?)	Datasets
4e Town centres	<=400m from town centre	401-800m from town centre	N/A	801-1,200m from town centre	>1,200m from town centre	N/A	Town centres (Grays, Lakeside (proposed new town centre)) (from TC)
4f Local centres	<=200m from local centre	201-400m from local centre	N/A	401-800m from local centre	>800m from local centre	N/A	Local centres (Corringham, South Ockendon, Stanford le Hope, Tilbury, Aveley, Socketts Heath) (from TC)
4g Rail	<=500m from a railway station	501-1,000m from a railway station	N/A	1,001-2,000m from a railway station	>2,000m from a railway station	N/A	Railway stations (from TC)
4h Bus	<=200m from a bus stop	201-400m from a bus stop	N/A	401-800m from a bus stop	>800m from a bus stop	N/A	Bus stops (from TC)
4i PRoW/Cycle paths	<=200m from PRoW/Cycle paths	201-400m from PRoW/Cycle paths	N/A	401-800m from PRoW/Cycle paths	>800m from PRoW/Cycle paths	N/A	PRoW Cycle paths (from TC)
4j Open space	<=400m from open space,	401-800m from open space,	N/A	801-1,200m from open	>1,200m from open space,	N/A	Open spaces

Criteria	Major Positive	Minor Positive	Negligible	Minor Negative	Major Negative	Unknown/ Uncertain (?)	Datasets
	open country or registered common land	open country or registered common land		space, open country or registered common land or Loss of one of these (<25% development site area)	open country or registered common land or Loss of one of these (>=25% development site area)		Open country Registered common land (from TC and Natural England)
4k Employment	Sites in areas where average commuting distance is in lowest 20% of distances for the plan area	Site in areas where average commuting distance is in 20-40% range for the plan area	Sites in areas where average commuting distance is in 40-60% range for the plan area	Sites in areas where average commuting distance is in 60-80% range for the plan area	Sites in areas where average commuting distance is in 80-100% range for the plan area	N/A	2011 Census travel to work data (relative performance to be confirmed once distribution of commuting distances from the plan area is known)
For employment sites 4L potential for a large proportion	Sites in areas where 40-50% of commuters to that area use	Sites in areas where 30-40% of commuters to that area use	Sites in areas where 20-30% of commuters to that area use	Sites in areas where 10-20% of commuters to that area use	Sites in areas where 0-10% of commuters to that area use	N/A	2011 Census travel to work data (WU03EW – Location of usual residence)

Criteria	Major Positive	Minor Positive	Negligible	Minor Negative	Major Negative	Unknown/ Uncertain (?)	Datasets
of trips to be undertaken by more sustainable modes	public transport or active modes	public transport or active modes	public transport or active modes	public transport or active modes	public transport or active modes		and place of work by method of travel to work (MSOA level))

IIA objective 5: Equalities

D.16 IIA objective 5 was scoped out of the appraisal of site options.

Performance of the Local Plan in relation to this IIA objective relates to factors such as its ability to deliver development that will remove or reduce disadvantages suffered by people due to their protected characteristics, and that is designed to promote inclusivity and accessibility for people with limited mobility, neurodiversity and disabilities. These factors do not depend on the location of the site and will be taken into account by the IIA through appraisal of development management policies and site-specific requirements set out in allocation policies.

IIA objective 6: Education and skills

D.17 IIA objective 6 will be appraised based on the proximity of residential sites to schools and further/higher education facilities. Employment sites within one of the 20% most deprived areas (according to the 'Education, Skills and Training Deprivation' domain in the Index of Multiple Deprivation 2025) will provide skills and training opportunities in the most deprived areas in the Borough.

D.18 Many other factors within the scope of the Local Plan could affect the achievement of this IIA objective but these will be tested by the IIA of Local Plan policies (for instance in relation to the provision of new or enhancement to existing education facilities).

Significance scoring for IIA objective 6 criteria (excluding employment sites for which only criterion 6d applies)

Each criterion will score:

- Major positive +3
- Minor positive +1
- Negligible 0
- Minor negative -1
- Major negative -3

Scores will be totalled and then averaged (i.e. total score divided by number of criteria). Significance of the effect vs. the IIA objective will then be scored as follows:

- Significant positive $\geq +2$
- Minor positive >0 to <2
- Minor negative <0 to <-2
- Significant negative ≥ -2

Table D.5: IIA site assessment criteria for IIA objective 6

Criteria	Major Positive	Minor Positive	Negligible	Minor Negative	Major Negative	Unknown/ Uncertain (?)	Datasets
6a Primary schools	<=400m from primary school	401-800m from primary school	N/A	801-1,200m from primary school	>1,200m from primary school	N/A	Primary schools (excludes private schools) (from TC)
6b Secondary schools	<=500m from secondary school	501-1,000m from secondary school	N/A	1,001-2,000m from secondary school	>2,000m from secondary school	N/A	Secondary schools (excludes private schools) (from TC)
6c Further and higher education facilities	<=500m from further and higher education facility	501-1,000m from further and higher education facility	N/A	1,001-2,000m from further and higher education facility	>2,000m from further and higher education facility	N/A	Further and higher education facilities (from TC)
For employment sites 6d Education, skills and training deprivation	Employment site within one of the 20% most deprived areas within the Borough	All other employment sites	N/A	N/A	N/A	N/A	Index of Multiple Deprivation 2025 ('Education, Skills and Training Deprivation' domain of IMD 2025)

IIA objective 7: Economy and employment

D.19 Potential negative effects will be identified where the allocation of a residential site would lead to the loss of an existing employment use at the site. Effects for all residential sites (including negative effects identified for sites presently supporting an employment use) will be uncertain, given that they are based on information provided by site promoters on the call for sites forms, which have not always been completed to the same level of detail.

D.20 The development of employment land will have a direct positive effect on this IIA objective as it supports the provision of appropriate sites for new business opportunities. Larger sites offer greater potential to accommodate a variety of businesses which is likely to help improve the resilience of the economy and diversity of businesses. Furthermore, new employment development should result in improved opportunities for work-based training and skills development. The extent of the positive impact will be affected by the size of the employment site as larger sites are likely to offer particularly good opportunities for higher numbers of people to gain employment and to obtain new skills and training opportunities.

D.21 Employment sites within one of the 20% most deprived areas (according to the ‘Employment Deprivation’ domain in the Index of Multiple Deprivation 2025) will provide employment opportunities in the most deprived areas in the Borough.

D.22 Employment and residential sites in town and local centres offer opportunities to enhance the vitality and viability of these areas.

D.23 The accessibility of residential sites to employment opportunities is addressed under IIA objectives 4 and 8. The provision of new homes across the plan area will create job opportunities, particularly during the construction phase, but this will not vary between site locations.

D.24 Other aspects of the Local Plan affecting the economy and employment provision will be assessed via the IIA of development management policies, for example requirements to support online business operations and home working.

Significance scoring for IIA objective 7 criteria

Each criterion will score:

- Major positive +3

- Minor positive +1
- Negligible 0
- Minor negative -1
- Major negative -3

Scores will be totalled and then averaged (i.e. total score divided by number of criteria). Significance of the effect vs. the IIA objective will then be scored as follows:

- Significant positive $\geq +2$
- Minor positive >0 to <2
- Minor negative <0 to <-2
- Significant negative ≥ -2

Table D.6: IIA site assessment criteria for IIA objective 7

Criteria	Major Positive	Minor Positive	Negligible	Minor Negative	Major Negative	Unknown/ Uncertain (?)	Datasets
For residential sites 7a Existing employment land	N/A	N/A	Site not in existing employment use	N/A	Site in existing employment use	All effects are uncertain	Existing use (from TC)
For employment sites 7b Employment provision	Employment site ≥ 3 ha	Employment site < 3 ha	N/A	N/A	N/A	N/A	Proposed employment site options (from TC)
For employment sites 7c Employment deprivation	Employment site located within one of the 20% most deprived areas within the Borough	All other employment sites	N/A	N/A	N/A	N/A	Index of Multiple Deprivation 2025 ('Employment Deprivation' domain of IMD 2025)
For all sites 7d Viability and vitality of town centres	≤ 400 m from town centre	401-800m from town centre	N/A	801-1,200m from town centre	$> 1,200$ m from town centre	N/A	Town centres (Grays, Lakeside (proposed new

Criteria	Major Positive	Minor Positive	Negligible	Minor Negative	Major Negative	Unknown/ Uncertain (?)	Datasets
							town centre)) (from TC)
For all sites 7e Viability and vitality of local centres	<=200m from local centre	201-400m from local centre	N/A	401-800m from local centre	>800m from local centre	N/A	Local centres (Corringham, South Ockendon, Stanford le Hope, Tilbury, Aveley, Socketts Heath) (from TC)

IIA objective 8: Transport

D.25 The effects of site options in relation to IIA objective 8 will be tested by spatial analysis of their access to essential services and facilities, public transport, active travel routes, open spaces, and employment sites. As such the criteria applied for IIA objectives 4 and 13 are also applicable for IIA objective 8. However, the effects are not duplicated in the discussion of site options.

D.26 Other aspects of the Local Plan affecting transport will be assessed via the IIA of development management policies, for example requirements to provide electric vehicle charging facilities.

IIA objective 9: Air quality

D.27 There presently several AQMAs within Thurrock. These are located mainly in the west of the Borough, close to major transport routes such as the M25 and A13 and are a result of traffic related pollution along busy roads used for commuter traffic or logistical purposes. The proximity of sites to AQMAs will be used as an initial indicator of likely adverse impacts on air quality.

Significance scoring for IIA objective 9 criteria

If the criterion scores major negative, then the significance of the effect of the site vs. the IIA objective will be significant negative.

If the criterion scores minor negative, then the significance of the effect vs. the IIA objective will be minor negative.

All other sites will have a negligible effect vs. the IIA objective.

Table D.7: IIA site assessment criteria for IIA objective 9

Criteria	Major Positive	Minor Positive	Negligible	Minor Negative	Major Negative	Unknown/ Uncertain (?)	Datasets
9a AQMAs	N/A	N/A	All other sites	Site <=500m from an AQMA	Site within an AQMA	N/A	Air Quality Management Areas (from Defra)

IIA objective 10: Soils

D.28 Prioritisation of previously developed land over greenfield sites will have a positive effect on conserving and enhancing Thurrock's soil resources. The IIA of site options will reflect the potential for their development to bring brownfield and contaminated land back into appropriate use.

D.29 Potential harm to soil quality through the development of greenfield land was assessed by reference to the Agricultural Land Classification (ALC) used by Natural England to give advice to planning authorities and developers. The classification is based on the long-term physical limitations of land for agricultural use. The ALC system classifies land into five grades, with Grade 3 subdivided into subgrades 3a and 3b. The best and most versatile land is defined as Grades 1, 2 and 3a by policy guidance, however, data to subdivide the plan area into grades 3a and 3b is not available for the plan area.

Significance scoring for IIA objective 10 criteria

Each criterion will score:

- Major positive +3
- Negligible 0
- Minor negative -1
- Major negative -3

Scores will be totalled and then averaged (i.e. total score divided by number of criteria). Significance of the effect vs. the IIA objective will then be scored as follows:

- Significant positive $\geq +2$
- Minor positive >0 to <2
- Minor negative <0 to <-2
- Significant negative ≥ -2

Table D.8: IIA site assessment criteria for IIA objective 10

Criteria	Major Positive	Minor Positive	Negligible	Minor Negative	Major Negative	Unknown/ Uncertain (?)	Datasets
10a Development of brownfield/contaminated land vs. greenfield land	Site comprising $\geq 50\%$ brownfield/contaminated land	N/A	N/A	N/A	Site comprising $\geq 50\%$ greenfield land	N/A	Check of sites using satellite imagery to confirm brownfield or greenfield status Contaminated land
10b Agricultural land	N/A	N/A	All other sites	$\geq 25\%$ on Grade 3 agricultural land or $< 25\%$ site on Grade 1 and/or 2 agricultural land	$\geq 25\%$ on Grade 1 or 2 agricultural land	N/A	Agricultural Land Classifications (from Natural England)

IIA objective 11: Resource consumption and waste

D.30 New development is likely to increase consumption of natural resources through construction and by increasing the population, in most cases the location of site options is not expected to have a direct effect on this IIA objective, with effects depending more on the energy efficiency of buildings and the use of good design and construction techniques (including the use of recycled and secondary materials in construction) which will be considered in the IIA of the development management policies. However, development within a Mineral Safeguarding Area may sterilise mineral resources and restrict the availability of resources in the Borough. Furthermore, the location of development on previously developed land protects greenfield land thereby ensuring the prudent and efficient use of natural resources. The IIA of site options will reference the composition of site options in terms of being mostly greenfield or brownfield.

D.31 The location of sites is not likely to influence the volume of waste generated or whether waste will be treated in accordance with the waste hierarchy. These details will be considered in the IIA of the development management policies and site-specific policies.

Significance scoring for IIA objective 11 criteria

Each criterion will score:

- Major positive +3
- Negligible 0
- Minor negative -1
- Major negative -3

Scores will be totalled and then averaged (i.e. total score divided by number of criteria). Significance of the effect vs. the IIA objective will then be scored as follows:

- Significant positive $\geq +2$
- Minor positive >0 to <2
- Minor negative <0 to <-2

■ Significant negative ≥ -2

Table D.9: IIA site assessment criteria for IIA objective 11

Criteria	Major Positive	Minor Positive	Negligible	Minor Negative	Major Negative	Unknown/ Uncertain (?)	Datasets
11a Minerals safeguarding	N/A	N/A	All other sites	$\geq 25\%$ is within a Minerals Safeguarding Area	N/A	N/A	Minerals Safeguarding Areas (from TC)
11b Development of brownfield land vs. greenfield land	Site contains $\geq 50\%$ brownfield/contaminated land	N/A	N/A	N/A	Site contains $> 50\%$ greenfield land	N/A	SHLAA brownfield vs. greenfield site status Brownfield Land Register (from TC)

IIA objective 12: Water resources and quality

D.32 Effects of development on water resources will not be appraised on a site-by-site basis; however, support of the Local Plan for water efficient design of new development will be considered in the IIA of development management policies. Effects of development on water quality and quantity will partly depend on the adoption of good practice site layout and construction techniques, as well as the inclusion of sustainable drainage systems (SuDS) and measures to promote the efficient use of water (e.g., reuse of grey and rainwater) in the design of developments. These factors will be considered in the IIA of development management policies. In addition, development could affect surface water quality due to additional discharges of wastewater, for example because there is insufficient treatment capacity at the local wastewater treatment works (WwTWs) or because of nutrient enrichment issues in the receiving waters. These issues are generally managed at the catchment scale and will be considered by the IIA of the spatial strategy and policies on the amount of development to be delivered rather than for individual site options.

D.33 Development could affect water quality in drinking water resources during construction or occupation. Source protection zones (SPZs) are areas designated to protect groundwater sources used for public drinking water supply. They relate to the risk of contamination of the water source from various activities, this increasing as the distance between the source of contamination and the groundwater abstraction point decreases. Drinking Water Safeguard Zones are catchment areas that influence the water quality for associated Drinking Water Protected Areas that are at risk of failing drinking water protection objectives. Site options will be appraised in relation to these zones.

D.34 Sites which are hydrologically connected to waterbodies also present a potential risk of contamination to local water sources. However, it is not possible to assess in the IIA which sites are hydrologically connected and therefore, the IIA will use a 100m buffer of sites to help identify waterbodies that may be affected by development.

Significance scoring for IIA objective 12 criteria

If any criterion scores major negative or two criteria score minor negative, the overall significance of the effect of the site vs. the IIA objective will be significant negative.

If only one criterion scores minor negative, then the overall significance of the effect vs. the IIA objective will be minor negative.

All other sites will have a negligible effect vs. the IIA objective.

Table D.10: IIA site assessment criteria for IIA objective 12

Criteria	Major Positive	Minor Positive	Negligible	Minor Negative	Major Negative	Unknown/ Uncertain (?)	Datasets
12a Drinking water quality	N/A	N/A	All other sites	Site falls within a Source Protection Zone 2 or 3	Site falls within a Source Protection Zone 1	N/A	Environment Agency Source Protection Zones
12b Water course	N/A	N/A	All other sites	<=100m from water course	N/A	N/A	Environment Agency waterbodies data

IIA objective 13: Climate change and energy

D.35 Travel-related carbon emissions through consideration of access to essential services and facilities, public transport, active travel routes, open spaces, and employment sites. As such the criteria applied for IIA objectives 4 and 8 are also applicable for IIA objective 13. However, the effects are not duplicated in the discussion of site options.

D.36 Other aspects of this IIA objective depend on factors such as the promotion of energy efficient design, water efficient design, and provision and use of renewable energy. These factors do not depend on the location of the site and will be taken into account by the IIA of development management policies and site-specific requirements set out in allocation policies.

IIA objective 14: Flood risk

D.37 Development on greenfield land would increase the area of impermeable surfaces and could therefore increase overall flood risk, particularly where the sites are within high-risk flood zones. The Government’s Planning Practice Guidance identifies residential properties as a ‘more vulnerable use’, which is suitable in areas of Flood Zone 1 and 2 but would require an exception test in flood zone 3a, and is unsuitable in flood zone 3b.

D.38 Surface water flooding occurs when intense rainfall overwhelms drainage systems.

D.39 Other aspects of the Local Plan affecting flood risk will be assessed via the IIA of development management policies, for example requirements to incorporate SuDS, the creation and enhancement of green and blue infrastructure, and the allocation and safeguarding of open space for flood storage; or through site-specific policies, for example requirements for flood-resilient design.

Significance scoring for IIA objective 14 criteria

If any criterion scores major negative or two or more criteria score minor negative, the overall significance of the effect of the site vs. the IIA objective will be significant negative.

If only one criterion scores minor negative, then the overall significance of the effect vs. the IIA objective will be minor negative.

All other sites will have a negligible effect vs. the IIA objective.

Table D.11: IIA site assessment criteria for IIA objective 14

Criteria	Major Positive	Minor Positive	Negligible	Minor Negative	Major Negative	Unknown/ Uncertain (?)	Datasets
14a Flood Risk Zones	N/A	N/A	All other sites	>=25% within Flood Zone 2	>+25% within Flood Zone 3a or 3b >+25% falls within a Flood Storage Area (FSA)	All sites affected by Flood Risk Zones given that Thurrock benefits from the presence of flood defences	Environment Agency Flood Risk Zones 2 and 3 and FSAs
14b Surface water flood risk areas	N/A	N/A	All other sites	>+25% has a 1 in 100 year risk of surface water flooding	>=25% has a 1 in 30 year risk of surface water flooding	N/A	Surface water flooding areas (Environment Agency data 'Risk of Flooding from Surface Water (Basic)' identifies areas with a 1 in 100 years or greater risk of surface water flooding)

IIA objective 15: Biodiversity and geodiversity

D.40 Development sites that are close to an internationally, nationally or locally designated conservation site have the potential to affect the biodiversity or geodiversity of those sites/features, e.g., through habitat damage/loss, fragmentation, disturbance to species, air pollution, or increased recreation pressure. Conversely, there may be opportunities to promote habitat connectivity if new developments include green infrastructure. Therefore, while proximity to designated sites provides an indication of the potential for an adverse effect, uncertainty exists as appropriate mitigation may avoid adverse effects and may even result in beneficial effects. In addition, the potential impacts on biodiversity present on each site, or undesignated habitats and species adjacent to the potential development sites, cannot be determined at this strategic level of assessment. This should be determined once more specific proposals are developed and submitted as part of a planning application.

D.41 At the level of detail of a Local Plan, it is not possible for effects to be determined with certainty therefore uncertainty is attached to all the effects scores.

Significance scoring for IIA objective 15 criteria

If any of the criteria score major negative, then the score will be significant negative.

If two or more criteria score minor negative, then the score will be significant negative.

If only one criterion scores minor negative, then the score is minor negative.

All other sites will have a negligible effect vs. the IIA objective.

Uncertainty will be attached to all scores (?).

Table D.12: IIA site assessment criteria for IIA objective 15

Criteria	Major Positive	Minor Positive	Negligible	Minor Negative	Major Negative	Unknown/ Uncertain (?)	Datasets
15a Internationally and nationally designated biodiversity assets	N/A	N/A	All other sites	<=1km from an internationally or nationally designated site	<=250m from an internationally or nationally designated site	All effects are uncertain depending upon whether potential negative effects can be mitigated	SSSIs Ramsar sites SACs SPAs NNRs (from Natural England)
15b Locally designated wildlife sites/corridors and ancient woodland	N/A	N/A	All other sites	<=250m from locally designated site/corridor/ancient woodland	Intersects with locally designated site/corridor/ancient woodland	All effects are uncertain depending upon whether potential negative effects can be mitigated	Local Nature Reserves Local Wildlife Sites Ancient Woodland (from TC and Natural England)
15c Priority Habitat Inventory (PHI)	N/A	N/A	All other sites	<=250m from priority habitat	Intersects with priority habitat	All effects are uncertain depending upon whether potential negative	Priority Habitats (from Natural England)

Criteria	Major Positive	Minor Positive	Negligible	Minor Negative	Major Negative	Unknown/ Uncertain (?)	Datasets
						effects can be mitigated	
15d Geological sites	N/A	N/A	All other sites	<=25% intersects with county/local geological site	>=25% intersects with county/local geological site	All effects are uncertain depending upon whether potential negative effects can be mitigated	County and local geological sites (from TC)

IIA objective 16: Historic environment

D.42 The NPPF states that the "significance [of a heritage asset] can be harmed or lost through alteration or destruction of the heritage asset or development within its setting". However, development could also enhance the significance of the asset, provided that the development preserves those elements of the setting that make a positive contribution to or better reveal the significance of the asset. In all cases, effects from a Local Plan site allocation will be subject to a degree of uncertainty as the actual effects on heritage assets will depend on the particular scale, design and layout of the new development and opportunities which may exist to enhance the setting of heritage features, for example where sympathetic development replaces a derelict brownfield site which is currently having an adverse effect.

D.43 The proximity tests outlined below were intended to provide a basis for screening for the potential for adverse effects on heritage assets but in the absence of a separately commissioned historic environment sensitivity study or similar of all reasonable alternative site options they are subject to a high degree of uncertainty. Distances used were based on professional judgement. Longer screening distances were used for site options outside of existing settlements to reflect typically longer sightlines in rural vs. urban areas.

Significance scoring for IIA objective 16 criteria

If the criterion scores major negative, then the significance of the effect of the site vs. the IIA objective will be significant negative.

If the criterion scores minor negative, then the significance of the effect vs. the IIA objective will be minor negative.

Table D.13: IIA site assessment criteria for IIA objective 16

Criteria	Major Positive	Minor Positive	Negligible	Minor Negative	Major Negative	Unknown/ Uncertain (?)	Datasets
16a Proximity to historic assets: sites within existing settlements, or	N/A	N/A	All other sites	101-250m	<=100m	All effects for site options in the absence of heritage impact assessment.	TC settlement boundaries; TC /Historic England Conservation Areas; Historic England Listed Buildings; Historic England Scheduled Monuments; Historic England Registered Parks and Gardens
16b Proximity to historic assets: sites outside of existing settlements	N/A	N/A	All other sites	501-1,000m	<=500m	All effects for site options in the absence of heritage impact assessment.	TC settlement boundaries; TC /Historic England Conservation Areas; Historic England Listed

Criteria	Major Positive	Minor Positive	Negligible	Minor Negative	Major Negative	Unknown/ Uncertain (?)	Datasets
							Buildings; Historic England Scheduled Monuments; Historic England Registered Parks and Gardens

IIA objective 17: Landscape, townscape and visual impacts

D.44 The preparation of the Local Plan has been informed by the Thurrock Landscape Capacity Study [See reference 338]. This has assigned a landscape sensitivity rating to land within the Borough in terms of its potential to accommodate differing types and scales of development. This work will be used to inform the assessment of site options.

D.45 Other aspects of the Local Plan affecting landscape, townscape and visual impacts will be assessed via the IIA of the Local Plan policies, for example the requirement to use high-quality design principles and to enhance the range and quality of the public realm and open spaces.

Significance scoring for IIA objective 17 criteria

Each criterion will score:

- Major positive +3
- Negligible 0
- Minor negative -1
- Major negative -3

Scores will be totalled and then averaged (i.e. total score divided by number of criteria). Significance of the effect vs. the IIA objective will then be scored as follows:

- Significant positive $\geq +2$
- Minor positive >0 to <2
- Minor negative <0 to <-2
- Significant negative ≥ -2

Table D.14: IIA site assessment criteria for IIA objective 17

Criteria	Major Positive	Minor Positive	Negligible	Minor Negative	Major Negative	Unknown/ Uncertain (?)	Datasets
17a Landscape sensitivity	N/A	N/A	Site has “low” or “very low” overall landscape sensitivity	Site has “medium” overall landscape sensitivity	Site has “high” or “very high” overall landscape sensitivity	N/A	Landscape Sensitivity Assessment (from TC)

Appendix E

IIA of initial spatial options

E.1 The results of the IIA of the initial spatial options for growth (i.e. Spatial Options 1-6 identified at Initial Proposals stage and Spatial Option 4a, a variant of option 4) are described below by IIA objective with a summary provided in **Table E.1**. The appraisal of spatial growth options was undertaken using the housing numbers forecasted for each settlement. The full appraisal of each spatial option is presented after the summary table.

IIA objective 1

E.2 Six spatial options (Spatial Options 1-5 and 4a) are expected to have significant positive effects while Spatial Option 6 is expected to have a minor positive effect in relation to IIA objective 1: Housing. A high quantum of housing development would be delivered under Spatial Options 1-5, i.e. 22,326 homes are proposed under Spatial Option 1; 32,276 under Spatial Option 2; 26,061 under Spatial Option 3; 22,376 under Spatial Option 4; 19,376 homes under Spatial Option 4a; 21,626 under Spatial Option 5. A lower quantum of housing will be delivered under Spatial Option 6 (7,320) which will result in less affordable housing being delivered in the Borough. It is assumed that the scale of new development would deliver an appropriate range of housing in terms of sizes, tenures and affordability.

E.3 New housing will be delivered by each spatial option in areas within the 30% most deprived in terms of 'Barriers to Housing and Services' (IMD2019). Areas at West Horndon, West Thurrock (Lakeside), Purfleet-on-Thames, Chadwell St Mary, Grays and North Stanford all fall within the 20% most deprived. These areas would experience 'high' growth under Spatial Option 1 (West Thurrock, Purfleet-on-Thames, Grays), Spatial Option 2 (West Thurrock, Purfleet-on-Thames, Chadwell St Mary, Grays), Spatial Option 4 (West Horndon), Spatial Option 4a (North Stanford) and Spatial Option 5 (West Horndon and North Stanford). 'High' growth proposed at Bulphan and Fobbing under Spatial Option 3 would provide new housing within areas located within the 30% most deprived for housing, while 'high' growth at North Stifford and Southfields is within the 10% most deprived for housing.

E.4 Therefore, all options will deliver some degree of housing in the most deprived areas of Thurrock in terms of 'Barriers to Housing'. Spatial Option 2 will deliver the highest number of homes overall. Overall, significant positive

effects are expected for all six spatial options in relation to IIA objective 1: Housing.

IIA objective 2

E.5 All spatial options are expected to have mixed effects in relation to IIA objective 2: Health, wellbeing and safety. The quantum of development proposed under the 'high' and 'medium' growth scenarios in Spatial Options 1 to 5 including Spatial option 4a is likely to be of a scale to result in the provision of new healthcare services and open spaces/recreation facilities. Furthermore, many settlements proposed for 'high' and 'medium' growth are within the 30% most deprived under the 'Health Deprivation and Disability' domain in the IMD2019 which will result in the provision of new healthcare services and open spaces in areas of most need. However, several settlements either have high levels of traffic congestion and associated air and noise pollution; lack existing accessible health services; are within close proximity to existing authorised landfill sites, potentially impacting on residential amenity; or would result in loss of open space due to new housing development. Spatial Options 1, 2, 4, 4a, 5 and 6 are expected to result in mixed effects (significant positive / minor negative). Spatial Option 3 is expected to result in a mixed effect (minor positive / significant negative). All effects are uncertain as they will depend on the delivery of supporting infrastructure, including open space and healthcare facilities, at development locations.

E.6 Spatial Options 1 and 2 generally locate the highest quantum of growth to settlements that have existing healthcare services (e.g. GP surgeries and health centres) and are well connected by public transport/active travel networks, thus ensuring that healthcare facilities are accessible for residents. However, development at settlement edges may be further than a reasonable walk to these facilities. The urban areas of Thurrock generally lack access to open space and outdoor recreation opportunities (i.e. Purfleet-on-Thames, West Thurrock including Lakeside, Tilbury and Grays were identified as the areas most deprived of greenspace in the Borough), however the scale of development proposed under the 'high' growth scenarios for these spatial options is likely to be of sufficient scale to result in additional green space and new healthcare facilities, introducing these services to areas with greatest need. At the same time, however, Spatial Options 1 and 2 locate a high quantum of development in urban areas in the west of the Borough, which have the highest levels of traffic congestion and associated air and noise pollution, which could negatively affect the health of new residents. Therefore, uncertain mixed effects (significant positive / minor negative) are identified for Spatial Options 1 and 2.

E.7 An uncertain mixed effect (minor positive / significant negative) is identified for Spatial Option 3. While new development at Orsett and Horndon on the Hill would be within close proximity to existing health services (GP surgeries and health centres), there are no existing healthcare facilities in Bulphan, Fobbing, North Stifford and Southfields which are all proposed for 'high' growth. Spatial Option 3 focuses a high level of development at the smaller settlements within Thurrock which generally have good existing access to open space and the wider countryside. Bulphan, Orsett, Horndon on the Hill, North Stifford and Fobbing have existing amenity greenspace, parks or gardens. Spatial Option 3 is also likely to result in a significant level of development in close proximity of existing sources of noise pollution (e.g. the A13) which could negatively affect health. Additionally, Spatial Option 3 would result in high and medium quanta of development at Southfields, Aveley and East Tilbury which could be located near existing authorised landfill sites, potentially impacting on residential amenity. The scale of development proposed under the 'high' and 'medium' scenarios is likely to result in new healthcare facilities / open space being provided to support the scale of residential development, however, this is more uncertain for new development at the smaller settlements proposed for 'high' growth particularly Langdon Hills (181 homes), North Stifford (280 homes) and Fobbing (550 homes).

E.8 For Spatial Options 4, 4a and 5, the proposed new town locations of West Horndon and North Stanford currently do not contain any existing healthcare facilities. Stanford-le-Hope and Corringham contain a number of existing healthcare facilities, however the A13 creates a barrier to access between existing services in these settlements and the new town of North Stanford. As West Horndon and North Stanford are located in the more rural parts of the Borough, they rank highly in terms of access to greenspace and its health and nature benefits, however, there is likely to be a loss of open space to large scale development at these locations. The scale of development proposed at the new towns is likely to result in new healthcare facilities / open space / recreational facilities being provided to support the scale of residential development. Areas proposed for 'medium' growth within Spatial Option 4 and 'low' growth within Spatial Option 5 are generally located within the more urban areas of the Borough which have poorer access to greenspace. The scale of development in these locations could provide additional healthcare facilities and open spaces/recreational facilities, however, this is more uncertain for new development at the smaller settlements. The development of 7,000 new homes at West Horndon and 4,000 new homes at North Stanford are likely to result in new development in close proximity of existing sources of noise pollution (e.g. A127, A128 and A13) which could negatively affect health. Additionally, both spatial options would result in the development of new homes in Aveley and

East Tilbury which could be located near existing authorised landfill sites, potentially impacting on residential amenity. Therefore, uncertain mixed effects (significant positive / minor negative) are identified for Spatial Options 4, 4a and 5.

E.9 Spatial Option 6 proposes the lowest quantum of growth. New residents will generally be located within close proximity of existing healthcare facilities within urban centres. However, Thurrock's more urbanised areas are generally deprived of greenspace and have the highest levels of traffic congestion, with associated air and noise pollution. An uncertain mixed effect (significant positive/ minor negative) is also identified for Spatial Option 6.

IIA objective 3

E.10 All seven spatial options are expected to have mixed effects in relation to IIA objective 3: Community cohesion. All effects are uncertain as they depend on the level of services and facilities brought forward by new development, the selection of specific sites, design of new development and the characteristics of existing community networks. The strategic location of new development is less likely to affect crime and fear of crime, as this will be influenced more by the policy requirements that relate to the design of new development.

E.11 Uncertain mixed effects (significant positive / minor negative) are expected for Spatial Options 1 and 2 as they focus high levels of development to urban areas with key services and facilities and well-connected settlements with existing transport infrastructure. The larger size and more established nature of these settlements is likely to mean that these are some of the areas of the Borough at which community networks are most resilient to change. These options will ensure easy and equitable access by sustainable modes of transport which is also likely to encourage associated higher levels of pedestrian activity/outdoor interaction, contributing to creating neighbourhoods where people mix. For Spatial Options 1 and 2, a high quantum of development is proposed in areas of Thurrock located in the 30% most deprived for overall deprivation (IMD2019). This is likely to support new service provision in these areas which will help address deprivation in the plan area. Although many of the other locations supported for 'low' growth are within the 30% most deprived (excluding Aveley, Orsett and Horndon on the Hill), it is unknown if the small-scale development proposed at these locations would lead to the provision of new community services and facilities. If new community services/facilities are not provided as part of these developments, this may put additional pressure on

existing community services/facilities in areas that are amongst the 30% most deprived in the country.

E.12 An uncertain mixed effect (minor positive / significant negative) is identified for Spatial Option 3. For many of the high-growth allocations (e.g. Bulphan, Orsett, Horndon on the Hill, Southfields, North Stifford), the scale of development in comparison to the existing size of the settlement has the potential to disrupt existing community networks. However, delivering development in this manner could provide new infrastructure that benefits residents currently living in these locations. The potential to create settlement extensions in which community networks are fostered and that fit cohesively with the existing small village communities will depend largely on design of the new developments. None of the proposed locations to accommodate a 'high' level of growth are located within the 30% most deprived (overall deprivation) areas of Thurrock. Therefore, focusing development to these locations would be unlikely to expand facilities in areas of the Borough that would benefit most.

E.13 Spatial Option 3 would however deliver 'medium' growth in some of the urban areas in Thurrock with the highest overall deprivation including Aveley, Corringham, Chadwell St Mary, Grays Town, Tilbury, West Thurrock, and Purfleet-on-Thames.

E.14 An uncertain mixed effect (minor positive / minor negative) is expected for Spatial Option 4 and 4a and an uncertain mixed effect (minor positive / significant negative) is expected for Spatial Option 5. These options focus a high quantum of development at the new town at West Horndon (Spatial Options 4 and 5) and at North Stanford (Spatial Option 4a and 5) which would provide opportunities for the delivery of new services and facilities at planned strategic sites in the northern and north-eastern parts of the Borough. As there is an existing train station at West Horndon, these options would ensure easy and equitable access by sustainable modes of transport, which also has the potential to encourage higher levels of pedestrian activity/outdoor interaction, contributing to creating a new neighbourhood where people mix. While North Stanford and West Horndon are ranked within the 10% and 20% most deprived areas in terms of 'Barriers to Housing and Services', respectively, primarily due to their rural nature, they are some of the least deprived areas in the Borough for overall deprivation. These Spatial Options would also deliver 'medium' growth (Spatial Option 4 and 4a) and 'low' growth (Spatial Option 5) in some of the urban areas in Thurrock with the highest overall deprivation. The potential to create settlements in which community networks are fostered which fit cohesively with the existing West Horndon and Stanford-le-Hope communities will depend largely on their design. It is noted that creating two new towns is

likely to present challenges in terms of establishing a sense of community and there is potential for existing community networks to be disrupted. There are physical barriers created by the railway line and the A13 road (for North Stanford) between the new towns and the existing settlements of West Horndon and Stanford-le-Hope, making it difficult for the new and existing communities to integrate. As Spatial Option 5 proposes the development of both new towns, both of which contain physical barriers to community integration, an uncertain mixed effect (minor positive / significant negative) rather than an uncertain mixed effect (minor positive / minor negative) (Spatial Option 4) is identified.

E.15 An uncertain mixed effect (minor positive / minor negative) is also identified for Spatial Option 6 as most development will be within larger urban settlements. However, the scale of development proposed over the plan area is unlikely to provide new local services and facilities to areas of the Borough which are rank as most deprived in terms of 'Barriers to Housing and Servings' (IMD2019).

IIA objective 4

E.16 Uncertain mixed effects (significant positive / minor negative) are identified for Spatial Options 1, 2, 4, 4a and 5 in relation to IIA objective 4: Access to services and facilities. Spatial Option 3 is expected to have an uncertain mixed effect (minor positive / significant negative). Spatial Option 6 is expected to have an uncertain mixed effect (minor positive / minor negative).

E.17 Spatial Options 1 and 2 generally locate a high quantum of development at key locations with existing access to services and facilities which reduces the need to travel to access essential services and facilities. However, development of the outskirts of large settlements may pose barriers to accessing services and facilities. The scale of development proposed under the 'high' growth scenarios are likely to be of a scale to provide new services to meet the needs of residents, which will be particularly beneficial for residents in the most deprived areas in terms of access to services. However, allocations for 'medium' and 'low' growth would result in more piecemeal development located in areas that are currently more poorly connected and located further from existing services and facilities. It is unknown if the scale of development proposed at these locations would result in the provision of new services and facilities. Therefore, uncertain mixed effects (significant positive / minor negative) are expected for Spatial Options 1 and 2.

E.18 Spatial Option 3 locates a high quantum of development at the Borough's smaller towns and villages, and medium growth elsewhere in the Borough. This

would lead to development that is remote from existing larger local centres by public transport or active travel. There are a number of services within Orsett, Horndon on the Hill and other proposed village locations however these are generally small village services. Furthermore, all of the smaller settlements proposed for 'high' growth, except Horndon on the Hill, Langdon Hills and Orsett, are within the 30% most deprived for barriers to services in the IMD2019. Residents are likely to need to travel to other areas of the Borough to meet many of their needs. All of the villages are served by existing bus networks, although some are less frequent than others. Whether development may lead to the provision of new services and facilities or improved public transport in these locations is unknown, and is less likely to occur based on the scale of development in some locations, e.g. high growth is proposed at Langdon Hills (181 homes), North Stifford (280 homes) and Fobbing (550 homes). The medium growth in larger settlements proposed under Spatial Option 3 is likely to provide residents with better access to services, facilities and public transport networks. Overall, an uncertain mixed (minor positive / significant negative) effect is identified for Spatial Option 3.

E.19 Uncertain mixed effects (significant positive / minor negative) are expected for Spatial Options 4, 4a and 5. These options focus a high quantum of development at the new town at West Horndon (Spatial Options 4 and 5) and at North Stanford (Spatial Option 4a and 5). West Horndon has an existing train station and connections to east London/Basildon. There is no existing train station at North Stanford (closest is at Stanford-le-Hope). Both locations are currently in areas with poor existing access to services and facilities due to their rural nature. These locations also contain physical barriers to accessing services and facilities by active travel, most notably the A13 and railway line which separates Stanford-le-Hope and North Stanford. Both areas are within the 20% most deprived areas in terms of 'Barriers to Housing and Services', and a significant proportion of North Stanford is within the 10% most deprived for overall deprivation (IMD2019). However, development of the scale of these new towns is expected to provide new community facilities that would improve access to services and facilities in these areas. All other areas of the Borough would experience either 'medium' and 'low' growth (Spatial Option 4 and 4a) or 'low growth' (Spatial Option 5). The existing urban areas of the Borough generally have good access to existing services and facilities, however there are limited services and facilities in the smaller villages, and it is unknown if the scale of development proposed at these locations would lead to the provision of new services and facilities. Residents at these locations may still be required to travel to other settlements to meet the majority of their needs.

E.20 An uncertain mixed effect (minor positive / minor negative) is expected for Spatial Option 6 as new development would generally be located within proximity of existing services and facilities. However, the scale of development proposed overall is unlikely to introduce significant provision of new services and facilities, particularly in areas of the Borough with poor existing access.

IIA objective 5

E.21 Mixed effects (minor positive / minor negative) are identified for Spatial Options 1, 2, 4, 4a, 5 and 6, while a mixed effect (minor positive / significant negative) is expected for Spatial Option 3 in relation to IIA objective 5: Equalities.

E.22 Spatial Options 1 and 2 focus high levels of development to urban areas with key services and facilities and well-connected settlements with existing transport infrastructure, which is likely to make it easier for less mobile people, including elderly and disabled people, to access existing services and facilities. It is also likely to enable people to more easily access community facilities which may provide support groups or faith services. Additionally, major urban redevelopment projects or urban extensions proposed under these options are also likely to deliver new community facilities, services and/or public transport infrastructure, thereby further increasing accessibility. However, locating a large number of new homes in urban areas of the Borough with high levels of traffic congestion and air pollution could affect people more vulnerable to air pollution, including younger and older people, people with cardiovascular or respiratory illnesses and pregnant women. Overall, mixed effects (minor positive / minor negative) are expected for Spatial Options 1 and 2.

E.23 High levels of growth at smaller villages in the Borough is proposed under Spatial Option 3. Residents are likely to have to travel longer distances to access a wider range of services and facilities, and certain groups may not have access to more specialist facilities at the more rural locations, such as support groups or faith services. There are existing bus services serving the smaller villages of the Borough however some are infrequent. While new development might encourage public transport improvements in these areas, it is likely that many residents will still need to commute by car. As such, opportunities for less mobile people, including elderly and disabled people, to access services and facilities may be more limited. However, in some locations this option may lead to the provision of additional services, facilities and public transport links in more rural locations of the Borough, benefiting a range of groups, particularly

less mobile people. Therefore, a mixed effect (minor positive / significant negative) is expected for Spatial Option 3.

E.24 The potential locations for new towns at West Horndon (Spatial Option 4) and West Horndon and North Stanford (Spatial Option 4a and 5) are of a scale that are expected to provide additional public transport links and community facilities, which is likely to make it easier for less mobile people, including elderly and disabled people, to access existing services and facilities. However, these locations also contain physical barriers to accessing services and facilities by active travel, most notably the A13 and railway line which separates Stanford-le-Hope and North Stanford, which may limit opportunities for people on low incomes to access services and facilities. Furthermore, many residents of the new towns may still need to commute by car/bus/train, particularly as many employment areas in Thurrock are located in the south of the Borough, which may also affect people on low incomes. Spatial Options 4, 4a and 5 also support 'medium' and 'low' growth, respectively, in other areas of the Borough. These areas generally have good access to existing services and facilities and existing public transport connections, however, these areas also have high levels of traffic congestion and air pollution which could affect people more vulnerable to air pollution, including younger and older people, people with cardiovascular or respiratory illnesses and pregnant women. Overall, mixed effects (minor positive / minor negative) are expected for Spatial Options 4, 4a and 5.

E.25 Spatial Option 6 proposes a much smaller quantum of growth overall and locates most new development within existing urban settlements. This is likely to ensure groups are able to access existing services and facilities. However, these areas also have high levels of traffic congestion and associated air pollution which could affect those more vulnerable. As such, mixed effects (minor positive / minor negative) are also identified for Spatial Option 6.

IIA objective 6

E.26 Uncertain mixed effects (significant positive / minor negative) are identified for Spatial Options 1, 2, 4, 4a 5 and 6 in relation to IIA objective 6: Education and skills. Spatial Option 3 is expected to have an uncertain mixed effect (minor positive / significant negative).

E.27 Spatial Options 1 and 2 focus a high quantum of development to urban areas with key services and facilities and well-connected settlements with existing transport infrastructure, which generally have good access to existing educational facilities. There are existing primary and secondary schools within

the areas proposed for 'high' growth including Purfleet-on-Thames, West Thurrock, Grays (inc. Chafford, Little Thurrock and north Grays), Stanford-le-Hope, Aveley (Spatial Option 2), and Corringham (Spatial Option 2). East Tilbury, Tilbury and Chadwell St Mary (Spatial Option 2) do not have existing secondary schools and are within the 10% most deprived in terms of the 'Education, Skills and Training Deprivation' domain in the IMD2019. However, the scale of development proposed under the 'high' scenarios is likely to result in additional educational facilities at these locations. The potential 'medium' scale development at West Horndon (under both Spatial Options) would be of sufficient scale to provide a primary school. Currently, there are limited educational facilities in the locations proposed for 'low' growth and it is unknown if the small-scale development proposed at these locations would lead to the provision of new educational facilities. Development proposed at these locations may put additional pressure on existing educational facilities if new schools are not provided to support the delivery of new homes. Therefore, uncertain mixed effects (significant positive / minor negative) are expected for Spatial Options 1 and 2.

E.28 Development of smaller villages under Spatial Option 3 will result in an uncertain mixed effect (significant negative / minor positive). This option largely focuses development to the Borough's villages, which generally do not have good access to existing educational facilities. While there are existing primary schools within Orsett, Bulphan and Horndon on the Hill, there are no existing educational facilities at Southfields, North Stifford or Fobbing and no secondary schools in any of the villages proposed for 'high' growth. There are existing primary and secondary schools within Aveley, Corringham, Purfleet-on-Thames, West Thurrock, Grays (inc. Chafford, Little Thurrock and north Grays), and Stanford-le-Hope. East Tilbury, Tilbury, and Chadwell St Mary do not have existing secondary schools and are within the 10% most deprived in terms of the 'Education, Skills and Training Deprivation' domain in the IMD2019. The scale of development that would occur at many of the Borough's settlements under this option could result in new primary educational facilities being provided although it would be unlikely to support new secondary facilities. However, smaller scale development such as at Langdon Hills (181 homes), North Stifford (280 homes) and Fobbing (550 homes) would be unlikely to support new facilities.

E.29 Uncertain mixed effects (significant positive / minor negative) are expected for Spatial Options 4, 4a and 5. These options focus a high quantum of development at the new town at West Horndon (7,000 homes) (Spatial Options 4 and 5) and at North Stanford (4,000 homes) (Spatial Option 4a and 5), which are expected to be of scale that would result in the provision of new primary and

secondary educational facilities in locations which do not currently have any local educational facilities. All other areas of the Borough would experience either 'medium' and 'low' growth (Spatial Option 4 and 4a) or 'low growth' (Spatial Option 5). The existing urban areas of the Borough generally have good access to educational facilities, however there are limited facilities in the smaller villages, and it is unknown if the scale of development proposed at these locations would lead to the provision of new primary or secondary schools.

E.30 Spatial Option 6 proposes a smaller quantum of growth overall and therefore is unlikely to provide as many new educational facilities as other spatial options. However, the majority of new development will be located within existing urban areas for generally good access to existing schools and public transport connections. As such, an overall mixed effect (minor positive / minor negative) is identified for Spatial Option 6.

IIA objective 7

E.31 Uncertain mixed effects (significant positive / minor negative) are identified for Spatial Options 1, 2, 4, 4a and 5 in relation to IIA objective 7: Economy and employment. Spatial Option 3 is expected to have an uncertain mixed effect (minor positive / significant negative) and Spatial Option 6 is expected to have a significant positive effect.

E.32 Spatial Options 1 and 2 focus a high quantum of development to urban areas with key services and facilities and well-connected settlements with existing transport infrastructure. All proposed development under the 'high' growth scenarios for both options, excluding Aveley and Corringham (Spatial Option 2), contain employment sites. Locating new development near these existing employment sites will ensure new residents have good access to employment opportunities. Furthermore, focusing new development to the Borough's urban areas supports the economic viability and vibrancy of these town centres. The settlements proposed for 'high growth and West Horndon which is proposed for 'medium' growth under both options have existing public transport services and are of a scale that would provide new public transport services within the developments. This may help residents to access employment opportunities. These Spatial Options also propose 'high' residential growth in several areas within the 30% most deprived in terms of 'Income and Employment Deprivation' (IMD2019). Residential developments of this scale are likely to be supported by services and facilities, which may provide new employment opportunities in these areas. Access to areas of employment within

the Borough would be more limited from smaller 'low growth' settlements. Therefore, uncertain mixed effects (significant positive / minor negative) are expected for Spatial Options 1 and 2.

E.33 An uncertain mixed effect (minor positive / significant negative) is identified for Spatial Option 3. There are limited employment opportunities in the village settlements proposed for 'high' growth. The majority of existing employment sites within Thurrock are in the urban areas in the south of the Borough (e.g., Purfleet-on-Thames, West Thurrock, Grays, Tilbury) that would receive low growth under this option. There are no train stations at any of the proposed high growth locations and so new residents may be largely reliant on cars to access employment opportunities as these areas are currently only served by infrequent bus services. The development of large village expansions is unlikely to support the economic viability and vibrancy of the Borough's urban centres. However, the 'medium' scale of growth proposed at the larger settlements such as Grays, West Thurrock, Lakeside, Purfleet-on-Thames and Stanford-le-Hope will likely help improve the viability and vitality of their urban centres. Furthermore, locating new development near these larger settlements will ensure new residents have good access to employment opportunities.

E.34 Uncertain mixed effects (significant positive / minor negative) are expected for Spatial Options 4, 4a and 5. These options focus a high quantum of development at the new town at West Horndon (7,000 homes) (Spatial Options 4 and 5) and at North Stanford (4,000 homes) (Spatial Option 4a and 5). High levels of growth will be focused in the new towns at West Horndon and North Stanford which are likely to create new employment opportunities in the north and north-east of the Borough where existing employment opportunities are limited, balancing economic growth and employment opportunities across the Borough. The new town at West Horndon would be closely located to the Horndon Industrial Park and rail connections to Basildon/London. North Stanford however is not within proximity to any existing employment sites. Therefore, new residents may still need to travel to access employment opportunities in the south of the Borough. All other areas of the Borough would experience either 'medium' and 'low' growth (Spatial Option 4 and 4a) or 'low growth' (Spatial Option 5). The existing urban areas of the Borough generally contain employment sites, however access to areas of employment would be more limited from the smaller settlements.

E.35 A significant positive effect is expected in relation to Spatial Option 6. The location of new development will ensure good access to existing employment opportunities and will support the vitality and viability of the borough's urban

centres. However, the scale of development overall may not encourage as much economic growth overall as other spatial options.

IIA objective 8

E.36 Uncertain mixed effects are expected for all seven spatial options in relation to IIA objective 8: Transport. Positive effects are identified for all Spatial Options as each option supports development of brownfield sites in the urban area, thereby encouraging compact settlements and allowing more journeys to be undertaken by public transport and active travel. Uncertain mixed effects (significant positive / minor negative) are identified for Spatial Options 1, 2, 4 and 6. Spatial Option 3 is expected to have an uncertain mixed effect (minor positive / significant negative) while Spatial Option 4a and 5 is expected to have uncertain mixed effects (significant positive / significant negative). All effects are uncertain as it is not known what public transport / active travel infrastructure would be delivered as part of the developments, and the uptake of private vehicles.

E.37 Uncertain mixed effects (significant positive / minor negative) are identified for Spatial Options 1 and 2. The aim of these Spatial Options is to focus development at well serviced and connected settlements which will encourage compact settlements allowing more journeys to be undertaken by public transport and active travel. Settlements proposed for high and medium growth for both options are well serviced by public transport links with West Thurrock, Grays, Tilbury, East Tilbury, Stanford-le-Hope and West Horndon all having existing train stations. Additionally, the scale of development in these locations is also likely to provide improved or additional public transport infrastructure. However, these Spatial Options propose a high quantum of growth in areas with high levels of traffic congestion and associated air and noise pollution including at Tilbury, Grays, West Thurrock, Purfleet-on-Thames, and Aveley (Spatial Option 2). Therefore, increasing development at these locations may result in higher levels of traffic, congestion, pollution and accidents. Public transport and active travel infrastructure is more limited from smaller 'low growth' settlements, and therefore development at these locations is likely to increase travel by private car.

E.38 An uncertain mixed effect (minor positive / significant negative) is expected for Spatial Option 3. This option is likely to lead to development that is remote from existing larger local centres either by active travel or public transport. Proposed 'high' growth village expansions (Bulphan, Fobbing, Horndon on the Hill, North Stifford, Orsett, Southfields) will not benefit from any of the existing

rail links within Thurrock. Furthermore, several of these villages (Bulphan, Horndon on the Hill, Fobbing and North Stifford) are currently only served by infrequent bus services. However, the scale of development proposed at several of these locations could result in public transport improvements such as more frequent bus services, providing better access for new and existing residents, although this is uncertain. The lack of public transport connections and the location of many employment sites, services and facilities in the more urban southern parts of the Borough is likely to mean that many new residents in these villages will be dependent on their car. The location of the proposed development is therefore likely to increase traffic on the strategic road network (i.e. M25, A13, A1089), potentially contributing to existing congestion issues on these roads. However, the settlements proposed for 'medium' growth are well serviced by public transport links with West Thurrock, Grays, Tilbury, East Tilbury and Stanford-le-Hope all having existing train stations.

E.39 An uncertain mixed effect (significant positive / minor negative) is identified for Spatial Option 4 while an uncertain mixed effect (significant positive / significant negative) is expected for Spatial Option 4a and 5. The potential development of new towns at West Horndon (Spatial Options 4 and 5) and North Stanford (Spatial Option 4a and 5) are expected to be of a sufficient scale to provide additional or improved public transport links. Furthermore, West Horndon has an existing train station that connects to London Fenchurch Street and Shoeburyness via Basildon. Therefore, new development at these new settlements would be well serviced by public transport links. However, based on the location of these proposed new towns, many residents may still need to commute by car in the Borough, particularly as many employment areas are located in the urban areas in the south of Thurrock. This may result in higher levels of traffic, congestion and pollution, particularly along the A13 and A128. Furthermore, there are physical barriers created by the railway line and the A13 road (for North Stanford) between the new towns and the existing settlements of West Horndon and Stanford-le-Hope, which may present barriers to active travel between areas. All other areas of the Borough would experience either 'medium' and 'low' growth (Spatial Option 4 and 4a) or 'low growth' (Spatial Option 5). The existing urban areas of the Borough are generally well-serviced and connected by public transport links, however public transport and active travel infrastructure is more limited from smaller villages, and it is unknown if the scale of development proposed at these locations would lead to the provision of new services and facilities. Residents at these locations may still be required to travel by private car to other settlements to meet the majority of their needs. As Spatial Option 5 proposes the development of both new towns and 'low' growth to all other areas including well-connected settlements, an uncertain mixed

effect (significant positive / significant negative) rather than an uncertain mixed effect (significant positive / minor negative) (Spatial Option 4) is identified.

E.40 An uncertain mixed effect (significant positive / minor negative) is identified for Spatial Option 6 as the majority of new development will be focused within existing urban areas, ensuring good public transport connectivity. However, the majority of development will be located within the south-west of the Borough where there are existing traffic and congestion issues which may be exacerbated by further growth. Furthermore, the quantum of growth proposed may result in a higher commuter trend that will likely encourage some car dependency and may increase pressure on the road network, although this is uncertain.

IIA objective 9

E.41 Mixed effects are identified for all seven Spatial Options in relation to IIA objective 9: Air quality. Mixed effects (significant positive / significant negative) are identified for Spatial Options 1, 2, 4a, 5 and 6. Mixed effects (significant positive/ minor negative) are identified for Spatial Option 4, while mixed effects (minor positive / significant negative) are expected for Spatial Option 3.

E.42 Spatial Options 1 and 2 focus a high quantum of development to urban areas with key services and facilities and well-connected settlements with existing transport infrastructure. Potential locations for high growth at well-served and connected settlements could result in increased traffic in the AQMAs in and around Grays, Purfleet-on-Thames, West Thurrock, Aveley (Spatial Option 2) and Tilbury. This could therefore exacerbate existing air pollution issues. Additionally, developments in the settlements under the 'high' and 'medium' growth scenarios are of a scale that they are likely to increase air pollution due to increased traffic movements. At the same time however, these Spatial Options focus development in areas with existing services and facilities and access to sustainable modes of transport, therefore reducing the likelihood that new residents will be dependent on travelling by car. Development at the smaller villages could increase traffic on the strategic road network. This includes along the A13 which passes through an AQMA. Therefore, mixed effects (significant positive / significant negative) are identified for Spatial Options 1 and 2.

E.43 Spatial Option 3 locates a high quantum of development at the Borough's smaller towns and villages, and medium growth elsewhere in the Borough. The lack of rail connections, frequency of bus services, and lack of active travel infrastructure in the villages, coupled with the location of existing services and

employment sites in the urban areas primarily in the south of the Borough is likely to increase air pollution due to increased traffic movements as a result of the 'high' level of growth proposed at the Borough's villages, particularly along the A13 which passes through an AQMA. However, public transport improvements may be delivered in these locations. Nevertheless, a high quantum of development at Bulphan, Horndon on the Hill, Orsett, North Stifford and Southfields, in addition to medium growth in many of the larger settlements in the west of Thurrock, is likely to increase traffic on the strategic road network, exacerbating existing air pollution issues. Therefore, a mixed effect (minor positive / significant negative) is identified for Spatial Option 3.

E.44 Spatial Options 4 and 5 focus a high quantum of development at the new town at West Horndon (7,000 homes) (Spatial Options 4 and 5) and at North Stanford (4,000 homes) (Spatial Option 4a and 5). Development of a new town at West Horndon is not expected to substantially increase traffic in any AQMA. However, development of a new town at North Stanford is likely to substantially increase traffic along the A13 AQMA. While the proposed new towns are expected to be of scale to provide services and facilities which are accessible by sustainable modes of transport, reducing the need to travel by private car, based on their location, many residents may still need to commute north-south by car in the Borough, particularly as many employment areas are in the urban areas in the south of Thurrock, which may result in higher levels of traffic, congestion, and pollution, particularly along the A128 and A13. These locations also contain physical barriers to accessing services and facilities by active travel, most notably the A13 and railway line which separates Stanford-le-Hope and North Stanford. All other areas of the Borough would experience either 'medium' and 'low' growth (Spatial Option 4 and 4a) or 'low growth' (Spatial Option 5). Several existing urban areas of the Borough contain AQMAs including in and around Grays, Purfleet-on-Thames, West Thurrock, Aveley and Tilbury. Development at these locations could exacerbate existing air pollution issues. At the same time however, growth in urban areas with existing services and facilities and access to sustainable modes of transport will reduce the likelihood that new residents will be dependent on travelling by car. Development at the smaller villages proposed for 'low' growth under both Spatial Options could increase traffic on the strategic road network. This includes along the A13 which passes through an AQMA. As Spatial Option 5 proposes the development of both West Horndon and North Stanford which would substantially increase traffic along the A13 AQMA and 'low' growth to all other areas including well-connected settlements, a mixed effect (significant positive / significant negative) is expected for Spatial Option 4a and 5 rather than a mixed effect (significant positive / minor negative) (Spatial Option 4).

E.45 A mixed effect (significant positive / significant negative) is identified for Spatial Option 6. Spatial Option 6 locates the majority of new development in areas with existing access to sustainable modes of transport, thereby reducing the likelihood that new residents will be dependent on travelling by private vehicle. However, the location of new development may exacerbate air quality issues within AQMAs located in the south-west of the Borough. Furthermore, the small scale of growth proposed may result in a higher commuter trend that will likely encourage some car dependency and may increase transport related emissions.

IIA objective 10

E.46 Significant negative effects are identified for five Spatial Options in relation to IIA objective 10: Soils. However, the significant negative effects identified for Spatial Options 1 and 2 are mixed with significant positive effects, and minor positive effects for Spatial Options 3, 4 and 5. Significant positive and minor negative effect is identified for Spatial option 4a. For Spatial Option 6, significant positive effects are identified.

E.47 Mixed effects (significant positive / significant negative) are identified for Spatial Options 1 and 2 as development will mainly be focused to brownfield / infill sites within existing urban areas. Development in the 'high growth' areas largely avoids the loss of the best and most versatile land in the Borough, focusing much development in areas classified as 'urban' or 'non-agricultural'. This could lead to more efficient use of land and a reduced need to develop land of agricultural value. However, the 'high' growth proposed at several settlements including north Grays, around East Tilbury and Linford, south of Stanford-le-Hope and Corringham (Spatial Option 2) are located on Grade 2 agricultural land which would result in the loss of best and most versatile land in the Borough. Additionally, an urban extension south of West Horndon ('medium' scenario for both options) and north Tilbury ('high' scenario for both options) would be located on Grade 3 (Good to moderate) soils, which could also lead to the loss of productive agricultural land. The most productive agricultural land is south of Aveley (2,700 homes) (Spatial Option 2) and development at this area would also lead to the loss of prime agricultural land.

E.48 A mixed effect (significant negative / minor positive) is identified for Spatial Option 3. A high quantum of development is proposed around Orsett, North Stifford and south of Horndon on the Hill which comprises Grade 2 agricultural soils. Development at these locations could result in the loss of some of the best and most versatile soils in Thurrock. Additionally, Fobbing and Bulphan are

surrounded by Grade 3 agricultural land which could be lost to 'high growth' development under this option. Development in some of the 'medium growth' areas avoids the loss of the best and most versatile land in the Borough, focusing development to areas classified as 'urban' or 'non-agricultural' (e.g. West Thurrock, Purfleet-on-Thames, Grays). However, the potential urban expansions under the 'medium' growth scenario of Aveley (Grade 1), north Grays (Grade 2), East Tilbury (Grade 3), Linford (Grade 2), south of Stanford-le-Hope and Corringham (Grade 2) could lead to the loss of productive agricultural land.

E.49 Mixed effects (significant negative / minor positive) (significant positive / minor negative) are also identified for Spatial Options 4, 4a and 5. The potential location for the new towns at West Horndon and North Stanford would be located on Grade 3 (Good to moderate) soils. Therefore, development of the new towns would result in significant loss of productive agricultural land. All other areas of the Borough would experience either 'medium' and 'low' growth (Spatial Option 4 and 4a) or 'low growth' (Spatial Option 5). Development in the urban areas would avoid the loss of the best and most versatile land in the Borough, as it would focus development to areas classified as 'urban' or 'non-agricultural' (e.g. West Thurrock, Purfleet-on-Thames, Grays). However, the potential urban expansions of Aveley (Grade 1), north Grays (Grade 2), East Tilbury (Grade 3), south of Stanford-le-Hope and Corringham (Grade 2) could lead to the loss of some of the best and most versatile soils in Thurrock. Similarly, 'low' growth proposed at the smaller villages would also result in the loss of productive agricultural land.

E.50 Spatial Option 6 ensures that no additional Green Belt sites will be released (aside from already committed development), thereby focusing majority of new development on brownfield/infill sites within existing urban areas. As such, a significant positive effect is identified for Spatial Option 6.

IIA objective 11

E.51 Mixed effects, of varying significance, are identified for each spatial option in relation to IIA objective 11: Resource consumption and waste. In each of the spatial option scenarios, a large quantity of construction materials would need to be used to build these homes. There would likely be increased waste produced during the construction process and throughout the operational lifetime of these homes, from day-to-day living. It is also unknown if recycled materials will be promoted for construction and if energy efficiency measures

and renewable energy would be promoted as these will be influenced more by policy requirements.

E.52 Uncertain mixed effects (minor positive / minor negative) are identified for Spatial Options 1 and 2. These options support high levels of development in urban areas with key services and facilities and well-connected settlements with existing transport infrastructure, which will reduce the consumption of additional resources for new infrastructure. These spatial options support the development of brownfield sites in urban areas which promote the re-use of land (and potentially buildings and materials) and reduce the need for additional resources for new infrastructure construction. There are also large swaths of brownfield / contaminated land in the Borough that could accommodate new development, particularly around the 'high' growth areas of West Thurrock, Purfleet-on-Thames, East Tilbury, east of Stanford-le-Hope, Corringham/Fobbing (for Spatial Option 2) and Aveley (for Spatial Option 2). The settlements of Aveley and East Tilbury are near existing landfill sites, and it is unknown how new development in these areas would affect the capacity / operation of these waste sites. Both spatial options propose low growth at Orsett which contains two permitted sand and gravel reserves, however, it is likely that, due to the level of growth proposed, it will be possible to avoid the sterilisation of mineral resources.

E.53 Spatial Option 3 promotes development at smaller villages and would result in uncertain mixed effects (significant negative / minor positive) in relation to IIA objective 11. The expansion of villages under the 'high' growth scenario is likely to result in large-scale development of greenfield land, requiring a large quantity of construction materials and potentially additional infrastructure. Spatial Option 3 proposes high growth at Orsett which contains two permitted sand and gravel reserves. The high quantum of development proposed at Orsett presents a risk of sterilising these mineral resources. A high quantum of growth is proposed at Southfields which contains an authorised landfill site, while a medium quantum of growth is proposed at Aveley and East Tilbury which are near existing landfill sites. It is unknown how new development in these areas would affect the capacity / operation of these waste sites. The positive effect is identified as there are large swaths of brownfield land in the Borough that could accommodate new development, particularly around North Stifford and east of Fobbing which are proposed for 'high' growth and West Thurrock, Purfleet-on-Thames, East Tilbury, east of Stanford-le-Hope, and Aveley which are proposed for 'medium' growth.

E.54 Spatial Options 4, 4a and 5 promote the development of new towns at West Horndon; and West Horndon and North Stanford, respectively. Uncertain

mixed effects (significant negative / minor positive) are identified for Spatial Options 4, 4a and 5. The development of new towns at West Horndon and North Stanford is likely to result in the large-scale development of greenfield land, requiring a large quantity of construction materials and potentially additional infrastructure. There are no minerals sites or waste facilities located near West Horndon or North Stanford therefore the development of the new towns is unlikely to affect existing mineral and waste sites. A medium/low quantum of growth is proposed at Aveley and East Tilbury which are near existing landfill sites, however, it is unknown how new development in these areas would affect the capacity / operation of these waste sites. The positive effect is identified as all spatial options support the development of brownfield sites in urban areas which promotes the re-use of land (and potentially buildings and materials).

E.55 An uncertain mixed effect (significant positive / minor negative) is expected for Spatial Option 6 as the option proposes the smallest quantum of growth overall and generally locates new development within existing urban areas, enabling the reuse of existing infrastructure for new development.

IIA objective 12

E.56 All seven spatial options are expected to have uncertain minor negative effects in relation to IIA Objective 12: Water resources and quality. There are two Source Protection Zones (SPZ) within Thurrock - in Linford and North Stifford. The majority of the land within central Thurrock falls within the catchment of these two SPZs. Therefore, the majority of settlements and their surroundings are located within the SPZs, except for West Horndon, Bulphan, Fobbing, Aveley, West Thurrock and Purfleet-on-Thames. In addition, most areas proposed for development are in close proximity to watercourses, including the River Thames, the River Mardyke and other small watercourses. The quality of these watercourses could be adversely affected by development, through culverting or contaminated surface water runoff. The minor negative effects identified in relation to all spatial options are uncertain and are dependent on the exact location and layout of development.

E.57 Spatial Options 1 and 2 support high levels of growth in existing urban areas that are well connected and serviced, which has the potential to affect the SPZs. Additionally, many of the areas proposed for 'high' growth in Spatial Options 1 and 2 are within close proximity to the River Thames and the two lakes located in the Lakeside area. The quality of these could be reduced by development through contaminated runoff, however this may be lessened as

development is located within or in close proximity to existing urban areas. A high quantum of development proposed for both options located around East Tilbury and south of Stanford-le-Hope has the potential to adversely affect the water-dependent Thames Estuary and Marshes SSSI/SPA/Ramsar site.

E.58 Similarly, water dependent SSSIs (West Thurrock Lagoon and Marshes and Grays Chalk Pit) are located in areas proposed for high growth for both spatial options. Additional development has the potential to affect these sites although this is dependent on the exact location of schemes.

E.59 Spatial Option 3 promotes 'high' growth in small village locations, and 'medium' growth in all other areas in the Borough. Development at each of the settlements in Spatial Option 3 (excluding Bulphan, Fobbing, Aveley, West Thurrock and Purfleet-on-Thames) have the potential to affect the SPZs. Additionally, many of the areas proposed for 'high' and 'medium' growth are close to the River Thames and River Mardyke. The quality of these waterbodies could be adversely affected by development through contaminated runoff.

E.60 Spatial Options 4, 4a and 5 promote the development of new towns at West Horndon; and West Horndon and North Stanford, respectively. The location of the new town at West Horndon is not within the SPZs, however, the new town at North Stanford is within the SPZs catchment. The River Mardyke and a number of other small watercourses run through the proposed location for the new town development at West Horndon. The River Hope, a tributary of the River Thames, flows through the location of the new town at North Stanford. The development of the new settlements has the potential to adversely affect these watercourses, either through culverting or degradation from contaminated surface water runoff. Additionally, many of the areas proposed for 'medium' growth under Spatial Option 4 and 4a and 'low' growth under Spatial Option 5 are also close to the River Mardyke and River Thames.

E.61 Spatial Option 6 proposes the smallest quantum of growth overall and generally locates new development within existing urban areas. Therefore, adverse effects on the water environment are still possible, however a minor negative effect is expected for the reasons set out against Spatial Options 1 and 2.

IIA objective 13

E.62 Uncertain mixed effects are expected for six of the spatial options in relation to IIA objective 13: Climate change and energy. All effects are uncertain as addressing climate change as new development is delivered over the plan

period is most likely to be influenced by design measures incorporated at new development proposals to reduce greenhouse gas emissions (e.g., promoting renewable energy), improve energy efficiency and adapt to address the hotter, drier summers and warmer, wetter winters predicted for the UK. This might include enabling passive cooling, draught proofing and supporting natural shading, as well as promoting flood resilience. These measures will be achieved through policy requirements in the Local Plan and not necessarily the location of new development, which is the focus of the five options for growth in Thurrock.

E.63 Spatial Options 1 and 2 focus a high quantum of development to urban areas with key services and facilities and well-connected settlements with existing transport infrastructure. Directing most development to areas with key services and facilities, including public transport facilities, is likely to reduce the need to travel by private vehicle and associated transport-related emissions. Additionally, the scale of development in these locations is also likely to provide improved or additional public transport infrastructure. Conversely, developments in the settlements under the 'high' and 'medium' growth scenarios are of a scale that they are likely to result in increased private car movements and associated emissions. Public transport and active travel infrastructure is more limited from smaller 'low growth' settlements, and therefore development at these locations is likely to increase travel by private car and transport-related emissions.

E.64 Overall, mixed effects (significant positive / minor negative) are identified for Spatial Options 1 and 2.

E.65 Spatial Option 3 locates a high quantum of development at the Borough's smaller towns and villages, and medium growth elsewhere in the Borough. The lack of rail connections, frequency of bus services, and lack of active travel infrastructure in the villages, coupled with the location of existing services and employment sites in the urban areas primarily in the south of the Borough is likely to increase air pollution due to increased traffic movements as a result of the 'high' level of growth proposed at the Borough's villages, particularly along the A13 which passes through an AQMA. However, public transport improvements may be delivered in these locations. Nevertheless, a high quantum of development at Bulphan, Horndon on the Hill, Orsett, North Stifford and Southfields, in addition to medium growth in many of the larger settlements in the west of Thurrock, is likely to increase traffic on the strategic road network, exacerbating existing air pollution issues. Therefore, a mixed effect (minor positive / significant negative) is identified for Spatial Option 3.

E.66 Spatial Options 4, 4a and 5 focus a high quantum of development at the new town at West Horndon (7,000 homes) (Spatial Options 4 and 5) and at North Stanford (4,000 homes) (Spatial Option 4a and 5). The potential development of new towns at West Horndon and North Stanford are expected to be of a sufficient scale to provide additional or improved public transport links. Furthermore, West Horndon has an existing train station that connects to London Fenchurch Street and Shoeburyness via Basildon. Therefore, development at these new settlements would be well serviced by public transport links. However, based on the location of these proposed new towns, many residents may still need to commute by car in the Borough, particularly as many employment areas are located in the urban areas in the south of Thurrock. This may result in higher levels of transport-related emissions particularly along the A13 and A128. Furthermore, there are physical barriers created by the railway line and the A13 road (for North Stanford) between the new towns and the existing settlements of West Horndon and Stanford-le-Hope, which may present barriers to active travel between areas, resulting in more private car travel and transport-related emissions. All other areas of the Borough would experience either 'medium' and 'low' growth (Spatial Option 4 and 4a) or 'low growth' (Spatial Option 5). The existing urban areas of the Borough are generally well-serviced and connected by public transport links, however public transport and active travel infrastructure is more limited from smaller villages, and therefore development at these locations is likely to increase travel by private car and transport-related emissions. As Spatial Option 4a and 5 proposes the development of both new towns and growth to all other areas including well-connected settlements, an uncertain mixed effect (significant positive / significant negative) rather than an uncertain mixed effect (significant positive / minor negative) (Spatial Option 4) is identified.

E.67 An uncertain mixed effect (significant positive / minor negative) is identified in relation to Spatial Option 6. This option will direct most new development towards the most sustainable locations within the borough. However, the small quantum of growth proposed may result in a higher commuter trend that will likely encourage some car dependency and may increase transport related emission, although this effect is uncertain.

IIA objective 14

E.68 Significant negative effects are identified for five of the spatial options (Spatial Options 1-5 including 4a) in relation to IIA objective 14: Flood risk. An uncertain mixed effect (minor positive / minor negative) is identified for Spatial Option 6. Development in these locations does not take into account mitigation

such as the incorporation of SuDS, open spaces for flood storage or green infrastructure which is more likely to be influenced by policy requirements.

E.69 Spatial Option 1 and 2 proposes high levels of growth of existing urban and well-connected settlements, many of which are located within Flood Zones 2 and 3 (e.g. West Thurrock Lakeside, Tilbury, East Tilbury and Purfleet-on-Thames). However, these locations in the south of the Borough also benefit from flood defences but risk of flooding may increase with the effects of climate change. Other settlements proposed for 'high' growth are Grays and Stanford-le-Hope which also contain some areas located within Flood Zones 2 and 3. 'Medium' growth at West Horndon (1,500 homes) under both Spatial Options 1 and 2 is also within Flood Zones 2 and 3, however, this area does not benefit from flood defences. The proposed locations for expansion of smaller villages (Spatial Option 3) are generally located outside of Flood Zones 2 or 3. However, land to the south of Bulphan is located within Flood Zones 2 or 3. Development located at the smaller villages in the Borough would be located on greenfield agricultural land, potentially increasing the impermeable surfaces, and thus risk of flooding in Thurrock's rural areas. Areas where a medium quantum of development is proposed are generally located within Flood zone 2 or 3, however benefit from flood defences although risks might increase with climate change.

E.70 Spatial Options 4, 4a and 5 promote the development of new towns at West Horndon; and West Horndon and North Stanford, respectively. Areas to the south of West Horndon lie within Flood Zone 2 and Flood Zone 3. This location does not benefit from flood defences and the development of 7,000 additional homes on greenfield land in this area is likely to exacerbate this flood risk due to the introduction of impermeable surfaces. There are a number of small watercourses in this area and the adjacent land has a high probability of surface water flooding. The area for the proposed new town at North Stanford is not within Flood Zones 2 or 3, however, there is a high probability of surface water flooding in this area. Other areas proposed for 'medium' growth for Spatial Option 4 and 4a are located within Flood Zones 2 or 3 (e.g., West Thurrock, Purfleet-on-Thames, East Tilbury) but benefit from existing flood defences. Several areas proposed for 'low' development under both spatial options are also at risk of flooding.

E.71 An uncertain mixed effect (minor positive / minor negative) is identified for Spatial Option 6. This option will generally focus new development away from greenfield sites by not releasing any Green Belt allocations, preserving permeable areas of the Borough and largely focusing development towards existing urban areas. However, many urban areas of the Borough are located

within Flood Zones 2 and 3. These locations in the south of the Borough benefit from flood defences but risk of flooding may increase with the effects of climate change.

IIA objective 15

E.72 Uncertain significant negative effects are identified for Spatial Options 3, 4, 4a and 5 in relation to 15: Biodiversity and geodiversity. Uncertain mixed effects (minor positive / significant negative) for Spatial Options 1 and 2 while an uncertain mixed effect (minor positive / minor negative) is identified for Spatial Option 6. All effects are uncertain as they will depend on the exact locations and design/layout of developments, as well as mitigation providing by other plan policies.

E.73 Spatial Options 1 and 2 focus a high quantum of development to urban areas with key services and facilities and well-connected settlements with existing transport infrastructure. Focusing development at major urban settlements within the Borough, in close proximity to existing services, facilities and transport connections could help protect wildlife in the rural areas of Thurrock as rural areas are generally more biodiverse. However, there are a number of designated biodiversity sites within and close to the urban areas of Thurrock, most notably the Thames Estuary and Marshes SPA/SSSI/Ramsar, Inner Thames Marshes SSSI, and Mucking Flats and Marshes SSSI. Therefore, many of the locations proposed for 'high' growth are located within SSSI Impact Risk Zones. There could therefore be a high level of development in close proximity of these sites, leading to potential disturbance and damage. For example, a high quantum of development at East Tilbury would bring the settlement in close proximity of Thames Estuary and Marshes SPA and Ramsar site, which is the only international designated site in the Borough. An overall uncertain mixed effect (significant negative / minor positive) is identified for Spatial Options 1 and 2.

E.74 An uncertain significant negative effect is identified for Spatial Option 3. Local Wildlife Sites are located south of Southfields, North Stifford and surrounding Langdon Hills which could potentially be lost or affected by 'high' growth in these locations. Other locations such as Orsett, Horndon-on-the-Hill and Bulphan are not located in close proximity to any designated sites, however development of this scale in a rural area is likely to result in some loss of biodiversity. This is uncertain as rural areas, particularly areas of arable farmland, can have limited biodiversity value. There are a number of designated biodiversity sites within and close to the urban areas of Thurrock, most notably

the Thames Estuary and Marshes SSSI, SPA and Ramsar site, Inner Thames Marshes SSSI, and Mucking Flats and Marshes SSSI. Therefore, many of the development locations proposed under the 'medium' growth scenario are located within SSSI Impact Risk Zones. There could therefore be a high level of development in close proximity of these sites, leading to potential disturbance and damage. There are also a number of Local Wildlife Sites in and around West Thurrock and Grays (inc. Chafford Hundred and north Grays) that could be affected by development in these areas.

E.75 Uncertain significant negative effects are also identified for Spatial Options 4, 4a and 5. The North Stanford new town has the potential to adversely affect the nearby biodiversity sites of Langdon Ridge SSSI (also designated as the Northlands Wood Country Park) and the Grove House Wood Local Nature Reserve through disturbance and damage from increased pressure on the sites. The potential new town location at West Horndon is not within close proximity of any designated sites. The development of the scale proposed at both new towns, particularly as they are in rural areas, is likely to result in the loss of biodiversity. This is uncertain as rural areas, particularly areas of arable farmland, can have limited biodiversity value. There are a number of designated biodiversity sites within and close to the urban areas of Thurrock, most notably the Thames Estuary and Marshes SSSI, SPA and Ramsar site, Inner Thames Marshes SSSI, and Mucking Flats and Marshes SSSI. Therefore, many of the development locations proposed for 'medium' or 'low' growth under Spatial Option 4 and 4a and 'low' growth under Spatial Option 5 are located within SSSI Impact Risk Zones. There could therefore be a high level of development in close proximity of these sites, leading to potential disturbance and damage. There are also a number of Local Wildlife Sites in and around West Thurrock and Grays (inc. Chafford Hundred and north Grays) that could be affected by development in these areas.

E.76 An overall uncertain mixed effect (minor positive / minor negative) is identified for Spatial Option 6. This option proposes a significantly smaller quantum of growth overall and generally locates new development within existing urban, potentially reducing adverse effects on wildlife in the Borough's rural areas and at the urban edge. However, there are still a number of designated sites within the urbanised south of the Borough which could be adversely affected by new development.

IIA objective 16

E.77 Uncertain significant negative effects are identified in relation to IIA objective 16: Historic environment for Spatial Options 1 to 5 including 4a. For Spatial Option 6, mixed effects (minor positive / minor negative) are identified. The precise effect of new development on the historic environment will be influenced by the design of new proposals and exact location of new developments.

E.78 Spatial Options 1 and 2 focus a high quantum of development to urban areas with key services and facilities and well-connected settlements with existing transport infrastructure. Most of the areas proposed for 'high' growth for these Spatial Options include designated historic assets such as Listed Buildings and Conservation Areas (East Tilbury, Purfleet-on-Thames, Corringham (Spatial Option 2), Orsett (Spatial Option 2), Horndon on the Hill (Spatial Option 2)). There are also several Listed Buildings in the potential area of the new town at West Horndon which is proposed for 'medium' growth under both options. Several Scheduled Monuments, some of which are on the Heritage at Risk Register, are located within close proximity to East Tilbury, Grays, Orsett (Spatial Option 2), and Aveley (Spatial Option 2). These features have potential to be affected either directly or indirectly by the high level of growth proposed at these locations.

E.79 Spatial Option 3 locates a high quantum of development at the Borough's smaller towns and villages, and medium growth elsewhere in the Borough. The historic environment around Orsett is particularly sensitive to new development as it contains a Conservation Area, Listed Buildings and is within close proximity to three Scheduled Monuments. Horndon on the Hill, Orsett, Corringham and Fobbing all contain Conservation Areas and Listed Buildings, including several Grade I Listed Buildings. There are several Listed Buildings within North Stifford which could be affected by the expansion of the village, particularly in terms of setting and a number of Listed Buildings on the outskirts of Langdon Hills would increase the sensitivity of this area to further expansion. Additionally, 'medium' development south of East Tilbury would bring the settlement in close proximity to the nearby Scheduled Monuments (East Tilbury Battery and Coalhouse Fort battery and artillery defences, listed on the Heritage At Risk Register). Medium growth in Aveley is also included in Spatial Option 3, which has the potential to adversely affect the Scheduled Monument (Site of moated manor house east of St. Michael's Church) and Listed Buildings within the town.

E.80 Spatial Options 4, 4a and 5 focus a high quantum of development at the new town at West Horndon (7,000 homes) (Spatial Options 4 and 5) and at North Stanford (4,000 homes) (Spatial Option 4a and 5). There are a number of Grade II Listed Buildings in West Horndon and North Stanford which could be negatively affected, particularly in terms of setting, by development of the scale proposed at the new towns. Similarly, there may be additional pressure on the nearby Thorndon Hall Registered Park and Garden from the addition of 7,000 new homes in West Horndon. All other areas of the Borough would experience either 'medium' and 'low' growth (Spatial Option 4 and 4a) or 'low growth' (Spatial Option 5). 'Medium' growth proposed under Spatial Option 4 south of East Tilbury would bring the settlement in close proximity to the nearby Scheduled Monuments (East Tilbury Battery and Coalhouse Fort battery and artillery defences, listed on the Heritage At Risk Register). Development south of Tilbury may adversely affect the setting of the Tilbury Fort Scheduled Monument. Similarly, development to the north of the existing built-up area in Grays may adversely affect the Crop Mark Complex, Orsett Scheduled Monument (listed on the Heritage at Risk Register), while development to the east of Aveley may adversely affect the Site of Moated Manor House Scheduled Monument. Purfleet-on-Thames and Corringham contain Conservation Areas and several Listed Buildings. 'Low' growth proposed under Spatial Options 4, 4a and 5 could also adversely affect the numerous heritage assets and their settings located throughout the Borough.

E.81 An uncertain mixed effect (minor negative / minor positive) is identified in relation Spatial Option 6, which will broadly avoid effects on designated and undesignated heritage assets at the urban edge or in the borough's rural areas. However, despite the smaller scale of growth overall, there is still potential for adverse effects on the historic environment. There is also potential to enhance the setting of historic assets through improved public realm in Opportunity Areas, however this is uncertain.

IIA objective 17

E.82 Uncertain significant negative effects are identified as part of overall mixed effects for six Spatial Options 1 to 5 in relation to IIA objective 17: Landscape, townscape and visual impacts. Uncertain mixed effects (significant positive / significant negative) are expected for Spatial Options 1 and 2 while uncertain mixed effects (minor positive / significant negative) are identified for Spatial Options 3, 4, 4a and 5. A mixed effect (significant positive / minor negative) is identified for Spatial Option 6. All effects are uncertain as the precise effect of new development on landscape character in the plan area will be influenced to

a large degree by the design of new proposals and the detailed distribution of new development.

E.83 Spatial Options 1 and 2 focus a high quantum of development to urban areas with key services and facilities and well-connected settlements with existing transport infrastructure. These Spatial Options involve a high level of urban regeneration at Purfleet-on-Thames, West Thurrock (Lakeside), Grays, Tilbury, Stanford-le-Hope and Corringham (Spatial Option 2), which could potentially improve the local townscape of the Borough's urban areas and utilise areas of brownfield land. Several urban areas (West Thurrock, Grays and Purfleet-on-Thames) are within landscape character areas (LCAs) considered to be of low-moderate sensitivity to large housing development. As these Spatial Options direct high growth to these areas, large-scale development is directed away from more sensitive areas of the Borough. However, both Spatial Options also promote 'high' growth at East Tilbury, Stanford-le-Hope, and Corringham (Spatial Option 2) and 'medium' growth at West Horndon. Each of these areas are within LCAs with a high sensitivity to large housing development. Therefore, overall uncertain mixed effects (significant positive / significant negative) are expected for Spatial Options 1 and 2.

E.84 An uncertain mixed effect (minor positive / significant negative) is identified for Spatial Option 3. This spatial option focuses a high quantum of development at Thurrock's smaller villages, in more rural locations, and 'medium' growth in all other areas. The less developed nature of the smaller settlements may mean that delivering a relatively high number of new homes compared to the existing settlement size may have adverse impacts in terms of existing landscape character. Furthermore, each of the small villages are located within a LCA identified as having high/medium-high sensitivity to large-scale housing development. 'Medium' growth in East Tilbury, Grays and Stanford-le-Hope would also be in areas of high sensitivity to very large housing developments. However, this Spatial Option will also support urban regeneration at Purfleet-on-Thames and West Thurrock, potentially improving the local townscape.

E.85 Uncertain mixed effects (minor positive / significant negative) are expected for Spatial Options 4, 4a and 5. These options focus a high quantum of development at the new town at West Horndon (7,000 homes) (Spatial Options 4 and 5) and at North Stanford (4,000 homes) (Spatial Option 4a and 5). Both proposed locations for the new towns are within LCAs which are of high / moderate-high sensitivity to large-scale housing development. The focus of a high quantum of development to two strategic new town locations is likely to require a large amount of greenfield land take in a presently undisturbed area where significant disruption to the existing landscape character could result.

Additionally, the land in both of these new town locations provides important breathing space between the urban areas of Thurrock and surrounding boroughs, preventing coalescence of major settlements and maintaining rural tranquillity that is rare in Thurrock. There is potential for the incorporation of substantial green infrastructure and landscaping at the new towns to help mitigate the adverse effects however any improvements provided would be determined by the design of the developments, which is unknown at this stage. All other areas of the Borough would experience either 'medium' and 'low' growth (Spatial Option 4 and 4a) or 'low growth' (Spatial Option 5). Such development may also have adverse effects on landscape character, however urban areas are of low-moderate sensitivity to large-scale housing development and proposed development may support urban regeneration of areas, potentially improving the local landscape.

E.86 An uncertain mixed effect (significant positive / minor negative) is identified in relation to Spatial Option 6. This option maintains the Green Belt designation and does not release any new sites from the Green Belt. This will likely protect landscapes within Thurrock that are sensitive to large-scale housing development, particularly within rural areas and at the urban edge. For example, areas east of Grays, within LCA H1: East and West Tilbury Open Undulating Farmland, are of high sensitivity to very large housing development. Urban redevelopment includes enhancements to local townscape within the Opportunity Areas, including public realm and open space improvements which could lead to a change in townscape character, leading to positive effects.

Table E.1: Summary of likely sustainability effects of spatial options for distribution of growth in the Borough

IIA objective	Spatial Option 1	Spatial Option 2	Spatial Option 3	Spatial Option 4	Spatial Option 4a	Spatial Option 5	Spatial Option 6
1: Housing	++	++	++	++	++	++	+
2: Health, wellbeing and safety	++/-?	++/-?	--/+?	++/-?	++/-	++/-?	++/-?
3: Community cohesion	++/-?	++/-?	--/+?	+/-?	+/-?	--/+?	+/-?
4: Access to services and facilities	++/-?	++/-?	--/+?	++/-?	++/-?	++/-?	+/-?
5: Equalities	+/-	+/-	--/+	+/-	+/-	+/-	+/-
6: Education and skills	++/-?	++/-?	--/+?	++/-?	++/-?	++/-?	+/-?
7: Economy and employment	++/-	++/-	--/+	++/-	++/-	++/-	++
8: Transport	++/-?	++/-?	--/+	++/-?	++/--?	++/--?	++/-?
9: Air quality	++/--	++/--	--/+	++/-	++/--	++/--	++/--
10: Soils	++/--	++/--	--/+	--/+	++/-	--/+	++
11: Resource consumption and waste	+/-?	+/-?	--/+?	--/+?	--/+	--/+?	++/-?
12: Water resources and quality	-?	-?	-?	-?	-?	-?	-?
13: Climate change and energy	++/-?	++/-?	--/+?	++/-?	++/--?	++/--?	++/-?
14: Flood risk	--	--	--	--	--	--	+/-?
15: Biodiversity and geodiversity	--/+?	--/+?	--?	--?	--/+?	--?	+/-?
16: Historic environment	--?	--?	--?	--?	--?	--?	+/-?
17: Landscape, townscape and visual impacts	++/--?	++/--?	--/+?	--/+?	--/+?	--/+?	++/-?

Spatial Option 1: Focus on locations that are currently most connected

E.87 Spatial Option 1 focuses development at locations that are currently the most connected. This could include development of existing commitments and at brownfield sites in the urban area, focusing high growth in settlements with good connectivity (railway and bus links), the development of an urban extension at West Horndon and low growth in all other areas. Spatial Option 1 would deliver approximately 22,326 new homes based on 'available' sites.

E.88 Spatial Option 1 would focus a 'high' level of development at East Tilbury (3,750 homes), Grays (2,800), Purfleet-on-Thames (3,200), Stanford le Hope (2,500), Tilbury (600) and West Thurrock (including Lakeside) (4,000). Additionally, 'medium' growth would take place with an urban extension at West Horndon (settlement within Brentwood) into Thurrock (1,500 homes). 'Low growth' would take place in all other areas, with additional homes located at Aveley (1000 homes), Bulphan (50), Chadwell St. Mary (1,500), Corringham (750), Fobbing (200), Horndon on the Hill (75), Langdon Hills (181) and Orsett (220). No development would be allocated at North Stifford, North Stanford (potential new town), Southfields or West Tilbury.

E.89 A significant positive effect for Spatial Option 1 is expected in relation to IIA objective 1: **Housing**. This would locate growth in areas with existing public transport connections and is expected to deliver around 22,326 homes over the plan period. Development locations where a high quantum of development would be located (except majority of Grays, East Tilbury, Tilbury and Stanford le Hope) are located in areas within the 30% most deprived in terms of 'Barriers to Housing and Services' in the IMD2019. This includes a high quantum of residential development at West Thurrock (Lakeside) which is within the top 20% most deprived in terms of barriers to housing, and parts of Purfleet-on-Thames and south Grays which are within the 10% most deprived for housing. Medium growth at West Horndon would also deliver new homes in an area within the 20% most deprived for housing. Low growth at Bulphan, Chadwell St Mary, and Langdon Hills are in areas with high 'Barriers to Housing and Services' (within 20% most deprived) while low growth at Corringham and Fobbing are within the 30% most deprived for housing. Aveley, Orsett and Horndon on the Hill have low levels of deprivation with regards to barriers to housing, however some of the immediate surrounding areas have high barriers. It is assumed that the scale of new development would deliver an appropriate range of housing in terms of sizes, tenures and affordability. Overall, a significant positive effect is expected in relation to IIA objective 1.

E.90 A mixed effect (significant positive / minor negative) is expected for Spatial Option 1 in relation to IIA objective **2: Health, wellbeing and safety**. Existing health services in Thurrock (GP surgeries and health centres) are accessible within the local centres of Grays, East Tilbury, Purfleet-on-Thames, Tilbury and Stanford le Hope however development at settlement edges may be further than a reasonable walk to these facilities. Spatial Option 1 aims to locate development in areas with existing public transport and therefore healthcare facilities should be accessible for residents. There are no existing health services within West Thurrock or West Horndon. The areas of Purfleet-on-Thames, West Thurrock including Lakeside, Tilbury and Grays (i.e. the generally more urbanised areas within Thurrock) were identified by Friends of the Earth as the most deprived of greenspace in the Borough [See reference 339]. The large urban redevelopment and extensions of Spatial Option 1, such as the quantum of development proposed at West Thurrock (inc. Lakeside) (4,000 homes), East Tilbury (3,750 homes), Purfleet-on-Thames (3,200 homes) and Grays (2,800) are likely to provide new green/recreational spaces in these areas. However, the urban areas proposed for a high quantum of development within Spatial Option 1, mainly in the west of the Borough, also have the highest levels of traffic congestion and associated air and noise pollution. Some strategic growth areas also contain open spaces that could be lost to development. Additionally, Spatial Option 1 would result in a high quantum of development at East Tilbury which could be located near existing authorised landfill sites east of the town, potentially impacting on residential amenity. The scale of development proposed under the 'high' and 'medium' scenarios is likely to result in new services and facilities being provided to support the scale of residential development which will be particularly beneficial for the residents of Tilbury which is currently within the 30% most deprived under the 'Health Deprivation and Disability' domain in the IMD2019. However, it is unknown if the small-scale development proposed at some of the smaller villages (e.g. Bulphan, Hordon on the Hill, Fobbing, Orsett) would lead to the provision of new healthcare facilities. Overall, a mixed (significant positive / minor negative) effect is expected for Spatial Option 1 in relation to IIA objective 2.

E.91 A mixed effect (significant positive / minor negative) is expected for Spatial Option 1 in relation to IIA objective **3: Community cohesion**. Development is mainly focused to locations where there is existing access to railway stations and to the bus network. The larger size and more established nature of these settlements is likely to mean that these are some of the areas of the Borough at which community networks are most resilient to change. This option will ensure easy and equitable access by sustainable modes of transport which is also likely to encourage associated higher levels of pedestrian activity/outdoor interaction, contributing to creating neighbourhoods where people mix. Areas in

and around Tilbury, Purfleet-on-Thames, West Thurrock (including Lakeside) and Grays are all located within the 30% most deprived areas for overall deprivation in the IMD2019. The delivery of a high quantum of development in these locations is likely to support new service provision and is also likely to help address deprivation in the plan area. Although many of the other locations supported for low level growth are within the 30% most deprived (excluding Aveley, Orsett and Horndon on the Hill), it is unknown if the small-scale development proposed at these locations would lead to the provision of new community services and facilities. The strategic location of new development is less likely to affect crime and fear of crime as this will be influenced more by policy requirements relating to the design of new developments. Overall, a mixed effect (significant positive / minor negative) effect is identified for IIA objective 3. The effect is uncertain as it will depend on the delivery of supporting infrastructure, including community facilities, at these locations.

E.92 A mixed effect (significant positive / minor negative) is expected for Spatial Option 1 in relation to IIA objective 4: **Access to services and facilities**. 'High' growth is focused to key locations with existing access to services and facilities which reduces the need to travel to access essential services and facilities. Significant growth projects in Grays, Purfleet-on-Thames, West Thurrock (Lakeside), Tilbury, East Tilbury, Stanford le Hope and West Horndon are likely to be of a scale to provide new services to meet the needs of residents, which will be particularly beneficial for residents in Purfleet-on-Thames, West Thurrock (incl. Lakeside), West Horndon, and parts of Grays which are some of the most deprived areas in terms of access to services. There are limited services and facilities in the locations proposed for small-scale growth and it is unknown if the small-scale development proposed at these locations would lead to the provision of new services and facilities. Overall, a mixed effect (significant positive / minor negative) effect is identified for IIA objective 4. The effect is uncertain as it will depend on the delivery of supporting infrastructure, including essential services and facilities, at these locations.

E.93 A mixed effect (minor positive / minor negative) is expected in relation to IIA objective 5: **Equalities**. Development in urban areas with existing public transport links is likely to be located close to services, facilities and accessible links, and therefore focusing development to these areas could make it easier for less mobile people, including elderly and disabled people, to access services and facilities. It is also likely to enable people to more easily access community facilities which may provide support groups or faith services. Additionally, major redevelopment projects or urban extensions (e.g. at West Thurrock Lakeside, Purfleet-on-Thames and East Tilbury) could also deliver additional community facilities and/or public transport infrastructure. However, locating a large number

of new homes in urban areas of the Borough with high levels of traffic congestion and air pollution could affect people more vulnerable to air pollution, including younger and older people, people with cardiovascular or respiratory illnesses and pregnant women. Overall, a mixed effect (minor positive / minor negative) is expected in relation to IIA objective 5.

E.94 A mixed effect (significant positive / minor negative) is expected for Spatial Option 1 in relation to IIA objective **6: Education and skills**. This option largely focuses development at the most connected settlements within Thurrock which generally have good access to existing educational facilities. There are existing primary and secondary schools within Purfleet-on-Thames, West Thurrock, Grays (inc. Chafford, Little Thurrock and north Grays), and Stanford le Hope. East Tilbury and Tilbury do not have existing secondary schools and are within the 10% most deprived in terms of the 'Education, Skills and Training Deprivation' domain in the IMD2019. However, the scale of development proposed under the 'high' scenario is likely to result in additional educational facilities at these locations. Similarly, there are no existing educational facilities at West Horndon, however the development of an urban extension of 1,500 homes is likely to result in the provision of a primary school. There are limited educational facilities in the locations proposed for small-scale growth and it is unknown if the small-scale development proposed at these locations would lead to the provision of new educational facilities. Currently, Aveley, Chadwell St Mary and Corringham are all within the top 20% most deprived for education, skills and training. The small-scale development proposed at these locations may put additional pressure on existing educational facilities if new schools are not provided to support the delivery of new homes. Overall, a mixed effect (significant positive / minor negative) effect is identified for IIA objective 6. The effect is uncertain as it will depend on the delivery of supporting infrastructure, including educational facilities, at these locations.

E.95 A mixed effect (significant positive / minor negative) is expected for Spatial Option 1 in relation to IIA objective **7: Economy and employment**. This Spatial Option locates development in and around the largest and most well-connected settlements in Thurrock. The majority of existing employment sites are located in the south-west of the Borough, at Purfleet-on-Thames, West Thurrock, Grays, Tilbury as well as at London Gateway. Locating new development near these existing employment sites will ensure new residents have good access to employment opportunities. Focusing new development to the Borough's urban areas supports the economic viability and vibrancy of these town centres. This spatial option also proposes 'high' residential growth in areas within the 30% most deprived in terms of income and employment deprivation, including Tilbury and Grays. Residential developments of this scale are likely to be supported by

services and facilities, which may provide new employment opportunities in these areas. Access to areas of employment within the Borough would be more limited from smaller 'low growth' settlements. Overall, a mixed effect (significant positive / minor negative) effect is identified for IIA objective 7.

E.96 A mixed effect (significant positive / minor negative) is expected for Spatial Option 1 in relation to IIA objective **8: Transport**. The central aim of the spatial option is to focus development at locations that are currently the most connected, directing high growth to settlements with good connectivity (i.e. rail and bus links), thereby encouraging journeys to be undertaken by public transport and active travel. Settlements proposed for high and medium growth are well serviced by public transport links with West Thurrock, Grays, Tilbury, East Tilbury, Stanford le Hope and West Horndon all having existing train stations. Additionally, the scale of development in these locations is also likely to provide improved or additional public transport infrastructure. However, the urban areas proposed for a high quantum of development within Spatial Option 1, mainly in the west of the Borough, also have the highest levels of traffic congestion and associated air and noise pollution. Therefore, increasing development at these locations may result in higher levels of traffic, congestion, pollution and accidents. In common with all of the other spatial options, Spatial Option 1 would include development of brownfield sites in the urban area, thereby encouraging compact settlements and allowing more journeys to be undertaken by public transport and active travel. Public transport and active travel infrastructure is more limited from smaller 'low growth' settlements, and therefore development at these locations is likely to increase travel by private car. Overall, a mixed effect (significant positive / minor negative) is expected for IIA objective 8. However, this effect is uncertain as it is not known what public transport / active travel infrastructure would be delivered as part of the developments, and the uptake of private vehicles.

E.97 A mixed effect (significant positive / significant negative) is expected for Spatial Option 1 in relation to IIA objective **9: Air quality**. Potential locations to accommodate a high quantum of development in the western parts of Thurrock (e.g. Grays, Purfleet-on-Thames, West Thurrock including Lakeside, and Tilbury) could result in increased traffic in the AQMAs in the western parts of the Borough, therefore exacerbating existing air pollution issues. At the same time however, this spatial option focuses development in areas with existing access to sustainable modes of transport (railway and bus networks), therefore reducing the likelihood that new residents will be dependent on travelling by car. Development at the smaller villages could increase traffic on the strategic road network. This includes along the A13 which passes through an AQMA. Overall,

a mixed effect (significant positive / significant negative) is expected for IIA objective 9.

E.98 A mixed effect (significant positive / significant negative) is expected for IIA objective **10: Soil** as development will mainly be focused to brownfield / infill sites within existing urban areas e.g., at Purfleet-on-Thames and West Thurrock (Lakeside). Development in the 'high growth' areas largely avoids the loss of the best and most versatile land in the Borough, focusing much development in areas classified as 'urban' or 'non-agricultural'. This could lead to more efficient use of land and a reduced need to develop land of agricultural value. However, the potential urban expansion locations at north Grays, around East Tilbury and Linford, south of Stanford le Hope are located on Grade 2 agricultural land which would result in the loss of best and most versatile land in the Borough. Additionally, an urban extension south of West Horndon would be located on Grade 3 (Good to moderate) soils, which could also lead to the loss of productive agricultural land. Overall, a mixed effect (significant positive / significant negative) is expected for this IIA objective.

E.99 An unknown mixed effect (minor positive / minor negative) is expected for Spatial Option 1 in relation to IIA objective **11: Resource consumption and waste**. Spatial Option 1 locates development in well-connected settlements with existing infrastructure and integrated transport, reducing the consumption of additional resources for new infrastructure construction. This spatial option primarily supports the development of brownfield sites in urban areas which promotes the re-use of land (and potentially buildings and materials). There are also large swaths of brownfield / contaminated land in the Borough that could accommodate new development, particularly around the 'high' growth areas of West Thurrock, Purfleet-on-Thames, East Tilbury, and east of Stanford le Hope. Development in this spatial option would result in approximately 22,326 new houses. A large quantity of construction materials would need to be used to build the quantum of development proposed under this spatial option. In addition, there would likely be increased waste produced during the construction process and throughout the operational lifetime of these homes, from day-to-day living. It is unknown if recycled materials will be promoted for construction and if energy efficiency measures and renewable energy would be promoted as these will be influenced more by policy requirements. The settlement of East Tilbury is near an existing landfill site, and it is unknown how new development in this area would affect the capacity / operation of the waste site. Spatial Option 1 proposes low growth at Orsett which contains two permitted sand and gravel reserves, however, it is likely that, due to the level of growth proposed, it will be possible to avoid the sterilisation of mineral

resources. Overall, an unknown mixed effect (minor positive and minor negative) is expected for IIA objective 11.

E.100 An uncertain minor negative effect is identified for Spatial Option 1 in relation to IIA objective **12: Water resources and quality**. There are two Source Protection Zones within Thurrock, in Linford and North Stifford, however, the entire catchments of these two zones fall within central Thurrock. Therefore, the high quantum of development proposed at Grays, north of Tilbury, East Tilbury, and Stanford le Hope have the potential to affect the SPZ. Additionally, many of the areas proposed for 'high' growth are within proximity of the River Thames or waterbodies that flow into the Thames. The quality of these waterbodies could be adversely affected by development through contaminated runoff however this may be lessened as development is located within or in close proximity to existing urban areas. A high quantum of development located around East Tilbury and south of Stanford le Hope has the potential to adversely affect the water-dependent Thames Estuary and Marshes SSSI/SPA/Ramsar site. Similarly, water dependent SSSIs (West Thurrock Lagoon and Marshes and Grays Chalk Pit) are located in areas proposed for high growth. Additional development has the potential to affect these sites although this is dependent on the exact location of schemes. Overall, a minor negative effect is identified for IIA objective 12. However, the effect is uncertain depending on the exact location and layout of development.

E.101 An uncertain mixed effect (significant positive / minor negative) is expected for Spatial Option 1 in relation to IIA objective **13: Climate change and energy**. Addressing climate change over the plan period is most likely to be influenced by design measures incorporated in new developments to reduce greenhouse gas emissions and to improve energy efficiency, including the use of renewable or low carbon energy sources in developments, as well as promoting flood resilience which is addressed separately through IIA objective 14. These measures will be achieved through policy requirements in the Local Plan. However, directing most development towards locations with existing bus and rail connections is likely to promote more sustainable travel behaviours which will reduce the need to travel by private vehicle and associated transport-related emissions. Additionally, the scale of development in these locations is also likely to provide improved or additional public transport infrastructure. Conversely, developments in the settlements under the 'high' and 'medium' growth scenarios are of a scale that they are likely to result in increased private car movements and associated emissions. Public transport and active travel infrastructure is more limited from smaller 'low growth' settlements, and therefore development at these locations is likely to increase travel by private

car and transport-related emissions. Overall, a mixed effect (significant positive / minor negative) is identified for Spatial Option 1 in relation to IIA objective 13.

E.102 A significant negative effect is identified in relation to IIA objective **14: Flood risk**. Under Spatial Option 1, potential locations to accommodate 'high' growth are located within Flood Zones 2 and 3 i.e. West Thurrock (including Lakeside), Tilbury, East Tilbury and Purfleet-on-Thames. However, these locations in the south of the Borough also benefit from flood defences but risk of flooding may increase with the effects of climate change. West Horndon, Grays, and Stanford le Hope also contain some areas located within Flood Zones 2 and 3 (currently West Horndon does not contain any flood defences). Therefore, development in these areas would be located in areas at risk of flooding, however, the location of development does not take into account mitigation such as the incorporation of SuDS, open spaces for flood storage or green infrastructure which is more likely to be influenced by policy requirements. Overall, a precautionary significant negative effect is identified in relation to IIA objective 14.

E.103 An uncertain mixed effect (significant negative / minor positive) is identified in relation to IIA objective **15: Biodiversity and geodiversity**. Focusing development at major urban settlements within the Borough, in close proximity to existing transport connections could help protect wildlife in the rural areas of Thurrock as rural areas are generally more biodiverse. However, there are a number of designated biodiversity sites within and close to the urban areas of Thurrock, most notably the Thames Estuary and Marshes SPA/SSSI/Ramsar, Inner Thames Marshes SSSI, and Mucking Flats and Marshes SSSI. Therefore, many of the strategic development locations within Spatial Option 1 are located within SSSI Impact Risk Zones. There could therefore be a high level of development in close proximity of these sites, leading to potential disturbance and damage. For example, a high quantum of development at East Tilbury would bring the settlement in close proximity of Thames Estuary and Marshes SPA and Ramsar site, which is the only international designated site in the Borough. An overall mixed effect (significant negative / minor positive) is identified in relation to this IIA objective. The effect is uncertain as it will depend on the exact locations and design/layout of developments, as well as mitigation providing by other plan policies.

E.104 A significant negative but uncertain effect is identified for Spatial Option 1 in relation to IIA objective **16: Historic environment**. The potential development locations for 'high' growth at East Tilbury are located adjacent to the Tilbury Conservation Area (which is listed on the Heritage at Risk Register) and several Grade II listed buildings. Additionally, a high development scenario

south of East Tilbury would bring the settlement close to Scheduled Monuments (East Tilbury Battery and Coalhouse Fort battery and artillery defences) which are also identified as being at risk. Development south of Tilbury would bring the settlement close to the Tilbury Fort Scheduled Monument. Similarly, development to the north of the existing built-up area in Grays would bring the settlement close to the Crop Mark Complex, Orsett Scheduled Monument (listed on the Heritage at Risk Register). Purfleet-on-Thames contains a Conservation Area and several Listed Buildings. These features have potential to be affected either directly or indirectly by the high level of growth proposed at these locations. 'Low' growth proposed at Aveley, Orsett, Horndon on the Hill, Fobbing, and Corringham also contain many designated heritage assets including Conservation Areas and Listed Buildings which could be adversely affected by new development. The historic environment around Orsett is particularly sensitive to new development as it contains a Conservation Area, Listed Buildings and is within close proximity to three Scheduled Monuments. The precise effect of new development on the historic environment will be influenced by the design of new proposals and exact location of new developments. Overall, an uncertain significant negative effect is expected for Spatial Option 1 in relation to IIA objective 16.

E.105 An uncertain mixed effect (significant positive / significant negative) is identified for Spatial Option 1 in relation to IIA objective **17: Landscape, townscape and visual impacts**. This spatial option will involve a high level of urban regeneration at Purfleet-on-Thames and West Thurrock (Lakeside), potentially improving the local townscape of the Borough's urban areas and utilising areas of brownfield land. Landscape Character Area (LCA) E1: West Thurrock, Lakeside and Purfleet and LCA E2: Grays, Chafford Hundred and South Stifford are considered to be of low-moderate sensitivity to large housing development, with Spatial Option 1 directing a high quantum of development to these areas and therefore directing large-scale development away from more sensitive areas of the Borough. At the same time, Spatial Option 1 proposes urban expansion at East Tilbury, north Grays and south Stanford le Hope. These areas lie within LCA H1: East and West Tilbury Open Undulating Farmland which is of high sensitivity to very large housing development. The potential location for a 'medium growth' (1,500 homes) urban extension at West Horndon is located within LCA A1: Bulphan Fenland. This LCA is of high sensitivity to large and very large housing development, affecting the open and rural character of this area and resulting in significant negative effects. The precise effect of new development on landscape character in the plan area will be influenced to a large degree by the design of new proposals and the detailed distribution of new development. Therefore, an overall uncertain mixed effect

(significant positive / significant negative) is expected for Spatial Option 1 in relation to IIA objective 17.

Spatial Option 2: Increased development in locations that have direct access to key services and facilities

E.106 Spatial Option 2 focuses development at locations that are currently have direct access to key services and facilities. This could include development of existing commitments and at brownfield/infill sites in the urban area, focusing high growth in well serviced settlements and those with good connectivity (railway and bus links), and lower growth in all other areas. Spatial Option 2 would deliver approximately 32,276 new homes over the plan period based on 'available' sites.

E.107 Spatial Option 2 would focus a 'high' level of development at Aveley (2700), Chadwell St Mary (5500), Corringham (5000), East Tilbury (3750), Grays (2800), Purfleet-on-Thames (3200), Stanford le Hope (2500), Tilbury (600) and West Thurrock (4000). Additionally, 'medium' growth would take place with an urban extension at West Horndon (1,500 homes). 'Low growth' would take place in all other areas, with additional homes located at Bulphan (50), Fobbing (200), Horndon on the Hill (75), Langdon Hills (181) and Orsett (220).

E.108 A significant positive effect for Spatial Option 2 is expected in relation to IIA objective 1: **Housing**. This would locate growth in areas with direct access to key services and facilities and is expected to deliver around 32,276 new homes over the plan period. All potential development locations where a high level of development would be located (except Aveley, majority of Grays, East Tilbury, Tilbury, and Stanford le Hope) would provide new housing in areas identified as being within the 30% most deprived in terms of 'Barriers to Housing' (IMD2019). This includes a high quantum of residential development at Chadwell St Mary and West Thurrock (Lakeside) which are within the top 20% most deprived in terms of 'Barriers to Housing', and parts of Purfleet-on-Thames and south Grays which are within the 10% most deprived in terms of 'Barriers to Housing'. Medium growth at West Horndon would also deliver new homes in an area within the 20% most deprived in terms of 'Barriers to Housing'. Low growth at Bulphan and Langdon Hills are in areas with high 'Barriers to Housing' (within 20% most deprived) while low growth at Fobbing is within the 30% most deprived for housing. Orsett and Horndon on the Hill have low levels of deprivation with regards to barriers to housing, however some of

the immediate surrounding areas have high barriers. It is assumed that the scale of new development would deliver an appropriate range of housing in terms of sizes, tenures and affordability. Overall, a significant positive effect is expected in relation to IIA objective 1.

E.109 A mixed (significant positive / minor negative) effect is expected for Spatial Option 2 in relation to IIA objective **2: Health, wellbeing and safety**. Spatial Option 2 aims to locate development in well serviced settlements and those with good connectivity, and therefore healthcare facilities should be easily accessible for residents. Within the areas proposed for high levels of growth, each settlement has at least one GP surgery, health centre or hospital (with the exception of West Thurrock). However, development at settlement edges may be further than a reasonable walk to these facilities. There are no existing health services within West Horndon. The areas of Purfleet-on-Thames, West Thurrock including Lakeside, Tilbury and Grays (i.e. the generally more urbanised areas within Thurrock) were identified by Friends of the Earth as the most deprived of greenspace in the Borough [\[See reference 340\]](#). The large urban redevelopment and extensions of Spatial Option 2, such as the quantum of development suggested at West Thurrock (inc. Lakeside) (4,000 homes), East Tilbury (3,750 homes), Purfleet-on-Thames (3,200 homes) and Grays (2,800 homes) are likely to provide new green/recreational space in these areas. However, the urban areas proposed for a high quantum of development within Spatial Option 2, particularly those in the west of the Borough, have the highest levels of traffic congestion and associated air and noise pollution. Some strategic growth areas also contain open spaces that could be lost to development. Additionally, Spatial Option 2 would result in a high quantum of development at East Tilbury which could be located near existing authorised landfill sites east of the town, potentially impacting on residential amenity. The scale of development proposed under the 'high' and 'medium' scenarios is likely to result in new services and facilities being provided to support the scale of residential development which will be particularly beneficial for the residents of Tilbury and Corringham which are currently within the 30% most deprived under the 'Health Deprivation and Disability' domain in the IMD2019. However, it is unknown if the small-scale development proposed at the smaller villages (e.g. Bulphan, Hordon on the Hill, Fobbing, Orsett) would lead to the provision of new healthcare facilities. Overall, a mixed (significant positive / minor negative) effect is expected for Spatial Option 2 in relation to IIA objective 2. The effect is uncertain as it will depend on the delivery of supporting infrastructure, including healthcare facilities, at these locations.

E.110 A mixed effect (significant positive / minor negative) is expected for Spatial Option 2 in relation to IIA objective **3: Community cohesion**.

Development is mainly focused to locations with good access to services and facilities, including community facilities, and where there is existing access to railway stations and to the bus network. The larger size and more established nature of these settlements is likely to mean that these are some of the areas of the Borough at which community networks are most resilient to change. This option will ensure easy and equitable access to community facilities by sustainable modes of transport which will also likely encourage associated higher levels of pedestrian activity/outdoor interaction, contributing to creating neighbourhoods where people mix. Areas in and around Corringham, Chadwell St Mary, Tilbury, Purfleet-on-Thames, West Thurrock (including Lakeside) and Grays are all located within the 30% most deprived areas for overall deprivation in the IMD2019. The delivery of a high quantum of development in these locations is likely to support new service provision and is also likely to help address deprivation in the plan area. Although many of the smaller villages supported for low level growth are within the 30% most deprived (excluding Aveley, Orsett and Horndon on the Hill), it is unknown if the small-scale development proposed at these locations would lead to the provision of new community services and facilities. The strategic location of new development is less likely to affect crime and fear of crime as this will be influenced more by policy requirements relating to the design of new developments. Overall, a mixed effect (significant positive / minor negative) effect is identified for IIA objective 3. The effect is uncertain as it will depend on the delivery of supporting infrastructure, including community facilities, at these locations.

E.111 A mixed effect (significant positive / minor negative) is expected for Spatial Option 2 in relation to IIA objective 4: **Access to services and facilities**. 'High' growth is focused to key locations with existing access to services and facilities which reduces the need to travel to access essential services and facilities. Significant growth projects in Aveley, Chadwell St Mary, Corringham, Grays, Purfleet-on-Thames, West Thurrock (Lakeside), Tilbury, East Tilbury, Stanford le Hope and West Horndon are likely to be of a scale to provide new services to meet the needs of residents, which will be particularly beneficial for residents in Chadwell St Mary, Corringham, Purfleet-on-Thames, West Thurrock (incl. Lakeside), West Horndon, and parts of Grays which are some of the most deprived areas in terms of access to services. There are limited services and facilities in the smaller villages, and it is unknown if the small-scale development proposed at these locations would lead to the provision of new services and facilities. Overall, a mixed effect (significant positive / minor negative) effect is identified for IIA objective 4. The effect is uncertain as it will depend on the delivery of supporting infrastructure, including essential services and facilities, at these locations.

E.112 A mixed effect (minor positive / minor negative) is expected in relation to IIA objective **5: Equalities**. Development in well-serviced and connected settlements is likely to make it easier for less mobile people, including elderly and disabled people, to access services and facilities. It is also likely to enable people to more easily access community facilities which may provide support groups or faith services. Additionally, major redevelopment projects or urban extensions (e.g. at West Thurrock Lakeside, Purfleet-on-Thames and East Tilbury) could also deliver additional community facilities and/or public transport infrastructure. However, locating a large number of new homes in urban areas of the Borough with high levels of traffic congestion and air pollution could affect people more vulnerable to air pollution, including younger and older people, people with cardiovascular or respiratory illnesses and pregnant women. Overall, a mixed effect (minor positive / minor negative) is expected in relation to IIA objective 5.

E.113 A mixed effect (significant positive / minor negative) is expected for Spatial Option 2 in relation to IIA objective **6: Education and skills**. This option largely focuses development at well serviced and connected settlements within Thurrock which generally have good access to existing educational facilities. There are existing primary and secondary schools within Aveley, Corringham, Purfleet-on-Thames, West Thurrock, Grays (inc. Chafford, Little Thurrock and north Grays), and Stanford le Hope. East Tilbury, Tilbury, and Chadwell St Mary do not have existing secondary schools and are within the 10% most deprived in terms of the 'Education, Skills and Training Deprivation' domain in the IMD2019. However, the scale of development proposed under the 'high' scenario is likely to result in additional educational facilities at these locations. Similarly, there are no existing educational facilities at West Horndon, however the development of an urban extension of 1,500 homes is likely to result in the provision of a primary school. There are limited educational facilities in the smaller villages, and it is unknown if the small-scale development proposed at these locations would lead to the provision of new educational facilities. The small-scale development proposed at these locations may put additional pressure on existing educational facilities if new schools are not provided to support the delivery of new homes. Overall, a mixed effect (significant positive / minor negative) effect is identified for IIA objective 6. The effect is uncertain as it will depend on the delivery of supporting infrastructure, including educational facilities, at these locations.

E.114 A mixed effect (significant positive / minor negative) is expected in relation to IIA objective **7: Economy and employment**. All proposed development at well serviced and connected settlements, excluding Aveley and Corringham, contain employment sites. Locating new development near these

existing employment sites will ensure new residents have good access to employment opportunities. Furthermore, focusing new development to the Borough's urban areas supports the economic viability and vibrancy of these town centres. Well-connected settlements and West Horndon have existing public transport services, and are of a scale that would provide new public transport services within the development. This may help residents to access employment opportunities. This spatial option also proposes 'high' residential growth in areas within the 30% most deprived in terms of income and employment deprivation, including Tilbury, Chadwell St Mary, Corringham, Aveley, and Grays. Residential developments of this scale are likely to be supported by services and facilities, which may provide new employment opportunities in these areas. In terms of smaller villages, all but Langdon Hills have existing public transportation provision, in the form of bus routes which may improve access to areas of employment. Access to areas of employment within the Borough would be more limited from these smaller settlements. Overall, a mixed effect (significant positive / minor negative) effect is identified for IIA objective 7.

E.115 A mixed effect (significant positive / minor negative) is identified in relation to IIA objective **8: Transport**. The aim of the spatial option is to focus development at well serviced and connected settlements which will encourage compact settlements allowing more journeys to be undertaken by public transport and active travel. Settlements proposed for high and medium growth are well serviced by public transport links with West Thurrock, Grays, Tilbury, East Tilbury, Stanford le Hope and West Horndon all having existing train stations. Additionally, the scale of development in these locations is also likely to provide improved or additional public transport infrastructure. However, the spatial option proposes a high quantum of growth in areas with high levels of traffic congestion and associated air and noise pollution including at Tilbury, Grays, West Thurrock, Aveley, and Purfleet-on-Thames. Therefore, increasing development at these locations may result in higher levels of traffic, congestion, pollution and accidents. In common with all of the other spatial options, Spatial Option 2 would include development of brownfield sites in the urban area, thereby encouraging compact settlements and allowing more journeys to be undertaken by public transport and active travel. Public transport and active travel infrastructure is more limited from smaller 'low growth' settlements, and therefore development at these locations is likely to increase travel by private car. Overall, a mixed effect (significant positive / minor negative) is expected for IIA objective 8. However, this effect is uncertain as it is not known what public transport / active travel infrastructure would be delivered as part of the developments, and the uptake of private vehicles.

E.116 A mixed effect (significant positive / significant negative) is identified in relation to IIA objective **9: Air quality**. Potential locations for high growth at well-serviced and connected settlements could result in increased traffic in the AQMAs in and around Grays, Purfleet-on-Thames, West Thurrock, Aveley and Tilbury. This could therefore exacerbate existing air pollution issues. Additionally, developments in the settlements under the 'high' and 'medium' growth scenarios are of a scale that they are likely to increase air pollution due to increased traffic movements. At the same time however, this spatial option focuses development in areas with existing services and facilities and access to sustainable modes of transport, therefore reducing the likelihood that new residents will be dependent on travelling by car. Development at the smaller villages could increase traffic on the strategic road network. This includes along the A13 which passes through an AQMA. As such, a mixed effect (significant positive / significant negative) is expected in relation to IIA objective **9: Air quality**.

E.117 A mixed effect (significant positive / significant negative) is expected for IIA objective **10: Soil** as development will mainly be focused to brownfield / infill sites within existing urban areas e.g., at Purfleet-on-Thames, West Thurrock (Lakeside), Grays. Development in the 'high growth' areas largely avoids the loss of the best and most versatile land in the Borough, focusing much development in areas classified as 'urban' or 'non-agricultural'. This could lead to more efficient use of land and a reduced need to develop land of agricultural value. However, the potential urban expansion locations at north Grays, around East Tilbury and Linford, south of Stanford le Hope and Corringham are located on Grade 2 agricultural land which would result in the loss of best and most versatile land in the Borough. Additionally, an urban extension south of West Horndon and north Tilbury would be located on Grade 3 (Good to moderate) soils, which could also lead to the loss of productive agricultural land. The most productive agricultural land is south of Aveley (2,700 homes) and development at this area would also lead to the loss of prime agricultural land. Overall, a mixed effect (significant positive / significant negative) is expected for this IIA objective.

E.118 An unknown mixed effect (minor positive / minor negative) is identified in relation to IIA objective **11: Resource consumption and waste**. Spatial Option 2 locates development in urban areas with key services and facilities and well-connected settlements with existing transport infrastructure, which will reduce the consumption of additional resources for new infrastructure. This spatial option primarily supports the development of brownfield sites in urban areas which promotes the re-use of land (and potentially buildings and materials). There are also large swaths of brownfield / contaminated land in the Borough

that could accommodate new development, particularly around the 'high' growth areas of West Thurrock, Purfleet-on-Thames, East Tilbury, east of Corringham/Fobbing, east of Stanford le Hope, and Aveley. Development in this spatial option would result in approximately 32,276 new houses. A large quantity of construction materials would need to be used to build the quantum of development proposed under this spatial option. In addition, there would likely be increased waste produced during the construction process and throughout the operational lifetime of these homes, from day-to-day living. It is unknown if recycled materials will be promoted for construction and if energy efficiency measures and renewable energy would be promoted as these will be influenced more by policy requirements. The settlements of Aveley and East Tilbury are near existing landfill sites, and it is unknown how new development in these areas would affect the capacity / operation of these waste sites. Spatial Option 2 proposes low growth at Orsett which contains two permitted sand and gravel reserves, however, it is likely that, due to the level of growth proposed, it will be possible to avoid the sterilisation of mineral resources. Overall, an unknown mixed effect (minor positive and minor negative) is expected for IIA objective 11.

E.119 An uncertain minor negative effect is identified for Spatial Option 1 in relation to IIA objective **12: Water resources and quality**. There are two Source Protection Zones within Thurrock, in Linford and North Stifford, however, the entire catchments of these two zones fall within central Thurrock. Therefore, the high quantum of development proposed at Grays, Chadwell St Mary, Corringham, north of Tilbury, East Tilbury, and Stanford le Hope have the potential to affect the SPZ. Additionally, many of the areas proposed for 'high' growth are within proximity of the River Thames or waterbodies that flow into the Thames. The quality of these waterbodies could be adversely affected by development through contaminated runoff however this may be lessened as development is located within or in close proximity to existing urban areas. A high quantum of development located around East Tilbury and south of Stanford le Hope has the potential to adversely affect the water-dependent Thames Estuary and Marshes SSSI/SPA/Ramsar site. Similarly, water dependent SSSIs (West Thurrock Lagoon and Marshes and Grays Chalk Pit) are located in areas proposed for high growth. Additional development has the potential to affect these sites although this is dependent on the exact location of schemes. Overall, a minor negative effect is identified for IIA objective 12. However, the effect is uncertain depending on the exact location and layout of development.

E.120 An uncertain mixed effect (significant positive / minor negative) is expected for Spatial Option 2 in relation to IIA objective **13: Climate change**

and energy. Addressing climate change over the plan period is most likely to be influenced by design measures incorporated in new developments to reduce greenhouse gas emissions and to improve energy efficiency, including the use of renewable or low carbon energy sources in developments, as well as promoting flood resilience which is addressed separately through IIA objective 14. These measures will be achieved through policy requirements in the Local Plan. However, directing most development to areas with key services and facilities, including public transport facilities, is likely to reduce the need to travel by private vehicle and associated transport-related emissions. Additionally, the scale of development in these locations is also likely to provide improved or additional public transport infrastructure. Conversely, developments in the settlements under the 'high' and 'medium' growth scenarios are of a scale that they are likely to result in increased private car movements and associated emissions. Public transport and active travel infrastructure is more limited from smaller 'low growth' settlements, and therefore development at these locations is likely to increase travel by private car and transport-related emissions. Overall, a mixed effect (significant positive / minor negative) is identified for Spatial Option 2 in relation to IIA objective 13.

E.121 A significant negative effect is identified in relation to IIA objective **14: Flood risk.** Under Spatial Option 2, potential locations to accommodate 'high' growth are located within Flood Zones 2 and 3 i.e. West Thurrock (including Lakeside), Tilbury, East Tilbury and Purfleet-on-Thames. However, these locations in the south of the Borough also benefit from flood defences but risk of flooding may increase with the effects of climate change. West Horndon, Grays, Stanford le Hope and Bulphan also contain some areas located within Flood Zones 2 and 3 (currently West Horndon does not contain any flood defences). Therefore, development in these areas would be located in areas at risk of flooding, however, the location of development does not take into account mitigation such as the incorporation of SuDS, open spaces for flood storage or green infrastructure which is more likely to be influenced by policy requirements. Overall, a precautionary significant negative effect is identified in relation to IIA objective 14.

E.122 An uncertain mixed effect (significant negative / minor positive) is identified in relation to IIA objective **15: Biodiversity and geodiversity.** Focusing development at major urban settlements within the Borough, in close proximity to existing services, facilities and transport connections could help protect wildlife in the rural areas of Thurrock as rural areas are generally more biodiverse. However, there are a number of designated biodiversity sites within and close to the urban areas of Thurrock, most notably the Thames Estuary and Marshes SPA/SSSI/Ramsar, Inner Thames Marshes SSSI, and Mucking Flats

and Marshes SSSI. Therefore, many of the strategic development locations within Spatial Option 2 are located within SSSI Impact Risk Zones. There could therefore be a high level of development in close proximity of these sites, leading to potential disturbance and damage. For example, a high quantum of development at East Tilbury would bring the settlement in close proximity of Thames Estuary and Marshes SPA and Ramsar site, which is the only international designated site in the Borough. An overall mixed effect (significant negative / minor positive) is identified in relation to this IIA objective. The effect is uncertain as it will depend on the exact locations and design/layout of developments, as well as mitigation providing by other plan policies.

E.123 An uncertain significant negative effect is identified for Spatial Option 1 in relation to IIA objective **16: Historic environment**. The potential development locations for 'high' growth at East Tilbury are located adjacent to the Tilbury Conservation Area (which is listed on the Heritage at Risk Register) and several Grade II listed buildings. Additionally, a high development scenario south of East Tilbury would bring the settlement close to Scheduled Monuments (East Tilbury Battery and Coalhouse Fort battery and artillery defences) which are also identified as being at risk. Development south of Tilbury may adversely affect the setting of the Tilbury Fort Scheduled Monument. Similarly, development to the north of the existing built-up area in Grays may adversely affect the Crop Mark Complex, Orsett Scheduled Monument (listed on the Heritage at Risk Register), while development to the east of Aveley may adversely affect the Site of Moated Manor House Scheduled Monument. Purfleet-on-Thames and Corringham contain Conservation Areas and several Listed Buildings. These features have potential to be affected either directly or indirectly by the high level of growth proposed at these locations. 'Low' growth proposed at Orsett, Horndon on the Hill, and Fobbing also contain many designated heritage assets including Conservation Areas and Listed Buildings which could be adversely affected by new development. The historic environment around Orsett is particularly sensitive to new development as it contains a Conservation Area, Listed Buildings and is within close proximity to three Scheduled Monuments. The precise effect of new development on the historic environment will be influenced by the design of new proposals and exact location of new developments. Overall, an uncertain significant negative effect is expected for Spatial Option 2 in relation to IIA objective 16.

E.124 An uncertain mixed effect (significant positive / significant negative) is identified for Spatial Option 1 in relation to IIA objective **17: Landscape, townscape and visual impacts**. This spatial option will involve a high level of urban regeneration at Purfleet-on-Thames and West Thurrock (Lakeside), potentially improving the local townscape of the Borough's urban areas and

utilising areas of brownfield land. Landscape Character Area (LCA) E1: West Thurrock, Lakeside and Purfleet and LCA E2: Grays, Chafford Hundred and South Stifford are considered to be of low-moderate sensitivity to large housing development, with Spatial Option 2 directing a high quantum of development to these areas and therefore directing large-scale development away from more sensitive areas of the Borough. At the same time, Spatial Option 2 proposes urban expansions at East Tilbury, Grays and Stanford le Hope. These areas lie within LCA H1: East and West Tilbury Open Undulating Farmland which is of high sensitivity to very large housing development. The potential location for a 'medium growth' (1,500 homes) urban extension at West Horndon is located within LCA A1: Bulphan Fenland. This LCA is of high sensitivity to large and very large housing development, affecting the open and rural character of this area and resulting in significant negative effects. Development is also expected at Langdon Hills, Corringham, and Fobbing, which are located within J1: Langdon Lower Hill Slopes. This LCA is of high sensitivity to large housing development. Horndon on the Hill and Orsett lie within LCT H2: Orsett and Horndon on the Hill Open Undulating Farmland which is of high/medium-high sensitivity to the scale of development expected. The precise effect of new development on landscape character in the plan area will be influenced to a large degree by the design of new proposals and the detailed distribution of new development. Therefore, an overall uncertain mixed effect (significant positive / significant negative) is expected for Spatial Option 1 in relation to IIA objective 17.

Spatial Option 3: Increased development in the smaller villages

E.125 Spatial Option 3 focuses development to the smaller villages in the Borough. This could include development of existing commitments and at brownfield sites in the urban area, focusing high growth in small village locations including Fobbing, Southfields and North Stifford, medium growth in all other areas, with low growth in West Horndon. Spatial Option 3 would deliver approximately 26,061 new homes based on 'available' sites.

E.126 Spatial Option 3 would focus 'high' level of development to Bulphan (2,500), Fobbing (550), Horndon on the Hill (900), Langdon Hills (181), North Stifford (280), Orsett (1,400), Southfields (1,500). Additionally, 'medium' growth would take place in Aveley (2,000), Chadwell St Mary (3,500), Corringham (2,500), East Tilbury and Linford (2,000), Grays (2,000), Purfleet-on-Thames (2,850), Stanford le Hope (1,800), Tilbury (600) and West Thurrock (including

Lakeside) (1,500). Low growth would take place in West Horndon. No development would be allocated at West Tilbury and North Stanford.

E.127 A significant positive effect is expected for Spatial Option 3 in relation to IIA objective **1: Housing**. This spatial option would deliver approximately 26,061 new homes in Thurrock within the plan period, primarily focusing on the expansion of existing smaller villages with additional medium growth in the larger Thurrock settlements. 'High' growth proposed at Bulphan and Fobbing would provide new housing within areas located within the 30% most deprived in terms of 'Barriers to Housing' (IMD2019), while high growth at North Stifford and Southfields would provide new housing within areas located within the 10% most deprived for housing. However, it should be noted that this may be due to the rural nature of these locations. Medium growth proposed at Aveley, Chadwell St Mary, Corringham, Linford, Grays, and West Thurrock (including Lakeside) would also provide new housing within areas located within the 30% most deprived in terms of 'Barriers to Housing', with new development in Purfleet-on-Thames and south Grays providing housing in areas within the 10% most deprived for housing. Orsett and Horndon on the Hill have low levels of deprivation with regards to housing, however some of the immediate surrounding areas have high barriers. It is assumed that the scale of new development would deliver an appropriate range of housing in terms of sizes, tenures and affordability. Overall, a significant positive effect is expected in relation to IIA objective 1.

E.128 A mixed effect (minor positive / significant negative) is identified in relation IIA objective **2: Health, wellbeing and safety**. Spatial Option 3 seeks to increase development at the smaller villages in the Borough. While new development at Orsett and Horndon on the Hill would be within close proximity to existing health services (GP surgeries and health centres), there are no existing healthcare facilities in Bulphan, Fobbing, North Stifford and Southfields which are all proposed for 'high' growth'. Therefore, healthcare facilities are not easily accessible for residents of these settlements. Existing health services are accessible within the local centres of the majority of the larger settlements proposed for 'medium' growth, however development at settlement edges may be further than a reasonable walk to these facilities. Furthermore, there are no existing health services within West Thurrock or West Horndon. Spatial Option 3 focuses a high level of development at the smaller settlements within Thurrock which generally have good existing access to open space and the wider countryside. Bulphan, Orsett, Horndon on the Hill, North Stifford and Fobbing have existing amenity greenspace, parks or gardens. Southfields currently lacks access to open space. Development at the areas of West Thurrock (inc. Lakeside) (1,500 homes), East Tilbury and Linford (2,000

homes), Purfleet-on-Thames (2,850 homes) and Grays (2,000 homes) are likely to provide new green/recreational space in these areas which are identified by Friends of the Earth as the most deprived of greenspace in the Borough [See reference 341]. Spatial Option 3 is likely to result in a significant level of development in close proximity of existing sources of noise pollution (e.g. the A13) which could negatively affect health. Additionally, Spatial Option 3 would result in high and medium quantum of development at Southfields, Aveley and East Tilbury which could be located near existing authorised landfill sites, potentially impacting on residential amenity. The scale of development proposed under the 'high' and 'medium' scenarios is likely to result in new healthcare facilities / open space being provided to support the scale of residential development, however, this is more uncertain for new development at the smaller settlements proposed for 'high' growth particularly Langdon Hills (181 homes), North Stifford (280 homes) and Fobbing (550 homes). Furthermore, North Stifford is currently within the 10% most deprived under the 'Health Deprivation and Disability' domain in the IMD2019. Overall, a mixed effect (minor positive / significant negative) is identified for this IIA objective. The effect is uncertain as it will depend on the delivery of supporting infrastructure, including healthcare facilities, at these locations.

E.129 An uncertain mixed effect (minor positive / significant negative) is identified for Spatial Option 3 in relation to IIA objective **3: Community cohesion**. For many of the high-growth allocations (e.g. Bulphan, Orsett, Horndon on the Hill, Southfields, North Stifford), the scale of development in comparison to the existing size of the settlement has the potential to disrupt existing community networks. However, delivering development in this manner could provide new infrastructure that benefits residents currently living in these locations. The potential to create settlement extensions in which community networks are fostered and that fit cohesively with the existing small village communities will depend largely on design of the new developments. None of the proposed locations to accommodate a 'high' level of growth are located within the 30% most deprived (overall deprivation) areas of Thurrock. Therefore, focusing development to these locations would be unlikely to expand facilities in areas of the Borough that would benefit most. Spatial Option 3 would however deliver 'medium' growth in some of the urban areas in Thurrock with the highest overall deprivation including Aveley, Corringham, Chadwell St Mary, Grays Town, Tilbury, West Thurrock, and Purfleet-on-Thames. Overall, a mixed effect (minor positive / significant negative) is expected for this IIA objective. The effect is uncertain as it will depend on the delivery of supporting infrastructure, including community facilities, at these locations.

E.130 An uncertain mixed (minor positive / significant negative) effect is identified for Spatial Option 3 in relation to IIA objective **4: Access to services and facilities**. This option is likely to lead to development that is remote from existing larger local centres either by walking or public transport. There are a number of services within Orsett, Horndon on the Hill and other proposed village locations however these are generally small village services. Furthermore, all of the smaller settlements proposed for 'high' growth, except Horndon on the Hill, Langdon Hills and Orsett, are within the 30% most deprived for barriers to services in the IMD2019. Residents are likely to need to travel to other areas of the Borough to meet many of their needs. All of the villages are served by existing bus networks, although some are less frequent than others. Whether development may lead to the provision of new services and facilities or improved public transport in these locations is unknown, and is less likely to occur based on the scale of development in some locations, e.g. high growth is proposed at Langdon Hills (181 homes), North Stifford (280 homes) and Fobbing (550 homes). The medium growth in larger settlements proposed under Spatial Option 3 is likely to provide residents with better access to services, facilities and public transport networks. As such, an overall uncertain mixed effect (minor positive / significant negative) is expected in relation to IIA objective 4. The effect is uncertain as it will depend on the delivery of supporting infrastructure, including essential services and facilities, at these locations.

E.131 An uncertain mixed effect (minor positive / significant negative) is identified for Spatial Option 3 in relation to IIA objective **5: Equalities**. Residents are likely to have to travel longer distances to access a wider range of services and facilities, and certain groups may not have access to more specialist facilities at the more rural locations, such as support groups or faith services. There are existing bus services serving the smaller villages of the Borough however some are infrequent. While new development might encourage public transport improvements in these areas, it is likely that many residents will still need to commute by car. As such, opportunities for less mobile people, including elderly and disabled people, to access services and facilities may be more limited. However, in some locations this option may lead to the provision of additional services, facilities and public transport links in more rural locations of the Borough, benefiting a range of groups, particularly less mobile people. Therefore, a mixed effect (minor positive / significant negative) is expected in relation to IIA objective 5.

E.132 An overall mixed effect (minor positive / significant negative) is expected for Spatial Option 3 in relation to IIA objective **6: Education and skills**. This option largely focuses development to the Borough's villages, which generally

do not have good access to existing educational facilities. While there are existing primary schools within Orsett, Bulphan and Horndon on the Hill, there are no existing educational facilities at Southfields, North Stifford or Fobbing and no secondary schools in any of the villages proposed for 'high' growth. There are existing primary and secondary schools within Aveley, Corringham, Purfleet-on-Thames, West Thurrock, Grays (inc. Chafford, Little Thurrock and north Grays), and Stanford le Hope. East Tilbury, Tilbury, and Chadwell St Mary do not have existing secondary schools and are within the 10% most deprived in terms of the 'Education, Skills and Training Deprivation' domain in the IMD2019. The scale of development that would occur at many of the Borough's settlements under this option could result in new primary educational facilities being provided although it would be unlikely to support new secondary facilities. However, smaller scale development such as at Langdon Hills (181 homes), North Stifford (280 homes) and Fobbing (550 homes) would be unlikely to support new facilities. Overall, a mixed effect (minor positive / significant negative) is identified in relation to IIA objective 6. The effect is uncertain as it will depend on the delivery of supporting infrastructure, including educational facilities, at these locations.

E.133 A mixed effect (minor positive / significant negative) is identified for Spatial Option 3 in relation to IIA objective **7: Economy and employment**.

There are limited employment opportunities in the village settlements proposed for 'high' growth. The majority of existing employment sites within Thurrock are in the urban areas in the south of the Borough (e.g., Purfleet-on-Thames, West Thurrock, Grays, Tilbury) that would receive low growth under this option. There are no train stations at any of the proposed high growth locations and so new residents may be largely reliant on cars to access employment opportunities as these areas are currently only served by infrequent bus services. The development of large village expansions is unlikely to support the economic viability and vibrancy of the Borough's urban centres. However, the 'medium' scale of growth proposed at the larger settlements such as Grays, West Thurrock, Lakeside, Purfleet-on-Thames and Stanford le Hope will likely help improve the viability and vitality of their urban centres. Furthermore, locating new development near these larger settlements will ensure new residents have good access to employment opportunities. Overall, a mixed effect (minor positive / significant negative) is identified for IIA objective 7.

E.134 A mixed effect (minor positive / significant negative) is expected for Spatial Option 3 in relation to IIA objective **8: Transport**. This option is likely to lead to development that is remote from existing larger local centres either by active travel or public transport. Proposed 'high' growth village expansions (Bulphan, Fobbing, Horndon on the Hill, North Stifford, Orsett, Southfields) will

not benefit from any of the existing rail links within Thurrock. Furthermore, several of these villages (Bulphan, Horndon on the Hill, Fobbing and North Stifford) are currently only served by infrequent bus services. However, the scale of development proposed at several of these locations could result in public transport improvements such as more frequent bus services, providing better access for new and existing residents, although this is uncertain. The lack of public transport connections and the location of many employment sites, services and facilities in the more urban southern parts of the Borough is likely to mean that many new residents in these villages will be dependent on their car. The location of the proposed development is therefore likely to increase traffic on the strategic road network (i.e. M25, A13, A1089), potentially contributing to existing congestion issues on these roads. However, the settlements proposed for 'medium' growth are well serviced by public transport links with West Thurrock, Grays, Tilbury, East Tilbury and Stanford le Hope all having existing train stations. Furthermore, in common with all of the other spatial options, Spatial Option 3 would include development of brownfield sites in the urban area, thereby encouraging compact settlements and allowing more journeys to be undertaken by public transport and active travel. Overall, a mixed effect (minor positive / significant negative) is expected for IIA objective 8. However, this effect is uncertain as it is not known what public transport / active travel infrastructure would be delivered as part of the developments, and the uptake of private vehicles.

E.135 A mixed effect (minor positive / significant negative) is identified in relation to IIA objective **9: Air quality**. The lack of rail connections, frequency of bus services, and lack of active travel infrastructure in the villages, coupled with the location of existing services and employment sites in the urban areas primarily in the south of the Borough is likely to increase air pollution due to increased traffic movements as a result of the 'high' level of growth proposed at the Borough's villages, particularly along the A13 which passes through an AQMA. However, public transport improvements may be delivered in these locations. Nevertheless, a high quantum of development at Bulphan, Horndon on the Hill, Orsett, North Stifford and Southfields, in addition to medium growth in many of the larger settlements in the west of Thurrock, is likely to increase traffic on the strategic road network, exacerbating existing air pollution issues. Therefore, a mixed effect (minor positive / significant negative) is identified for this IIA objective.

E.136 A mixed effect (minor positive / significant negative) is identified for Spatial Option 3 in relation to IIA objective **10: Soils**. A high quantum of development is proposed around Orsett, North Stifford and south of Horndon on the Hill which comprises Grade 2 agricultural soils. Development at these

locations could result in the loss of some of the best and most versatile soils in Thurrock. Additionally, Fobbing and Bulphan are surrounded by Grade 3 agricultural land which could be lost to 'high growth' development under this option. Development in some of the 'medium growth' areas avoids the loss of the best and most versatile land in the Borough, focusing development to areas classified as 'urban' or 'non-agricultural' (e.g. West Thurrock, Purfleet-on-Thames, Grays). However, the potential urban expansions under the 'medium' growth scenario of Aveley (Grade 1), north Grays (Grade 2), East Tilbury (Grade 3), Linford (Grade 2), south of Stanford le Hope and Corringham (Grade 2) could lead to the loss of productive agricultural land. Overall, a mixed effect (minor positive / significant negative) is expected for this IIA objective.

E.137 An uncertain mixed effect (minor positive / significant negative) is identified in relation to IIA objective **11: Resource consumption and waste**. All spatial options support the development of brownfield sites in urban areas which promotes the re-use of land (and potentially buildings and materials). There are large swaths of brownfield land in the Borough that could accommodate new development, particularly around North Stifford and east of Fobbing which are proposed for 'high' growth and West Thurrock, Purfleet-on-Thames, East Tilbury, east of Stanford le Hope, and Aveley which are proposed for 'medium' growth. However, the expansion of villages under the 'high' growth scenario is likely to result in the large-scale development of greenfield land, particularly around Bulphan, Fobbing, Horndon on the Hill, Langdon Hills, Orsett, and Southfields. A large quantity of construction materials would need to be used to build the quantum of development proposed under this spatial option. In addition, there would likely be increased waste produced during the construction process and throughout the operational lifetime of these homes, from day-to-day living. It is unknown if recycled materials will be promoted for construction and if energy efficiency measures and renewable energy would be promoted as these will be influenced more by policy requirements. Spatial Option 3 proposes high growth at Orsett which contains two permitted sand and gravel reserves. The high quantum of development proposed at Orsett presents a risk of sterilising these mineral resources. A high quantum of growth is proposed at Southfields which contains an authorised landfill site, while a medium quantum of growth is proposed at Aveley and East Tilbury which are near existing landfill sites. It is unknown how new development in these areas would affect the capacity / operation of these waste sites. Overall, an unknown mixed effect (minor positive / significant negative) is expected for IIA objective 11.

E.138 An uncertain minor negative effect is identified for Spatial Option 3 in relation to IIA objective **12: Water resources and quality**. There are two

Source Protection Zones within Thurrock, in Linford and North Stifford, and the entire catchments of these two zones fall within central Thurrock. Therefore, the high quantum of development proposed at North Stifford, Horndon on the Hill, Orsett and Southfields, and the medium quantum of development proposed at East Tilbury and Linford, Chadwell St Mary, Corringham, Grays, Tilbury and Stanford le Hope have the potential to affect the SPZ. Additionally, many of the areas proposed for 'high' and 'medium' growth are close to the River Thames and River Mardyke. The quality of these waterbodies could be adversely affected by development through contaminated runoff. Overall, a minor negative effect is identified for IIA objective 12. However, the effect is uncertain depending on the exact location, design and layout of development.

E.139 An uncertain mixed effect (minor positive / significant negative) is identified for Spatial Option 3 in relation to IIA objective **13: Climate change and energy**. Addressing climate change over the plan period is most likely to be influenced by design measures incorporated in new developments to reduce greenhouse gas emissions and to improve energy efficiency, including the use of renewable or low carbon energy sources in developments, as well as promoting flood resilience which is addressed separately through IIA objective 14. These measures will be achieved through policy requirements in the Local Plan. In addition, promoting a compact and sustainable pattern of development could result in positive effects in relation to climate change as it reduces the need to travel by private vehicle and associated transport-related emissions. Spatial Option 3 locates development in locations with poor existing public transport access which are not in close proximity to existing services, facilities and employment opportunities, and therefore 'high' growth at the smaller villages is likely to increase travel by private car and transport-related emissions. Conversely, development at the 'medium' growth settlements is likely to reduce the need to travel as these urban areas are generally well-served with public transport and active travel infrastructure, reducing transport-related emissions.

E.140 A significant negative effect is identified for Spatial Option 3 in relation to IIA objective **14: Flood risk**. All of the proposed locations for village expansion are located outside of Flood Zones 2 or 3, with the exception of Bulphan which contains land within Flood Zones 2 and 3 that does not benefit from existing flood defences. However, a large proportion of new development located at the smaller villages in the Borough would be located on greenfield agricultural land, increasing the impermeable surfaces in Thurrock's rural areas. Furthermore, the following locations for 'medium' growth are within Flood Zones 2 or 3, i.e. West Thurrock (including Lakeside), Tilbury, East Tilbury, and Purfleet-on-Thames. Although these locations in the south of the Borough benefit from flood

defences, the risk of flooding may increase with the effects of climate change. Therefore, development in these areas would be located in areas at risk of flooding, however, the location of development does not take into account mitigation such as the incorporation of SuDS, open spaces for flood storage or green infrastructure which is more likely to be influenced by policy requirements. Overall, a precautionary significant negative effect is identified in relation to IIA objective 14.

E.141 An uncertain significant negative effect is identified for Spatial Option 3 in relation to IIA objective **15: Biodiversity and geodiversity**. Local Wildlife Sites are located south of Southfields, North Stifford and surrounding Langdon Hills which could potentially be lost or affected by 'high' growth in these locations. Other locations such as Orsett, Horndon-on-the-Hill and Bulphan are not located in close proximity to any designated sites, however development of this scale in a rural area is likely to result in some loss of biodiversity. This is uncertain as rural areas, particularly areas of arable farmland, can have limited biodiversity value. Effects will also depend on the layout and design of the proposed new village extensions. There are a number of designated biodiversity sites within and close to the urban areas of Thurrock, most notably the Thames Estuary and Marshes SSSI, SPA and Ramsar site, Inner Thames Marshes SSSI, and Mucking Flats and Marshes SSSI. Therefore, many of the development locations proposed under the 'medium' growth scenario are located within SSSI Impact Risk Zones. There could therefore be a high level of development in close proximity of these sites, leading to potential disturbance and damage. There are also a number of Local Wildlife Sites in and around West Thurrock and Grays (inc. Chafford Hundred and north Grays) that could be affected by development in these areas. The effect is uncertain as it will depend on the exact locations and design/layout of developments, as well as mitigation providing by other plan policies.

E.142 An uncertain significant negative effect is identified in relation to IIA objective **16: Historic environment** for Spatial Option 3. The historic environment around Orsett is particularly sensitive to new development as it contains a Conservation Area, Listed Buildings and is within close proximity to three Scheduled Monuments. Horndon on the Hill, Orsett, Corringham and Fobbing all contain Conservation Areas and Listed Buildings, including several Grade I Listed Buildings. There are several Listed Buildings within North Stifford which could be affected by the expansion of the village, particularly in terms of setting and a number of Listed Buildings on the outskirts of Langdon Hills would increase the sensitivity of this area to further expansion. Additionally, 'medium' development south of East Tilbury would bring the settlement in close proximity to the nearby Scheduled Monuments (East Tilbury Battery and Coalhouse Fort

battery and artillery defences, listed on the Heritage At Risk Register). Medium growth in Aveley is also included in Spatial Option 3, which has the potential to adversely affect the Scheduled Monument (Site of moated manor house east of St. Michael's Church) and Listed Buildings within the town. As such, increasing development in smaller villages has potential for significant negative effects on the historic environment in various locations in the Borough, however these are uncertain as it depends on the exact location and design of new development.

E.143 A mixed effect (minor positive / significant negative) is expected for Spatial Option 3 in relation to IIA objective **17: Landscape, townscape and visual impacts**. This spatial option focuses a high quantum of development at Thurrock's smaller villages, in more rural locations. The less developed nature of these settlements may mean that delivering a relatively high number of new homes compared to the existing settlement size may have adverse impacts in terms of existing landscape character. Landscape Character Area (LCA) A1: Bulphan Fenland is of high sensitivity to the scale of development expected to come forward under Spatial Option 3 at Bulphan. Similarly, Horndon on the Hill, North Stifford and Orsett lie within LCA H2: Orsett and Horndon on the Hill Open Undulating Farmland which is of high/medium-high sensitivity to the scale of development expected. Southfields is located within LCA H1: East and West Tilbury Open Undulating Farmland which is of high sensitivity to very large housing development. 'Medium' growth in East Tilbury, Grays and Stanford le Hope would be in areas of high sensitivity to very large housing developments. This Spatial Option will support urban regeneration at Purfleet-on-Thames and West Thurrock, potentially improving the local townscape. The precise effect of new development on landscape character in the plan area will be influenced to a large degree by the design of new proposals and the detailed distribution of new development, resulting in uncertainty.

Spatial Option 4: New town at West Horndon

E.144 Spatial Option 4 proposes the development of a new town at West Horndon; the development of existing commitments at brownfield sites in the urban area; medium/low growth in settlements that are well serviced and/or have good connectivity; and low growth in the smaller villages. Spatial Option 4 would deliver approximately 22,376 new homes based on 'available' sites.

E.145 Spatial Option 4 comprises the development of a new town at West Horndon (a settlement within Brentwood) which would result in approximately 7,000 additional homes in Thurrock. Additionally, Spatial Option 4 includes a 'medium' / 'low' quantum of development at Aveley (2,000 homes), Chadwell St.

Mary (3,500), Corringham (2,500), East Tilbury (700), Grays (1,000), Purfleet on Thames (2,850), Stanford le Hope (800), Tilbury (300) and West Thurrock (1,000). 'Low' growth will take place in the smaller villages: Bulphan (50), Fobbing (200), Horndon on the Hill (75), Langdon Hills (181) and Orsett (220).

E.146 A significant positive effect is expected in relation to IIA objective 1: **Housing**. Spatial Option 4 would deliver approximately 22,376 new homes in Thurrock over the plan period. A high quantum of development would be located at West Horndon which is located within the 20% most deprived areas in terms of 'Barriers to Housing' (IMD2019). It should be noted that Barriers to Housing and Services are likely to be largely due to the rural nature of this area. Spatial Option 4 also includes 'medium' growth in other more urban areas of the Borough which are within the top 20% most deprived including West Thurrock, Purfleet-on-Thames, Chadwell St Mary, Tilbury, and parts of Grays and Aveley which are within the 10% most deprived in terms of 'Barriers to Housing'. Low growth at Bulphan and Langdon Hills are in areas with high 'Barriers to Housing' (within 20% most deprived) while low growth at Fobbing is within the 30% most deprived for housing. Orsett and Horndon on the Hill have low levels of deprivation with regards to barriers to housing, however some of the immediate surrounding areas have high barriers. It is assumed that the scale of new development would deliver an appropriate range of housing in terms of sizes, tenures and affordability. As such, a significant positive effect is expected in relation to IIA objective 1.

E.147 An uncertain mixed effect (significant positive / minor negative) is expected for Spatial Option 4 in relation to IIA objective 2: **Health, wellbeing and safety**. There are no existing healthcare facilities within West Horndon. Therefore, healthcare facilities are not easily accessible for residents of West Horndon. Within the larger urban areas proposed for medium growth, each settlement has at least one GP surgery, health centre or hospital and therefore healthcare facilities should be easily accessible for residents, with the exception of West Thurrock where 1,000 homes are proposed. Development at settlement edges may be further than a reasonable walk to these facilities. As West Horndon is located in the more rural part of the Borough, it ranks highly in terms of access to green space and its health and nature benefits [\[See reference 342\]](#). The areas of Purfleet-on-Thames, West Thurrock including Lakeside, Tilbury and Grays (i.e. the generally more urbanised areas within Thurrock) were identified by Friends of the Earth as the most deprived of greenspace in the Borough. The quantum of development proposed under Spatial Option 4 under the medium/low growth scenarios at West Thurrock (inc. Lakeside) (1,000 homes), East Tilbury (700 homes), Purfleet-on-Thames (2,850 homes) and Grays (1,000 homes) are likely to provide new green/recreational space in

these areas. Some strategic growth areas also contain open spaces that could be lost to development, including areas at Aveley (2,000), Chadwell St Mary (3,500) and Corringham (2,500). The development of 7,000 new homes at West Horndon is likely to result in new development in close proximity of existing sources of noise pollution (e.g. A127 and A128) which could negatively affect health. Additionally, Spatial Option 4 would result in the development of 2,000 homes in Aveley and 700 homes in East Tilbury which could be located near existing authorised landfill sites, potentially impacting on residential amenity. The scale of development proposed at West Horndon and under the 'medium' scenario is likely to result in new healthcare facilities / open space being provided to support the scale of residential development, however, this is more uncertain for new development at the smaller settlements. Overall, a mixed effect (significant positive / minor negative) is identified for this IIA objective. The effect is uncertain as it will depend on the delivery of supporting infrastructure, including healthcare facilities, at these locations, particularly at West Horndon.

E.148 An uncertain mixed effect (minor positive / minor negative) is expected for Spatial Option 4 in relation to IIA objective **3: Community cohesion**. This option focuses a high quantum of development at the new town at West Horndon. This would provide opportunities for the delivery of new services and facilities at a planned strategic site in the northern part of the Borough. While West Horndon is ranked within the top 20% most deprived areas in terms of 'Barriers to Housing and Services' primarily due to its rural nature, it is one of the least deprived areas in the Borough for overall deprivation. Spatial Option 4 would also deliver 'medium' growth in some of the urban areas in Thurrock with the highest overall deprivation (Aveley, Corringham, and Chadwell St Mary) and 'low' growth in other deprived areas including Grays Town, Tilbury, West Thurrock, and Purfleet-on-Thames. As there is an existing train station at West Horndon, this option would ensure easy and equitable access by sustainable modes of transport, which also has the potential to encourage higher levels of pedestrian activity/outdoor interaction, contributing to creating a new neighbourhood where people mix. However, the creation of a new settlement of this scale is likely to take some time to establish and it may not be possible to promote these aims in the early stages of development. The potential to create a settlement in which community networks are fostered and that fits cohesively with the existing West Horndon community will depend largely on its design. It is noted that creating a new town is likely to present challenges in terms of establishing a sense of community and there is potential for existing community networks to be disrupted. The physical barrier between the new town and the existing settlement of West Horndon created by the railway line would be likely to make it more difficult to integrate the two. Furthermore, during the early

stages of development, residents of the new town may lack access to facilities, depending on the phasing of infrastructure development. The strategic location of new development is less likely to affect crime and fear of crime as this would be influenced more by policy requirements relating to the design of new developments. Overall, an uncertain mixed effect (minor positive / minor negative) is expected in relation to IIA objective 3.

E.149 An uncertain mixed effect (significant positive / minor negative) is expected for Spatial Option 4 in relation to IIA objective **4: Access to services and facilities**. Growth would be focused at a new town in West Horndon, which has a train station with connections to east London/Basildon. The location is currently in an area with poor existing access to services and facilities due to its rural nature. However, development of the scale of the new town is expected to provide new community facilities which will improve access to services and facilities in this area (which is currently within the 20% most deprived in terms of 'Barriers to Housing and Services'). Additionally, some areas considered for 'medium'/'low' growth within Spatial Option 4 have generally good access to existing services and facilities (e.g., Aveley, Chadwell St. Mary, Corringham, East Tilbury, Grays, Purfleet, Stanford le Hope, Tilbury and West Thurrock). There are limited services and facilities in the smaller villages, and it is unknown if the small-scale development proposed at these locations would lead to the provision of new services and facilities. As such, an overall uncertain mixed effect (significant positive / minor negative) is expected in relation to IIA objective 4. The effect is uncertain as it will depend on the delivery of supporting infrastructure, including essential services and facilities, at these locations.

E.150 A mixed effect (minor positive / minor negative) is expected for Spatial Option 4 in relation to IIA objective **5: Equalities**. The potential location for the new town at West Horndon is close to a railway station and the development of a new town is likely to be of a scale that is expected to provide additional public transport infrastructure, as well as local community facilities. As such, it may provide opportunities for less mobile people, including elderly and disabled people, to access services and facilities. Provision of new community facilities may also support faith groups or other support groups for those with protected characteristics. However, many residents of the new town may still need to commute by car, particularly as many employment areas in Thurrock are located in the south of the Borough. Areas for 'medium' growth in Spatial Option 4 generally have good access to existing services and facilities and existing public transport connections, however, these areas also have high levels of traffic congestion and air pollution could affect people more vulnerable to air pollution, including younger and older people, people with cardiovascular or

respiratory illnesses and pregnant women. Overall, a mixed effect (minor positive / minor negative) is expected in relation to IIA objective 5.

E.151 An uncertain mixed effect (significant positive / minor negative) is expected for Spatial Option 4 in relation to IIA objective **6: Education and skills**. This option seeks to develop a new town at West Horndon, accommodating 7,000 new homes, which is expected to be of scale that would result in the provision of new primary and secondary educational facilities in a location which does not currently have any local educational facilities. There are existing primary and secondary schools within Aveley, Corringham, Purfleet-on-Thames, West Thurrock, Grays (inc. Chafford, Little Thurrock and north Grays), and Stanford le Hope. East Tilbury, Tilbury, and Chadwell St Mary do not have existing secondary schools and are within the 10% most deprived in terms of the 'Education, Skills and Training Deprivation' domain in the IMD2019. However, the scale of development proposed under the 'medium/low' scenario is likely to result in additional educational facilities at these locations. There are limited educational facilities in the smaller villages proposed for 'low' growth, and it is unknown if the small-scale development proposed at these locations would lead to the provision of new educational facilities. The small-scale development proposed at these locations may put additional pressure on existing educational facilities if new schools are not provided to support the delivery of new homes. Overall, a mixed effect (significant positive / minor negative) effect is identified for IIA objective 6. The effect is uncertain as it will depend on the delivery of supporting infrastructure, including educational facilities, at these locations.

E.152 A mixed effect (significant positive / minor negative) is identified for Spatial Option 4 in relation to IIA objective **7: Economy and employment**. The majority of existing employment opportunities within Thurrock are located in the south of the Borough (e.g. Purfleet-on-Thames, West Thurrock, Grays, Tilbury) which would receive 'medium/low' growth under this option. Locating new development near these existing employment sites will ensure new residents have good access to employment opportunities. Furthermore, focusing new development to the Borough's existing urban areas supports the economic viability and vibrancy of these town centres. The development of a new town at West Horndon is likely to create new employment opportunities in the north of the Borough where existing employment opportunities are limited, balancing economic growth and employment opportunities across the Borough. The new town at West Horndon would be closely located to the Horndon Industrial Park and rail connections to Basildon/London, however new residents may still need to travel to access employment opportunities in the south of the Borough. Access to areas of employment within the Borough would be more limited from

the smaller settlements proposed for 'low' growth. Overall, a mixed effect (significant positive / minor negative) effect is identified for IIA objective 7.

E.153 A mixed effect (significant positive / minor negative) is expected for Spatial Option 4 in relation to IIA objective **8: Transport**. West Horndon has an existing train station that connects to London Fenchurch Street and Shoeburyness via Basildon and is also served by infrequent bus services. Therefore, new development at the north of the new settlement would be located close to existing public transport links. The proposed new town is also expected to be of scale to provide additional or improved public transport infrastructure. However, based on the location, many residents may still need to commute north-south by car in the Borough, particularly as many employment areas are in the urban areas in the south of Thurrock, which may result in higher levels of traffic, congestion, and pollution, particularly along the A128. Other areas within Thurrock proposed for a 'medium/low' quantum of development under Spatial Option 4 are generally located in settlements that are well-serviced and connected by public transport links (e.g. West Thurrock, Grays, Tilbury, East Tilbury, and Stanford le Hope all having existing train stations). Additionally, the scale of development in these locations is also likely to provide improved or additional public transport infrastructure. In common with all of the other spatial options, Spatial Option 4 would include development of brownfield sites in the urban area, thereby encouraging compact settlements and allowing more journeys to be undertaken by public transport and active travel. Public transport and active travel infrastructure is more limited from smaller 'low growth' settlements, and therefore development at these locations is likely to increase travel by private car. Overall, a mixed effect (significant positive / minor negative) is expected for IIA objective 8. However, this effect is uncertain as it is not known what public transport / active travel infrastructure would be delivered as part of the developments, and the uptake of private vehicles.

E.154 A mixed effect (significant positive / minor negative) is identified in relation to IIA objective **9: Air quality**. Development of a new town at West Horndon is not expected to substantially increase traffic in any AQMA. West Horndon has an existing train station that connects to London Fenchurch Street and Shoeburyness via Basildon and is also served by infrequent bus services. Therefore, new development at the north of the new settlement would be located close to existing public transport links. The proposed new town is also expected to be of scale to provide services and facilities which are accessible by sustainable modes of transport, reducing the need to travel by private car. However, based on the location, many residents may still need to commute north-south by car in the Borough, particularly as many employment areas are

in the urban areas in the south of Thurrock, which may result in higher levels of traffic, congestion, and pollution, particularly along the A128. Potential locations for 'medium/low' growth at well serviced and connected settlements could result in increased traffic in the AQMAs in and around Grays, Purfleet-on-Thames, West Thurrock, Aveley and Tilbury. This could therefore exacerbate existing air pollution issues. At the same time however, 'medium/low' growth in areas with existing services and facilities and access to sustainable modes of transport will reduce the likelihood that new residents will be dependent on travelling by car. Development at the smaller villages proposed for 'low' growth could increase traffic on the strategic road network. This includes along the A13 which passes through an AQMA.

E.155 A mixed effect (minor positive / significant negative) is identified for Spatial Option 4 in relation to IIA objective **10: Soils**. The potential location for the new town at West Horndon would be located on Grade 3 (Good to moderate) agricultural land. Therefore, the development of the new town would result in the loss of productive agricultural land. Development in some of the 'medium/low growth' areas avoids the loss of the best and most versatile land in the Borough, focusing development to areas classified as 'urban' or 'non-agricultural' (e.g. West Thurrock, Purfleet-on-Thames, Grays). However, the potential urban expansions of Aveley (Grade 1), north Grays (Grade 2), East Tilbury (Grade 3), south of Stanford le Hope and Corringham (Grade 2) could lead to the loss of some of the best and most versatile soils in Thurrock. Similarly, 'low' growth proposed at the smaller villages would also result in the loss of productive agricultural land. Overall, a mixed effect (minor positive / significant negative) is expected for this IIA objective.

E.156 An uncertain mixed effect (minor positive / significant negative) is identified for Spatial Option 4 in relation to IIA objective **11: Resource consumption and waste**. All spatial options support the development of brownfield sites in urban areas which promotes the re-use of land (and potentially buildings and materials). However, the development of the new town at West Horndon is likely to result in the large-scale development of greenfield land. A large quantity of construction materials would need to be used to build the quantum of development proposed under this spatial option. In addition, there would likely be increased waste produced during the construction process and throughout the operational lifetime of these homes, from day-to-day living. It is unknown if recycled materials will be promoted for construction and if energy efficiency measures and renewable energy would be promoted as these will be influenced more by policy requirements. There are no minerals sites or waste facilities located near West Horndon therefore the development of the new town is unlikely to affect existing mineral and waste sites. A medium/low quantum of

growth is proposed at Aveley and East Tilbury which are near existing landfill sites, however, it is unknown how new development in these areas would affect the capacity / operation of these waste sites. Overall, an unknown mixed effect (minor positive / significant negative) is expected for IIA objective 11.

E.157 An uncertain minor negative effect is identified for Spatial Option 4 in relation to IIA objective **12: Water resources and quality**. There are two Source Protection Zones (SPZs) within Thurrock, in Linford and North Stifford, and the entire catchments of these two zones fall within central Thurrock. The location of the new town at West Horndon is not within a SPZ. However, the 'medium/low' quantum of development proposed at East Tilbury and Linford, Chadwell St Mary, Corringham, Grays, Tilbury and Stanford le Hope have the potential to affect the SPZs. The River Mardyke and a number of other small watercourses run through the proposed location for the new town development, south of West Horndon. The development of the new settlement has the potential to adversely affect these watercourses, either through culverting or degradation from contaminated surface water runoff. Additionally, many of the areas proposed for 'medium/low' growth are also close to the River Mardyke and River Thames. Overall, a minor negative effect is identified for IIA objective 12. However, the effect is uncertain depending on the exact location, design and layout of development.

E.158 An uncertain mixed effect (significant positive / minor negative) is identified for Spatial Option 4 in relation the IIA objective **13: Climate change and energy**. Addressing climate change over the plan period is most likely to be influenced by design measures incorporated in new developments to reduce greenhouse gas emissions and to improve energy efficiency, including the use of renewable or low carbon energy sources in developments, as well as promoting flood resilience which is addressed separately through IIA objective 14. These measures will be achieved through policy requirements in the Local Plan. In addition, directing new development to areas with key services and facilities, including public transport facilities, and promoting a compact and sustainable pattern of development could result in positive effects in relation to climate change as it reduces the need to travel by private vehicle and associated transport-related emissions. West Horndon has an existing train station that connects to London Fenchurch Street and Shoeburyness via Basildon and is also served by infrequent bus services. Therefore, new development at the north of the new settlement would be located close to existing public transport links. The proposed new town is also expected to be of scale to provide additional or improved public transport infrastructure. However, based on the location, many residents may still need to commute north-south by car in the Borough, particularly as many employment areas are in the urban

areas in the south of Thurrock, which may increase travel by private car and transport-related emissions, particularly along the A128. Other areas within Thurrock proposed for a 'medium/low' quantum of development under Spatial Option 4 are generally located in settlements that are well-served and connected by public transport links (e.g. West Thurrock, Grays, Tilbury, East Tilbury, and Stanford le Hope all having existing train stations). Additionally, the scale of development in these locations is also likely to provide improved or additional public transport infrastructure, reducing the need to travel by private car and associated transport-related emissions. Public transport and active travel infrastructure is more limited from smaller 'low growth' settlements, and therefore development at these locations is likely to increase travel by private car and transport-related emissions. Overall, a mixed effect (significant positive / minor negative) is identified for Spatial Option 4 in relation to IIA objective 13.

E.159 A significant negative effect is identified for Spatial Option 4 in relation to IIA objective **14: Flood risk**. Areas to the south of West Horndon lie within Flood Zone 2 and Flood Zone 3. This location does not benefit from flood defences and the development of 7,000 additional homes on greenfield land in this area is likely to exacerbate this flood risk due to the introduction of impermeable surfaces. There are a number of small watercourses in this area and the adjacent land has a high probability of surface water flooding. Other areas proposed for 'medium/low' growth are located within Flood Zones 2 or 3 (e.g., West Thurrock, Grays, Stanford le Hope, Purfleet-on-Thames, East Tilbury) but benefit from existing flood defences. While these locations in the south of the Borough benefit from flood defences, risk may increase with the effects of climate change. Therefore, development in these areas would be located in areas at risk of flooding, however, the location of development does not take into account mitigation such as the incorporation of SuDS, open spaces for flood storage or green infrastructure which is more likely to be influenced by policy requirements. Overall, a significant negative effect is identified in relation to IIA objective 14.

E.160 Spatial Option 4 is expected to result in an uncertain significant negative effect in relation to IIA objective **15: Biodiversity and geodiversity**. The potential new town location at West Horndon is not within close proximity of any designated sites however development of this scale, particularly in a rural area, is likely to result in the loss of biodiversity. This is uncertain as rural areas, particularly areas of arable farmland, can have limited biodiversity value. There are a number of designated biodiversity sites within and close to the urban areas of Thurrock, most notably the Thames Estuary and Marshes SSSI, SPA and Ramsar site, Inner Thames Marshes SSSI, and Mucking Flats and Marshes SSSI. Therefore, many of the development locations proposed for 'medium' or

'low' growth are located within SSSI Impact Risk Zones. There could therefore be a high level of development in close proximity of these sites, leading to potential disturbance and damage. There are also a number of Local Wildlife Sites in and around West Thurrock and Grays (inc. Chafford Hundred and north Grays) that could be affected by development in these areas. The effect is uncertain as it will depend on the exact locations and design/layout of developments/new town, as well as mitigation providing by other plan policies (e.g. green infrastructure policies).

E.161 An uncertain significant negative effect is identified for Spatial Option 4 in relation to IIA objective **16: Historic environment**. There are a number of Grade II Listed Buildings in West Horndon which could be negatively affected, particularly in terms of setting, by development of the scale proposed at the new town. Similarly, there may be additional pressure on the nearby Thorndon Hall Registered Park and Garden from the addition of 7,000 new homes in the area. 'Medium' growth south of East Tilbury would bring the settlement in close proximity to the nearby Scheduled Monuments (East Tilbury Battery and Coalhouse Fort battery and artillery defences, listed on the Heritage At Risk Register). Development south of Tilbury may adversely affect the setting of the Tilbury Fort Scheduled Monument. Similarly, development to the north of the existing built-up area in Grays may adversely affect the Crop Mark Complex, Orsett Scheduled Monument (listed on the Heritage at Risk Register), while development to the east of Aveley may adversely affect the Site of Moated Manor House Scheduled Monument. Purfleet-on-Thames and Corringham contain Conservation Areas and several Listed Buildings. These features have potential to be affected either directly or indirectly by the high level of growth proposed at these locations. 'Low' growth proposed at Orsett, Horndon on the Hill, and Fobbing also contain many designated heritage assets including Conservation Areas and Listed Buildings which could be adversely affected by new development. The historic environment around Orsett is particularly sensitive to new development as it contains a Conservation Area, Listed Buildings and is within close proximity to three Scheduled Monuments. The precise effect of new development on the historic environment will be influenced by the design of new proposals and exact location of new developments. Overall, an uncertain significant negative effect is expected for Spatial Option 4 in relation to IIA objective 16.

E.162 A mixed effect (minor positive / significant negative) is expected for Spatial Option 4 in relation to IIA objective **17: Landscape, townscape and visual impacts** as the land to the south of West Horndon is located within LCA A1: Bulphan Fenland. This LCA is of high sensitivity to large and very large housing development, as this would affect the open and rural character of this

area, resulting in significant negative effects. The focus of a high amount of development to a single location is likely to require a large amount of greenfield land take in a presently undisturbed area where significant disruption to the existing landscape character could result. There is potential for the incorporation of substantial green infrastructure and landscaping at the new town to help mitigate the adverse effects however any improvements provided would be determined by the design of the development, which is unknown at this stage. 'Medium/low' growth in the areas of East Tilbury, Grays and Stanford le Hope would be in areas of high sensitivity to very large housing developments. Conversely, this Spatial Option will support urban regeneration at Purfleet-on-Thames and West Thurrock, potentially improving the local townscape. The precise effect of new development on landscape character in the plan area will be influenced to a large degree by the design of new proposals and the detailed distribution of new development, resulting in uncertainty.

Spatial Option 4a: New town at North Stanford

E.163 Spatial Option 4a (approximately 19,376 homes) would deliver a relatively high number of new homes in Thurrock to address the identified local housing need. The level of housing to be delivered under spatial option 4a is expected to support the delivery of a range of housing types and tenures to meet the needs of many residents as well as new affordable homes. With the exception of parts of Stanford-le-Hope and the eastern part of the urban area at Grays (towards Little Thurrock and Blackshots) the majority of settlements in the Borough contain areas that are within the 30% most deprived in terms of Barriers to Housing and Services (IMD2025). Notably this includes parts of Purfleet-on-Thames, East Tilbury and western parts of the urban area at Grays (including towards West Thurrock) which fall within the 20% or 10% most deprived in relation to this measure. Spatial option 4a includes medium growth at these settlements which is likely to help address access to house in areas of need.

E.164 Spatial Option 4a would focus a 'high' level of development at North Stanford (4,000 homes). Additionally, 'medium' growth would take place at Aveley (2,000 homes), Chadwell St Mary (3,500 homes), Corringham (2,500 homes), East Tilbury (700 homes), Grays (1,000 homes), Purfleet on Thames (2,850 homes), Stanford-le-Hope (800 homes), Tilbury (300 homes) and West Thurrock (1,000 homes). 'Low growth' would take place at Bulphan (50 homes), Fobbing (200 homes), Horndon on the Hill (75 homes), Langdon Hills (181 homes) and Orsett (220 homes).

E.165 A significant positive effect is identified in relation to IIA objective **1: housing** as Spatial Option 4a

E.166 The inclusion of much of the development over the plan period within the larger settlements in the plan area as set out through Spatial Option 4a would help ensure that most new residents have good access to existing healthcare facilities. All of the larger settlements in Thurrock include GP facilities. These are also locations where residents are more likely to be able to travel by public transport or active travel to essential services and facilities, given the stronger transport connections and service offer provided.

E.167 Spatial Option 4a includes a new settlement. Development would not provide immediate access to existing healthcare facilities. The new settlement at North Stanford would be separated by the A13 and railway from facilities within Stanford-le-Hope and Corringham. However, the scale of development is likely to support substantial new services and facilities. The increased level of development at North Stanford is likely to support increased provision that could benefit residents at the settlement and those in the surrounding areas. There is potential for the proximity of the railway line and A-roads and noise pollution associated with this infrastructure to adversely affect health. Furthermore, the delivery of housing development at the eastern part of the urban area towards Grays, Tilbury and Purfleet could result in some new residents being affected by odours from waste management facilities and/or industrial uses close to these locations.

E.168 Overall, uncertain mixed significant positive and minor negative effect is expected in relation to IIA objective **2: Health, wellbeing and safety**. The uncertainty recorded reflects the need for service provision to be achieved which is partially unknown at this stage.

E.169 By delivering much of the new development over the plan period at the larger settlements in Thurrock, Spatial Option 4a would make good use of areas with key services and facilities and existing transport infrastructure. The larger size and more established nature of these settlements is likely to mean that these are some of the areas of the Borough at which community networks are most resilient to change. The increased potential for travel by walking and cycling as residents are located close to existing services and facilities and jobs, through these options, could contribute to the creation of neighbourhoods where people can mix. The larger settlements also include areas which among the 30% most deprived in England in terms of overall deprivation (IMD2025). Most notable areas include the eastern part of the urban area at Grays, South

Ockendon, Tilbury and Chadwell St Mary, all of which contain areas that fall within the 20% most deprived.

E.170 The new settlement to be delivered through Spatial Option 4a (North Stanford) are not overly deprived as per the IMD2025, falling on land that is between the 60% to 80% least deprived in England. The new settlement option at North Stanford, is likely to mean the services and facilities delivered at this location may be more substantial. There are physical barriers created by the railway line and the A13 road between the new settlement and the existing nearest settlements. This may make it more difficult for the new and existing communities to integrate.

E.171 Overall, an uncertain mixed minor positive and minor negative effect is expected in relation to **IIA objective 3: Community cohesion**. The uncertainty recorded reflects the need for new service provision to be achieved through both options which is partially unknown at this stage.

E.172 As noted in relation to IIA objective 3, Spatial Option 4a will make good use of existing services and facilities in the plan. The majority of larger settlements in the Borough contain areas that are within the 30% most deprived in terms of Barriers to Housing and Services (IMD2025). Notably this includes parts of Purfleet-on-Thames, East Tilbury and western parts of the urban area at Grays (including towards West Thurrock) which fall within the 20% or 10% most deprived in relation to this measure. Both of the options involve medium growth at these settlements which could support new service provision at these locations.

E.173 Overall, an uncertain mixed significant positive and minor negative effect is expected in relation to **IIA objective 4: Access to services and facilities**. The uncertainty recorded reflects the need for new service provision to be achieved through both options which is partially unknown at this stage.

E.174 Spatial Option 4a involve a relatively large amount of development within the larger settlements of the plan area. This is likely to result in benefits for less mobile people, including elderly and disabled people, in terms of access to existing services and facilities. It is also likely to enable people to access community facilities that are concentrated mostly at these settlements. This element of growth is also likely to support those of different faiths. It may also benefit groups who may benefit from access to dedicated space for gatherings such as pregnant people and those from groups who are underrepresented in society (including those with different sexual orientations, those with gender reassignments and those from different races). Additionally, large scale development provided in Thurrock is likely to support the delivery new

community facilities and services and/or public transport infrastructure, thereby further increasing accessibility. However, locating a substantial portion of growth in urban areas of the Borough is likely to expose a higher number of residents to air pollution. This is likely to particularly affect those who are more vulnerable to air pollution, including younger and older people, people with cardiovascular or respiratory illnesses and pregnant people.

E.175 The new settlement at North Stanford would be of a scale that is likely to support the delivery of additional community facilities as well as public transport links, which is likely to make it easier for less mobile people (including elderly and disabled people) to access existing services and facilities.

E.176 Overall, mixed minor positive and minor negative effects are expected in relation to **IIA objective 5: Equalities**.

E.177 The delivery of a relatively high level of growth within the larger settlement through Spatial Options 4a is likely to support good access to existing education facilities for many residents. All of the larger settlements include a primary school and of these settlements only Chadwell St Mary does not provide access to a secondary school (although the nearest facility is relatively close in Tilbury). These locations will accommodate medium or high growth through Spatial Options 4a which is likely to provide opportunities to improve existing facilities or deliver new facilities. Areas of highest deprivation in terms of Education and Skills (IMD2025) in Thurrock, include parts of Aveley, South Ockendon, Tilbury and Stanford-le-Hope which fall within the 20% most deprived in England. The relatively high level of development to be accommodated at these settlements through both options could support new education facilities.

E.178 The provision of a new settlement at North Stanford is likely to be of a scale to result in the provision of new primary and secondary educational facilities. These components of growth would support the delivery of education facilities in locations that do not currently have access to existing provision. It is noted that there are existing education facilities in Stanford and Corringham. However, these facilities are not close to the location for the new developments and existing railways lines and A-roads act as barriers towards these facilities. Access to education facilities at these locations will mostly depend on the timing of new provisions.

E.179 Overall, uncertain mixed significant positive and minor negative effects are expected in relation to **IIA objective 6: Education and skills**. The uncertainty recorded reflects the need to provide new education facilities through both options which is partly unknown at this stage.

E.180 Spatial Option 4a would provide a relatively high level of development in the urban areas where there is good access to nearby employment sites and those further afield by public transport. Many of the most important employment sites are located in the south the Borough, including those close to the urban area towards Grays, Purfleet-on-Thames, Tilbury and DP World London Gateway Port towards Corringham and Stanford-le-Hope. These settlements will all accommodate medium levels of development through both options. Furthermore, focusing new development towards the Borough's larger settlements will promote the viability of the main town centre in Grays, the regional town centre at Lakeside as well as the local centres in the settlements of Aveley, South Ockendon, Tilbury, Stanford-le-Hope and Corringham. Medium levels of development would be provided in the urban area at Grays, Tilbury, and Chadwell St Mary which all contain areas within the 20% most deprived in this regard. Residential developments in these locations could support improvements in services and facilities and public transport, which may provide new employment opportunities in these areas or access to opportunities further afield. Access to areas of employment within the Borough is more limited at the smaller settlements and the level of development provided at these locations is limited through both options.

E.181 Providing a high level of development at the new settlement at North Stanford is likely to create new employment opportunities in the north and north-east of the Borough where existing opportunities are currently limited. The scale of growth could support substantial jobs in the construction industry at a single location; new employment land may be delivered onsite and the services delivered will also provide opportunities for new residents. This approach would help balance economic growth and employment opportunities across the Borough. North Stanford, however, is not as well related to any existing employment sites.

E.182 Overall, a mixed significant positive and minor negative effect is expected in relation to **IIA objective 7: Economy and employment**. New residents at the new settlement at North Stanford would be less well-related to existing employment opportunities and strong public transport links than those at the new settlement at West Horndon.

E.183 Spatial Option 4a would direct much of the development over the plan period to the larger settlements that benefit from the widest range of services and facilities as well as transport links. The inclusion of medium levels of growth through both options at the urban area at Grays, Tilbury, East Tilbury and Stanford-le-Hope will mean many residents would benefit from access to existing railway stations in the plan area. There are relatively good networks of

existing bus stops along the main roads in these settlements as well as the other relatively large settlements in the plan area. This includes at South Ockendon which benefits from relatively frequent services along the B186 and B1335. The relatively high level of growth set out through Spatial Option across many of the larger settlements is likely to provide opportunities for improvement of existing services and facilities and infrastructure, including public transport to help increase the proportion of trips that can be made by sustainable modes. However, the relatively high level of growth set out through this option in areas with high levels of traffic congestion and associated air and noise pollution including at Tilbury, South Ockendon, Grays, Purfleet-on-Thames, and Aveley could exacerbate existing issues. By limiting the level of growth within the smaller settlements, both options would locate a small number of new residents in areas where there is likely to be increased need to travel to meet day-to-day needs and where public transport links are limited.

E.184 At North Stanford, separation is likely to be more difficult to overcome given the presence of an A-road and railway line. At both locations there is potential for residents to need to travel longer distances to access jobs, particularly in the short term as the new settlements are built out. This could contribute to higher levels of traffic, congestion and pollution, particularly along the A13 (close to North Stanford). Overall, an uncertain mixed significant positive and significant negative effect is expected in relation to **IIA objective 8: Transport**. The uncertainty recorded reflects the need for new service and transport infrastructure provision to be achieved through both options which is partially unknown at this stage.

E.185 As set out above in relation to IIA objective 8, the focus of much of the development through Spatial Option 4a is towards the main settlements could help reduce the need to travel in the plan area. These benefits would be achieved by making good use of settlements that provide access to range of services and facilities and those with relatively strong transport links. This component of growth for both options is likely to help limit the release of air pollutants associated with travel. However, the focus of development towards these locations could increase travel through AQMAs and the number of residents exposed to poor air quality in Aveley, Grays, Purfleet-on-Thames and Tilbury. This option will provide limited levels of growth within the smaller settlements from which there is likely to be increased to travel by car given their relative isolation from services and facilities and jobs and the more limited nature of public transport infrastructure at these locations.

E.186 The inclusion of a larger new settlement component that could support increased service provision is likely to result in increased self-containment in the

longer term. It is noted that there is potential for any new settlement to contribute to traffic generation in its locality, particularly in the early stages of development, dependent upon the timing of new infrastructure. At North Stanford this could contribute to travel along the A13 and within AQMA No.5.

E.187 Overall, mixed significant positive and significant negative effects are expected in relation to **IIA objective 9: Air quality**. The significant negative effect reflects the reduced potential to support self-containment at the North Stanford new settlement as well as the potential for development at this location to contribute to travel along the strategic road network and through an AQMA.

E.188 Spatial Option 4a are is expected to have adverse impacts on soil resources in the plan area given the relatively high level of growth that would be delivered. By focussing much of the growth in the larger settlements, both options would make use of brownfield land and urban land which would help limit the potential for the development of greenfield sites and higher value agricultural soils. Both options include a similar amount of growth at Aveley where there are areas of Grade 1 agricultural soils to the south. The inclusion of a higher level of development at East Tilbury and South Ockendon through Spatial Option 7 is likely to result in increased loss Grade 2 agricultural soils at both locations. By delivering only a modest level of development at smaller settlements in the plan area, both options are likely to help limit impacts on undeveloped greenfield land at these locations. This includes at Orsett where an area of Grade 2 soils is present.

E.189 The inclusion of a new settlement would require a high level of greenfield land take in one location. The development of a new settlement locations at North Stanford would be located on Grade 3 soils with potential for loss of access to good to moderate value land. Overall, a mixed significant positive and minor negative effects is expected in relation to **IIA objective 10: Soils**.

E.190 The relatively high level of growth set out through Spatial Option 4a is likely to require the consumption of a large quantity of construction materials. This is likely to result in increased waste during construction as well as during the occupation of homes given the increased number of residents. By focussing development within the larger settlements, both spatial options are likely to achieve the development of brownfield sites which will promote the re-use of land (and potentially buildings and materials) and reduce the need for additional resources for construction. With the exception of Tilbury, the larger settlements are covered by or surrounded by Mineral Safeguarding areas and as such development could result in loss of access to mineral resources.

E.191 The development of a new settlement at North Stanford would also require the development of a substantial amount of greenfield land. There is likely to be requirements for a large quantity of construction materials and additional infrastructure associated with these components of growth. Development of this new settlement would not be near Mineral Safeguarding Areas and is not expected to affect mineral resources in the plan area in terms of sterilisation. Overall, mixed minor positive and significant negative effects are expected in relation to **IIA objective 11: Resource consumption and waste**.

E.192 There are two Source Protection Zones (SPZs) in Thurrock, extending from Linford and North Stifford. These areas are covered by Zones 1 and 2 of the SPZ and are most sensitive in terms of the vulnerability of groundwater to pollution. However, Zone 3 of the SPZ covers most parts of the Borough, the exceptions being Aveley, Bulphan, Fobbing, Purfleet-on-Thames and West Horndon. As such, the development set out through both options has a similar potential to affect groundwater resources through its inclusion of much of the development at the larger settlements in Thurrock. Much of the development set out has potential to affect watercourses in Thurrock including the River Thames, the River Mardyke and other smaller watercourses.

E.193 The delivery of a new settlement in Thurrock has potential to adversely affect water quality within water courses as a result of culverting or contaminated surface water run off at locations that are presently relatively free from disturbance. The River Hope, a tributary of the River Thames, flows through the location of the new settlement at North Stanford (included in Spatial Option 4a).

E.194 Overall, uncertain minor negative effects are expected in relation to **IIA objective 12: Water resources and quality**. The uncertainty attached reflects the potential for appropriate mitigation to be achieved through design solutions, such as the delivery of SuDS. Spatial Option 4a has increased potential to impact groundwater resources in Thurrock.

E.195 As set out above in relation to IIA objective 8, the focus of much of the development through Spatial Option 4a towards the main settlements could help reduce the need to travel in the plan area. The majority of the settlements identified to accommodate increased levels of development provide access to a range of services and facilities and relatively strong transport links. This component of growth is likely to help limit carbon emissions associated with travel. This option involves limited levels of growth within the smaller settlements from which there is likely to be increased travel by car given their

relative isolation from services and facilities and jobs and the more limited nature of public transport infrastructure at these locations.

E.196 It is noted that there is potential any new settlement to contribute to travel in its locality, particularly in the early stages of development, dependent upon the timing of new infrastructure.

E.197 Overall, an uncertain mixed significant positive and significant negative effect is expected in relation to **IIA objective 13: Climate change and energy**. The effects are partly uncertain given that addressing climate change as new development is delivered will be influenced by design measures incorporated at new development proposals to reduce greenhouse gas emissions (e.g., promoting renewable energy), improve energy efficiency and promote climate resilience. The significant negative effect recorded reflects the reduced potential to support self-containment at the North Stanford new settlement and lack of existing sustainable transport connections at this location when compared to the West Horndon new settlement location. This option has more limited potential to support service provision and infrastructure delivery across the plan area which might otherwise being reduce vehicular trips and associated emissions.

E.198 Spatial Option 4a proposes a relatively large amount of growth (4,000) at a new settlement at North Stanford. The area for the proposed new settlement is not within Flood Zones 2 or 3. However, there is a high probability of surface water flooding in this area. Many of the other settlements identified for medium growth through Spatial Option 4a include areas of Flood Zones 2 or 3 (e.g. West Thurrock, Purfleet-on-Thames, East Tilbury) but benefit from existing flood defences. Several areas proposed for 'low' development are also at risk of flooding. Overall, significant negative effects are expected in relation to **IIA objective 14: Flood risk**. The new settlements, which would be delivered on greenfield land, would likely result in increased flood risk, although there is potential for suitable mitigation through the delivery of the new infrastructure and design choices. Furthermore, while many of the more developed areas proposed for relatively large amounts of development through both options already benefit from flood defences, the risk of flooding may increase with the effects of climate change.

E.199 Spatial Option 4a includes a significant element of development focussed on urban areas in the Borough. While this could help protect rural areas of biodiversity value and lead to improvements within urban areas in terms of habitat connectivity through the on-site delivery of biodiversity net gain, there are a number of designated biodiversity sites within and close to urban areas in the Borough, particularly in the south. This includes the Thames Estuary and

Marshes SPA/SSSI/Ramsar, Inner Thames Marshes SSSI, and Mucking Flats and Marshes SSSI. The provision of relatively limited levels of development towards the smaller settlements is likely to help limit the potential impacts on presently less disturbed and more sensitive habitats.

E.200 Spatial Option 4a includes a high level of growth focussed on North Stanford for the delivery of a new settlement. This location is close to Langdon Ridge SSSI (also designated as the Northlands Wood Country Park) and the Grove House Wood Local Nature Reserve. Therefore, development at North Stanford could have more potential for disturbance and habitat damage. The new settlement is in a rural area and current biodiversity value is unknown to some extent. The scale of the new settlements could enable a significant amount of onsite biodiversity net gain and there may be potential to link into the aims of the Local Nature Recovery Strategy.

E.201 Overall, an uncertain significant negative effect is expected in relation to **IIA objective 15: Biodiversity and geodiversity**. The effects are uncertain as they will depend largely on the specific location and design of sites and given that mitigation and enhancement could be designed in to sites. Spatial Option 4a has potential to result in stronger adverse effects given the inclusion of the North Stanford new settlement which could have impacts on national and local biodiversity designations. It is also considered less likely to support habitat connectivity in more developed parts of Thurrock.

E.202 Most of the settlements that would accommodate relatively high levels of development under Spatial Option 4a include designated historic assets such as listed buildings, Conservation Areas and Registered Parks and Gardens. This includes at the larger settlements of Aveley, East Tilbury, Purfleet-on-Thames and Corringham. Limited amount of development in the smaller settlements is proposed which would help limit the potential for impacts on heritage assets at locations that are potentially more sensitive to change. However, over 200 homes is proposed at Orsett which contains a Conservation Area and numerous listed buildings and so there is potential for development to adversely affect their respective settings.

E.203 The new settlement at North Stanford are close to a number of Grade II listed buildings which could be negatively affected by the scale of development proposed, particularly in terms of setting. Spatial Option 4 has potential to affect the setting of several listed buildings associated with Arden Hall to the north of Stanford-le-Hope.

E.204 Overall, uncertain significant negative effects are expected in relation to **IIA objective 16: Historic environment**. The effects are uncertain given that

the design/layout of developments will largely determine effects and it may be possible to mitigate the potential for adverse effects on the settings of heritage assets.

E.205 The growth to be delivered within the existing larger settlements through Spatial Option 4a is considered less likely to adversely affect more sensitive landscapes in Thurrock. This element of growth could also support regeneration and improvements in the townscape by bringing urban sites back into appropriate use. The largest settlements in the plan area are identified as being the least sensitive to housing development as per the findings of the Landscape Capacity Study work undertaken in support of the plan. The settlements of Aveley, Chadwell St Mary, Stanford-le-Hope, Corringham and Purfleet-on-Thames are proposed to accommodate similar amounts of development through both options. These settlements have a landscape sensitivity rating of between very low and medium in relation to the provision of differing housing scales (ranging from minor housing for less than 75 dwellings, to very large housing for over 3,000 dwellings). Nevertheless, the scale of housing growth included could have adverse effects on the landscape, townscape and existing character.

E.206 The proposed new settlement are likely to impact the landscape character of the Borough. The North Stanford new settlement would be within the Langdon Lower Hill Slopes LCA, which has a high landscape sensitivity rating in terms of large and very large scale housing delivery. The development of the site would likely require a large amount of greenfield land take and significant disruption to the existing landscapes of high sensitivity could take place through either option. Land in North Stanford currently provides undeveloped open space between the existing urban areas of Thurrock, preventing coalescence between major settlements and maintaining rural tranquillity that is considered to be rare in Thurrock. The new settlement would also provide scope for the incorporation of green infrastructure and landscaping which, depending on the precise design and layout could help to mitigate adverse impacts.

E.207 Overall, an uncertain mixed minor positive and significant negative effect are expected in relation to **IIA objective 17: Landscape character**. The effects are uncertain given that the design/layout of developments could help mitigate the potential for adverse effects on the landscape and townscape and support enhancements in some instances.

Spatial Option 5: New towns at West Horndon and North Stanford

E.208 Spatial Option 5 comprises the development of a new town at West Horndon (7,000 homes) and a new town at North Stanford (4,000 homes). A 'low' quantum of development would take place in all other areas of the Borough, as well as the development of existing commitments and brownfield sites. In total, approximately 21,626 additional homes would be developed in Thurrock during the plan period under Spatial Option 5. The previous appraisal (Spatial Option 4: New town at West Horndon) has considered the development of 7,000 new homes south of the existing West Horndon settlement. The following appraisal of Spatial Option 5 takes account of the assessment of Spatial Option 4, in addition to the development of a new town at North Stanford and 'low' development in all other areas of the Borough.

E.209 A significant positive effect is identified in relation to IIA objective **1: housing** as Spatial Option 5 would deliver 21,626 additional homes in Thurrock over the plan period. Both West Horndon and North Stanford are located in areas within the top 20% most deprived in terms of 'Barriers to Housing' (IMD2019), however it should be noted that this is likely due to the rural nature of these locations. Spatial Option 5 supports 'low' growth at all other areas in the Borough, including areas within the 10% most deprived (Aveley, Purfleet-on-Thames, Grays, Horndon on the Hills) and 20% most deprived (Bulphan, Tilbury, West Thurrock, Chadwell St Mary, and Corringham) in terms of 'Barriers to Housing'. It is assumed that the scale of new development would deliver an appropriate range of housing in terms of sizes, tenures and affordability.

E.210 An uncertain mixed effect (significant positive / minor negative) is expected for Spatial Option 5 in relation to IIA objective **2: Health, wellbeing and safety**. There are no existing healthcare facilities within West Horndon. Therefore, healthcare facilities are not easily accessible for residents of West Horndon. Stanford le Hope and Corringham contain a number of existing healthcare facilities, however the A13 creates a barrier to access between existing services in these settlements and the new town of North Stanford. Within the larger urban areas proposed for 'low' settlements are likely to have a GP surgery, health centre or hospital and therefore healthcare facilities should be easily accessible for residents. Development at settlement edges may be further than a reasonable walk to these facilities. As West Horndon and North Stanford are located in the more rural parts of the Borough, they rank highly in terms of access to green space and its health and nature benefits. The areas of

Purfleet-on-Thames, West Thurrock including Lakeside, Tilbury and Grays (i.e. the generally more urbanised areas within Thurrock) were identified by Friends of the Earth as the most deprived of greenspace in the Borough [See reference 343]. The quantum of development proposed under Spatial Option 5 under the low growth scenarios at these settlements is likely to provide new green/recreational space in these areas. Some strategic growth areas also contain open spaces that could be lost to development. The development of 7,000 new homes at West Horndon and 4,000 new homes at North Stanford are likely to result in new development in close proximity of existing sources of noise pollution (e.g. A127, A128 and A13) which could negatively affect health. Additionally, Spatial Option 5 would result in the development of new homes in Aveley and East Tilbury which could be located near existing authorised landfill sites, potentially impacting on residential amenity. The scale of development proposed at West Horndon and North Stanford and under the 'low' scenario for the larger urban areas is likely to result in new healthcare facilities / open space being provided to support the scale of residential development, however, this is more uncertain for new development at the smaller settlements. Overall, a mixed effect (significant positive / minor negative) is identified for this IIA objective. The effect is uncertain as it will depend on the delivery of supporting infrastructure, including healthcare facilities, at these locations, particularly at West Horndon and North Stanford.

E.211 An uncertain mixed effect (minor positive / significant negative) is expected for Spatial Option 5 in relation to IIA objective **3: Community cohesion**. This option focuses a high quantum of development at the new towns at West Horndon and North Stanford. This would provide opportunities for the delivery of new services and facilities at planned strategic sites in the northern and north-eastern parts of the Borough. While North Stanford and West Horndon are ranked within the 10% and 20% most deprived areas in terms of 'Barriers to Housing and Services', respectively, primarily due to their rural nature, they are some of the least deprived areas in the Borough for overall deprivation. Spatial Option 5 only delivers 'low' growth to some of the larger urban areas in Thurrock with the highest overall levels of deprivation including Aveley, Corringham, Chadwell St Mary, Grays, West Thurrock, and Purfleet-on-Thames. The potential to create settlements in which community networks are fostered which fit cohesively with the existing West Horndon and Stanford le Hope communities will depend largely on their design. It is noted that creating two new towns is likely to present challenges in terms of establishing a sense of community and there is potential for existing community networks to be disrupted. There are physical barriers created by the railway line and the A13 road (for North Stanford) between the new towns and the existing settlements of West Horndon and Stanford le Hope, making it difficult for the

new and existing communities to integrate. Furthermore, during the early stages of development, residents of the new towns may lack access to facilities, depending on the phasing of infrastructure development. The strategic location of new development is less likely to affect crime and fear of crime as this would be influenced more by policy requirements relating to the design of new developments. Overall, an uncertain mixed effect (minor positive / significant negative) is expected in relation to IIA objective 3.

E.212 An uncertain mixed effect (significant positive / minor negative) is expected in relation to IIA objective **4: Access to services and facilities**. High levels of growth will be focused in the new towns at West Horndon and North Stanford. West Horndon has an existing train station and connections to east London/Basildon. There is no existing train station at North Stanford (closest is at Stanford le Hope). Both locations are currently in areas with poor existing access to services and facilities due to their rural nature. These locations also contain physical barriers to accessing services and facilities by active travel, most notably the A13 and railway line which separates Stanford le Hope and North Stanford. Both areas are within the 20% most deprived areas in terms of 'Barriers to Housing and Services', and a significant proportion of North Stanford is within the 10% most deprived for overall deprivation (IMD2019). However, development of the scale of these new towns is expected to provide new community facilities that would improve access to services and facilities in these areas. All other areas of the Borough would experience 'low' growth under this option. Some areas considered for 'low' growth within Spatial Option 5 have generally good access to existing services and facilities (e.g., Aveley, Chadwell St. Mary, Corringham, East Tilbury, Grays, Purfleet, Stanford le Hope, Tilbury and West Thurrock). There are limited services and facilities in the smaller villages, and it is unknown if the scale of development proposed at these locations would lead to the provision of new services and facilities. As such, an overall uncertain mixed effect (significant positive / minor negative) is expected in relation to IIA objective 4. The effect is uncertain as it will depend on the delivery of supporting infrastructure, including essential services and facilities, at these locations.

E.213 A mixed effect (minor positive / minor negative) is expected for Spatial Option 5 in relation to IIA objective **5: Equalities**. The potential development of new towns at West Horndon and North Stanford are expected to be of a sufficient scale to provide additional public transport links, as well as local community facilities. However, these locations also contain physical barriers to accessing services and facilities by active travel, most notably the A13 and railway line which separates Stanford le Hope and North Stanford, which may limit opportunities for people on low incomes to access services and facilities.

Furthermore, many residents of the new towns may still need to commute by car/bus/train, particularly as many employment areas in Thurrock are located in the south of the Borough, which may also affect people on low incomes. All other areas are expected to experience 'low' growth under Spatial Option 5 which is likely to include large urban areas and smaller villages. Most large urban areas generally have good access to existing services and facilities and existing public transport connections, however, these areas also have high levels of traffic congestion and air pollution which could affect people more vulnerable to air pollution, including younger and older people, people with cardiovascular or respiratory illnesses and pregnant women. There are limited services and facilities in the smaller villages, and it is unknown if the scale of development proposed at these locations would lead to the provision of new services and facilities. Therefore, residents in these areas are likely to have to travel longer distances to access a wider range of services and facilities, and certain groups may not have access to more specialist facilities at the more rural locations, such as support groups or faith services. Overall, a mixed effect (minor positive / minor negative) is expected in relation to IIA objective 5.

E.214 An uncertain mixed effect (significant positive / minor negative) is expected for Spatial Option 5 in relation to IIA objective **6: Education and skills**. This option seeks to develop new towns at West Horndon and North Stanford, accommodating 7,000 and 4,000 new homes respectively, which are expected to be of scale that would result in the provision of new primary and secondary educational facilities in locations which do not currently have any local educational facilities. There are existing primary and secondary schools within Aveley, Corringham, Purfleet-on-Thames, West Thurrock, Grays (inc. Chafford, Little Thurrock and north Grays), and Stanford le Hope. East Tilbury, Tilbury, and Chadwell St Mary do not have existing secondary schools and are within the 10% most deprived in terms of the 'Education, Skills and Training Deprivation' domain in the IMD2019. However, the scale of development proposed under the 'low' scenario for these areas is likely to result in additional educational facilities at these locations. There are limited educational facilities in the smaller villages proposed for 'low' growth, and it is unknown if the development proposed at these locations would lead to the provision of new educational facilities. The scale of development proposed at these locations may put additional pressure on existing educational facilities if new schools are not provided to support the delivery of new homes. Overall, a mixed effect (significant positive / minor negative) effect is identified for IIA objective 6. The effect is uncertain as it will depend on the delivery of supporting infrastructure, including educational facilities, at these locations.

E.215 A mixed effect (significant positive / minor negative) effect is identified in relation to IIA objective **7: Economy and employment**. High levels of growth will be focused in the new towns at West Horndon and North Stanford which are likely to create new employment opportunities in the north of the Borough where existing employment opportunities are limited, balancing economic growth and employment opportunities across the Borough. The new town at West Horndon would be closely located to the Horndon Industrial Park and rail connections to Basildon/London. North Stanford however is not within proximity to any existing employment sites. New residents may still need to travel to access employment opportunities in the south of the Borough. The remaining allocations within Spatial Option 5 are expected to have a low level of growth. They are generally located close to existing employment sites within the Borough, particularly when proposed in/adjacent to existing urban areas. Access to areas of employment within the Borough would be more limited from the smaller settlements proposed for 'low' growth. Overall, a mixed effect (significant positive / minor negative) is expected in relation to IIA objective 7.

E.216 A mixed effect (significant positive / significant negative) is expected for Spatial Option 5 in relation to IIA objective **8: Transport**. The potential development of new towns at West Horndon and North Stanford are expected to be of a sufficient scale to provide additional or improved public transport links. Furthermore, West Horndon has an existing train station that connects to London Fenchurch Street and Shoeburyness via Basildon. Therefore, new development at these new settlements would be well serviced by public transport links. However, based on the location of these proposed new towns, many residents may still need to commute by car in the Borough, particularly as many employment areas are located in the urban areas in the south of Thurrock. This may result in higher levels of traffic, congestion and pollution, particularly along the A13 and A128. Furthermore, there are physical barriers created by the railway line and the A13 road (for North Stanford) between the new towns and the existing settlements of West Horndon and Stanford le Hope, which may present barriers to active travel between areas. Other areas within Thurrock proposed for a 'low' quantum of development under Spatial Option 5 are generally located in settlements that are well-serviced and connected by public transport links (e.g. West Thurrock, Grays, Tilbury, East Tilbury, and Stanford le Hope all having existing train stations). In common with all of the other spatial options, Spatial Option 5 would include development of brownfield sites in the urban area, thereby encouraging compact settlements and allowing more journeys to be undertaken by public transport and active travel. Public transport and active travel infrastructure is more limited from smaller settlements also proposed for 'low' growth, and therefore development at these locations is likely to increase travel by private car. Overall, a mixed effect

(significant positive / significant negative) is expected for IIA objective 8. However, this effect is uncertain as it is not known what public transport / active travel infrastructure would be delivered as part of the developments, and the uptake of private vehicles.

E.217 A mixed effect (significant positive / significant negative) is expected for Spatial Option 5 in relation to IIA objective **9: Air quality**. Development of a new town at West Horndon is not expected to substantially increase traffic in any AQMA. However, development of a new town at North Stanford is likely to substantially increase traffic along the A13 AQMA. While the proposed new towns are expected to be of scale to provide services and facilities which are accessible by sustainable modes of transport, reducing the need to travel by private car, based on their location, many residents may still need to commute north-south by car in the Borough, particularly as many employment areas are in the urban areas in the south of Thurrock, which may result in higher levels of traffic, congestion, and pollution, particularly along the A128 and A13. These locations also contain physical barriers to accessing services and facilities by active travel, most notably the A13 and railway line which separates Stanford le Hope and North Stanford. Other areas within Thurrock proposed for a 'low' quantum of development under Spatial Option 5 are generally located in settlements that are well-serviced and connected by public transport links which could result in increased traffic in the AQMAs in and around Grays, Purfleet-on-Thames, West Thurrock, Aveley and Tilbury. This could therefore exacerbate existing air pollution issues. At the same time however, 'low' growth in areas with existing services and facilities and access to sustainable modes of transport will reduce the likelihood that new residents will be dependent on travelling by car. Development at the smaller villages proposed for 'low' growth could increase traffic on the strategic road network. This includes along the A13 which passes through an AQMA. Overall, a mixed effect (significant positive / significant negative) is expected in relation to IIA objective **9: Air quality**.

E.218 A mixed effect (minor positive / significant negative) is identified for Spatial Option 5 in relation to IIA objective **10: Soils**. The potential location for the new towns at West Horndon and North Stanford would be located on Grade 3 (Good to moderate) soils. Therefore, development of the new towns would result in significant loss of productive agricultural land. Development in some of the urban areas proposed for 'low' growth would avoid the loss of the best and most versatile land in the Borough, as it would focus development to areas classified as 'urban' or 'non-agricultural' (e.g. West Thurrock, Purfleet-on-Thames, Grays). However, the potential expansions of other settlements proposed for 'low' growth could lead to the loss of some of the best and most versatile soils in Thurrock. Similarly, 'low' growth proposed at the smaller

villages would also result in the loss of productive agricultural land. Overall, a mixed effect (minor positive / significant negative) is expected for this IIA objective.

E.219 An uncertain mixed effect (minor positive / significant negative) is identified for Spatial Option 5 in relation to IIA objective **11: Resource consumption and waste**. All spatial options support the development of brownfield sites in urban areas which promotes the re-use of land (and potentially buildings and materials). However, the development of new towns at West Horndon and North Stanford are likely to result in the large-scale development of greenfield land. Development in this spatial option would result in approximately 21,626 new houses. A large quantity of construction materials would need to be used to build the quantum of development proposed under this spatial option. In addition, there would likely be increased waste produced during the construction process and throughout the operational lifetime of these homes, from day-to-day living. It is unknown if recycled materials will be promoted for construction and if energy efficiency measures and renewable energy would be promoted as these will be influenced more by policy requirements. There are no minerals sites or waste facilities located near West Horndon or North Stanford therefore the development of the new towns is unlikely to affect existing mineral and waste sites. A low quantum of growth is proposed at Aveley and East Tilbury which are near existing landfill sites, however, it is unknown how new development in these areas would affect the capacity / operation of these waste sites. Overall, an unknown mixed effect (minor positive / significant negative) is expected for IIA objective 11.

E.220 An uncertain minor negative effect is identified for Spatial Option 5 in relation to IIA objective **12: Water resources and quality**. There are two Source Protection Zones (SPZs) within Thurrock, in Linford and North Stifford, and the entire catchments of these two zones fall within central Thurrock. The location of the new town at West Horndon is not within the SPZs, however, the new town at North Stanford is within the SPZs catchment. Furthermore, the 'low' quantum of development proposed at East Tilbury, Linford, Grays, North Stifford have the potential to affect the SPZs. The River Mardyke and a number of other small watercourses run through the proposed location for the new town development, south of West Horndon. The River Hope, a tributary of the River Thames, flows through the location of the new town at North Stanford. The development of the new settlements has the potential to adversely affect these watercourses, either through culverting or degradation from contaminated surface water runoff. Additionally, many of the areas proposed for 'low' growth are also close to the River Mardyke and River Thames. Overall, a minor

negative effect is identified for IIA objective 12. However, the effect is uncertain depending on the exact location, design and layout of development.

E.221 An uncertain mixed effect (significant positive / significant negative) effect is identified in relation the IIA objective **13: Climate change and energy**.

Addressing climate change as new development is delivered over the plan period is most likely to be influenced by design measures incorporated at new development proposals to reduce greenhouse gas emissions (e.g., promoting renewable energy), improve energy efficiency and adapt to address the hotter, drier summers and warmer, wetter winters predicted for the UK. This might include enabling passive cooling, draught proofing and supporting natural shading, as well as promoting flood resilience which is addressed separately through IIA objective 14. These measures will be achieved through policy requirements in the Local Plan and not the location of new development, which is the focus of the five options for growth in Thurrock. In addition, promoting a compact and sustainable pattern of development could result in positive effects in relation to climate change as it reduces the need to travel by private vehicle and associated transport-related emissions. The potential development of new towns at West Horndon and North Stanford are expected to be of a sufficient scale to provide additional or improved public transport links. Furthermore, West Horndon has an existing train station that connects to London Fenchurch Street and Shoeburyness via Basildon. Therefore, new development at these new settlements would be well serviced by public transport links. However, based on the location of these proposed new towns, many residents may still need to commute by car in the Borough, particularly as many employment areas are located in the urban areas in the south of Thurrock. This may result in higher levels of transport-related emissions particularly along the A13 and A128. Furthermore, there are physical barriers created by the railway line and the A13 road (for North Stanford) between the new towns and the existing settlements of West Horndon and Stanford le Hope, which may present barriers to active travel between areas, resulting in more private car travel and transport-related emissions. Other areas within Thurrock proposed for a 'low' quantum of development under Spatial Option 5 are generally located in settlements that are well-serviced and connected by public transport links (e.g. West Thurrock, Grays, Tilbury, East Tilbury, and Stanford le Hope all having existing train stations). In common with all of the other spatial options, Spatial Option 5 would include development of brownfield sites in the urban area, thereby encouraging compact settlements and allowing more journeys to be undertaken by public transport and active travel, thus reducing transport-related emissions. Public transport and active travel infrastructure is more limited from smaller settlements also proposed for 'low' growth, and therefore development at these locations is likely to increase travel by private car and transport-related

emissions. Overall, a mixed effect (significant positive / significant negative) is identified for Spatial Option 5 in relation to IIA objective 13.

E.222 A significant negative effect is identified for Spatial Option 5 in relation to IIA objective **14: Flood risk**. Areas to the south of West Horndon lie within Flood Zone 2 and Flood Zone 3. This location does not benefit from flood defences and the development of 7,000 additional homes on greenfield land in this area is likely to exacerbate this flood risk due to the introduction of impermeable surfaces. There are a number of small watercourses in this area and the adjacent land has a high probability of surface water flooding. The area for the proposed new town at North Stanford is not within Flood Zones 2 or 3, however, there is a high probability of surface water flooding in this area. Other areas proposed for 'low' growth are located within Flood Zones 2 or 3 (e.g., West Thurrock, Grays, Stanford le Hope, Purfleet-on-Thames, East Tilbury) but benefit from existing flood defences. While these locations in the south of the Borough benefit from flood defences, risk may increase with the effects of climate change. Therefore, development in these areas would be located in areas at risk of flooding, however, the location of development does not take into account mitigation such as the incorporation of SuDS, open spaces for flood storage or green infrastructure which is more likely to be influenced by policy requirements. Overall, a significant negative effect is identified in relation to IIA objective 14.

E.223 Spatial Option 5 is expected to result in an uncertain significant negative effect in relation to IIA objective **15: Biodiversity and geodiversity**. The North Stanford new town has the potential to adversely affect the nearby biodiversity sites of Langdon Ridge SSSI (also designated as the Northlands Wood Country Park) and the Grove House Wood Local Nature Reserve through disturbance and damage from increased pressure on the sites. The potential new town location at West Horndon is not within close proximity of any designated sites. The development of the scale proposed at both new towns, particularly as they are in rural areas, is likely to result in the loss of biodiversity. This is uncertain as rural areas, particularly areas of arable farmland, can have limited biodiversity value. There are a number of designated biodiversity sites within and close to the urban areas of Thurrock, most notably the Thames Estuary and Marshes SSSI, SPA and Ramsar site, Inner Thames Marshes SSSI, and Mucking Flats and Marshes SSSI. Therefore, many of the development locations proposed for 'low' growth are located within SSSI Impact Risk Zones. There could therefore be a high level of development in close proximity of these sites, leading to potential disturbance and damage. There are also a number of Local Wildlife Sites in and around West Thurrock and Grays (inc. Chafford Hundred and north Grays) that could be affected by development in these

areas. The effect is uncertain as it will depend on the exact locations and design/layout of developments/new towns, as well as mitigation providing by other plan policies (e.g. green infrastructure policies).

E.224 An uncertain significant negative effect is identified for Spatial Option 5 in relation to IIA objective **16: Historic environment**. There are a number of Grade II Listed Buildings in West Horndon and North Stanford which could be negatively affected, particularly in terms of setting, by development of the scale proposed at the new towns. Similarly, there may be additional pressure on the nearby Thorndon Hall Registered Park and Garden from the addition of 7,000 new homes in West Horndon. 'Low' growth is proposed at all other areas which could adversely affect the numerous heritage assets and their settings located throughout the Borough (notable assets include the Scheduled Monuments near East Tilbury, Tilbury, north of Grays, Orsett, and Aveley; the eight Conservation Areas; the Registered Park and Garden at Aveley; and the numerous listed buildings throughout the Borough). The precise effect of new development on the historic environment will be influenced by the design of new proposals and exact location of new developments. Overall, a precautionary uncertain significant negative effect is expected for Spatial Option 5 in relation to IIA objective 16.

E.225 A mixed effect (minor positive / significant negative effect) is identified for Spatial Option 5 in relation to IIA objective **17: Landscape, townscape and visual impacts**. The new town at West Horndon would be located within LCA A1: Bulphan Fenland which has high sensitivity to large scale housing development. Additionally, the new town at North Stifford is located partially within LCA H2: Orsett and Horndon on the Hill Open Undulating Farmland and partially within LCA J1: Langdon Lower Hill Slopes. These LCAs are of high / moderate-high and high sensitivity to large and very large housing development as this would affect the open and rural character of this area resulting in significant negative effects. The focus of a high quantum of development to two strategic new town locations is likely to require a large amount of greenfield land take in a presently undisturbed area where significant disruption to the existing landscape character could result. Additionally, the land in both of these new town locations provides important breathing space between the urban areas of Thurrock and surrounding boroughs, preventing coalescence of major settlements and maintaining rural tranquillity that is rare in Thurrock. There is potential for the incorporation of substantial green infrastructure and landscaping at the new towns to help mitigate the adverse effects however any improvements provided would be determined by the design of the developments, which is unknown at this stage. Low levels of growth are expected for all other areas within Thurrock. Such development may also have

adverse effects on landscape character, however urban areas are of low-moderate sensitivity to large housing development and proposed development may support urban regeneration of areas, potentially improving the local landscape. The precise effect of new development on landscape character in the plan area will be influenced to a large degree by the design of new proposals and the detailed distribution of new development, resulting in uncertainty.

Spatial Option 6: No additional Green Belt release

E.226 Spatial Option 6 proposes only to include existing commitments, redevelopment within 'Opportunity Areas' within existing urban areas (Grays town centre, Lakeside Basin, around South Ockendon train station, Derwent Parade, Tilbury town centre, Tilbury cruise terminal, Corringham town centre, and around Stanford le Hope train station) and windfall sites. It does not propose any Green Belt allocations however minor amendments to the Green Belt may create additional windfall opportunities. The existing Green Belt covers a large proportion of the Borough and is tightly drawn around the built-up areas of the borough's existing settlements, including Thurrock's larger urban areas of Grays, West Thurrock, Purfleet-on-Thames, Chadwell St. Mary and Stanford le Hope.

E.227 A minor positive is identified in relation to IIA objective **1: Housing**. Spatial Option 6 has the potential to deliver 7,320 via committed development, urban redevelopment, and windfall sites throughout the plan period. This includes delivery of housing in areas within the 30% most deprived in terms of 'Barriers to Housing and Services' in the IMD2019 (e.g., Grays, Lakeside, Purfleet-on-Thames). However, the overall scale of housing delivery is significantly less than the other five Spatial Options, resulting in less investment in affordable housing.

E.228 An uncertain mixed effect (significant positive / minor negative) is identified in relation to IIA objective **2: Health, wellbeing and safety**. Spatial Option 6 would deliver new homes within existing urban centres, ensuring new residents are in close proximity of existing healthcare facilities. The regeneration of these areas may enhance existing healthcare facilities however the scale of development to be delivered at a borough-scale is not expected to incorporate a significant number of additional services. Several of the Opportunity Areas for urban redevelopment are located in the south of the Borough. The areas of Purfleet-on-Thames, West Thurrock, Lakeside, Tilbury, Grays and Stanford le Hope (i.e., the generally more urbanised areas within

Thurrock) were identified by Friends of the Earth as the most deprived of greenspace in the Borough [See reference 344]. There is limited opportunity for provision of large-scale accessible greenspace alongside new development within the Borough's urban areas. These areas also have the highest levels of traffic congestion and associated air and noise pollution.

E.229 An overall mixed effect (significant positive / minor negative) is identified for Spatial Option 6 in relation to IIA objective **3: Community cohesion** and IIA objective **4: Access to services and facilities**. New development will be focused on locations where there is existing local access to services, facilities and public transport connections (i.e., surrounding railway stations and the bus network). The larger size and more established nature of these settlements is likely to mean that their community networks are more resilient to change than smaller rural settlements. Redevelopment within urban Opportunity Areas would provide new and enhanced local facilities in these areas. Some of these areas are within the 30% most deprived in terms of 'Barriers to Housing and Services'. However, large areas of Thurrock, including rural areas, are also within the 30% most deprived in terms of 'Barriers to Housing and Services' and Spatial Option 6 would be unlikely to provide new local services and facilities to these areas, as most development is focused within the Borough's larger settlements. Furthermore, the scale of development proposed under Spatial Option 6 is likely to result in less investment in infrastructure and facilities. The strategic location of new development is less likely to affect crime and fear of crime as this will be influenced more by policy requirements relating to the design of new developments.

E.230 A mixed effect (minor positive / minor negative) is expected in relation to IIA objective **5: Equalities**. Development in urban areas with existing public transport links is likely to be located close to services, facilities and accessible links, and therefore focusing development to these areas could make it easier for less mobile people, including elderly and disabled people, to access services and facilities. It is also likely to enable people to more easily access community facilities which may provide support groups or faith services. Additionally, major urban redevelopment projects (e.g. Opportunity Areas) could also deliver additional community facilities and/or public transport infrastructure. However, locating a large number of new homes in urban areas of the Borough with high levels of traffic congestion and air pollution could affect people more vulnerable to air pollution, including younger and older people, people with cardiovascular or respiratory illnesses and pregnant women. Overall, a mixed effect (minor positive / minor negative) is expected in relation to IIA objective 5.

E.231 A mixed effect (minor positive / minor negative) is identified in relation to IIA objective **6: Education and skills**. This option largely focuses development within existing urban areas with generally good access to existing educational facilities. Larger urban redevelopment projects (e.g., Lakeside, Purfleet-on-Thames) are likely to deliver additional education facilities however the scale of growth proposed throughout the rest of the borough is unlikely to incorporate additional education facilities.

E.232 A significant positive effect is identified in relation to IIA objective **7: Economy and employment**. The majority of existing employment sites are located in the south-west area of the Borough, at Purfleet-on-Thames, West Thurrock, Grays, Tilbury as well as at London Gateway. Focusing new development to the Borough's urban areas supports the economic viability and vibrancy of these town centres.

E.233 An uncertain overall mixed effect (significant positive / minor negative) is identified for Spatial Option 6 in relation to IIA objective **8: Transport**. The majority of new development will be focused within existing urban centres, with good existing public transport connectivity (i.e., rail and bus links) and in close proximity of neighbourhood centres, thereby encouraging journeys to be undertaken by public transport and active travel as residents will be likely to meet many of their needs within a reasonable walking distance. However, urban areas within the south of the Borough have the highest levels of traffic congestion and associated air and noise pollution. Furthermore, the small quantum of growth proposed may result in a higher commuter trend increasing pressure on the road network and transport-related emissions, although this effect is uncertain and will depend on where people are commuting from.

E.234 A mixed effect (significant positive / significant negative) is expected for Spatial Option 6 in relation to IIA objective **9: Air quality**. New development in the south-western parts of Thurrock (e.g., Grays, Purfleet-on-Thames, West Thurrock including Lakeside, and Tilbury) could result in increased traffic in the AQMAs in the western parts of the Borough, therefore exacerbating existing air pollution issues. Furthermore, the small quantum of growth proposed may result in a higher commuter trend increasing pressure on the road network and transport-related emissions, although this effect is uncertain and will depend on where people are commuting from. At the same time however, this spatial option focuses development in areas with existing access to sustainable modes of transport (railway and bus networks), therefore reducing the likelihood that new residents will be dependent on travelling by car.

E.235 A significant positive effect is identified in relation to IIA objective **10: Soils** as majority of new development will be focused on brownfield / infill sites within existing urban areas. Not releasing any additional areas of the Green Belt will generally avoid the loss of the best and most versatile land in the Borough, focusing on areas classified as 'urban' or 'non-agricultural', although some areas of Green Belt are also likely to be non-agricultural.

E.236 An uncertain mixed effect (significant positive / minor negative) is expected for Spatial Option 6 in relation to IIA objective **11: Resource consumption and waste**. This option proposes a considerably smaller quantum of development than the other five spatial options. Additionally, new development is broadly located within existing urban areas, enabling the use of existing infrastructure and integrated transport and reducing the consumption of additional resources for new infrastructure construction. However, a large quantity of construction materials would be required over that plan period. In addition, there would likely be increased waste produced during the construction process and throughout the operational lifetime of these homes, from day-to-day living. It is unknown if recycled materials will be promoted for construction and if energy efficiency measures and renewable energy would be promoted as these will be influenced more by policy requirements.

E.237 An uncertain minor negative effect is identified for Spatial Option 6 in relation to IIA objective **12: Water resources and quality**. There are two Source Protection Zones within Thurrock, in Linford and North Stifford, however, the entire catchments of these two zones fall within central Thurrock. Additionally, many of the areas proposed for redevelopment are within proximity of the river Thames or waterbodies that flow into the Thames. The quality of these waterbodies could be adversely affected by development through contaminated runoff however this may be lessened as development is located within or in close proximity to existing urban areas. The minor negative effect identified for this spatial option is uncertain as it will depend on the exact location and layout of development.

E.238 An uncertain mixed effect (significant positive / minor negative) is expected for Spatial Option 6 in relation to IIA objective **13: Climate change and energy**. Addressing climate change over the plan period is most likely to be influenced by design measures incorporated in new developments to reduce greenhouse gas emissions and to improve energy efficiency, including the use of renewable or low carbon energy sources in developments, as well as promoting flood resilience which is addressed separately through IIA objective 14. These measures will be achieved through policy requirements in the Local Plan. Directing most development towards locations with existing bus and rail

connections is likely to promote more sustainable travel behaviours which will reduce the need to travel by private vehicle and associated transport-related emissions. However, the small quantum of growth proposed may result in a higher commuter trend increasing pressure on the road network and transport-related emissions, although this effect is uncertain and will depend on where people are commuting from.

E.239 An uncertain mixed effect (minor positive / minor negative) is identified in relation to IIA objective **14: Flood risk**. Many urban areas of the Borough are located within Flood Zones 2 and 3. However, these locations in the south of the Borough also benefit from flood defences but risk of flooding may increase with the effects of climate change. The location of development does not take into account mitigation such as the incorporation of SuDS, open spaces for flood storage or green infrastructure which is more likely to be influenced by policy requirements. A precautionary minor negative effect is identified in relation to IIA objective 14. Additionally, Spatial Option 6 will focus development away from greenfield sites, preserving permeable areas of the Borough and largely focusing development towards existing urban areas. As such, a minor positive effect is also identified.

E.240 An uncertain mixed effect (minor negative / minor positive) is identified in relation to IIA objective **15: Biodiversity and geodiversity**. Focusing development at major urban settlements within the Borough could help protect wildlife in the rural areas of Thurrock as rural areas are generally more biodiverse, as well as at the urban edge. However, there are a number of designated biodiversity sites within and close to the urban areas of Thurrock. Therefore, many of the strategic development locations within Spatial Option 6 are located within SSSI Impact Risk Zones. There could therefore be a high level of redevelopment in close proximity of these sites, leading to potential disturbance and damage.

E.241 An uncertain mixed effect (minor negative / minor positive) is identified in relation to IIA objective **16: Historic environment**. Spatial Option 6 will broadly avoid effects on designated and undesignated heritage assets at the urban edge or in the borough's rural areas. Redevelopment of Opportunity areas within Spatial Option 6 has the potential to adversely affect the setting of a heritage assets, including Purfleet-on-Thames Conservation Area, Tilbury fort scheduled monument and of Grade II listed buildings such as in small clusters in Grays town centre, near South Ockendon and Stanford le Hope railway station and at Purfleet-on-Thames. However, there is also opportunity to improve the setting and condition of many of these heritage assets through appropriate design and an improved public realm. As such, there is potential for

positive effects. The precise effect of new development on the historic environment will be influenced by the design of new proposals and exact location of new developments and therefore effects are uncertain.

E.242 Overall uncertain mixed effects (significant positive / minor negative) are identified in relation to IIA objective **17: Landscape, townscape and visual impacts**. Maintaining the Green Belt designation will likely protect landscapes within Thurrock that are sensitive to large-scale housing development, particularly within rural areas and at the urban edge. For example, areas east of Grays, within LCA H1: East and West Tilbury Open Undulating Farmland, are of high sensitivity to very large housing development. Urban redevelopment includes enhancements to local townscape within the Opportunity Areas, including public realm and open space improvements which could lead to a change in townscape character, leading to minor positive effects. The precise effect of new development on landscape/townscape character will be influenced to a large degree by the design of new proposals and the detailed distribution of new development, resulting in uncertainty.

Appendix F

Comparative assessment of the six spatial options

F.1 The following sections aim to present the appraisal of strategic growth options with a view to informing the determination of the preferred approach. Based on the appraisal findings presented in **Chapter 4** of the main body of the IIA report, this appendix focuses on the significant positive and negative effects only, and also ranks the strategic growth options in order of how they perform against different sustainability topics.

F.2 The appraisals are presented in the tables below in relation to each of the 17 IIA objectives. **Green** is used to indicate where significant positive effects are expected, and **pink** is used to indicate where significant negative effects are expected. More nuanced analysis and summaries of combined/mixed effects have been provided in **Chapter 4**. The supporting text provides commentary on the relative merits of each spatial options in sustainability terms, helping to inform the sustainability ranking. A summary of the comparative assessment is also provided in **Chapter 4** of the main body of the IIA report.

IIA objective 1: Housing

Table F.1: Assessment of spatial options for IIA objective 1

Spatial Option	Spatial Option 1	Spatial Option 2	Spatial Option 3	Spatial Option 4	Spatial Option 5	Spatial Option 6
Rank	3	1	2	3	4	5
Significant effects?	Yes	Yes	Yes	Yes	Yes	No

F.3 A primary consideration is the delivery of an appropriate supply of new homes across the plan period, ensuring that the mix (in terms of size and tenures) will be adequate to meet local needs, can increase the range and affordability of housing, and address the needs of older people, disabled people and vulnerable groups.

- **Spatial Option 1** will provide approximately 22,326 homes.

- **Spatial Option 2** will provide the most number of homes of all of the spatial options, approximately 32,276 over the plan period.
- **Spatial Option 3** will provide approximately 26,061 homes.
- **Spatial Option 4** will provide approximately 22,376 homes.
- **Spatial Option 5** will provide only approximately 21,626 over the plan period.
- **Spatial Option 6** will provide just 7,320 homes over the plan period.

F.4 Spatial Options 1-5 are expected to have significant positive effects in relation to IIA objective 1 and will deliver some degree of housing in the most deprived areas of Thurrock in terms of ‘Barriers to Housing’. As such, the higher growth options are considered to perform best from a housing perspective. Spatial Option 6 will enable only the least amount of housing to be built resulting in less investment in affordable homes.

IIA objective 2: Health, wellbeing and safety

Table F.2: Assessment of spatial options for IIA objective 2

Spatial Option	Spatial Option 1	Spatial Option 2	Spatial Option 3	Spatial Option 4	Spatial Option 5	Spatial Option 6
Rank	1	1	4	2	2	3
Significant effects?	Yes	Yes	Yes	Yes	Yes	Yes

F.5 A key consideration for this sustainability objective is to provide accessibility to high quality health facilities, access to open space, access to healthy food options and opportunities for physical activity and outdoor recreation including outdoor recreation. Consideration is also given to outcomes that can help to minimise exposure to areas of pollution (air, noise, vibration, odour, contamination).

- **Spatial Option 1** locates development in proximity of good public transport links, generally ensuring good access to existing healthcare services (e.g. GP surgeries and health centres). Additionally, these areas (e.g. West Thurrock, East Tilbury, Purfleet-on-Thames, Grays) are identified as being the most deprived with regards to the availability of greenspace. The scale of development in these locations is likely to

provide new green/recreational spaces. Proximity to services/transport connections may also encourage active travel.

- **Spatial Option 2** locates development in proximity of existing services, ensuring good access to healthcare facilities. As with Spatial Option 1, a lack of greenspace is identified as a key issue in the borough's urban areas, however the scale of development proposed is likely to provide new green/recreational spaces. Proximity to services/transport connections may also encourage active travel.
- **Spatial Option 3** locates a 'high' quantum of development at the settlement edges of smaller villages, with poorer access to existing healthcare facilities. Existing access to open space/the wider countryside is generally good and 'high' growth areas may result in new healthcare facilities/open space.
- **Spatial Option 4** will likely provide for the development of new healthcare facilities, such as a GP surgery, and new green/recreational spaces as part of the development of a new town. These areas also benefit from existing access to open space/the wider countryside.
- **Spatial Option 5** will likely provide for the development of new healthcare facilities, such as a GP surgery, and new green/recreational spaces as part of the development of two new towns. These areas also benefit from existing access to open space/the wider countryside.
- **Spatial Option 6** ensures new development has generally good access to existing healthcare facilities however is not expected to be of the scale to provide a significant number of new facilities. Additionally, lack of access to greenspace is a key issue in the borough's urban areas. Proximity to services/transport connections may also encourage active travel.

IIA objective 3: Community cohesion

Table F.3: Assessment of spatial options for IIA objective 3

Spatial Option	Spatial Option 1	Spatial Option 2	Spatial Option 3	Spatial Option 4	Spatial Option 5	Spatial Option 6
Rank	1	1	3	2	3	2
Significant effects?	Yes	Yes	Yes	No	Yes	No

F.6 Key issues of concern for this sustainability objective relate to the delivery of cohesive neighbourhoods with high level of pedestrian activity/outdoor interaction, and ensuring new development facilitates the integration of new communities with existing communities. Additionally, there is also a need to provide improved access/supply of community facilities in areas where there is demand.

- **Spatial Option 1** locates 'high' growth in more established settlements, nearby existing public transport links. These larger settlements are likely to be areas of the borough with community networks most resilient to change and which are sustainable, and where equitable access to community services/facilities is likely. These factors are also likely to encourage higher pedestrian activity/outdoor interaction. The scale of development in these areas is also likely to improve/increase the services and facilities on offer locally.
- **Spatial Option 2** locates 'high' growth in areas with existing access to services and facilities. These areas of the borough are likely to have established community networks most resilient to change and have access to nearby community services/facilities. This will ensure easy and equitable access and will help to encourage higher levels of pedestrian activity/outdoor interaction.
- **Spatial Option 3** gives rise to some concerns about focusing 'high' growth at smaller rural settlement. The scale of growth in comparison to the size of existing settlements is likely to disrupt existing community networks.
- **Spatial Option 4** involves the development of a new town at West Horndon, which may take time to establish and may present challenges in terms of establishing a sense of community and fitting cohesively with the existing village. However, this option also incorporates 'medium' growth within the larger settlements of the borough.
- **Spatial Option 5** will involve the establishment of two new settlements at West Horndon and North Stanford, which may present challenges for establishing a sense of community. 'Low' growth is proposed everywhere else, including the most established settlements of the borough.
- **Spatial Option 6** limits development largely to existing urban areas which are likely to have established community networks most resilient to change and have access to nearby community services/facilities. However, there will be less investment in affordable homes that will affect negatively equalities, and there will be less investment in infrastructure and facilities.

IIA objective 4: Access to services and facilities

Table F.4: Assessment of spatial options for IIA objective 4

Spatial Option	Spatial Option 1	Spatial Option 2	Spatial Option 3	Spatial Option 4	Spatial Option 5	Spatial Option 6
Rank	2	1	5	3	4	3
Significant effects?	Yes	Yes	Yes	Yes	Yes	No

F.7 The Local Plan could address this IIA objective by reducing the need to travel to access essential services and facilities by sustainably locating new development. Additionally, new services and facilities could be provided close to new and growing communities.

- **Spatial Option 1** locates high growth in settlements with existing good public transport connections which will likely ensure good access to services/facilities. However, development on settlement edges may face some barriers. Overall, the scale of development proposed in these locations is likely to be of a scale necessary to provide new services to meet the needs of residents.
- **Spatial Option 2** has the main focus of locating development in settlements with existing access to services and facilities. Additionally, the scale of development proposed in all 'high' growth locations would result in the provision of new services and facilities across the borough.
- **Spatial Option 3** would locate 'high' growth in the borough's smaller towns and villages, leading to development more remote from local centres and away from existing services/facilities. Development may incorporate some limited new services/facilities however this is likely to be more challenging with smaller scale of growth across a wider number of settlements.
- **Spatial Option 4** will likely incorporate new services/facilities into the development of West Horndon new town. However, the new town will still be remote from larger local centres and residents may still be required to travel to other settlements to meet majority of their needs.
- **Spatial Option 5** will also likely to provide new services/facilities into the development of the West Horndon and North Stifford new towns. However, these new areas will still be remote from larger local centres and residents

may still be required to travel to other settlements to meet majority of their needs.

- **Spatial Option 6** will ensure new development is generally located in areas with good existing access to services and facilities. However, the scale of development proposed overall is unlikely to bring additional services and facilities to other areas of the Borough which are lacking. There will be less investment in infrastructure and facilities.

IIA objective 5: Equalities

Table F.5: Assessment of spatial options for IIA objective 5

Spatial Option	Spatial Option 1	Spatial Option 2	Spatial Option 3	Spatial Option 4	Spatial Option 5	Spatial Option 6
Rank	1	2	4	3	3	2
Significant effects?	No	No	Yes	No	No	No

F.8 The Local Plan could help remove or reduce disadvantages suffered by people due to their protected characteristics by promoting inclusive design and accessibility for people with limited mobility, neurodiversity and disabilities.

- **Spatial Option 1** locates development nearby existing public transport connections (and existing services and facilities) which is likely to make it easier for people less mobile, including elderly and disabled people to access services. Well-serviced areas are also likely to ensure better access to community facilities e.g. faith groups.
- **Spatial Option 2** performs similarly to Spatial Option 1, however ‘high’ growth areas include areas that lack existing public transport connections. Therefore, Option 1 is considered to perform better.
- **Spatial Option 3** results in significant adverse effects as development in smaller settlements will likely mean residents have to travel longer distance to access services/facilities/support. Additionally, public transport connectivity is poorer than Spatial Options 1 and 2.
- **Spatial Option 4** and **Spatial Option 5** perform similarly with regard to IIA objective 5. It is likely that the development of new towns will result in the provision of public transport links and community facilities, ensuring easier

access for all groups. However, physical barriers to existing settlements (such as the A13) are likely to limit access to existing services.

- **Spatial Option 6** locates development nearby existing public transport connections (and existing services and facilities) which is likely to make it easier for people less mobile, including elderly and disabled people to access services. Well-serviced areas are also likely to ensure better access to community facilities e.g. faith groups. However, the scale of development proposed is likely to result in less affordable housing in the Borough.

IIA objective 6: Education and skills

Table F.6: Assessment of spatial options for IIA objective 6

Spatial Option	Spatial Option 1	Spatial Option 2	Spatial Option 3	Spatial Option 4	Spatial Option 5	Spatial Option 6
Rank	1	1	5	2	3	4
Significant effects?	Yes	Yes	Yes	Yes	Yes	No

F.9 The Local Plan should ensure that it provides for educational and skill development opportunities and educational infrastructure is easily accessible.

- **Spatial Option 1** locates ‘high’ growth in well-connected settlements, which generally have good access to existing educational facilities. The scale of growth is also likely to deliver additional educational facilities.
- **Spatial Option 2** locates ‘high’ growth across settlements with existing services and facilities. These generally have good access to existing schools and the scale of growth is likely to result in additional provision of educational facilities.
- **Spatial Option 3** would focus development at the borough’s smaller villages, which generally have poorer access to existing educational facilities. The smaller and more dispersed scale of development could result in new primary educational facilities in some locations, although it would be unlikely to support new secondary facilities. When compared with Strategic Options 4 and 5, which focus ‘high’ growth at one or two key sites which would more likely incorporate education provision, Option 3 is considered to perform worse.

- The scale of focused development in **Spatial Option 4** at West Horndon (7,000 homes) focuses development at one strategic location, which is likely to result in the potential provision of new primary and secondary facilities, ensuring good local access for new residents. 'Medium' growth is proposed in Thurrock's urban areas, which have good existing access to schools.
- **Spatial Option 5** also delivers strategic development at West Horndon (7,000 homes) and North Stifford (4,000 homes) which are likely to result in the provision of new primary and secondary facilities, ensuring good local access. 'Low' growth is proposed in all other locations, including areas with existing good access to education.
- **Spatial Option 6** would ensure that new development is generally located in close proximity of existing schools, within urban areas. However, the scale of overall development proposed is unlikely to offer significant additional provision of new educational facilities throughout Thurrock.

IIA objective 7: Economy and employment

Table F.7: Assessment of spatial options for IIA objective 7

Spatial Option	Spatial Option 1	Spatial Option 2	Spatial Option 3	Spatial Option 4	Spatial Option 5	Spatial Option 6
Rank	2	1	4	3	3	3
Significant effects?	Yes	Yes	Yes	Yes	Yes	Yes

F.10 Thurrock is a borough with a high potential for future growth due to its strategic location, transport connections and land assets. Primary industries within the borough are transportation and storage, and wholesale and retail trade. The Local Plan offers the opportunity to locate new housing development in accessible locations for employment opportunities, incorporate new employment land and focus development to help enhance the economic viability and vitality of Thurrock's town centres.

- **Spatial Option 1** performs well for this IIA objective as access to existing transport links will ensure access to employment opportunities. Additionally, locating development within existing urban settlements will help promote their economic viability and vibrancy.

- **Spatial Option 2** performs best against IIA objective 7, with the highest quantum of development proposed at larger settlements with existing services/facilities and employment areas. This option is likely to best support the economic viability and vibrancy of these urban centres.
- **Spatial Option 3** performs worst for this IIA objective. Significant adverse effects are expected as a large amount of development will be spread across a number of smaller towns/villages where employment opportunities are more distant. Additionally, large village expansion is unlikely to support the economic viability of the borough's urban centres.
- **Spatial Option 4** performs worse than Options 1 and 2. The development of a new town will likely create some new local employment opportunities, however new residents will still likely need to travel to the south of the borough/other areas for work.
- **Spatial Option 5** performs similarly to Spatial Option 4 as it involves the development of new towns which may deliver some new employment opportunities in other areas of the borough. These options are less likely to support the economic viability and vitality of the borough's existing urban centres.
- **Spatial Option 6** performs well for this IIA objective as access to existing transport links will ensure access to employment opportunities. Additionally, locating development within existing urban settlements will help promote their economic viability and vibrancy however the scale of new development proposed is less likely to do so than other options.

IIA objective 8: Transport

Table F.8: Assessment of spatial options for IIA objective 8

Spatial Option	Spatial Option 1	Spatial Option 2	Spatial Option 3	Spatial Option 4	Spatial Option 5	Spatial Option 6
Rank	1	2	5	3	4	2
Significant effects?	Yes	Yes	Yes	Yes	Yes	Yes
					Yes	

F.11 Thurrock suffers from high levels of car dependency and a congested road network. It has fragmented a walking and cycling network which provides

barriers to active travel. The Local Plan provides the opportunity to locate development to prioritise opportunities for sustainable transport.

- **Spatial Option 1** has the central aim of locating new development in locations with existing public transport provision. As such, this option is considered to be perform best for improving opportunities for public transport, as well as walking and cycling.
- **Spatial Option 2** performs similarly to Option 1, as development is largely focused at larger existing settlements. However, Option 2 will locate additional development at a number of towns with poorer existing connectivity. Consequently, the option does not perform as well.
- **Spatial Option 3** performs least well. This option will lead to more distributed patterns of development at smaller towns and villages which have poorer existing public transport services and would likely require car dependency to reach many services/facilities.
- **Spatial Option 4** would involve the development a large new town at New Horndon which has an existing train station and would likely incorporate the provision of new services/facilities locally, providing opportunities for walking/cycling.
- **Spatial Option 5** will perform similarly to Spatial Option 4, with a large quantum of new development located within new towns. However, while there is an existing train station at West Horndon, there is not at North Stanford. These new town developments are likely to incorporate services/facilities however are still considered to perform less well than locating most new development within existing larger settlements.
- **Spatial Option 6** would direct new development to locations with existing public transport provision. However, the small scale of development proposed may result in a higher commuter trend.

IIA objective 9: Air quality

Table F.9: Assessment of spatial options for IIA objective 9

Spatial Option	Spatial Option 1	Spatial Option 2	Spatial Option 3	Spatial Option 4	Spatial Option 5	Spatial Option 6
Rank	1	2	4	2	3	2
	Yes	Yes	Yes	Yes	Yes	Yes

Spatial Option	Spatial Option 1	Spatial Option 2	Spatial Option 3	Spatial Option 4	Spatial Option 5	Spatial Option 6
Significant effects?	Yes	Yes			Yes	Yes

F.12 There are 18 AQMAs within Thurrock, primarily designated due to road traffic emissions. The Local Plan has the opportunity to locate development sustainably (with access to services/sustainable travel modes) and seek to avoid exacerbating existing air quality issues in the borough's more congested areas.

- **Spatial Option 1** is considered to perform well against IIA objective 9 as it focuses on locating development in settlements with existing public transport connectivity. Whilst locating a high quantum of development in areas with existing air quality issues, this Option is likely to offer the greatest opportunity for reducing the need to travel, thereby helping to minimise the generation of further emissions.
- **Spatial Option 2** performs worse than Spatial Option 1 as this option proposes a higher quantum of development than Option 1, some of which is located in settlements with poorer existing public transport connectivity. As such, it is more likely to exacerbate air quality issues within more congested areas of the borough.
- **Spatial Option 3** performs worst against this IIA objective. A high quantum of development distributed across a number of smaller towns/villages is likely to encourage car dependency and increase pressure on the local and strategic road network (e.g. the A13 AQMA).
- **Spatial Option 4** is considered to provide new towns of a scale capable of delivering services/facilities and new public transport infrastructure. However, locations away from existing settlements within the borough will likely encourage some car dependency and may increase pressure on roads (e.g. A13 AQMA).
- **Spatial Option 5** performs similarly to Option 4, however the additional new town at North Stanford is also located in close proximity to the A13 AQMA and there is not an existing rail connection servicing this new town.
- **Spatial Option 6** proposes the lowest quantum of growth focused within Thurrock's existing urban areas with good existing public transport connectivity and local services, reducing need overall to travel by private vehicle. However, the location of new development may exacerbate air

quality issues within AQMAs. Furthermore, the small scale of growth proposed may result in a higher commuter trend that will likely encourage some car dependency and may increase pressure on roads.

IIA objective 10: Soils

Table F.10: Assessment of spatial options for IIA objective 10

Spatial Option	Spatial Option 1	Spatial Option 2	Spatial Option 3	Spatial Option 4	Spatial Option 5	Spatial Option 6
Rank	2	3	6	5	4	1
Significant effects?	Yes	Yes	Yes	Yes	Yes	Yes
	Yes	Yes				

F.13 The Local Plan should aim to help maintain Thurrock's soil resources by avoiding the best and most versatile agricultural land, and prioritising development of brownfield/previously developed land over greenfield land. The Agricultural Land Classification (ALC) system classifies soils and Grades 1, 2 and 3a are identified by NPPF as being the best and most versatile. Datasets for ALC do not distinguish between grade 3a and grade 3 and therefore there is some limitation in the assessment conclusions. From the information provided by the proposed Spatial Options, a comparative assessment of the Options has been carried out based on the overall quantum of development and the ALC rating in proposed broad locations.

- **Spatial Option 1** performs well as it would involve the second least amount of land-take and primarily locates development at brownfield/infill sites within existing urban areas. However, there would still be significant loss of greenfield land, including the best and most versatile agricultural land (e.g. around East Tilbury).
- **Spatial Option 2** would result in the additional loss of the best and most versatile agricultural land, over and above Option 1. The option will focus a high level of growth within existing built-up areas. However, in addition to the Option 1 'high growth' areas, high growth would also take place at Aveley, Chadwell St. Mary and Corringham resulting in the loss of the some most productive prime agricultural land in the borough (Grade 1, south of Aveley), as well as high quality agricultural land around Chadwell St. Mary (Grade 2) and potentially Corringham (Grade 3).

- **Spatial Option 3** would result in additional loss of agricultural land, over and above Option 1. Development is located in more rural areas of the borough and would result in significant land take around Fobbing (Grade 3), Horndon on the Hill (Grade 2/3), Orsett (Grade 2), Bulphan (Grade 3), North Stifford (Grade 2) and Aveley (Grade 1).
- **Spatial Option 4** would result in significant loss of agricultural land at West Horndon, which could be the best and most versatile agricultural land (Grade 3) and ‘medium’ growth at Aveley (Grade 1), Chadwell St. Mary, (Grade 2) and Corringham (Grade 3).
- **Spatial Option 5** proposed low growth in all locations other than West Horndon and North Stanford (largely Grade 3), resulting in significant land take which could be best and most versatile soils. It avoids some areas of better quality agricultural soils included in Spatial Option 4 (e.g. at Aveley).
- **Spatial Option 6** performs best against IIA objective 10 as it proposes the least amount of land take out of all of the spatial options, resulting in a smaller quantum of development overall. New development will generally be located within existing urban areas.

F.14 In summary, it is clear that Spatial Option 6 performs best against this objective. The option focuses the majority of development within the existing urban areas of Thurrock and has the least amount of land-take. For Spatial Option 1, there would still be some loss of the best and most versatile agricultural land. For Options 3, 4 and 5, the degree of impact generally increases in-line with the quantum of growth, as each option locates development within high-quality soil areas. While Spatial Option 2 has the highest quantum of growth, a large portion of this is located within the existing urban area or non-agricultural land.

IIA objective 11: Resource consumption and waste

Table F.11: Assessment of spatial options for IIA objective 11

Spatial Option	Spatial Option 1	Spatial Option 2	Spatial Option 3	Spatial Option 4	Spatial Option 5	Spatial Option 6
Rank	2	3	6	5	4	

Spatial Option	Spatial Option 1	Spatial Option 2	Spatial Option 3	Spatial Option 4	Spatial Option 5	Spatial Option 6
Significant effects?	No	No	Yes	Yes	Yes	Yes

F.15 The Local Plan spatial strategy has the opportunity to help minimise the consumption of resources by integrating new development with existing infrastructure, encouraging efficient use of resources and safeguarding mineral resources within the borough. All options propose some levels of growth on/near existing landfill sites and it is unknown how development will affect the operation / capacity of these waste facilities.

- **Spatial Option 1** performs well against this IIA objective as it locates a high quantum of development within existing well-connected settlements, which is likely to limit the consumption of additional resources required for new infrastructure. It is also likely to make good use of large areas of brownfield/contaminated land in Thurrock's urban areas.
- **Spatial Option 2** performs worse than Spatial Option 1 as it proposes a higher quantum of development and will therefore require greater use of resources, including land. However, it will also ensure efficient use of existing infrastructure by locating new development primarily within established urban areas.
- **Spatial Option 3** performs worse than Options 1 and 2 as it will result in large areas of greenfield land being developed and will not make the best use of existing infrastructure within the borough, including transport infrastructure.
- **Spatial Option 4** performs similarly to Option 3 as it will result in significant use of greenfield land, will require significant use of resources for new town infrastructure and will locate significant development near existing waste sites. However, it will deliver an overall lower quantum of growth than Option 3 and therefore require less resource consumption.
- **Spatial Option 5** performs similarly to Option 3 and 4 as it will result in significant use of greenfield land resources and require significant resources for new town infrastructure. It also will deliver a lower quantum of growth than Options 3 and 4.
- **Spatial Option 6** performs best against this IIA objective as it proposes the smallest quantum of development overall, resulting less consumption of resources. Additionally, new development is generally proposed within

existing settlements enabling use of existing infrastructure and re-use of brownfield land.

IIA objective 12: Water resources and quality

Table F.12: Assessment of spatial options for IIA objective 12

Spatial Option	Spatial Option 1	Spatial Option 2	Spatial Option 3	Spatial Option 4	Spatial Option 5	Spatial Option 6
Rank	2	3	4	4	4	
Significant effects?	No	No	No	No	No	No

F.16 Thurrock contains a number of waterbodies failing to meet the WFD objective of ‘good’ ecological and chemical status. Thurrock’s groundwater status is generally poor. The Local Plan spatial strategy provides opportunities to take into account the sensitivity of the water environments. All Spatial Options will locate development in proximity of watercourses, including the River Thames, Mardyke and other smaller watercourses; these could be adversely affected by development (through culverting or contaminated surface water runoff). As all options propose high growth in proximity of existing watercourses, it is difficult to determine effects on water quality.

- **Spatial Option 1** performs slightly better than four other Spatial Options. As identified in detailed appraisals, contaminated runoff may be lessened as a higher quantum of development is located within/in close proximity to existing urban areas.
- **Spatial Option 2** performs slightly worse than Option 1 as it will result in a higher quantum of growth overall.
- **Spatial Option 3, Spatial Option 4, and Spatial Option 5** are therefore considered to perform less well as they located higher growth outside of/further from existing urban areas.
- **Spatial Option 6** performs best for this IIA objective 12, as it proposes to smallest quantum of growth overall and therefore reduces the potential for adverse effects on the water environment.

IIA objective 13: Climate change and energy

Table F.13: Assessment of spatial options for IIA objective 13

Spatial Option	Spatial Option 1	Spatial Option 2	Spatial Option 3	Spatial Option 4	Spatial Option 5	Spatial Option 6
Rank	1	2	5	3	4	2
Significant effects?	Yes	Yes	Yes	Yes	Yes	Yes
					Yes	

F.17 The Local Plan spatial strategy has the opportunity to help reduce journeys by private vehicles within Thurrock, as transport is the largest contributor to carbon dioxide emissions for the borough. As such, the ranking of Spatial Options aligns with the assessment provided against IIA objective 8.

- **Spatial Option 1** has the central aim of locating new development in locations with existing public transport provision. As such, this option is considered to perform the well for improving opportunities for public transport, as well as walking and cycling.
- **Spatial Option 2** performs similarly to Option 1, as development is largely focused at larger existing settlements. However, Option 2 will locate additional development at a number of towns with poorer existing connectivity. The option, consequently, does not perform as well.
- **Spatial Option 3** performs least well. This option will lead to more distributed patterns of development at smaller towns and villages which have poorer existing public transport services and would likely result in higher car dependency to reach many services/facilities.
- **Spatial Option 4** would involve the development of a large new town at New Horndon which has an existing train station and would likely incorporate the provision of new services/facilities locally, providing opportunities for walking/cycling and public transport use.
- **Spatial Option 5** will perform similarly to Spatial Option 4, with a large quantum of new development being located within new towns. However, while there is an existing train station at West Horndon, there is not at North Stanford. These new town developments are likely to incorporate services/facilities however are still considered to perform less well than locating most new development within existing larger settlements.

- **Spatial Option 6** locates new development in locations with existing public transport and service provision, encouraging sustainable travel. However, the small quantum of growth proposed may result in a higher commuter trend that will likely encourage some car dependency, although this is uncertain.

F.18 Overall, it is considered that Spatial Option 6 provides the greatest potential for reducing transport-related greenhouse gas emissions within Thurrock.

IIA objective 14: Flood risk

Table F.14: Assessment of spatial options for IIA objective 14

Spatial Option	Spatial Option 1	Spatial Option 2	Spatial Option 3	Spatial Option 4	Spatial Option 5	Spatial Option 6
Rank	2	3	3	4	4	1
Significant effects?	Yes	Yes	Yes	Yes	Yes	No

F.19 The effects of climate change are likely to result in extreme weather events becoming more common and intense. For Thurrock, a key concern is increasing flood risk, especially in the urbanised south of the borough by the River Thames. Significant adverse effects are expected for all five spatial options.

- **Spatial Option 1** results in the prioritisation of existing urban areas for development, likely resulting in less greenfield land take than four of the other options. However, 'high' growth is primarily located in the south of the borough (Flood Zones 2/3). These areas benefit from flood defences but risk may increase with climate change.
- **Spatial Option 2** performs worse than Spatial Option 1 as it proposes a higher quantum of growth, thereby potentially increasing impermeable surfaces within Thurrock.
- **Spatial Option 3** generally locates 'high' growth away from areas of the borough within Flood Zones 2/3. However this is likely to result in significant agricultural land take and increase impermeable surfaces in the borough.

- **Spatial Option 4** performs worse than Option 1,2 and 3 as areas comprising the development of the new town (7,000 homes) will be located within Flood Zone 2/3 and these areas do not benefit from flood defences.
- **Spatial Option 5** performs similarly to Spatial Option, as it includes the development of the new town at West Horndon and significant greenfield land take.
- **Spatial Option 6** results in the least amount of greenfield land take as it proposes the smallest quantum of development overall. However, development is primarily located in the south of the borough (Flood Zones 2/3). These areas benefit from flood defences, but risk may increase with climate change.

IIA objective 15: Biodiversity and geodiversity

Table F.15: Assessment of spatial options for IIA objective 15

Spatial Option	Spatial Option 1	Spatial Option 2	Spatial Option 3	Spatial Option 4	Spatial Option 5	Spatial Option 6
Rank	4	5	3	1	2	2
Significant effects?	Yes	Yes	Yes	Yes	Yes	No

F.20 Thurrock contains a number of sites of high ecological value, including international and national designations. In addition to designated sites, the overall ecological network is important for biodiversity as a whole and fragmentation and erosion of habitats and the Nature Recovery Network is an ongoing threat to biodiversity.

- **Spatial Option 1** locates a high quantum of growth at East Tilbury, which would extend in close proximity to the Thames Estuary and Marshes Ramsar Site/SSSI/SPA, leading to potential disturbance and damage. Additionally, a high quantum of growth is proposed for Purfleet, West Thurrock, Grays/Chafford Hundred where there are a number of designated sites (e.g. Inner Thames Marshes SSSI, West Thurrock Lagoon and Marshes SSSI, Purfleet Chalk SSSI, Grays Thurrock Chalk Pit SSSI). However, this option primarily focuses development in the borough's more urban areas, potentially helping to protect wildlife in the rural areas of Thurrock as rural areas are generally more biodiverse.

However, the intense development of urban land may have less scope to build in biodiversity mitigation measures.

- **Spatial Option 2** proposes an additional quantum of growth, including and in addition to Spatial Option 1. In addition to the above sensitivities, this option will also result in development on the settlement edges of Aveley, Chadwell St. Mary and Corringham leading significant additional land take and associated potential disturbance to habitats and species.
- **Spatial Option 3** locates 'high' growth in more rural areas of the borough which, while not in close proximity to any designated sites, significant land-take in the rural areas will likely result in loss of biodiversity. 'High growth' at Langdon Hills could adversely affect Northlands Wood/Langdon Ridge SSSI and development south of Southfields could impact Local Wildlife Sites. Additionally, for Spatial Option 3, 'medium' growth is still proposed in Thurrock's urban areas, where majority of internationally designated sites are located.
- **Spatial Option 4** incorporates the new town at West Horndon which will result in significant rural land take and likely have adverse effects on biodiversity, however this is uncertain as some agricultural land may have limited biodiversity value. 'Medium' growth is still proposed in Thurrock's urban areas in the south, closer to several internationally designated sites. More strategic, large-scale development (such as the creation of new towns) may offer greater potential to incorporate significant biodiversity mitigation measures than other Spatial Options.
- **Spatial Option 5.** The new town at North Stanford would be located in close proximity to Northlands Wood/Langdon Ridge SSSI which may cause potential disturbance and damage. This Option therefore performs slightly worse than Spatial Option 4.
- **Spatial Option 6** performs well overall as it proposes the lowest quantum of development. However, this also reduces opportunities to incorporate significant biodiversity enhancement within new development. The intense development of urban land may have less scope to build in biodiversity mitigation measures.

F.21 Overall, all options are likely to have significant adverse effects on biodiversity as development will be located throughout the borough, with potential disturbance and damage at a number of designated sites. Additionally, land take may result in adverse effects for biodiversity. As all options proposed development in proximity of designated sites, ranking is largely based on the

quantum of land take and quantum of development in close proximity of designated sites.

IIA objective 16: Historic environment

Table F.16: Assessment of spatial options for IIA objective 16

Spatial Option	Spatial Option 1	Spatial Option 2	Spatial Option 3	Spatial Option 4	Spatial Option 5	Spatial Option 6
Rank	5	6	4	3	2	
Significant effects?	Yes	Yes	Yes	Yes	Yes	No

F.22 There are many designated and undesignated assets heritage assets within Thurrock which could be adversely impacted by poorly-located development.

F.23 Each Spatial Option proposes new development in areas with varying sensitivities, including proximity to conservation areas, scheduled monuments, listed buildings, and other assets. Uncertain significant negative effects are identified for five Spatial Options as the precise effects of new development on the historic environment will be influenced by the design of new proposals and exact location of new development.

- **Spatial Option 1** performs less well than other Options as it locates a high quantum of growth at East Tilbury and Linford, which may be likely to have adverse effects on both East Tilbury Conservation Area and the nearby Coalhouse For which are both Heritage at Risk.
- **Spatial Option 2** performs slightly worse than Option 1 as it locates development in similar areas, but proposes a higher quantum of growth overall. As such, in addition to the effects set out against Option1, he location of additional development east of Chadwell St. Mary will likely affect West Tilbury Conservation Area and east of Corringham may adversely affect Fobbing Conservation Area.
- **Spatial Option 3** performs as there are a number of heritage assets within Thurrock’s smaller towns and villages (e.g. scheduled monuments around Orsett; Conservation Areas at Orsett and Horndon on the Hill) which may be adversely affected by high growth in these areas.

- **Spatial Option 4** performs well as there are few heritage assets, with the exception of some listed buildings, located in the proposed area for West Horndon new town.
- **Spatial Option 5** performs similarly to Spatial Option 4 as there are also few heritage assets at North Stanford. This Option also proposes low growth in all other locations, limiting adverse effects on historic assets in other areas of the borough. Therefore, it is considered to perform best for this IIA objective.
- **Spatial Option 6** performs best as it proposes the lowest quantum of growth overall, limiting opportunity for adverse effects on the historic environment.

IIA objective 17: Landscape, townscape and visual impacts

Table F.17: Assessment of spatial options for IIA objective 17

Spatial Option	Spatial Option 1	Spatial Option 2	Spatial Option 3	Spatial Option 4	Spatial Option 5	Spatial Option 6
Rank	2	3	5	4	4	1
Significant effects?	Yes	Yes	Yes	Yes	Yes	Yes
	Yes	Yes				

F.24 The strategic spatial development of Thurrock should aim to protect the borough's varied landscape, townscapes and seascapes and enhance the local character. The Local Plan needs to ensure the scale, density and location of new strategic allocations are in keeping with important and valued features of the local landscape/townscape. Additionally, the Local Plan should aim to encourage landscape enhancements to existing urban areas and reduce the amount of derelict/degraded/underused land in the borough.

- **Spatial Option 1** focuses a significant amount of growth within existing urban areas and will likely involve significant urban regeneration, improving local townscapes and limiting impacts on the rural landscape. However, some adverse effects are likely in LCAs with a high sensitivity to large scale housing development (e.g. East Tilbury, Stanford-le-Hope, West Horndon).

- **Spatial Option 2** will have similar effects to Spatial Option 1 however has a higher quantum of development than Option 1, with additional ‘high growth’ areas on the settlement edges of Aveley, Chadwell St. Mary, and Corringham and therefore may have adverse effects on the landscape character of these settlements.
- **Spatial Option 3** performs less well than Options 1 and 2. It focuses ‘high’ growth in rural locations at smaller villages – this piecemeal development is more likely to have adverse effects on the landscape character, particularly as these villages are located in LCAs sensitive to large-scale housing development.
- **Spatial Option 4** focuses the ‘high’ growth at the development of a new town in an area with high/moderate-high sensitivity to large-scale housing development. It will require a high degree of land-take in a presently undisturbed area which could have significant landscape character impacts and contribute to the coalescence of existing settlements. However, there is potential for the incorporation of substantial green infrastructure and landscaping at the new town to help mitigate the adverse effects.
- **Spatial Option 5** gives rise to additional concerns to Option 4 as it proposes the development of a second new town in an area of high / moderate-high sensitivity to large-scale housing development. ‘Low’ growth is proposed for all other areas of the borough, including more urban areas which may benefit from new development and associated urban regeneration. However, there is potential for the incorporation of substantial green infrastructure and landscaping at the new towns to help mitigate the adverse effects.
- **Spatial Option 6** performs best against IIA objective 17 as it proposes the lowest quantum of development overall and generally avoids large-scale growth within the Borough’s more sensitive rural areas and at the urban edge. Meanwhile, it offers opportunity to improve local townscapes through urban regeneration.

F.25 In summary, five options are likely to result in significant adverse effects for Thurrock’s landscape due to the quantum of development that must be accommodated. Spatial Options 1 and 2 offer greater opportunity for regeneration and enhancement within existing urban areas by focusing ‘high’ growth in these areas and minimising development in the borough’s more rural landscapes. Spatial Option 1 performs best as Option 2 requires additional land-take. It is considered that Spatial Option 3 would encourage more piecemeal encroachment of development across Thurrock, and Options 4 and 5

(new towns) could allow a more strategic approach to landscape protection and enhancement via provision of green infrastructure and landscape mitigation. Spatial Option 6 performs best as it proposes the lowest quantum of growth, limiting adverse effects on local landscape while still offering opportunities for urban regeneration and enhancing local townscapes.

Appendix G

IIA of the Initial Proposals settlement options

Grays Conurbation

Table G.1: Appraisal findings for Grays Conurbation

IIA objective	Grays Initial Proposal	Grays Reasonable Alternative
1: Housing	++	++
2: Health, wellbeing and safety	++/--	++/--
3: Community cohesion	++/-?	++/-?
4: Access to services and facilities	++/-	++/-
5: Equalities	+/-?	+/-?
6: Education and skills	++	++
7: Economy and employment	++	++
8: Transport	++/--	++/--
9: Air quality	++/--	++/--
10: Soils	++/--	++/--
11: Resource consumption and waste	++/--?	++/--?
12: Water resources and quality	--?	--?
13: Climate change and energy	+/-?	+/-?
14: Flood risk	--?	--?
15: Biodiversity and geodiversity	--/+	--/+
16: Historic environment	--?	--?
17: Landscape, townscape and visual impacts	++/--?	++/--?

Initial Proposal (Option 1)

G.1 A significant positive effect is identified in relation to IIA objective 1:

Housing. The Initial Proposal for the Grays Conurbation would include 750-1000 new homes in potential new neighbourhoods to the north of the

settlement, 1000-1,500 new homes within Grays and 500-750 new homes within the Lakeside opportunity area. The majority of Grays is located within the 30% most deprived in terms of 'Barriers to Housing and Services' in the IMD2019, including West Thurrock (Lakeside) which is within the top 20% and south Grays which is within the top 10%. It is assumed that the scale of new development would deliver an appropriate range of housing in terms of sizes, tenures and affordability.

G.2 An overall mixed effect (significant positive / significant negative) is identified in relation to IIA objective **2: Health, wellbeing and safety**. Urban intensification would support the development of a compact settlement, encouraging active modes of travel to meet daily needs. Grays was identified by Friends of the Earth as the most deprived of greenspace in the Borough and no new local greenspaces are identified for the Initial Proposal. Reprovision of sports playing pitches and any lost open space is included in the Proposal. There are existing health centres within Grays however 'new neighbourhood' development at the settlement edges may be further than a reasonable walk to these facilities. Grays Town Centre Opportunity Area would likely include additional new health facilities. The Grays conurbation is the Borough's most urbanised area, with the highest levels of traffic congestion and associated air/noise/light pollution.

G.3 Overall mixed effects (significant positive / minor negative) are identified for Grays conurbation in relation to IIA objective **3: Community cohesion** and IIA objective **4: Access to services and facilities**. The scale of growth proposed within the Grays conurbation focuses urban intensification and new development at the Borough's largest settlement, promoting development of a compact settlement and ensuring good local access to essential services, facilities, and public transport connections. However, development at the settlement edge may be further than a reasonable walk to some services/facilities. The larger size and more established nature of the settlement is likely to mean these are areas of the Borough at which community networks are most resilient to change. Regeneration and development will ensure easy and equitable access to sustainable modes of transport which is likely to encourage associated higher levels of pedestrian/outdoor interaction and encourage neighbourhoods where people mix. Areas in and around West Thurrock (including Lakeside) and Grays are all located within the 30% most deprived areas for overall deprivation in the IMD2019. The delivery of a high quantum of development in these locations is likely to support new service provision and is also likely to help address deprivation in the plan area.

G.4 An uncertain mixed effect (minor positive / minor negative) is identified in relation to IIA objective **5: Equalities**. New development would be located within the Grays conurbation, one of the Borough's larger settlements, with existing public transport links is likely to be located close to services, facilities and accessible links, and therefore focusing development to these areas could make it easier for less mobile people, including elderly and disabled people, to access services and facilities. However, this area is also located in the south of Thurrock, with high levels of traffic congestion and air pollution which could affect people more vulnerable to air pollution, including younger and older people, people with cardiovascular or respiratory illnesses and pregnant women.

G.5 An overall significant positive effect is identified in relation to IIA objective **6: Education and skills**. There are existing primary and secondary educational facilities throughout the settlement. New neighbourhoods in the north, the Grays Town Centre and Lakeside Basin Opportunity Areas would incorporate three new primary schools (and potential onsite SEN). There is an identified need for additional/enhanced adult learning facilities within Grays Town Centre which may be incorporated into proposals, however this is uncertain.

G.6 The majority of existing employment sites are located within the south-west of the settlement, ensuring good access to local jobs for new residents. Most existing employment sites would continue to be safeguarded and an additional 52ha of employment site is identified (Arena Essex T02). Grays Town Centre and Lakeside Basin Opportunity Areas would also deliver increased commercial/business/service (Class E) floorspace. Overall, a significant positive effect is identified in relation to IIA objective **7: Economy and employment**.

G.7 An overall mixed effect (significant positive / significant negative) is identified in relation to IIA objective **8: Transport**. Urban redevelopment and intensification will promote a compact settlement and enable more journeys to be undertaken by active travel and public transport. Development of the Grays Town Centre Opportunity Area would include enhancement of the railway station including a new/safer crossing for pedestrians. This would increase the attractiveness and accessibility of sustainable transport modes. However, development of new neighbourhoods in the north of Grays, at the urban edge, could encourage use of private vehicles if not adequately supported by new public transport and active travel connections. Additionally, the scale of development within the Grays Conurbation could exacerbate existing congestion, air and noise pollution issues within the south-west of the borough.

G.8 An overall mixed effect (significant positive / significant negative) is identified in relation to IIA objective **9: Air quality**. Development within the Grays Conurbation focuses development within the largest settlement of the Borough, with existing access to sustainable transport modes (rail and bus network) and local services/facilities. Therefore, urban intensification and development in these areas will likely encourage use of sustainable transport modes, supporting the modal shift away from private vehicle use. However, the Borough's existing AQMAs are located within the Grays Conurbation and surrounding strategic road network and additional development could exacerbate existing air pollution issues.

G.9 An overall mixed effect (significant positive / significant negative) is identified in relation to IIA objective **10: Soils**. The redevelopment and regeneration of Grays Town Centre and the Lakeside Basin supports the use of brownfield urban/non-agricultural land. This supports the more efficient use of land. However, new neighbourhood sites in the north of Grays would fall on Grade 2 agricultural land, resulting in loss of some of the best and most versatile soils in the Borough.

G.10 An overall uncertain mixed effect (significant positive / significant negative) is identified in relation to IIA objective **11: Resource consumption and waste**. Development within the Grays Conurbation would make best use of existing infrastructure and services (e.g., transport) by locating development in the Borough's largest settlement. The Initial Proposal would support the redevelopment of brownfield land in the urban area. However, most of Grays is identified as a 'constrained mineral resource' for sand and gravel, chalk, and clay and shale mineral resources. There are also several designated mineral reserves within the settlement, namely Lion Pit, Grays Thurrock Chalk Pit, and Globe Pit. Furthermore, a large quantity of construction materials would be required for the scale of growth proposed and there would be increased waste produced during the construction and operational lifetime of new homes, from day-to-day living. It is unknown if recycled materials will be promoted for construction and if energy efficiency measures and renewable energy would be promoted as these will be influenced more by policy requirements, therefore the effect is uncertain.

G.11 An uncertain significant negative effect is identified for IIA objective **12: Water resources and quality**. There are two Source Protection Zones within Thurrock, in Linford and North Stifford, however, the entire catchments of these two zones fall within central Thurrock. Therefore, the high quantum of development proposed in Grays Conurbation has the potential to affect the SPZs. Additionally, areas proposed for development are within proximity of the

river Thames or waterbodies that flow into the Thames (Mardyke). Additionally, water dependent SSSIs (West Thurrock Lagoon and Marshes, Grays Chalk Pit) are located within the settlement and could be adversely affected by new development.

G.12 An uncertain mixed effect (minor positive / minor negative) is identified in relation to IIA objective **13: Climate change and energy**. Addressing climate change over the plan period is most likely to be influenced by design measures incorporated in new developments to reduce greenhouse gas emissions and to improve energy efficiency, including the use of renewable or low carbon energy sources in developments, as well as promoting flood resilience which is addressed separately through IIA objective 14. These measures will be achieved through policy requirements in the Local Plan. However, directing most development towards locations with existing bus and rail connections is likely to promote more sustainable travel behaviours which will reduce the need to travel by private vehicle and associated transport-related emissions. Development within the Grays Conurbation will likely promote more sustainable travel behaviours and reduce the need to travel by private vehicle, reducing associated transport-related emissions. However, the scale of new development proposed in Grays Conurbation (up to 3,250 new homes) may also generate traffic and associated emissions.

G.13 An uncertain significant negative effect is identified for IIA objective **14: flood risk**. Areas of south Grays, West Thurrock and Lakeside are located within Flood Zone 3. These areas benefit from flood defences, but risk of flooding may increase with the effects of climate change. There are also notable areas at high risk of surface water flooding and the development of new neighbourhoods on greenfield land to the north of Grays will increase impermeable surfaces and could therefore increase overall flood risk in the area. The location of development does not take into account mitigation such as the incorporation of SuDS, open spaces for flood storage or green infrastructure which is more likely to be influenced by policy requirements.

G.14 An overall mixed effect (significant negative / minor positive) is identified in relation to IIA objective **15: Biodiversity and geodiversity** for the Grays Initial Proposal. There are several designated sites within the Grays Conurbation (Hangman's Wood and Deneholes SSSI, Thurrock Chalk Pit SSSI, Lion Pit SSSI, Globe Pit SSSI, West Thurrock Lagoon and Marshes, and Swanscombe Marine Conservation Area) and a number of Local Wildlife Sites, which could be adversely affected by new development. For example, Arena Essex Local Wildlife Site at Lakeside could be lost to development directly or degraded through urban edge effects. All new development would be located within SSSI

Impact Risk Zones. A minor positive effect is also identified as the Initial Proposal specifies the requirement for 20% biodiversity net gain and improvements to Nutberry Playing Fields (planting, landscaping). The effect is uncertain as it will depend on the exact locations and design/layout of developments, as well as mitigation providing by other plan policies (e.g. Biodiversity Net Gain, green infrastructure policies).

G.15 An uncertain significant negative effect is identified for IIA objective **16: Historic environment**. There is one Scheduled Monument, 'Dene holes in Hangman's Wood', and several Grade II Listed Buildings in the settlement. Development to the north-east of Grays could adversely affect the 'Crop mark complex, Orsett' Scheduled Monument, which is identified as being at risk. Effects are uncertain as they depend on the exact location and design of development.

G.16 An overall uncertain mixed effect (significant negative / significant positive) is identified in relation to IIA objective **17: Landscape, townscape and visual impacts**. The area predominantly lies within Landscape Character Area (LCA) E1: West Thurrock, Lakeside and Purfleet which is of low-moderate sensitivity to large housing development. The Initial Proposal for the Grays Conurbation would involve a high level of urban regeneration, potentially improving the local townscape of the Borough's urban areas and making best use of brownfield land. However, 'new neighbourhood' development areas in the north of Grays are located within LCA H1: East & West Tilbury Open Undulating Farmland, and H2: Orsett & Horndon on the Hill Open Undulating Farmland. Landscape character types H1 and H2 are of high and moderate-high sensitivity to large housing development respectively. The precise effect of new development on landscape character in the plan area will be influenced to a large degree by the design of new proposals and the detailed distribution of new development, resulting in uncertainty.

Reasonable Alternative (Option 2)

G.17 No alternative sites for new neighbourhoods have been identified within the Grays Conurbation. There is one small alternative employment site identified which is within the Lakeside Basin Opportunity Area. The potential effects identified for the initial proposal and their significance remains the same for the reasonable alternative. However, the delivery of an additional employment site will further strengthen the significant positive effect identified for IIA objective **7: Economy and employment**.

Summary of likely significant effects of both options at Grays Conurbation across different strands of sustainability

G.18 Overall, the initial proposal (Option 1) at Grays Conurbation performs the same as the reasonable alternative (Option 2):

- **Economic objectives** (1: Housing, 6: Education and skills, 7: Economy and employment, and 8: Transport)
 - The same effects are identified for the initial proposal and reasonable alternative for the economic objectives, however, the development of the new employment site in Lakeside Basin Opportunity Area as proposed in the reasonable alternative will deliver additional employment opportunities.
- **Environmental objectives** (9: Air quality; 10: Soils; 11: Resource consumption and waste; 12: Water resources and quality; 13: Climate change and energy; 14: Flood risk; 15: Biodiversity and geodiversity; 16: Historic environment; and 17: Landscape, townscape and visual impacts)
 - The same effects are identified for the initial proposal and reasonable alternative for the environmental objectives.
- **Social objectives** (including health and qualities): 2: Health, wellbeing and safety; 3: Community cohesion; 4: Access to services and facilities; 5: Equalities)
 - The same effects are identified for the initial proposal and reasonable alternative for the social objectives.

Mitigation and enhancement opportunities

G.19 As both options perform the same against the IIA Framework, the following bullet points outlining potential opportunities to mitigate and minimise adverse effects apply to both the initial proposal and reasonable alternative:

- **IIA objectives 2: Health, wellbeing and safety, 8: Transport, 9: Air quality and 13: Climate change and energy:** The proposals should include adequate provision of walking and cycling infrastructure, enhancing connectivity particularly to the local centres and the train stations to enable people to actively travel to access services and facilities. The development proposal for the settlement should be carefully masterplanned and designed to incorporate substantial green infrastructure and planting to improve provision of green infrastructure in the area, as well as to improve air quality. Green infrastructure should be

located in close proximity to the new neighbourhoods and particularly along the boundaries near the A13, A282, the railway line and the proposed Lower Thames Crossing.

- **IIA objective 10: Soils and 11: Resource consumption and waste:** The new neighbourhood sites in the north of Grays would fall on Grade 2 agricultural land, resulting in loss of some of the best and most versatile soils in the Borough. These neighbourhoods should retain areas of greenfield land as open space, where appropriate. Areas containing potential mineral resources (mostly sand and gravel and chalk resources) should not be developed to avoid the sterilisation of mineral resources.
- **IIA objective 12: Water resources and quality and 14: Flood risk:** New development should be directed away from areas at high risk of flooding. The development proposal for the settlement should be carefully masterplanned and designed to ensure there is no adverse impact on waterbodies or water dependent SSSIs and to incorporate appropriate mitigation against flooding, including the provision of SuDS and green and blue infrastructure. It should also be designed to ensure there is no adverse impact on the quality of the groundwater resource to maintain public water supplies.
- **IIA objective 16: Historic environment:** The development proposal for the settlement should be carefully masterplanned and designed to preserve and enhance the historic assets and their settings including the nearby Scheduled Monuments and the numerous Grade II listed buildings. Measures should be taken at a project level to protect and enhance the setting of both designated and undesignated heritage assets.
- **IIA objective 17: Landscape, townscape and visual impacts:** The development proposal for the settlement should be carefully masterplanned and designed to protect local landscape character. Green infrastructure and planting should be incorporated in the design of the settlement to minimise adverse effects.

Aveley

Table G.2: Appraisal findings for Aveley

IIA objective	Aveley Initial Proposal	Aveley Reasonable Alternative
1: Housing	+	++
2: Health, wellbeing and safety	++/-	++/--
3: Community cohesion	++	++/-
4: Access to services and facilities	++	++/-
5: Equalities	+/-	+/-
6: Education and skills	++	++
7: Economy and employment	+	+
8: Transport	+/-	--/+
9: Air quality	--/+?	--/+?
10: Soils	-	--
11: Resource consumption and waste	--?	--?
12: Water resources and quality	-?	-?
13: Climate change and energy	+/-	--/+
14: Flood risk	-?	-?
15: Biodiversity and geodiversity	-?	--?
16: Historic environment	--/+?	--/+?
17: Landscape, townscape and visual impacts	--?	--?

Initial Proposal (Option 1)

G.20 The proposal at Aveley has the potential to make a substantial contribution to meeting housing need in Thurrock delivering between 750 and 900 new homes. A small part of the new neighbourhood proposed to the south of Aveley is within the 10% most deprived for housing. However, the majority of proposed new neighbourhoods are within areas designated as being some of the least deprived in terms of Barriers to Housing. Overall, a minor positive effect is identified for IIA objective **1: Housing**. It is assumed that the scale of

new development would deliver an appropriate range of housing in terms of sizes, tenures and affordability.

G.21 The new neighbourhoods proposed at Kenningtons and south of Aveley rank highly in Natural England's 'Access Network Mapping' in terms of access to green and blue infrastructure (e.g. County Parks, Local Nature Reserves, National Trails, Public Rights of Way, etc.). Although the small new neighbourhood proposed to the south of Ormiston Park Academy is within an area ranked poorly for access to green and blue infrastructure, new 'green walking and cycling links' are proposed to connect this area to Belhus Woods Country Park, which could offer recreational active travel opportunities for residents. The proposal also supports the enhancement of the Mardyke Valley as an area of strategic green infrastructure, with the area to the east of the A1090 proposed for local green infrastructure. This will ensure residents are in close proximity to multifunctional open spaces which will encourage physical activity and outdoor recreation.

G.22 The proposed new neighbourhoods to the south of Aveley are within closest proximity to the Aveley Medical Centre on High Street. Residents of the new neighbourhoods to the north of Aveley at Kenningtons will not be in close proximity to healthcare facilities. Furthermore, no new healthcare facilities are proposed in Aveley under this proposal.

G.23 This option proposes new neighbourhoods in close proximity to the A13 and M25 which could negatively affect health through poor air quality, loss of amenity, and other effects of noise such as sleep disturbance. The proposal mitigates the significance of the adverse effects to a certain extent by supporting the development of green buffers around the site. Overall, a mixed effect (significant positive / minor negative) is identified for IIA objective **2: Health**.

G.24 Aveley contains a range of community facilities that are easily accessible by sustainable and active modes of transport which encourages pedestrian activity/outdoor interaction. The proposal also supports the delivery of additional community facilities at Romford Road Neighbourhood Centre which is in an area that is amongst the 30% most deprived in the country. In addition, the proposal supports bringing Aveley Hall back into appropriate reuse for community benefit. Overall, a significant positive effect is expected for IIA objective **3: Community**.

G.25 The proposal supports the development of new neighbourhoods in close proximity to Aveley's existing services and facilities which reduces the need to travel to access essential services and facilities, particularly for those with

limited mobility. Beneficial effects are particularly expected for the residents of the new neighbourhoods south of Aveley High Street and west of Romford Road as these are within close proximity to the town's local centres. The proposal also supports the development of additional retail and community facilities which will enhance the provision of services and facilities in the town. Overall, a significant positive effect is identified for IIA objective **4: Access to services and facilities**.

G.26 The proposal supports the development of new neighbourhoods in close proximity to the town's local centres which is likely to make it easier for less mobile people, including elderly and disabled people, to access services and facilities. The proposal also supports the delivery of community facilities at Romford Road Neighbourhood Centre and the conversion of Aveley Hall for community purposes which may provide support groups or faith services. However, the proposal also supports the development of a new neighbourhood in close proximity to the A13 and M25 which could affect people more vulnerable to air pollution, including younger and older people, people with cardiovascular or respiratory illnesses and pregnant women. Overall, a mixed effect (minor positive / minor negative) is expected in relation to IIA objective **5: Equalities**.

G.27 There are three primary schools (including the newly permitted primary school to the south of Aveley) and one secondary school in Aveley. The proposed neighbourhood to the south of Aveley is adjacent to Aveley Primary School. The small new settlement on Lance Corporal Nicky Mason Way is adjacent to Ormiston Park Academy. The small new settlement to the south of Aveley is adjacent to the proposed new primary school while the neighbourhoods at Kenningtons are within 500m of Kenningtons Primary School. A significant positive effect is therefore expected for IIA objective **6: Education and skills**.

G.28 The proposal for Aveley does not support the development of new employment sites, however the settlement is in close proximity to the Purfleet Industrial Park which will enable residents to access employment opportunities. The proposal supports the economic vitality of the town by supporting the provision of additional retail facilities and focusing new neighbourhoods close to the town centre. Overall, a minor positive effect is identified for IIA objective **7: Economy and employment**.

G.29 Aveley is well serviced by public transport and the development of the new neighbourhoods in close proximity to the town's local centres will enable more journeys to be undertaken by public transport and active travel. The proposal

also supports the creation of new cycling and walking green links, particularly along the southern boundary of the A13 in the Mardyke Valley and through Belhus Park. However, Aveley experiences high levels of traffic congestion and associated air and noise pollution. Increasing development in this settlement may result in higher levels of traffic, congestion, pollution and accidents, particularly as the proposal supports the delivery of a new bypass road from Stifford Road to Ship Lane. Although this bypass road will help to keep HGVs away from Aveley High Street, it may also encourage residents to use private vehicles rather than active travel. Overall, a mixed effect (minor positive / significant negative) is identified for IIA objective **8: Transport**.

G.30 The proposal supports the development of new neighbourhoods in close proximity to the town's local centres which will encourage residents to undertake journeys by sustainable and active travel. However, the development of 750-900 new homes may result in an increase in traffic due to the scale of development proposed, including within the AQMA in Aveley, therefore exacerbating existing air pollution issues. The proposed new neighbourhood at Kenningtons is also within close proximity to the Havering AQMA. Although, the proposal supports the development of a new bypass road to keep HGVs away from Aveley High Street which will help to limit transport emissions in this area, it may also encourage residents to use private vehicles rather than active travel, thereby increasing air pollution. A mixed effect (minor positive / significant negative) is identified for IIA objective **9: Air**, although this effect is uncertain and will depend on the exact location, layout of development, provision of active travel infrastructure, and subsequent behaviours of residents.

G.31 The majority of the land in Aveley is 'non agricultural', however the area to the south of Aveley and south of Ormiston Park Academy comprises Grade 1 agricultural land. The development of the new neighbourhoods in these areas will result in the loss of some Grade 1 agricultural land and therefore, a minor negative effect is identified for IIA objective **10: Soil**.

G.32 A significant negative effect is identified for IIA objective **11: Resource consumption and waste** as the proposal is likely to result in large-scale development of greenfield land. The proposed new neighbourhood to the south of Aveley and a small portion of the proposed new neighbourhood at Kenningtons contain River Terrace deposits. The small new neighbourhood to the south of Ormiston Park Academy also previously had surface planning permission for mineral extraction. In addition, there would likely be increased waste produced during the construction process and throughout the operational lifetime of these homes, from day-to-day living. It is unknown if recycled materials will be promoted for construction and if energy efficiency measures

and renewable energy would be promoted as these will be influenced more by policy requirements. Although there is an existing landfill near Aveley, it is unknown how new development in this area would affect the capacity / operation of this waste site.

G.33 Aveley is not within a groundwater Source Protection Zone. The Mardyke River, which drains into the Thames, is located south of the proposed new neighbourhoods. Although the river is not in close proximity to the new neighbourhoods, there may be tributaries in these areas which drain into the river potentially resulting in adverse effects on the quality of the Marydyke River, although this is unknown at this stage. It is also unknown whether the new neighbourhoods will promote the efficient use of water or whether there is sufficient water resources / waste water treatment capacity to accommodate the proposed new development. Overall, a precautionary minor negative effect is identified for IIA objective **12: Water resources and quality**.

G.34 Addressing climate change over the plan period is most likely to be influenced by design measures incorporated in new developments to reduce greenhouse gas emissions and to improve energy efficiency, including the use of renewable or low carbon energy sources in developments, as well as promoting flood resilience which is addressed separately through IIA objective 14. These measures will be addressed through policy requirements in the Local Plan. However, this proposal directs new development in close proximity to the local centres in Aveley which is likely to reduce the need to travel by private vehicle and associated transport-related emissions. Conversely, the provision of 750-900 new homes may result in higher levels of traffic, congestion, pollution and accidents, particularly as the proposal supports the delivery of a new bypass road from Stifford Road to Ship Lane. Although this bypass road will help to keep HGVs away from Aveley High Street, it may also encourage residents to use private vehicles rather than active travel. Overall, a mixed effect (minor positive / minor negative) is identified for IIA objective **13: Climate change and energy**.

G.35 An uncertain minor negative effect is identified in relation to IIA objective **14: Flood risk**. Although none of the new proposed neighbourhoods are within Flood Zones 2 or 3, the development of greenfield land at this scale would increase the area of impermeable surfaces and could therefore increase overall flood risk in the area although this is uncertain, depending on whether the plan promotes measures such as the incorporations of SuDS and flood resilient design, where appropriate.

G.36 An uncertain minor negative effect is identified for IIA objective **15: Biodiversity and geodiversity** as the proposed new neighbourhood at Kenningtons is within close proximity to Belhus Park (which contains areas of ancient woodland) while the proposed small new neighbourhood to the south of Aveley is within 500m of the Purfleet Road SSSI. Development of these neighbourhoods may disturb species and increase recreational pressure at these sites. The effect is uncertain as it will depend on the design/layout of developments, as well as mitigation providing by other plan policies.

G.37 An uncertain mixed effect (minor positive / significant negative) is identified in relation to IIA objective **16: Historic environment**. The new neighbourhood proposed to the south of Aveley is adjacent to the 'Site of moated manor house E of St Michael's Church, Aveley' Scheduled Monument which could be negatively affected, particularly in terms of setting, by new development in this area. However, there is potential to bring Aveley Hall which is nearby to this proposed new neighbourhood back into appropriate reuse for community benefit. There may be adverse effects on the nearby Grade II Listed Buildings from the development of a new neighbourhood at Kenningtons. The scale of development of the new neighbourhood at Kenningtons may also result in additional pressure on Belhus Park Registered Park and Garden. The significance of the mixed effect is dependent on the exact location and design of development which is unknown at this stage.

G.38 The proposed new neighbourhoods are within the following Landscape Character Areas (LCAs): LCA D1: Aveley and LCA C1: Belhus Farmed River Terrace Gravels. LCA D1 is of low-moderate sensitivity to new residential development due to its built-up urban area. However, the more rural character of LCA C1 means it is of moderate-high sensitivity to large-scale housing (i.e. defined as developments that deliver 1,000-3,000 new homes). Overall, a significant negative effect is identified for IIA objective **17: Landscape, townscape and visual impacts**. There is potential for the incorporation of green infrastructure and landscaping at the new neighbourhoods to help mitigate the adverse effects, however any improvements provided would be determined by the design of the development, which is unknown at this stage.

Reasonable Alternative (Option 2)

G.39 The reasonable alternative proposes a higher scale of growth, delivering 1,700-2,000 new homes. The proposed larger new neighbourhoods to the south of Aveley are within the 50% most deprived areas in terms of Barriers to Housing. Therefore, a significant positive effect is identified for IIA objective **1:**

Housing as the larger scale of housing proposed (1,750-2,000 new homes) under the reasonable alternative will direct more housing to areas in most need.

G.40 The proposed larger new neighbourhood to the south of Aveley is within close proximity to the Aveley Medical Centre on High Street. Furthermore, new private / NHS healthcare facilities are proposed in Aveley under this proposal which will facilitate access to health facilities with sufficient capacity to serve the local population. However, this option proposes additional new neighbourhoods in close proximity to the A13 which could negatively affect health through poor air quality, loss of amenity, and other effects of noise such as sleep disturbance. These effects could potentially be reduced by provision of green buffers and other appropriate design measures. Overall, a mixed effect (significant positive / significant negative) is identified for IIA objective **2: Health**.

G.41 Mixed effects (significant positive / minor negative) are expected for IIA objectives **3: Community** and **4: Access to services and facilities**. The proposal supports the delivery of additional retail, healthcare and community facilities in the town's local centres, however, the proposed larger new settlement to the south-west of Aveley is located on the outskirts of the town which may encourage people to travel by private vehicle to access essential services and facilities.

G.42 The development of the new neighbourhood to the south-west of Aveley is located on the outskirts of the town and is at a greater distance to the nearby local centres than the other proposed new neighbourhoods. Therefore, residents are more likely to use private vehicles to travel to access the town centre rather than via active travel. The larger new neighbourhoods proposed in the south and south-west of Aveley would result in higher levels of traffic, congestion and pollution along the A13. Overall, mixed effects (minor positive / significant negative) are identified for IIA objective **8: Transport** and **13: Climate change and energy**.

G.43 The development of the proposed larger new neighbourhoods to the south of Aveley will result in the loss of significant areas of Grade 1 agricultural land. Therefore, a significant negative effect is identified for IIA objective **10: Soil**.

G.44 The development of the proposed larger new neighbourhoods to the south of Aveley is adjacent to the Purfleet Road SSSI. Development of this neighbourhood may disturb species and increase recreational pressure at these sites. Therefore, a significant negative effect is identified for IIA objective **15: Biodiversity and geodiversity**. The effect is uncertain as it will depend on the design/layout of developments, as well as mitigation providing by other plan policies.

G.45 The higher scale of growth proposed in the reasonable alternative and the addition of the new neighbourhoods to the south of Aveley will result in the same effects as identified for the Initial Proposal in relation to IIA objectives **5: Equalities, 6: Education and skills, 7: Economy and employment, 9: Air, 11: Resource consumption and waste, 12: Water resources and quality, 14: Flood Risk, 16: Historic environment and 17: Landscape, townscape and visual impacts.**

Summary of likely significant effects of both options at Aveley across different strands of sustainability

G.46 Overall, the initial proposal (Option 1) at Aveley performs better than the reasonable alternative (Option 2):

- **Economic objectives** (1: Housing, 6: Education and skills, 7: Economy and employment, and 8: Transport)
 - The reasonable alternative will perform better for housing provision than the initial proposal as it proposes a higher number of homes to be developed in Aveley (1,700-2,000 compared to 750-900). However, the development of the new neighbourhoods to the south and south-west are located at a greater distance to the nearby local centres than the neighbourhoods proposed in the initial proposal. Therefore, residents are more likely to use private vehicles to access services and facilities, potentially resulting in higher levels of traffic, congestion and pollution along the A13.
- **Environmental objectives** (9: Air quality; 10: Soils; 11: Resource consumption and waste; 12: Water resources and quality; 13: Climate change and energy; 14: Flood risk; 15: Biodiversity and geodiversity; 16: Historic environment; and 17: Landscape, townscape and visual impacts)
 - The development of the proposed larger new neighbourhoods to the south of Aveley as proposed in the reasonable alternative will have more adverse impacts on the environmental objectives, particularly as they will result in greater loss of best and most versatile agricultural land and greater disturbance to species / potential increased recreational pressure on biodiversity sites, particularly on the Purfleet Road SSSI.
- **Social objectives** (including health and qualities): 2: Health, wellbeing and safety; 3: Community cohesion; 4: Access to services and facilities; 5: Equalities)

- Although the reasonable alternative proposes the delivery of more healthcare and community facilities than the initial proposal, the development of the larger new neighbourhoods as proposed in the reasonable alternative will have more adverse impacts on the social objectives. The new neighbourhoods are in close proximity to the A13 which could negatively affect health and are also situated on the outskirts of the town which may encourage people to travel by private vehicle to access essential services and facilities.

Mitigation and enhancement opportunities

G.47 Although the initial proposal (Option 1) at Aveley performs better than the reasonable alternative (Option 2), significant adverse effects are identified for IIA objectives **9: Air quality, 11; Resource consumption and waste, 16: Historic environment, and 17: Landscape, townscape and visual impacts**. The following bullet points identify potential opportunities to mitigate and minimise the adverse effects and potential opportunities to enhance its positive effects, improving the overall sustainability of this option:

- **IIA objective 9: Air quality:** This option focuses a high quantum of new development in Aveley, including within the AQMA designated at Aveley High Street and also near the Havering AQMA, which may result in an increase in traffic in these areas, exacerbating existing air pollution issues. The proposal supports the development of a new bypass road to keep HGVs away from Aveley High Street which will help to limit transport emissions in this area. The option should include adequate provision of walking and cycling infrastructure, enhancing connectivity particularly to the proposed new local centres to enable people to actively travel to access services and facilities.
- **IIA objective 11: Resource consumption and waste:** This option is likely to result in large-scale development of greenfield land. The development of existing brownfield sites and the reuse/enhancement of existing buildings in the town centre should be prioritised in preference to the development of greenfield land. New neighbourhoods should retain areas of greenfield land as open space. Development of areas containing potential mineral resources should be avoided, including at the new neighbourhood to the south of Aveley, at Kenningtons, and at the small new neighbourhood to the south of Ormiston Park Academy, to avoid the sterilisation of mineral resources.

- **IIA objective 16: Historic environment:** The development proposal for the settlement should be carefully masterplanned and designed to preserve and enhance the historic assets and character of the historic assets near Aveley including the 'Site of moated manor house E of St Michael's Church, Aveley' Scheduled Monument, Belhus Park Registered Park and Garden, and the Grade II Listed Buildings at Kenningtons. Measures should be taken at a project level to protect and enhance the setting of both designated and undesignated heritage assets.
- **IIA objective 17: Landscape, townscape and visual impacts:** The development proposal for the settlement should be carefully masterplanned and designed to protect local landscape character. Green infrastructure and planting should be incorporated in the design of the neighbourhoods, particularly along the boundaries of the new neighbourhoods closest to the A13 and Belhus Park.

Chadwell St Mary

Table G.3: Appraisal findings for Chadwell St Mary

IIA objective	Chadwell St Mary Initial Proposal	Chadwell St Mary Reasonable Alternative Smaller Scale Growth	Chadwell St Mary Reasonable Alternative Medium Scale Growth
1: Housing	++	++	++
2: Health, wellbeing and safety	++/--	++/-	++/--
3: Community cohesion	++/-	++/-	++/-
4: Access to services and facilities	++/-	++/-	++/-
5: Equalities	+/-	+/-	+/-
6: Education and skills	++	++/-	++/-
7: Economy and employment	++	+	+
8: Transport	--/+	+/-	--/+
9: Air quality	--/+	+/-	--/+
10: Soils	--	--	--
11: Resource consumption and waste	--/+	--/+	--/+
12: Water resources and quality	-?	-?	-?
13: Climate change and energy	--/+	+/-?	--/+
14: Flood risk	--	--	--
15: Biodiversity and geodiversity	+/-?	+/-?	+/-?
16: Historic environment	--?	--?	--?
17: Landscape, townscape and visual impacts	--/+?	--/+?	--/+?

Initial Proposal (Option 1)

G.48 A significant positive effect is identified for the Chadwell St. Mary Initial Proposal in relation to IIA objective **1: Housing**. Large new neighbourhoods to

the north and south of the settlement would deliver 3,400 - 4,000 new homes with the potential for additional homes to be delivered within the town centre. It is assumed that the scale of new development would deliver an appropriate range of housing in terms of sizes, tenures and affordability.

G.49 An overall mixed effect (significant positive / significant negative) is identified in relation to IIA objective **2: Health, wellbeing and safety**. The proposed new neighbourhoods north-east of Chadwell St. Mary would incorporate new local health facilities. Existing medical centres are located in the south of the settlement ensuring good local access for sites to the south. Areas of Chadwell St. Mary rank poorly in terms of access to green and blue infrastructure (e.g., Country Parks, Local Nature Reserves, National Trails, Public Rights of Way etc.). However, the proposal incorporates the enhancement/expansion of Wickham Park and other existing open spaces as well as creation of a linear park and destination play space to the east of Chadwell St. Mary, ensuring access to local greenspace. New communities would also be located in close proximity of the Lower Thames Crossing and could be exposed to associated air/noise/light pollution. Although the proposal supports the development of green buffers along the boundaries of the neighbourhoods closest to the Lower Thames Crossing, a precautionary significant adverse effect is identified for health, wellbeing and safety.

G.50 A mixed effect (significant positive / minor negative) is identified in relation to IIA objective **3: Community cohesion** and **4: Access to services and facilities**. There are a number of existing services/facilities within Chadwell St. Mary and the new neighbourhoods in the north would be of a scale to provide additional community facilities including healthcare, education, learning/coworking and employment uses. Chadwell St. Mary is one of the Borough's larger and better-connected settlements. The centre of Chadwell St. Mary is identified as an Opportunity Area, where community uses are to be enhanced, which is likely to encourage associated higher levels of pedestrian/outdoor interaction and encourage neighbourhoods where people mix. The larger size and more established nature of the settlement is likely to mean these are areas of the Borough at which community networks are most resilient to change however the scale of development might mean existing community networks are disrupted. Large areas of Chadwell St May are located within the 30% most deprived areas for overall deprivation in the IMD2019. Therefore development, including enhanced community facilities and public realm improvements, likely to support new service provision and is also likely to help address deprivation in the plan area.

G.51 An uncertain mixed effect (minor positive / minor negative) is identified in relation to IIA objective **5: Equalities**. New development at Chadwell St. Mary, one of the Borough's larger settlements with existing public transport links, is likely to be located close to services, facilities and accessible links, and therefore focusing development to these areas could make it easier for less mobile people, including elderly and disabled people, to access services and facilities. However, residents may need to travel to more established settlements to meet more specialist facilities, such as faith or support groups. This area is also located in the south of Thurrock which experiences high levels of traffic congestion and air pollution. This could affect people more vulnerable to air pollution, including younger and older people, people with cardiovascular or respiratory illnesses and pregnant women.

G.52 An overall significant positive effect is identified in relation to IIA objective **6: Education and skills**. There are existing primary and secondary education facilities within/at the edge of Chadwell St. Mary and the scale of new development proposed would incorporate 2-3 new primary schools (with potential onsite SEN) and a new secondary school within the new neighbourhoods to the north-east of the existing settlement.

G.53 A significant positive effect is identified in relation to IIA objective **7: Economy and employment**. The two existing employment sites within the settlement would be safeguarded and new residential development would be located in close proximity and reasonable public transport time of a range of employment opportunities in the south of the borough. A new employment hub would be delivered west of Muckingford Road, and the Opportunity Area would help support the economic viability and vibrancy of the small local centre.

G.54 An overall mixed effect (significant negative / minor positive) is identified in relation to IIA objective **8: Transport**. There is no existing train station within Chadwell St. Mary however the area has frequent bus services to neighbouring settlements. There are frequent bus services connecting the town with Lakeside/Grays. The proposal also supports the provision of multiple new 'green links' for walking and cycling, enhancing connectivity to the local centres, schools, Wickham Park and the surrounding strategic green infrastructure. New link roads are proposed with the aim of alleviating congestion and mitigating the effects of new neighbourhoods. The Initial Proposal includes improved access to East Tilbury Station. However, the scale of development proposed, particularly at the urban edge, is likely to increase traffic movements overall and potentially exacerbate existing congestion, air and noise pollution issues within the south-west of the borough.

G.55 An overall mixed effect (significant negative / minor positive) is identified in relation to IIA objective **9: Air quality**. There are existing bus services and provision of local services/facilities within Chadwell St. Mary however development at the urban edge may still encourage reliance on private vehicle use and associated emissions. Development in this area is not closely located to an AQMA however the scale of development proposed at Chadwell St. Mary has the potential to exacerbate air quality issues in the south-west of the Borough within designated AQMAs, for example along the A13.

G.56 A significant negative effect is identified in relation to IIA objective **10: Soils**. The land north-east of Chadwell St. Mary is largely Grade 2 agricultural land. New development would result in the loss of the best and most versatile land in the Borough.

G.57 An overall uncertain mixed effect (significant negative / minor positive) is identified in relation to IIA objective **11: Resource consumption and waste**. Locating new development at the settlement's larger existing settlement would make good use of existing infrastructure and services. However, the Initial Proposal would also deliver a large quantum of growth on greenfield land. Furthermore, most of Chadwell St Mary is identified as a 'constrained mineral resource' for sand and gravel mineral resources. A large quantity of construction materials would be required for the scale of growth proposed (e.g., new link roads) and there would be increased waste produced during the construction and operational lifetime of new homes, from day-to-day living. It is unknown if recycled materials will be promoted for construction and if energy efficiency measures and renewable energy would be promoted as these will be influenced more by policy requirements, therefore the effect is uncertain.

G.58 An uncertain minor negative effect is identified in relation to IIA objective **12: Water resources and quality**. There are no waterbodies within the proposed development locations. There are two Source Protection Zones within Thurrock, in Linford and North Stifford, however, the entire catchments of these two zones fall within central Thurrock. Therefore, the high quantum of development proposed in Chadwell St Mary has the potential to affect the SPZs.

G.59 An uncertain mixed effect (minor positive / significant negative) is identified in relation to IIA objective **13: Climate change and energy**. Addressing climate change over the plan period is most likely to be influenced by design measures incorporated in new developments to reduce greenhouse gas emissions and to improve energy efficiency, including the use of renewable or low carbon energy sources in developments, as well as promoting flood

resilience which is addressed separately through IIA objective 14. These measures will be achieved through policy requirements in the Local Plan. However, directing most development towards locations with existing public transport connections and local services is likely to promote more sustainable travel behaviours which will reduce the need to travel by private vehicle and associated transport-related emissions. Development within Chadwell St. Mary would likely promote sustainable travel behaviours amongst residents. However, the scale of new development would likely generate additional traffic and associated transport-related emissions.

G.60 An uncertain significant negative effect is identified for Chadwell St. Mary in relation to IIA objective **14: Flood Risk**. Chadwell St. Mary is not located within Flood Zone 2 or 3 however the scale of development located on greenfield land will increase impermeable surfaces and could therefore increase overall flood risk in the area. The location of development does not take into account mitigation such as the incorporation of SuDS and spaces for flood storage however the expansion/enhancement to Wickham Park and other existing open spaces could incorporate SuDS measures including Natural Flood Management.

G.61 An uncertain mixed effect (minor negative / minor positive) is identified in relation to IIA objective **15: Biodiversity and geodiversity**. There are no designated biodiversity or geodiversity sites in the settlement. However, new development at Chadwell St Mary could adversely affect designated sites within the south of the Borough and new development would be located within SSSI Impact Risk Zones. The scale of development at the urban edge is likely to result in some loss of biodiversity. However, development of this scale has the potential to incorporate significant biodiversity enhancement. For example, the Initial Proposal includes major enhancements to the local green and blue infrastructure network to help manage flood risk and this could incorporate biodiversity enhancement. The effect is uncertain as it will depend on the exact locations and design/layout of developments/new town, as well as mitigation providing by other plan policies (e.g. biodiversity net gain, green infrastructure policies).

G.62 An uncertain significant negative effect is identified for IIA objective **16: Historic environment**. There are a number of historic assets within the area around Chadwell St Mary, including the Grade I listed church at St Mary, several Grade II listed buildings, the West Tilbury Conservation Area, the 'Causeway enclosure and Anglo-Saxon cemetery 500m ENE of Heath Place' Scheduled Monument, and the 'Earthworks near church, West Tilbury'

Scheduled Monument. The scale of development proposed could have adverse effects on the setting of these heritage assets.

G.63 An uncertain mixed effect (significant negative / minor positive) is identified in relation to IIA objective **17: Landscape, townscape and visual impact**. This area lies predominantly within the Landscape Character Area (LCA) H1: East & West Tilbury Open Undulating Farmland and partially within LCA F1: Aveley Marshes, which are both of high sensitivity to very large housing development, therefore significant negative effects are recorded. Additionally, the landscape sensitivities of this area could change significantly with the development of the Lower Thames Crossing. The Initial Proposal includes expansion/enhancement of Wickham Park and other open spaces in the settlement, as well as the creation of a linear park at play space to the east of the settlement, offering potential benefits for green infrastructure in the local area. The precise effect of new development on landscape character in the plan area will be influenced to a large degree by the design of new proposals, the incorporation of green infrastructure, and the detailed distribution of new development, resulting in uncertainty.

Reasonable Alternative Smaller Scale of Growth (Option 2)

G.64 The Option 2 Reasonable Alternative proposes a smaller scale of growth with a new neighbourhood to the east of Chadwell St. Mary. Where effects are different to those described for the initial proposal, these are described below.

G.65 A mixed effect (significant positive / minor negative) is identified for IIA objective **2: Health, wellbeing and safety**. Existing medical centres are located in the south of the settlement, however, no new healthcare facilities are proposed under this reasonable alternative. Areas of Chadwell St. Mary rank poorly in terms of access to green and blue infrastructure (e.g., Country Parks, Local Nature Reserves, National Trails, Public Rights of Way etc.), however, the proposal incorporates the small enhancement/expansion of Wickham Park and the creation of a new linear park adjacent to the existing boundary edge, ensuring access to local greenspace. New communities would also be located near the Lower Thames Crossing and could experience air/noise/light pollution, however, the new neighbourhood is located at a distance where effects are likely to be mitigated from the provision of new green infrastructure buffers along the neighbourhood boundary.

G.66 A mixed effect (significant positive / minor negative) is identified for IIIA objective **6: Education and skills**. The proposal supports the provision of a

new primary school, however it does not support the delivery of a secondary school in the area which is currently needed.

G.67 The proposal supports the safeguarding of the existing employment sites at Star Industrial Estate and Merrydale Works which will enable residents to access employment opportunities. However, the proposal does not support the delivery of new employment sites in the settlement and therefore a minor rather than a significant positive effect is identified for IIA objective **7: Economy and employment**.

G.68 There is no existing train station within Chadwell St. Mary however the area has frequent bus services to neighbouring settlements. The proposal also includes improved access to East Tilbury Station. The proposal also supports the provision of multiple new 'green links' for walking and cycling, enhancing connectivity to the local centres, schools, Wickham Park and the surrounding strategic green infrastructure. However, the delivery of 1,200-1,400 new homes is likely to increase traffic movements overall and potentially exacerbate existing congestion, air and noise pollution issues within the south-west of the borough. Overall, mixed effects (minor negative / minor positive) are identified in relation to IIA objective **8: Transport**, **9: Air quality**, and **13: Climate change and energy**.

Reasonable Alternative Medium Scale of Growth (Option 3)

G.69 The Option 3 Reasonable Alternative proposes a medium scale of growth with new neighbourhoods proposed to the east and north-west of the existing settlement. Where effects are different to those described for the initial proposal, these are described below.

G.70 The proposal supports the provision of two new primary schools, however it does not support the delivery of a secondary school in the area which is currently needed. Overall, a mixed effect (significant positive / minor negative) is identified for IIA objective **6: Education and skills**.

G.71 The proposal supports the safeguarding of the existing employment sites at Star Industrial Estate and Merrydale Works which will enable residents to access employment opportunities. However, the proposal does not support the delivery of new employment sites in the settlement and therefore a minor rather than a significant positive effect is identified for IIA objective **7: Economy and employment**.

Summary of likely significant effects of both options at Chadwell St Mary across different strands of sustainability

G.72 Overall, the initial proposal (Option 1) at Chadwell St Mary performs better than reasonable alternative (Option 2) and marginally better than reasonable alternative (Option 3):

- **Economic objectives** (1: Housing, 6: Education and skills, 7: Economy and employment, and 8: Transport)
 - The initial proposal performs better for education than the reasonable alternatives as it supports the provision of several new primary schools and a secondary school which is currently needed in the area. It also performs better for the economy as it will deliver a new employment hub in the settlement which will enhance employment opportunities in the area.
- **Environmental objectives** (9: Air quality; 10: Soils; 11: Resource consumption and waste; 12: Water resources and quality; 13: Climate change and energy; 14: Flood risk; 15: Biodiversity and geodiversity; 16: Historic environment; and 17: Landscape, townscape and visual impacts)
 - The large scale of development proposed in the initial proposal and reasonable alternative (Option 3) will have more adverse effects on the environmental objectives than reasonable alternative (Option 2), particularly in relation to traffic, congestion, and air pollution.
- **Social objectives** (including health and qualities): 2: Health, wellbeing and safety; 3: Community cohesion; 4: Access to services and facilities; 5: Equalities)
 - The initial proposal and reasonable alternative (Option 3) will deliver more social infrastructure to support the scale of development proposed than reasonable alternative (Option 2). However, the initial proposal and reasonable alternative (Option 3) will have more of an adverse effect on health as new communities will be in close proximity to the Lower Thames Crossing and the A1089 which could expose residents to air / noise / light pollution.

Mitigation and enhancement opportunities

G.73 Although the initial proposal (Option 1) at Chadwell St Mary performs better than the reasonable alternatives (Option 2 and 3), significant adverse effects are identified for IIA objectives **2: Health, wellbeing and safety, 8:**

Transport, 9: Air quality, 10: Soils, 11: Resource consumption and waste, 13: Climate change and energy, 14: Flood risk, 15: Biodiversity and geodiversity, 16: Historic environment, and 17: Landscape, townscape and visual impacts. The following bullet points identify potential opportunities to mitigate and minimise the adverse effects and potential opportunities to enhance its positive effects, improving the overall sustainability of this option:

- **IIA objective 2: Health, wellbeing and safety, 8: Transport, 9: Air quality and 13: Climate change and energy:** The proposal should include adequate provision of walking and cycling infrastructure, enhancing connectivity particularly to the local centres, schools, proposed employment site, and Wickham Park and other open spaces, to enable people to actively travel to access services, facilities and nature. The development proposal for the settlement should be carefully masterplanned and designed to incorporate substantial green infrastructure and planting to improve air quality in the area, including street trees, hedges, green walls and green roofs on buildings, particularly along the boundaries adjacent to the proposed employment site, the Lower Thames Road and A1089.
- **IIA objective 10: Soils and 11: Resource consumption and waste:** The development of Chadwell St Mary is likely to result in large-scale development of greenfield land which comprises Grade 2 agricultural land. The new settlement should retain areas of greenfield land as open space, where appropriate. Areas containing potential mineral resources (mostly sand and gravel resources) should not be developed to avoid the sterilisation of mineral resources.
- **IIA objective 14: Flood risk:** The development proposal for the settlement should be carefully masterplanned and designed to incorporate appropriate mitigation against flooding, including the provision of SuDS and green and blue infrastructure.
- **IIA objective 16: Historic environment:** The development proposal for the settlement should be carefully masterplanned and designed to preserve and enhance the historic assets and their settings including the Grade I Listed Building, Grade II Listed Buildings, and two nearby Scheduled Monuments. Measures should be taken at a project level to protect and enhance the setting of both designated and undesignated heritage assets.
- **IIA objective 17: Landscape, townscape and visual impacts:** The development proposal for the settlement should be carefully masterplanned and designed to protect local landscape character. Green

infrastructure and planting should be incorporated in the design of the settlement to minimise adverse effects.

Corringham

Table G.4: Appraisal findings for Corringham

IIA objective	Corringham Initial Proposal	Corringham Reasonable Alternative
1: Housing	++	+
2: Health, wellbeing and safety	+/-	+/-
3: Community cohesion	+/-	+/-
4: Access to services and facilities	+/-	+/-
5: Equalities	+/-	+/-
6: Education and skills	++	++
7: Economy and employment	++/-	++/-
8: Transport	++/--?	++/--?
9: Air quality	+/-	+/-
10: Soils	--	--
11: Resource consumption and waste	--/+?	--/+?
12: Water resources and quality	-?	-?
13: Climate change and energy	+/-?	+/-?
14: Flood risk	+/-?	+/-?
15: Biodiversity and geodiversity	++/--?	++/--?
16: Historic environment	-?	-?
17: Landscape, townscape and visual impacts	--/+?	--/+?

Initial Proposal (Option 1)

G.74 A significant positive effect is identified for the Corringham Initial Proposal in relation to IIA objective **1: Housing**. The option would deliver 2,700 - 3,200 new homes including family and key worker housing. There is also opportunity for additional homes within the Corringham Town Centre. It is assumed that the scale of new development would deliver an appropriate range of housing in terms of sizes, tenures and affordability.

G.75 An overall mixed effect (minor positive / minor negative) is identified in relation to IIA objective **2: Health, wellbeing and safety**. There are a number

of existing healthcare services within Corringham including Corringham Medical Centre in the south of the settlement. Areas proposed for new neighbourhoods have good existing access to greenspace due to the proximity to Langdon Hills Country Park. However, the A13 creates a barrier to access and other areas of Corringham currently rank poorly in Natural England's 'Access Network Mapping'. The proposal includes improved walking and cycling links between Fobbing and Corringham which will likely encourage active travel.

G.76 Overall mixed effects (minor positive / minor negative) are identified for Corringham in relation to IIA objective **3: Community cohesion** and IIA objective **4: Access to services and facilities**. The proposal focuses urban intensification within the Opportunity Area and new neighbourhoods at one of the Borough's larger settlements, promoting creation of a compact settlement and ensuring good local access to essential services, facilities and public transport connections. However, development at the settlement edge may be further than a reasonable walk to some services/facilities. The larger size and more established nature of the settlement is likely to mean these are areas of the Borough at which community networks are most resilient to change. Regeneration and development will ensure easy and equitable access to sustainable modes of transport which is likely to encourage associated higher levels of pedestrian/outdoor interaction and encourage neighbourhoods where people mix. Corringham town centre is located within the 30% most deprived areas for overall deprivation in the IMD2019. Development within the Corringham Town Centre Opportunity Area, including enhanced community facilities and public realm improvements, likely to support new service provision and is also likely to help address deprivation in the plan area.

G.77 An uncertain mixed effect (minor positive / minor negative) is identified in relation to IIA objective **5: Equalities**. New development at Corringham, one of the Borough's larger settlements with existing public transport links, is likely to be located close to services, facilities and accessible links, and therefore focusing development to these areas could make it easier for less mobile people, including elderly and disabled people, to access services and facilities. It is also likely to enable people to more easily access community facilities which may provide. However, residents may need to travel to more established settlements to meet more specialist facilities, such as faith or support groups. This area is also located in the south of Thurrock, with high levels of traffic congestion and air pollution could affect people more vulnerable to air pollution, including younger and older people, people with cardiovascular or respiratory illnesses and pregnant women.

G.78 A significant positive effect is identified in relation to IIA **objective 6: Education and skills**. There are existing primary and secondary education facilities within Corringham. The scale of the new neighbourhood developments would provide two new primary schools and linked/additional early years/SEN provision if size/design allows.

G.79 An overall mixed effect (significant positive / minor negative) is identified in relation to IIA objective **7: Economy and employment**. New development would be located in close proximity and reasonable public transport time of existing employment opportunities within the south of the Borough, including the Thames Freeport. New homes would include key worker housing. Existing employment areas will be safeguarded however no new employment sites are proposed and some previously allocated land de-allocated. As such, a minor negative effect is also identified. The Opportunity Area would help support the economic viability and vibrancy of a small local centre.

G.80 An overall uncertain mixed effect (significant positive / significant negative) is identified in relation to IIA objective **8: Transport**. Corringham has a number of local services and facilities and the scale of new neighbourhood development would incorporate more, including a new neighbourhood centre, which would be located within reasonable walking distance. There are existing bus services offering nearby public transport connections. However, there is no train station within Corringham with the nearest station at Stanford le Hope. The proposal for Corringham includes safeguarding land for a potential future railway station, offering significant advantages for encouraging sustainable transport amongst new and existing residents. A train station in this location would also benefit residents of Fobbing and the potential New Place at Lower Langdon. However, delivery of the station remains uncertain. The land could also be utilised for a transport interchange (i.e. improved access onto the B1420) which would not encourage sustainable transport options within the settlement. The Proposal incorporates improved pedestrian and cycle connectivity between Fobbing and Corringham, encouraging active travel for local residents of both settlements, particularly Fobbing for access services/facilities.

G.81 An overall mixed effect (minor positive / minor negative) is identified in relation to IIA objective **9: Air quality**. New development at Corringham is not expected to substantially increase traffic in any AQMA. As set out against IIA objective 7, existing public transport connections are good, although travel by private vehicle may still be encouraged for some trips for development at the settlement edge, which may result in higher levels of traffic, congestion, and pollution.

G.82 A significant negative effect is identified in relation to IIA objective **10: Soils**. The land north-east of Corringham is Grade 3 ALC land which may represent the best and most versatile in the Borough. Significant areas of greenfield agricultural land will be lost to development.

G.83 An overall uncertain mixed effect (significant negative / minor positive) is identified in relation to IIA objective **11: Resource consumption and waste**. Locating new development at the settlement's larger existing settlement would make good use of existing infrastructure and services, However, the Initial Proposal would deliver a large quantum of growth on greenfield land. A large quantity of construction materials would be required for the scale of growth proposed (e.g. new link roads) and there would be increased waste produced during the construction and operational lifetime of new homes, from day-to-day living. It is unknown if recycled materials will be promoted for construction and if energy efficiency measures and renewable energy would be promoted as these will be influenced more by policy requirements, therefore the effect is uncertain.

G.84 An uncertain minor negative effect is identified in relation to IIA objective **12: Water resources and quality**. There are no waterbodies within proposed development locations. However, the quantum of development proposed also has the potential to affect the SPZ. Additionally, water-dependent designated sites (i.e. Fobbing Marshes SSSI, Holehaven Creek SSSI) and the Essex Coast Environmentally Sensitive Area (ESA) are located nearby and the scale of development proposed has the potential to adversely affect these sites. The effect is uncertain depending on the exact location and layout of development.

G.85 An uncertain mixed effect (minor positive / minor negative) is identified in relation to IIA objective **13: Climate change and energy**. Addressing climate change over the plan period is most likely to be influenced by design measures incorporated in new developments to reduce greenhouse gas emissions and to improve energy efficiency, including the use of renewable or low carbon energy sources in developments, as well as promoting flood resilience which is addressed separately through IIA objective 14. These measures will be achieved through policy requirements in the Local Plan. However, directing most development towards locations with existing bus and rail connections is likely to promote more sustainable travel behaviours which will reduce the need to travel by private vehicle and associated transport-related emissions. Development within Corringham would likely promote sustainable travel behaviours amongst residents. However, the scale of new development, particularly employment uses, would generate additional traffic and other associated emissions.

G.86 An uncertain mixed effect (minor negative / minor positive) is identified for the Initial Proposal in relation to IIA objective **14: Flood risk**. The area proposed for development is not located within Flood Zone 2 or 3. However, the loss of greenfield land will increase impermeable surfaces and could therefore increase overall flood risk in the area. The Initial Proposal includes major enhancements to the local green and blue infrastructure network to help manage surface water more effectively and reduce risk of flooding in the wider area. The location of development does not take into account mitigation such as the incorporation of SuDS, open spaces for flood storage or green infrastructure which is more likely to be influenced by policy requirements.

G.87 Overall uncertain mixed effects (significant negative / significant positive) are identified in relation to IIA objective **15: Biodiversity and geodiversity**. New development at Corringham could adversely affect the nearby Holehaven Creek / Vange and Fobbing Marshes SSSI, Mucking Flats and Marshes SSSI, Langdon Ridge SSSI and the Essex Coast Environmentally Sensitive Area. The scale of development is likely to result in some loss of biodiversity, However, development of this scale has the potential to incorporate significant biodiversity enhancement. For example, the Initial Proposal includes major enhancements to the local green and blue infrastructure network to help manage flood risk and this could incorporate biodiversity enhancement. Furthermore, the deallocation of the oil refinery site will make way for a larger network of green infrastructure. The effect is uncertain as it will depend on the exact locations and design/layout of developments/new town, as well as mitigation providing by other plan policies (e.g. BNG, green infrastructure policies).

G.88 An uncertain minor negative effect is identified in relation to IIA objective **16: Historic environment**. The developments of new neighbourhoods north of Corringham are unlikely to affect any known heritage assets. However indirect effects, such as views from the Fobbing Conservation Area may occur.

G.89 Overall uncertain mixed effects (significant negative / minor positive) are identified in relation to IIA objective **17: Landscape, townscape and visual impacts**. The area around Corringham lies within LCA J1: Lower Hill Slopes, which is of high sensitivity to large housing development, therefore significant negative effects are recorded. The Initial Proposal includes major enhancements to the local green and blue infrastructure networks, as well as significant enhancements to local townscape within the Corringham Opportunity Area, including public realm and open space improvements. The precise effect of new development on landscape character will be influenced to a large degree by the design of new proposals and the detailed distribution of new development, resulting in uncertainty.

Reasonable Alternative (Option 2)

G.90 The Reasonable Alternative for Corringham proposes a smaller scale of residential growth in a new neighbourhood, safeguards land for a potential new railway station and offers minor enhancements to the local green and blue infrastructure network to help manage surface water effectively.

G.91 A minor positive effect is identified for the Reasonable Alternative in relation to IIA objective **1: Housing**. This option would only deliver 750 - 1,000 new homes within a smaller new neighbourhood to the north-east. Although there is also opportunity for additional homes within the Corringham Town Centre.

G.92 While the detail of effects may differ from the Initial Proposal, the overall magnitude remains applicable for the remaining IIA objectives, for the reasons set out against the Initial Proposal (Option 1). For example, with regard to IIA objective **6: Education and skills**, the reduced scale of new development would still include one new primary school. Similarly, for IIA objective **10: Soil**, while a smaller scale of development is proposed, it would still result in significant the loss of greenfield land.

Summary of likely significant effects of both options at Corringham across different strands of sustainability

G.93 Overall, the Initial Proposal (Option 1) at Corringham performs similarly to the reasonable alternative (Option 2). However, the Initial Proposal (Option 1) proposes greater scales of growth resulting in the potential for greater significant effects than those identified for the reasonable alternative (Option 2) in relation to:

- **Economic objectives** (1: Housing, 6: Education and skills, 7: Economy and employment, and 8: Transport)
 - The same effects are broadly identified for the initial proposal and reasonable alternative for the economic objectives, however, the scale of development and the benefits associated with it will be greater for the Initial Proposal.
- **Environmental objectives** (9: Air quality; 10: Soils; 11: Resource consumption and waste; 12: Water resources and quality; 13: Climate change and energy; 14: Flood risk; 15: Biodiversity and geodiversity; 16: Historic environment; and 17: Landscape, townscape and visual impacts)

- The same effects are identified for the initial proposal and reasonable alternative for the environmental objectives, however, the scale of development and the negatives associated with it will be greater for the Initial Proposal.
- **Social objectives** (including health and qualities): 2: Health, wellbeing and safety; 3: Community cohesion; 4: Access to services and facilities; 5: Equalities)
 - The same effects are identified for the initial proposal and reasonable alternative for the social objectives.

G.94 On balance, the location of the additional growth identified in the Initial Proposal (Option 1) is relatively unconstrained and no more environmentally sensitive than the development shared by both options. Therefore, the benefits of the additional growth planned in the Initial Proposal (Option 1) are considered to outweigh the negative effects of the growth, resulting in the Initial Proposal (Option 1) performing better than the reasonable alternative (Option 2) overall.

Mitigation and enhancement opportunities

G.95 Significant adverse effects are identified for IIA objectives 8: Transport, 10: Soils, 11: Resource consumption and waste, 15: Biodiversity and geodiversity and 17: Landscape, townscape and visual impacts. The following bullet points identify potential opportunities to mitigate and minimise the adverse effects and potential opportunities to enhance its positive effects, improving the overall sustainability of this option:

- **IIA objective 2: Health, wellbeing and safety:** The development proposals should be carefully masterplanned and designed to incorporate substantial green infrastructure and planting to minimise air/noise/light pollution, particularly along and across the A13 which creates a barrier to access and other areas of Corringham currently rank poorly in Natural England's 'Access Network Mapping'.
- **IIA objectives 8: Transport:** The proposals should include adequate provision of walking and cycling infrastructure. Measures to facilitate and finance the a new railway station / transport interchange to ensure its delivery would contribute to removing the uncertainty associated with the positive effects on this objective and removing the potential for significant negative effects.
- **IIA objective 10: Soils and 11: Resource consumption and waste:** The development of Corringham will involve the loss of a significant area of

greenfield land classified as Grade 3 agricultural land. The new development should retain areas of greenfield land as open space, where appropriate.

- **IIA objective 15: Biodiversity and geodiversity:** The development proposals should be carefully masterplanned and designed to protect the nearby biodiversity sites including Holehaven Creek / Vange and Fobbing Marshes SSSI, Mucking Flats and Marshes SSSI, Langdon Ridge SSSI and the Essex Coast Environmentally Sensitive Area. The development should secure enhancements for biodiversity and contribute to the protection and enhancement of the Nature Recovery Network. Adequate provision of recreational space should be integrated into the developments to mitigate potential recreational pressures on existing wildlife areas, particularly at the aforementioned sites.
- **IIA objective 17: Landscape, townscape and visual impacts:** The development proposals should be carefully masterplanned and designed to protect local landscape character. Green infrastructure and planting should be incorporated in the design of the neighbourhoods, particularly along the boundaries of the new neighbourhoods.

East Tilbury and Linford

Table G.5: Appraisal findings for East Tilbury and Linford

IIA objective	East Tilbury and Linford Initial Proposal	East Tilbury and Linford Reasonable Alternative
1: Housing	++	+
2: Health, wellbeing and safety	--/+	+/-
3: Community cohesion	++/-	+
4: Access to services and facilities	++	+
5: Equalities	+/-?	+/-?
6: Education and skills	++?/-	+/-
7: Economy and employment	+	+
8: Transport	++/-	+
9: Air quality	+/-	+/-
10: Soils	--	-
11: Resource consumption and waste	--/+	+/-
12: Water resources and quality	--?	--?
13: Climate change and energy	+/-?	+/-?
14: Flood risk	--?	--/+?
15: Biodiversity and geodiversity	--/+?	--?
16: Historic environment	--?	-?
17: Landscape, townscape and visual impacts	--?	--?

Initial Proposal (Option 1)

G.96 A significant positive effect is identified for the East Tilbury and Linford Initial Proposal for IIA objective **1: Housing**. Linford and areas to the north of East Tilbury are located within the top 20% most deprived in terms of 'Barriers to Housing and Services' in the Index of Multiple Deprivation. The Initial

Proposal would deliver 1000-1,200 new homes within new neighbourhoods to the north-east and south of East Tilbury. It is assumed that the scale of new development would deliver an appropriate range of housing in terms of sizes, tenures and affordability.

G.97 An overall mixed effect (minor positive / significant negative) is identified in relation to IIA objective **2: Health, wellbeing and safety**. The proposal does not incorporate new healthcare facilities however existing healthcare facilities (Appledore Integrated Medical Centre, the Rigg Milner Medical Centre, East Tilbury Medical Centre) are within a reasonable walking distance of new neighbourhoods. Areas around East Tilbury rank as average in Natural England's 'Access Network Mapping' in terms of access to green and blue infrastructure (e.g., County Parks, Local Nature Reserves, National Trails, Public Rights of Way, etc.), including Gobions Park. The proposal also seeks to improve walking and cycling access to Stanford le Hope and Chadwell St Mary which will encourage physical activity. New communities would also be located in close proximity to the railway line and the Lower Thames Crossing and could be exposed to associated air/noise/light pollution. Although the proposal supports the development of green buffers along the boundaries of the neighbourhoods closest to the Lower Thames Crossing, a precautionary significant adverse effect is identified for health, wellbeing and safety.

G.98 An overall mixed effect (significant positive / minor negative) is identified in relation to IIA objective **3: Community cohesion**. East Tilbury is one of the Borough's more established settlements, ensuring good local access to essential services, facilities and public transport connections. The Initial Proposal will also incorporate provision of new facilities including education and a new purpose-built community hub, benefiting new and existing residents. However, a large scale of growth is proposed compared to the existing settlement size and so there is potential to disrupt existing community networks.

G.99 An overall significant positive effect is identified in relation to IIA objective **4: Access to services and facilities**. The location of new development at East Tilbury would ensure good access to existing local services, facilities and public transport connections within the settlement, and the scale of development proposed is expected to incorporate new facilities, including a purpose-built community hub.

G.100 An uncertain mixed effect (minor positive / minor negative) is identified in relation to IIA objective **5: Equalities**. New development at East Tilbury, one of the Borough's larger settlements with existing public transport links, is likely to be located close to services, facilities and accessible links, and therefore

focusing development to these areas could make it easier for less mobile people, including elderly and disabled people, to access services and facilities. It is also likely to enable people to access community facilities more easily. However, residents may need to travel to more established settlements to meet more specialist facilities, such as faith or support groups. This area is also located in the south of Thurrock, with high levels of traffic congestion and air pollution could affect people more vulnerable to air pollution, including younger and older people, people with cardiovascular or respiratory illnesses and pregnant women.

G.101 An overall uncertain mixed effect (significant positive / minor negative) is identified in relation to IIA objective **6: Education and skills**. There are existing primary education facilities within East Tilbury but no secondary schools. Residents must therefore travel to neighbouring settlements although there are existing public transport connections, including a train station. The scale of development proposed would incorporate a new primary school. If a 'medium growth' option is selected for Chadwell St. Mary (Reasonable Alternative – Option 3) then it is possible that a new secondary school could be located in East Tilbury instead, providing local access to secondary education, although this is uncertain and dependent on the scale of growth selected at Chadwell St. Mary. As such, the effect is uncertain.

G.102 A minor positive effect is identified in relation to IIA objective **7: Economy and employment**. New residents would be located in close proximity and reasonable public transport time of existing employment sites within the south of the Borough. However, the effect is minor rather than significant as no new employment sites are proposed within East Tilbury and Linford Initial Proposal and the Thames Industrial Park will be reduced in size to provide additional homes.

G.103 An overall mixed effect (significant positive / minor negative) is identified in relation to IIA objective **8: Transport**. There is a train station within East Tilbury and new development would be located within a reasonable walking distance of the station. This option would also include a new link road over the railway to the west of East Tilbury, which would reduce barriers to walking and cycling. The Initial Proposal includes improved walking and cycling access to Stanford le Hope and Chadwell St. Mary. These measures are likely to encourage use of sustainable transport modes and support the shift away from private vehicle use. However, the scale of new development is likely to increase traffic in the area overall and could contribute to issues on the local road network.

G.104 An overall mixed effect (minor positive / minor negative) is identified in relation to IIA objective **9: Air quality**. Development at East Tilbury and Linford is not expected to exacerbate air quality issues within any AQMA. Development in these areas will likely encourage use of sustainable transport modes, supporting the modal shift away from private vehicle use. However, travel by private vehicle may still be encouraged for some trips for development at the settlement edge, which may result in higher levels of traffic, congestion, and associated pollution.

G.105 A significant negative effect is identified in relation to IIA objective **10: Soils**. The land around East Tilbury and Linford is Grade 2 agricultural land which would be lost to development.

G.106 An overall uncertain mixed effect (significant negative / minor positive) is identified in relation to IIA objective **11: Resource consumption and waste**. Locating new development at the settlement's larger existing settlement would make good use of existing infrastructure and services. However, the Initial Proposal would deliver a large quantum of growth on greenfield land. Furthermore, several of the new neighbourhoods are located in an area identified as a 'constrained mineral resource' for sand and gravel. A large quantity of construction materials would be required for the scale of growth proposed (e.g., new link road) and there would be increased waste produced during the construction and operational lifetime of new homes, from day-to-day living. It is unknown if recycled materials will be promoted for construction and if energy efficiency measures and renewable energy would be promoted as these will be influenced more by policy requirements, therefore the effect is uncertain.

G.107 The area to the north of East Tilbury is within a groundwater Source Protection Zone. Furthermore, there is a small river east of East Tilbury and the settlement is in close proximity of the River Thames. New development has the potential to adversely affect the quality of these waterbodies. Additionally, water-dependent designated sites (Mucking Flats and Marshes SSSI/SPA) are located in close proximity of East Tilbury and the scale of development proposed has the potential to adversely affect these sites. An uncertain significant negative effect is identified in relation to IIA objective **12: Water resources and quality**.

G.108 An uncertain mixed effect (minor positive / minor negative) is identified in relation to IIA objective **13: Climate change and energy**. Addressing climate change over the plan period is most likely to be influenced by design measures incorporated in new developments to reduce greenhouse gas emissions and to improve energy efficiency, including the use of renewable or low carbon energy

sources in developments, as well as promoting flood resilience which is addressed separately through IIA objective 14. These measures will be achieved through policy requirements in the Local Plan. However, directing most development towards locations with existing bus and rail connections is likely to promote more sustainable travel behaviours which will reduce the need to travel by private vehicle and associated transport-related emissions. Development within East Tilbury would likely promote sustainable travel behaviours amongst residents. However, the scale of new development, would generate additional traffic and other associated emissions.

G.109 An uncertain significant negative effect is identified for the East Tilbury and Linford Initial Proposal in relation to IIA objective **14: Flood Risk**. Much of East Tilbury is located within Flood Zone 3, including proposed sites to the south and north-east of the existing settlement. These areas benefit from flood defences however risk of flooding may increase with the effects of climate change. Additionally, the loss of greenfield land will increase impermeable surfaces and could therefore increase overall flood risk in the area. The location of development does not take into account mitigation such as the incorporation of SuDS, open spaces for flood storage or green infrastructure which is more likely to be influenced by policy requirements.

G.110 An overall uncertain mixed effect (significant negative / minor positive) is identified in relation to IIA objective **15: Biodiversity and geodiversity**. New development would be located within SSSI Impact Risk Zones, including for the nearby Mucking Flats and Marshes SSSI to the south. Linford Wood Local Nature Reserve is also located north-east of the settlement. Development of the proposed neighbourhoods may disturb species and increase recreational pressure at these sites. However, there is potential to incorporate biodiversity enhancements within the developments. The effect is uncertain as it will depend on the exact locations and design/layout of developments, as well as mitigation providing by other plan policies (e.g. Biodiversity Net Gain, green infrastructure policies).

G.111 An uncertain significant negative effect is identified in relation to IIA objective **16: Historic environment**. The development of new neighbourhood areas has the potential to adversely affect the setting of the adjacent East Tilbury Conservation Area, Grade II listed buildings, and the East Tilbury Battery Scheduled Monument which is located south of East Tilbury. Effects are uncertain as they will depend on the exact location and design of new development.

G.112 An uncertain significant negative effect is identified in relation to IIA objective **17: Landscape, townscape and visual impacts**. The area around East Tilbury and Linford lies within Landscape Character Area (LCA) H1: East & West Tilbury Open Undulating Farmland, which is of high sensitivity to very large housing development, therefore a significant negative effect is recorded. The precise effect of new development on landscape character in the area will be influenced to a large degree by the design of new proposals, the incorporation of green infrastructure and landscaping, and the detailed distribution of new development, resulting in uncertainty.

Reasonable Alternative (Option 2)

G.113 The reasonable alternative (Option 2) for East Tilbury and Linford proposes a much smaller quantum of development, comprising 230 new homes on a site north of the town and the provision of additional open space for recreation and to manage surface water.

G.114 A minor positive effect is identified in relation to IIA objective **1: Housing** for the East Tilbury and Linford reasonable alternative. This option involves the development of a smaller new neighbourhood to the north (230 homes) and therefore would not result in the same scale of housing delivery as the Initial Proposal.

G.115 An overall mixed effect (minor positive / minor negative) is identified in relation to IIA objective **2: Health, wellbeing and safety**. The proposal does not incorporate new healthcare facilities however existing healthcare facilities (Appledore Integrated Medical Centre, the Rigg Milner Medical Centre, East Tilbury Medical Centre) are within a reasonable walking distance of the new neighbourhood. The area around the north of East Tilbury ranks highly in Natural England's 'Access Network Mapping' in terms of access to green and blue infrastructure (e.g., County Parks, Local Nature Reserves, National Trails, Public Rights of Way, etc.). However, the new community would also be located in close proximity to the railway line and could expose residents to associated air/noise/light pollution.

G.116 An overall minor positive effect is identified in relation to IIA objective **3: Community cohesion**. The scale of development proposed will not incorporate any new services or community facilities, however new residents will be within a reasonable walk of existing local centres, services and facilities.

G.117 An overall minor positive effect is identified for IIA objective **4: Access to services and facilities**. Existing neighbourhood centres within East Tilbury and

Linford will ensure access to local services, facilities and public transport connections. However, the scale of development proposed will not incorporate any additional provision.

G.118 The reasonable alternative proposes a smaller quantum of development at East Tilbury and therefore no additional education facilities would be incorporated. There is existing local access to primary schools but no secondary schools, although there are existing public transport links to neighbouring settlements. An overall mixed effect (minor positive / minor negative) is identified in relation to IIA objective **6: Education and skills**.

G.119 A minor positive effect is identified in relation to IIA objective **7: Economy and employment**. New residents would be located in close proximity and reasonable public transport time of existing employment sites within the south of the Borough. However, the effect is minor rather than significant as no new employment sites are proposed within East Tilbury Initial Proposal and the Thames Industrial Park will be reduced in size to provide additional homes.

G.120 A minor positive effect is identified in relation to IIA objective **8: Transport** for the reasonable alternative. The scale of development proposed is unlikely to offer significant improvements to local transport infrastructure. However, new residential development will be located within reasonable distance of existing public transport connections, including East Tilbury train station.

G.121 While the reasonable alternative would still result in the loss of Grade 2 agricultural land, a much smaller scale of development is proposed. Therefore, a minor negative effect is identified in relation to IIA objective **10: Soils**.

G.122 The reasonable alternative proposes a much smaller scale of growth (230 homes) than the Initial Proposal. Therefore, an uncertain mixed effect (minor negative / minor positive) is identified in relation to IIA objective **11: Resource consumption and waste** for the reasons identified in relation to the initial proposal, reduced due to the scale of development proposed.

G.123 The reasonable alternative proposes a much smaller scale of growth (230 new homes) resulting in a much smaller loss of greenfield land than the initial proposal. It also proposes the provision of additional open space for recreation and to manage surface water. Therefore, an overall uncertain mixed effect (significant negative / minor positive) is identified for IIA objective **14: Flood Risk**.

G.124 An overall significant negative effect is identified in relation to IIA objective **15: Biodiversity and geodiversity**. The 230 approved homes are located beside the Linford Wood Local Nature Reserve which could be adversely affected by new development from species disturbance and increased recreational pressure. There are fewer opportunities to incorporate coordinated biodiversity enhancement within the reasonable alternative proposal as the application is already consented.

G.125 The reasonable alternative locates the smaller scale of development (230 homes) to the north of Tilbury, further from the East Tilbury Conservation Area, Grade II listed buildings and the East Tilbury Battery Scheduled Monument. Therefore, a minor negative effect is identified in relation to IIA objective **16: Historic environment**.

G.126 The reasonable alternative proposes a significantly reduced scale of development at East Tilbury. However, the area for the proposed 230 homes is located within LCA H1: East & West Tilbury Open Undulating Farmland, which is of high sensitivity to very large housing development. As such, an uncertain significant negative effect is identified in relation to IIA objective **17: Landscape, townscape and visual impact**.

Summary of likely significant effects of both options at East Tilbury and Linford across different strands of sustainability

G.127 Overall, the initial proposal (Option 1) at East Tilbury and Linford performs marginally better than the reasonable alternative (Option 2):

- **Economic objectives** (1: Housing, 6: Education and skills, 7: Economy and employment, and 8: Transport)
 - The initial proposal performs better for housing and education than the reasonable alternative as it proposes a higher number of homes to be developed in East Tilbury (1,000-1,200 compared to 230 new homes) which will facilitate the development of new educational facilities. The initial proposal also supports the development of new active travel infrastructure and the delivery of a new link road over the railway line which will remove the physical barrier to walking and cycling in this area.
- **Environmental objectives** (9: Air quality; 10: Soils; 11: Resource consumption and waste; 12: Water resources and quality; 13: Climate change and energy; 14: Flood risk; 15: Biodiversity and geodiversity; 16: Historic environment; and 17: Landscape, townscape and visual impacts)

- The large scale of development proposed in the initial proposal will have more adverse effects on the environmental objectives, particularly as it will result in greater loss of best and most versatile agricultural land and mineral resources, and greater adverse effects on nearby historic assets.
- **Social objectives** (including health and qualities): 2: Health, wellbeing and safety; 3: Community cohesion; 4: Access to services and facilities; 5: Equalities)
 - The initial proposal will deliver more social infrastructure to support the scale of development proposed, including a purpose-built community hub and new walking and cycling infrastructure, than the reasonable alternative. However, the initial proposal will have more of an adverse effect on health as new communities will be in close proximity to the railway line and the Lower Thames Crossing which could expose residents to air / noise / light pollution.

Mitigation and enhancement opportunities

G.128 Although the initial proposal (Option 1) at East Tilbury and Linford performs better than the reasonable alternative (Option 2), significant adverse effects are identified for IIA objectives **2: Health, wellbeing and safety, 10: Soils, 11: Resource consumption and waste, 12: Water resources and quality, 14: Flood risk, 15: Biodiversity and geodiversity, 16: Historic environment, and 17: Landscape, townscape and visual impacts**. The following bullet points identify potential opportunities to mitigate and minimise the adverse effects and potential opportunities to enhance its positive effects, improving the overall sustainability of this option:

- **IIA objective 2: Health, wellbeing and safety:** The development proposal for the settlement should be carefully masterplanned and designed to incorporate substantial green infrastructure and planting to minimise air/noise/light pollution, particularly along the boundaries adjacent to the existing employment sites, and along the railway line and Lower Thames Crossing.
- **IIA objective 10: Soils and 11: Resource consumption and waste:** The development of East Tilbury is likely to result in large-scale development of greenfield land which comprises Grade 2 agricultural land. The new settlement should retain areas of greenfield land as open space, where appropriate. Areas containing potential mineral resources (mostly sand

and gravel resources) should not be developed to avoid the sterilisation of mineral resources.

- **IIA objective 12: Water resources and quality and 14: Flood risk:** New development should be directed away from areas at high risk of flooding. The development proposal for the settlement should be carefully masterplanned and designed to ensure there is no adverse impact on waterbodies or water dependent SSSIs and to incorporate appropriate mitigation against flooding, including the provision of SuDS and green and blue infrastructure.
- **IIA objective 15: Biodiversity and geodiversity:** The development proposal for the settlement should be carefully masterplanned and designed to protect the nearby biodiversity sites including the Mucking Flats and Marshes SSSI and the Linford Wood Local Nature Reserve. The development should secure enhancements for biodiversity and contribute to the protection and enhancement of the Nature Recovery Network. Adequate provision of recreational space should be integrated into the new settlement to mitigate potential recreational pressures on existing wildlife areas, particularly at the aforementioned sites.
- **IIA objective 16: Historic environment:** The development proposal for the settlement should be carefully masterplanned and designed to preserve and enhance the historic assets and their settings including the East Tilbury Conservation Area, Grade II Listed Buildings and the East Tilbury Battery Conservation Area. Measures should be taken at a project level to protect and enhance the setting of both designated and undesignated heritage assets.
- **IIA objective 17: Landscape, townscape and visual impacts:** The development proposal for the settlement should be carefully masterplanned and designed to protect local landscape character. Green infrastructure and planting should be incorporated in the design of the settlement to minimise adverse effects.

Purfleet-on-Thames

Table G.6: Appraisal findings for Purfleet-on-Thames

IIA objective	Purfleet-on-Thames Initial Proposal	Purfleet-on-Thames Reasonable Alternative
1: Housing	++	++
2: Health, wellbeing and safety	++/--	++/--
3: Community cohesion	++	++
4: Access to services and facilities	++	++
5: Equalities	+/-	+/-
6: Education and skills	++	++
7: Economy and employment	++	++
8: Transport	++/--	++/--
9: Air quality	++/--	++/--
10: Soils	++	++/--
11: Resource consumption and waste	++/-?	++/-?
12: Water resources and quality	--?	--?
13: Climate change and energy	++/--?	++/--?
14: Flood risk	--?	--?
15: Biodiversity and geodiversity	--/+?	--/+?
16: Historic environment	+/-?	+/-?
17: Landscape, townscape and visual impacts	++	++/-

Initial Proposal (Option 1)

G.129 A significant positive effect is identified for the initial proposal for Purfleet-on-Thames in relation to IIA objective **1: Housing** as it would deliver 2,850 new homes through the regeneration of the settlement. Purfleet-on-Thames is within the 10% most deprived areas in terms of 'Barriers to Housing and Services' in

the Index of Multiple Deprivation. It is assumed that the scale of new development would deliver an appropriate range of housing in terms of sizes, tenures and affordability.

G.130 The proposed regeneration of Purfleet-on-Thames will incorporate new health and community facilities. There are also existing local medical facilities which would be accessible by active travel from the new neighbourhoods. The area currently ranks well in terms of Natural England's 'Access Network Mapping' in terms of access to green and blue infrastructure (e.g., County Parks, Local Nature Reserves, National Trails, Public Rights of Way, etc.), with Rainham Marshes Nature Reserve and the Thames Path located nearby. However, Purfleet is within the Borough's most urbanised area, with the highest levels of traffic congestion and associated air/noise/light pollution which could negatively affect health through poor air quality, loss of amenity, and other effects of noise such as sleep disturbance. The proposed new neighbourhoods are also within close proximity to existing Air Quality Management Areas on the A1090 and London Road Purfleet where air quality is particularly poor. The new neighbourhoods are also within close proximity to the port which could expose residents to air/noise/light pollution from its operational activities. An overall mixed effect (significant positive / significant negative) is identified in relation to IIA objective **2: Health, wellbeing and safety**.

G.131 Overall significant positive effects are identified for Purfleet-on-Thames in relation to IIA objective **3: Community cohesion** and IIA objective **4: Access to services and facilities**. The scale of growth proposed focuses urban intensification and new development at one of the Borough's largest settlements, promoting development of a compact settlement and ensuring good local access to essential services, facilities and public transport connections. The larger size and more established nature of the settlement is likely to mean these are areas of the Borough at which community networks are most resilient to change. Regeneration and development will ensure easy and equitable access to sustainable modes of transport which is likely to encourage associated higher levels of pedestrian/outdoor interaction and encourage neighbourhoods where people mix. Areas in Purfleet-on-Thames are located within the 30% most deprived areas for overall deprivation in the Index of Multiple Deprivation. The delivery of a high quantum of development in these locations is likely to support new service provision and is also likely to help address deprivation in the area.

G.132 New development and regeneration of Purfleet-on-Thames, one of the Borough's larger settlements with existing public transport links, is likely to be located close to services, facilities and accessible links, and therefore focusing

development to this area could make it easier for less mobile people, including elderly and disabled people, to access services and facilities. It is also likely to enable people to more easily access community facilities which may provide support groups or faith services. This area is also located in the south of Thurrock, with high levels of traffic congestion and air pollution could affect people more vulnerable to air pollution, including younger and older people, people with cardiovascular or respiratory illnesses and pregnant women. Overall, an uncertain mixed effect (minor positive / minor negative) is identified in relation to IIA objective **5: Equalities**.

G.133 A significant positive effect is identified in relation to IIA objective **6: Education and skills**. There are existing local primary and secondary facilities within Purfleet and the scale of urban intensification proposed will provide a new primary and new secondary school. Regeneration will also likely support additional early years provision as new applications come forward.

G.134 A significant positive effect is identified in relation to IIA objective **7: Economy and employment**. Although no new employment sites are proposed under the Initial Proposal, residents would be located in close proximity and reasonable public transport time of existing employment sites within the south of the Borough. Furthermore, the regeneration of Purfleet-on-Thames town centre is likely to improve the economic vitality and vibrancy of one of Thurrock's larger urban centres.

G.135 An overall mixed effect (significant positive / significant negative) is identified in relation to IIA objective **8: Transport**. There is an existing train station and frequent bus services within Purfleet-on-Thames ensuring good local access to sustainable transport options. Proximity of existing and provision of new local services promotes development of a compact settlement which enables more journeys to be undertaken by active travel. Therefore, urban intensification in this area will promote use of sustainable transport modes. However, increased population in this area of the scale proposed (population increase of 7,125) has the potential to exacerbate existing congestion, air and noise pollution on the local and strategic road network, particularly along the A1090 and London Purfleet Road.

G.136 An overall mixed effect (significant negative / significant positive) is identified in relation to IIA objective **9: Air quality**. Development within Purfleet focuses development within the largest settlement of the Borough, with existing access to sustainable transport modes (rail and bus network) and local services/facilities. Therefore, urban intensification and development in these areas will likely encourage use of sustainable transport modes, supporting the

modal shift away from private vehicle use. However, the Borough's existing Air Quality Management Areas are located within Purfleet and the surrounding strategic road network. Additional development of this scale could exacerbate existing air pollution issues.

G.137 A significant positive effect is identified in relation to IIA objective **10: Soils**. The redevelopment and regeneration of Purfleet-on-Thames supports the efficient use of brownfield urban/non-agricultural land.

G.138 An overall mixed effect (significant positive / minor negative) is identified in relation to IIA objective **11: Resource consumption and waste**. Development within Purfleet-on-Thames would make best use of existing infrastructure and services by locating development in one of the Borough's largest settlements. The Initial Proposal would support the large-scale redevelopment of brownfield land in the urban area by focusing on the regeneration of the settlement. However, a large quantity of construction materials would be required for the scale of growth proposed and there would be increased waste produced during the construction and operational lifetime of new homes, from day-to-day living. It is unknown if recycled materials will be promoted for construction and if energy efficiency measures and renewable energy would be promoted as these will be influenced more by policy requirements, therefore the effect is uncertain.

G.139 An uncertain significant negative effect is identified for IIA objective **12: Water resources and quality**. Areas proposed for regeneration and new development are in close proximity of the River Thames or waterbodies that flow into the Thames (Mardyke). Additionally, water dependent SSSIs (West Thurrock Lagoon and Marshes, Grays Chalk Pit) are located within the settlement and could be adversely affected by new development.

G.140 An overall mixed effect (significant positive / significant negative) is identified in relation to IIA objective **13: Climate change and energy**. Addressing climate change over the plan period is most likely to be influenced by design measures incorporated in new developments to reduce greenhouse gas emissions and to improve energy efficiency, including the use of renewable or low carbon energy sources in developments, as well as promoting flood resilience which is addressed separately through IIA objective 14. These measures will be achieved through policy requirements in the Local Plan. However, directing most development towards locations with existing bus and rail connections is likely to promote more sustainable travel behaviours which will reduce the need to travel by private vehicle and associated transport-related emissions. Regeneration within Purfleet-on-Thames will likely promote more

sustainable travel behaviours and reduce the need to travel by private vehicle, reducing associated transport-related emissions. However, the scale of new development, would generate additional traffic and other associated emissions.

G.141 An uncertain significant negative effect is identified in relation to IIA objective **14: Flood Risk**. The majority of Purfleet-on-Thames lies within Flood Zones 2 and 3. Development will be delivered through regeneration of existing urban areas. These areas also benefit from existing flood defences, but the risk may increase with the effects of climate change, therefore the negative score has been identified as significant but uncertain.

G.142 An overall uncertain mixed effect (significant negative / minor positive) is identified in relation to IIA objective **15: Biodiversity and geodiversity**. Development within Purfleet-on-Thames has the potential to adversely affect the Inner Thames Marshes SSSI, and Purfleet Chalk SSSI which are located in close proximity. However, regeneration of this scale has the potential to incorporate significant biodiversity enhancement within Purfleet-on-Thames. The effect is uncertain as it will depend on the exact locations and design/layout of developments/new town, as well as mitigation providing by other plan policies (e.g., Biodiversity Net Gain, green infrastructure policies).

G.143 An overall mixed effect (minor negative / minor positive) is identified in relation to IIA objective **16: Historic environment**. There are a number of locally designated heritage assets including listed buildings and Purfleet Conservation Area. New development could have adverse effects on the setting of these assets. However, regeneration could provide enhancements to the setting of heritage features. Effects are uncertain as they will depend on the exact location and design of new development.

G.144 By encouraging urban regeneration, this option could improve local townscape and reduce adverse effects on the Borough's more sensitive rural landscapes. Therefore, a significant positive is identified in relation to IIA objective **17: Landscape, townscape and visual impacts**.

Reasonable Alternative (Option 2)

G.145 The Purfleet-on-Thames Reasonable Alternative proposes broadly the same planned regeneration as the Initial Proposal (Option 1). However, it also proposes an additional new employment site adjacent to the A1306 for a small to medium sized business. Therefore, the majority of effects identified in relation to the Initial Proposal remain applicable for the Reasonable Alternative.

G.146 However, the significant positive effect identified for IIA objective **6: Economy and employment** is further strengthened due to the proposed new employment site. Furthermore, an overall mixed effect (significant positive / significant negative) is identified in relation to IIA objective **10: Soils**. Positive effects identified in relation to the redevelopment of brownfield land as supported in the Initial Proposal remain applicable, however the additional potential new employment site is located on Grade 3 agricultural land which comprises some of the best and most versatile land in the Borough and would be lost to development. For similar reasons, a mixed effect (significant positive / minor negative) is identified for IIA objective **17: Landscape, townscape and visual impacts** as the development of the new employment site north of Purfleet is located within Landscape Character Area B1: Lower Mar Dyke River Valley which is of high sensitivity to employment development.

Summary of likely significant effects of both options at Purfleet-on-Thames across different strands of sustainability

G.147 Overall, the initial proposal (Option 1) at Purfleet-on-Thames performs better than the reasonable alternative (Option 2):

- **Economic objectives** (1: Housing, 6: Education and skills, 7: Economy and employment, and 8: Transport)
 - The same effects are identified for the initial proposal and reasonable alternative for the economic objectives, however, the development of the new employment site adjacent to the A1306 as proposed in the reasonable alternative will deliver additional employment opportunities.
- **Environmental objectives** (9: Air quality; 10: Soils; 11: Resource consumption and waste; 12: Water resources and quality; 13: Climate change and energy; 14: Flood risk; 15: Biodiversity and geodiversity; 16: Historic environment; and 17: Landscape, townscape and visual impacts)
 - The development of the new employment site as proposed in the reasonable alternative will have more adverse impacts on the environmental objectives as it will result in the loss of greenfield land.
- **Social objectives** (including health and qualities): 2: Health, wellbeing and safety; 3: Community cohesion; 4: Access to services and facilities; 5: Equalities)
 - The same effects are identified for the initial proposal and reasonable alternative for the social objectives.

Mitigation and enhancement opportunities

G.148 Although the initial proposal (Option 1) at Purfleet-on-Thames performs better than the reasonable alternative (Option 2), significant adverse effects are identified for IIA objectives **2: Health, wellbeing and safety, 8: Transport, 9: Air quality, 12: Water resources and quality, 13: Climate change and energy, 14: Flood risk** and **15: Biodiversity and geodiversity**. The following bullet points identify potential opportunities to mitigate and minimise the adverse effects and potential opportunities to enhance its positive effects, improving the overall sustainability of this option:

- **IIA objective 2: Health, wellbeing and safety:** The development proposal for the settlement should be carefully masterplanned and designed to incorporate substantial green infrastructure and planting to minimise air/noise/light pollution, particularly along the boundaries adjacent to the existing employment sites, and along the A1090, London Purfleet Road and railway line. Due to its location near the port and its operational activities, the development proposal for Purfleet should be designed to ensure new developments are located at a safe distance from potentially hazardous operations and do not expose occupants to unacceptable health risks.
- **IIA objectives 8: Transport, 9: Air quality and 13: Climate change and energy:** The proposal should include adequate provision of walking and cycling infrastructure, enhancing connectivity particularly to the proposed new local centres, the train station, and Mardyke Valley to enable people to actively travel to access services, facilities and nature. The development proposal for the settlement should be carefully masterplanned and designed to incorporate substantial green infrastructure and planting to improve air quality in the area, including street trees, hedges, green walls and green roofs on buildings, particularly along the boundaries adjacent to the existing employment sites, along the A1090 and London Purfleet Road, and along the railway line.
- **IIA objective 12: Water resources and quality and 14: Flood risk:** New development should be directed away from areas at high risk of flooding. The development proposal for the settlement should be carefully masterplanned and designed to ensure there is no adverse impact on waterbodies or water dependent SSSIs and to incorporate appropriate mitigation against flooding, including the provision of SuDS and green and blue infrastructure.

- **IIA objective 15: Biodiversity and geodiversity:** The development proposal for the settlement should be carefully masterplanned and designed to protect the nearby biodiversity sites including the Inner Thames Marshes SSSI and Purfleet Chalk SSSI. The development should secure enhancements for biodiversity and contribute to the protection and enhancement of the Nature Recovery Network. Adequate provision of recreational space should be integrated into the new settlement to mitigate potential recreational pressures on existing wildlife areas, particularly at the aforementioned sites.

South Ockendon

Table G.7: Appraisal findings for South Ockendon

IIA objective	South Ockendon Initial Proposal	South Ockendon Reasonable Alternative
1: Housing	++	++
2: Health, wellbeing and safety	++/-	++/-
3: Community cohesion	++/-	++/-
4: Access to services and facilities	++	++
5: Equalities	+/-?	+/-?
6: Education and skills	++	++
7: Economy and employment	++	++
8: Transport	++/--	++/--
9: Air quality	++/--	++/--
10: Soils	--	--
11: Resource consumption and waste	--/+	--/+
12: Water resources and quality	--/+?	--/+?
13: Climate change and energy	++/--	++/--
14: Flood risk	--?	--?
15: Biodiversity and geodiversity	+/-?	+/-?
16: Historic environment	--?	--?
17: Landscape, townscape and visual impacts	++/--	++/--

Initial Proposal (Option 1)

G.149 A significant positive effect is identified for the South Ockendon Initial Proposal in relation to IIA objective **1: Housing**. This option would deliver 4,000-4,500 new homes in new neighbourhoods to the north and south-east, with potential for additional homes within the existing settlement area. Areas

surrounding South Ockendon are within the 10% most deprived areas in terms of 'Barriers to Housing and Services' in the Index of Multiple Deprivation. It is assumed that the scale of new development would deliver an appropriate range of housing in terms of sizes, tenures and affordability.

G.150 An overall mixed effect (significant positive / minor negative) is identified for IIA objective **2: Health, wellbeing and safety**. The scale of development proposed will incorporate a new healthcare centre and there are a number of healthcare facilities within a reasonable walk of new development, within existing local centres. Areas within and east of South Ockendon rank poorly in Natural England's 'Access Network Mapping' in terms of access to green and blue infrastructure (e.g., County Parks, Local Nature Reserves, National Trails, Public Rights of Way, etc.), although new neighbourhood areas to the north rank highly. This option proposes new neighbourhoods near the A13, M25 and potential Lower Thames Crossing, which could negatively affect health through poor air quality, loss of amenity, and other effects of noise such as sleep disturbance. The proposal mitigates the significance of the adverse effects to a certain extent by supporting the development of green buffers around the new neighbourhoods.

G.151 A mixed effect (significant positive / minor negative) effect is identified for South Ockendon in relation to IIA objective **3: Community cohesion** while a significant positive effect is identified for IIA objective **4: Access to services and facilities**. The scale of growth proposed at one of the Borough's largest settlements, promotes development of a compact settlement and ensures good local access to essential services, facilities and public transport connections. The larger size and more established nature of the settlement is likely to mean these are areas of the Borough at which community networks are most resilient to change. However, the creation of an urban extension of this scale is likely to take some time to establish. Regeneration and development of Opportunity Areas will ensure easy and equitable access to sustainable modes of transport which is likely to encourage associated higher levels of pedestrian/outdoor interaction and encourage neighbourhoods where people mix. Additionally, new neighbourhoods are expected to incorporate significant new facilities within neighbourhood centres. Large areas of South Ockendon are located within the 30% most deprived areas for overall deprivation in the Index of Multiple Deprivation. The delivery of a high quantum of development in these locations is likely to support new service provision and is also likely to help address deprivation in the plan area.

G.152 An uncertain mixed effect (minor positive / minor negative) is identified in relation to IIA objective **5: Equalities**. Development at South Ockendon, one of

the Borough's larger settlements with existing public transport links, is likely to be located close to services, facilities and accessible links, and therefore focusing development to these areas could make it easier for less mobile people, including elderly and disabled people, to access services and facilities. It is also likely to enable people to more easily access community facilities which may provide support groups or faith services. This area is also located in the south of Thurrock, with high levels of traffic congestion and air pollution could affect people more vulnerable to air pollution, including younger and older people, people with cardiovascular or respiratory illnesses and pregnant women.

G.153 An overall significant positive effect is identified in relation to IIA objective **6: Education and skills**. There are existing primary and secondary schools within South Ockendon. The scale of new development proposed in the Initial Proposal would provide an additional 2-3 new primary schools (with linked/additional early years provision and onsite SEN if design allows) and an all-through school on the south-east development parcel.

G.154 An overall significant positive effect is identified in relation to IIA objective **7: Employment**. New residents would be located in close proximity and reasonable public transport time of existing employment sites within the south of the Borough as there is an existing train station in South Ockendon. Existing employment land is safeguarded and an additional employment site proposed in the south-west of the settlement.

G.155 Overall mixed effects (significant positive / significant negative) are identified in relation to IIA objective **8: Transport** and IIA objective **9: Air quality**. There is an existing train station within South Ockendon, which would be located in close proximity to new neighbourhood developments in the north. There are also frequent existing bus services with connections to urban areas to the south. The proposal also supports the provision of multiple new 'green links' for walking and cycling, enhancing connectivity to the local centres, schools and the surrounding strategic green infrastructure. However, development at the urban edge could continue to promote reliance on private vehicle for many trips. Increased population in this area of the Borough has the potential to exacerbate congestion, air and noise pollution on the local and strategic road network, such as the A13 and M25. However, the proposed new link road from the south-east development parcel to Stifford Interchange aims to improve access to the A13 and reduce traffic movements through North Stifford. With regards to air quality, a high quantum of development at South Ockendon has the potential to exacerbate issues at the A13 AQMA to the south.

G.156 A significant negative effect is identified in relation to IIA objective **10: Soils**. The land around South Ockendon includes areas of Grade 1 and 2 agricultural land, which could be lost to development. The potential area for development also includes a historic landfill site next to the lakes at Grangewaters Watersports Centre, although this is such a small part of the area it is likely to be possible to avoid development that would experience any adverse effects from this.

G.157 An overall uncertain mixed effect (significant negative / minor positive) is identified in relation to IIA objective **11: Resource consumption and waste**. Locating new development at the settlement's larger existing settlement would make good use of existing infrastructure and services, however, the Initial Proposal would deliver a large quantum of growth on greenfield land. Furthermore, the proposed new neighbourhoods contain sand and gravel reserves, with the proposed new neighbourhoods to the north located in an area identified as a 'constrained mineral resource' for sand and gravel. A large quantity of construction materials would be required for the scale of growth proposed (e.g., new link roads) and there would be increased waste produced during the construction and operational lifetime of new homes, from day-to-day living. It is unknown if recycled materials will be promoted for construction and if energy efficiency measures and renewable energy would be promoted as these will be influenced more by policy requirements, therefore the effect is uncertain.

G.158 An uncertain mixed effect (significant negative / minor positive) is identified in relation to IIA objective **12: Water resources and quality**. The new neighbourhood proposed south-east of the settlement is in close proximity of the river Mardyke and has the potential to adversely affect the waterbody. However, the proposal incorporates enhancements to the blue-green infrastructure corridor which could include improvements to water quality.

G.159 An uncertain mixed effect (significant positive / significant negative) is identified in relation to IIA objective **13: Climate change and energy**. Addressing climate change over the plan period is most likely to be influenced by design measures incorporated in new developments to reduce greenhouse gas emissions and to improve energy efficiency, including the use of renewable or low carbon energy sources in developments, as well as promoting flood resilience which is addressed separately through IIA objective 14. These measures will be achieved through policy requirements in the Local Plan. However, directing most development towards locations with existing bus and rail connections is likely to promote more sustainable travel behaviours which will reduce the need to travel by private vehicle and associated transport-related emissions. Development within South Ockendon would likely promote

sustainable travel behaviours amongst residents. However, the scale of new development would likely generate additional traffic and associated transport-related emissions.

G.160 An uncertain significant negative effect is identified for the Initial Proposal in relation to IIA objective **14: Flood risk**. The area around South Ockendon is not located within Flood Zone 2 or 3. However, the loss of greenfield land will increase impermeable surfaces and could therefore increase overall flood risk in the area. The location of development does not take into account mitigation such as the incorporation of SuDS, open spaces for flood storage or green infrastructure which is more likely to be influenced by policy requirements.

G.161 An uncertain mixed effect (minor positive / minor negative) is identified for the Initial Proposal in relation to IIA objective **15: Biodiversity and geodiversity**. There are no designated biodiversity or geodiversity assets in South Ockendon. However, much of the area around South Ockendon lies within impact risk zones for all applications, including residential, for the Grays Thurrock Chalk Pit SSSI. The scale of new development and the enhancement of the Mardyke Corridor has the potential to incorporate biodiversity enhancements. The effect is uncertain as it will depend on the exact locations and design/layout of developments, as well as mitigation providing by other plan policies (e.g. biodiversity net gain, green infrastructure policies).

G.162 An uncertain significant negative effect is identified in relation to IIA objective **16: Historic environment**. There are a number of Grade II listed buildings surrounding Ockendon as well as the two Scheduled Monuments at South Ockendon Hall. The development of new neighbourhoods has the potential to adversely affect the setting of these assets. The scale of development in this area may also result in additional pressure on Belhus Park Registered Park and Garden which is listed on Historic England's Heritage at Risk register.

G.163 Overall, an uncertain mixed effect (significant negative / significant positive) is identified in relation to IIA objective **17: Landscape, townscape and visual impacts**. The area proposed for development lies predominantly within Landscape Character Assessment (LCA) C1: Belhus Farmed River Terrace Gravels and partially within LCA B1: Lower Mar Dyke River Valley, which are both of high sensitivity to very large housing development, therefore a significant negative effect is recorded. The Initial Proposal includes enhancements to local townscape around the train station and within the Derwent Parade Opportunity Areas, including public realm and open space improvements, which could result in positive effects for townscape character.

The precise effect of new development on landscape character in the area will be influenced to a large degree by the design of new proposals, the incorporation of green infrastructure and landscaping, and the detailed distribution of new development, resulting in uncertainty.

Reasonable Alternative (Option 2)

G.164 The potential effects identified for the initial proposal and their significance remains the same for the reasonable alternative. However, the delivery of 6,000-7,000 new homes and supporting infrastructure will further strengthen both the positive and negative effects identified for the initial proposal (described below).

Summary of likely significant effects of both options at South Ockendon across different strands of sustainability

G.165 Overall, the initial proposal (Option 1) at South Ockendon performs the same as the reasonable alternative (Option 2):

- **Economic objectives** (1: Housing, 6: Education and skills, 7: Economy and employment, and 8: Transport)
 - Both options will generate significant positive effects for housing, education, the economy and the transport network (as part of a mixed effect). The delivery of 6,000-7,000 new homes and associated infrastructure, including new educational facilities, proposed in the reasonable alternative will strengthen the positive effects identified for the economic objectives. The significant adverse effect identified for transport will also be enhanced for the reasonable alternative as the high quantum of development proposed has the potential to generate more traffic, congestion, and associated transport-related emissions.
- **Environmental objectives** (9: Air quality; 10: Soils; 11: Resource consumption and waste; 12: Water resources and quality; 13: Climate change and energy; 14: Flood risk; 15: Biodiversity and geodiversity; 16: Historic environment; and 17: Landscape, townscape and visual impacts)
 - Both options will generate significant positive and negative effects for the environmental objectives. However, the scale of development proposed in the reasonable alternative will result in greater loss of best and most versatile agricultural land which will have greater impacts on the landscape character of the area, biodiversity, and the water

environment. The significant adverse effect identified for the historic environment will also be strengthened as the proposed new neighbourhoods are within closer proximity to the two Scheduled Monuments at South Ockendon Hall.

- **Social objectives** (including health and qualities): 2: Health, wellbeing and safety; 3: Community cohesion; 4: Access to services and facilities; 5: Equalities)
 - Both options will generate significant positive effects for the social objectives, however, the delivery of the scale of development proposed for the reasonable alternative will provide more community, sports and healthcare facilities in the area to support the increase in population.

Mitigation and enhancement opportunities

G.166 As both options perform the same against the IIA Framework, the following bullet points outlining potential opportunities to mitigate and minimise adverse effects apply to both the initial proposal and reasonable alternative:

- **IIA objectives 8: Transport, 9: Air quality and 13: Climate change and energy:** The proposals should include adequate provision of walking and cycling infrastructure, enhancing connectivity particularly to the local centres, the train station, Mardyke Valley and the Local Nature Reserves to enable people to actively travel to access services, facilities and nature. The development proposal for the settlement should be carefully masterplanned and designed to incorporate substantial green infrastructure and planting to improve air quality in the area, including street trees, hedges, green walls and green roofs on buildings, particularly along the boundaries near the Lower Thames Crossing and the railway line.
- **IIA objective 10: Soils and 11: Resource consumption and waste:** The development of South Ockendon is likely to result in large-scale development of greenfield land which comprises Grade 1 and 2 agricultural land, the best and most versatile agricultural land. The new settlement should retain areas of greenfield land as open space, where appropriate. Areas containing potential mineral resources (mostly sand and gravel resources) should not be developed to avoid the sterilisation of mineral resources.
- **IIA objective 12: Water resources and quality and 14: Flood risk:** The development proposal for the settlement should be carefully masterplanned and designed to ensure there is no adverse impact on

waterbodies and to incorporate appropriate mitigation against flooding, including the provision of SuDS and green and blue infrastructure.

- **IIA objective 16: Historic environment:** The development proposal for the settlement should be carefully masterplanned and designed to preserve and enhance the historic assets and their settings including the two Scheduled Monuments at South Ockendon Hall and the numerous Grade II listed buildings. Measures should be taken at a project level to protect and enhance the setting of both designated and undesignated heritage assets.
- **IIA objective 17: Landscape, townscape and visual impacts:** The development proposal for the settlement should be carefully masterplanned and designed to protect local landscape character. Green infrastructure and planting should be incorporated in the design of the settlement to minimise adverse effects.

Stanford le Hope

Table G.8: Appraisal findings for Stanford le Hope

IJA objective	Stanford le Hope Initial Proposal
1: Housing	+
2: Health, wellbeing and safety	+/-
3: Community cohesion	+/-
4: Access to services and facilities	+/-
5: Equalities	+/-?
6: Education and skills	++
7: Economy and employment	++
8: Transport	++/-
9: Air quality	+/-
10: Soils	--
11: Resource consumption and waste	--/+?
12: Water resources and quality	--?
13: Climate change and energy	+/-?
14: Flood risk	--?
15: Biodiversity and geodiversity	--/+?
16: Historic environment	--/+?
17: Landscape, townscape and visual impacts	--/+?

Initial Proposal (Option 1)

G.167 A minor positive effect is identified for the Stanford le Hope Initial Proposal in relation to IJA objective **1: Housing**. It would deliver 850 - 1,100 new homes. It is assumed that the scale of new development would deliver an appropriate range of housing in terms of sizes, tenures and affordability.

G.168 An overall mixed effect (minor positive / minor negative) is identified in relation to IJA objective **2: Health, wellbeing and safety**. There are a number of existing healthcare services within Stanford le Hope, including the Stanford Clinic and The Surgery GP Clinic. New development would not incorporate new healthcare facilities however new neighbourhoods would be located within a reasonable walk of these existing facilities. Large areas of Stanford le Hope

rank poorly in terms of access to green and blue infrastructure (e.g. Country Parks, Local Nature Reserves, National Trails, Public Rights of Way etc.) however improved green links could ensure access to the Thameside Nature Reserve. New neighbourhoods would have good access to public green infrastructure including the Recreation Ground.

G.169 Overall mixed effects (minor positive / minor negative) are identified for Stanford le Hope in relation to IIA objective **3: Community cohesion** and **4: Access to services and facilities**. The proposal focuses urban intensification within the Opportunity Area and new development at one of the Borough's larger settlements, promoting creation of a compact settlement and ensuring good local access to essential services, facilities and public transport connections. However, development at the settlement edge may be further than a reasonable walk to some services/facilities. The larger size and more established nature of the settlement is likely to mean these are areas of the Borough at which community networks are most resilient to change. Regeneration and development will ensure easy and equitable access to sustainable modes of transport which is likely to encourage associated higher levels of pedestrian/outdoor interaction and encourage neighbourhoods where people mix. Areas of Stanford le Hope are within the 30% most deprived areas for overall deprivation in the IMD2019. The delivery of new development and urban regeneration is likely to support new service provision and is also likely to help address deprivation in the plan area.

G.170 An uncertain mixed effect (minor positive / minor negative) is identified in relation to IIA objective **5: Equalities**. Development at Stanford le Hope, one of the Borough's larger settlements, with existing public transport links is likely to be located close to services, facilities and accessible links, and therefore focusing development to these areas could make it easier for less mobile people, including elderly and disabled people, to access services and facilities. It is also likely to enable people to more easily access community facilities which may provide support groups or faith services. This area is also located in the south of Thurrock, with high levels of traffic congestion and air pollution could affect people more vulnerable to air pollution, including younger and older people, people with cardiovascular or respiratory illnesses and pregnant women.

G.171 A significant positive effect is identified in relation to IIA **objective 6: Education and skills**. There are existing primary and secondary schools within Stanford-le-Hope and the scale of new development proposed will incorporate an additional primary school.

G.172 An overall significant positive effect is identified in relation to IIA objective **7: Employment**. New residents would be located in close proximity and reasonable public transport time of existing employment sites within the south of the Borough, including DP World London Gateway Port.

G.173 An overall mixed effect (significant positive / minor negative) for IIA objective **8: Transport**. There is an existing train station and frequent bus services within Stanford le Hope which would be easily accessible from potential new neighbourhoods to the south by walking or cycling. The scale of development at the settlement edge could encourage private vehicle use and exacerbate existing congestion, air and noise pollution issues.

G.174 An overall mixed effect (minor positive / minor negative) is identified in relation to IIA objective **9: Air quality**. New development at Stanford le Hope is not expected to substantially increase traffic in any AQMA. As set out against IIA objective 7, existing public transport connections are good, although travel by private vehicle may still be encouraged for some trips for development at the settlement edge, which may result in higher levels of traffic, congestion, and pollution.

G.175 A significant negative effect is identified in relation to IIA objective **10: Soils**. The land to the south of Stanford le Hope is Grade 2 ALC land, which would be lost to development.

G.176 An overall uncertain mixed effect (significant negative / minor positive) is identified in relation to IIA objective **11: Resource consumption and waste**. Locating new development at the settlement's larger existing settlement would make good use of existing infrastructure and services. However, the Initial Proposal would deliver a large quantum of growth on greenfield land, and the proposed new neighbourhoods are in areas which contain sand and gravel reserves. A large quantity of construction materials would be required for the scale of growth proposed (e.g., new link roads) and there would be increased waste produced during the construction and operational lifetime of new homes, from day-to-day living. It is unknown if recycled materials will be promoted for construction and if energy efficiency measures and renewable energy would be promoted as these will be influenced more by policy requirements, therefore the effect is uncertain.

G.177 An uncertain significant negative effect is identified in relation to IIA objective **12: Water resources and quality**. A number of small watercourses and the river Thames are in close proximity of Stanford le Hope. The quality of these waterbodies could be adversely affected by development through contaminated runoff. The quantum of development proposed also has the

potential to affect the SPZ. Additionally, water-dependent designated sites (i.e. Fobbing Marshes SSSI, Holehaven Creek SSSI) and the Essex Coast Environmentally Sensitive Area (ESA) are located nearby and the scale of development proposed has the potential to adversely affect these sites. The effect is uncertain depending on the exact location and layout of development.

G.178 An uncertain mixed effect (minor positive / minor negative) is identified in relation to IIA objective **13: Climate change and energy**. Addressing climate change over the plan period is most likely to be influenced by design measures incorporated in new developments to reduce greenhouse gas emissions and to improve energy efficiency, including the use of renewable or low carbon energy sources in developments, as well as promoting flood resilience which is addressed separately through IIA objective 14. These measures will be achieved through policy requirements in the Local Plan. However, directing most development towards locations with existing bus and rail connections is likely to promote more sustainable travel behaviours which will reduce the need to travel by private vehicle and associated transport-related emissions. Development within Stanford le Hope would likely promote sustainable travel behaviours amongst residents. However, the scale of new development would generate additional traffic and associated emissions.

G.179 An uncertain significant negative effect is identified for the Initial Proposal in relation to IIA objective **14: Flood risk**. Areas proposed for development around Stanford le Hope are not located within Flood Zone 2 or 3. However, the loss of greenfield land will increase impermeable surfaces and could therefore increase overall flood risk in the area. The location of development does not take into account mitigation such as the incorporation of SuDS, open spaces for flood storage or green infrastructure which is more likely to be influenced by policy requirements.

G.180 An overall uncertain mixed effect (significant negative / minor positive) is identified in relation to IIA objective **15: Biodiversity and geodiversity**. There are a number of sensitive biodiversity designations in close proximity of Stanford le Hope. Grove House Wood LNR is located in the south of the settlement. The town is also located in close proximity of the Mucking Flats and Marshes SSSI, also designated as the Thames Estuary and Marshes Ramsar and SPA, and the Essex Coast Environmentally Sensitive Area (ESA) to the south. Expansion of the settlement south has the potential to adversely impact, and put additional recreational pressure on, these sites. However, development of this scale has the potential to incorporate significant biodiversity enhancement. The effect is uncertain as it will depend on the exact locations

and design/layout of developments/new town, as well as mitigation providing by other plan policies (e.g., BNG, green infrastructure policies).

G.181 An uncertain mixed effect (significant negative / minor positive) is identified in relation to IIA objective **16: Historic environment**. There are a number of listed buildings within Stanford le Hope (e.g. St. Clere's Hall, Church of St Margaret of Antioch, Inn on the Green) which could be adversely affected by the new neighbourhood west of Stanford-le-Hope and development within the Opportunity Area. However, public realm improvements and urban greening has the potential to enhance the setting of heritage assets. Effects are uncertain as they will depend on the exact location and design of new development.

G.182 Overall uncertain mixed effects (significant negative / minor positive) are identified in relation to IIA objective **17: Landscape, townscape and visual impacts**. The area around Stanford le Hope lies within LCA H1: East and West Tilbury Open Undulating Farmland which is of high sensitivity to very large housing development, therefore significant negative effects are recorded. The Initial Proposal includes enhancements to local townscape within the Opportunity Area, including public realm and open space improvements which could lead to a change in townscape character, leading to minor positive effects. The precise effect of new development on landscape character will be influenced to a large degree by the design of new proposals and the detailed distribution of new development, resulting in uncertainty.

Reasonable Alternative (Option 2)

G.183 There are no materially different growth scenarios being considered for Stanford le Hope. A no Green Belt release scenario is being considered at borough-wide level and is covered in **Appendix E**.

Summary of likely significant effects of options at Stanford le Hope across different strands of sustainability

G.184 There are no materially different growth scenarios being considered for Stanford le Hope. Therefore, the initial proposal (Option 1) at Stanford le Hope represents the best option available.

Mitigation and enhancement opportunities

G.185 Significant adverse effects are identified for IIA objectives 10: Soils, 11: Resource consumption and waste, 12: Water resources and quality, 14: Flood risk, 15: Biodiversity and geodiversity, 16: Historic environment, and 17: Landscape, townscape and visual impacts. The following bullet points identify potential opportunities to mitigate and minimise the adverse effects and potential opportunities to enhance its positive effects, improving the overall sustainability of this option:

- **IIA objective 10: Soils and 11: Resource consumption and waste:** The development of Stanford le Hope is likely to result in large-scale development of greenfield land which comprises Grade 2 agricultural land, the best and most versatile agricultural land, and sand and gravel reserves. The new development should retain areas of greenfield land as open space, where appropriate. Areas containing potential mineral resources (mostly sand and gravel resources) should not be developed to avoid the sterilisation of mineral resources.
- **IIA objective 12: Water resources and quality and 14: Flood risk:** New development should be directed away from areas at high risk of flooding. The development proposals should be carefully masterplanned and designed to ensure there is no adverse impact on waterbodies or water dependent SSSIs and to incorporate appropriate mitigation against flooding, including the provision of SuDS and green and blue infrastructure.
- **IIA objective 15: Biodiversity and geodiversity:** The development proposals should be carefully masterplanned and designed to protect the nearby biodiversity sites including Grove House Wood LNR, Mucking Flats and Marshes SSSI, also designated as the Thames Estuary and Marshes Ramsar and SPA. The development should secure enhancements for biodiversity and contribute to the protection and enhancement of the Nature Recovery Network. Adequate provision of recreational space should be integrated into the developments to mitigate potential recreational pressures on existing wildlife areas, particularly at the aforementioned sites.
- **IIA objective 16: Historic environment:** The development proposals should be carefully masterplanned and designed to preserve and enhance the historic assets and character of the historic assets near Stanford le Hope including the St. Clere's Hall, Church of St Margaret of Antioch, Inn

on the Green. Measures should be taken at a project level to protect and enhance the setting of both designated and undesignated heritage assets.

- **IIA objective 17: Landscape, townscape and visual impacts:** The development proposals should be carefully masterplanned and designed to protect local landscape character. Green infrastructure and planting should be incorporated in the design of the neighbourhoods, particularly along the boundaries of the new neighbourhoods.

Tilbury

Table G.9: Appraisal findings for Tilbury

IIA objective	Tilbury Initial Proposal	Tilbury Reasonable Alternative
1: Housing	+	+
2: Health, wellbeing and safety	++/--	++/--
3: Community cohesion	+	+
4: Access to services and facilities	++	++
5: Equalities	+/-?	+/-?
6: Education and skills	++	++
7: Economy and employment	++	++
8: Transport	++/--	++/--
9: Air quality	++/--	++/--
10: Soils	-	--
11: Resource consumption and waste	--/+?	--/+?
12: Water resources and quality	--?	--?
13: Climate change and energy	+/-?	+/-?
14: Flood risk	--?	--?
15: Biodiversity and geodiversity	--?	--?
16: Historic environment	--/+?	--/+?
17: Landscape, townscape and visual impacts	--/+?	--/+?

Initial Proposal (Option 1)

G.186 A minor positive effect is identified in relation to IIA objective **1: Housing**. Tilbury is located within the top 30% most deprived areas in terms of 'Barriers to Housing and Services' in the IMD2019. The Initial Proposal makes provisions for 110 new homes at the Former Tilbury Football Club.

G.187 An overall mixed effect (significant positive / significant negative) is identified in relation to IIA objective **2: Health, wellbeing and safety**. There are existing healthcare facilities within Tilbury. The scale of new development is not likely to incorporate any new local health services. Tilbury is ranked by Friends

of the Earth as one of the most deprived areas in terms of access to greenspace. Additionally, Tilbury is located in the south-west of the Borough which has the highest levels of traffic congestion and associated air/noise/light pollution. However, the Initial Proposal incorporates enhanced greenspace and improved access to and around Tilbury Fort offering some improvements.

G.188 An uncertain minor positive effect is identified in relation to IIA objective **3: Community cohesion**. The scale of new residential development is not expected to disrupt existing community networks as the larger size and more established nature of the settlement is likely to mean these are areas of the Borough at which community networks are most resilient to change. Regeneration of the settlement centre and enhancement of existing local facilities will encourage associated higher levels of pedestrian/outdoor interaction and encourage neighbourhoods where people mix.

G.189 An overall significant positive effect is identified in relation to IIA objective **4: Access to services and facilities**. The location of new development at Tilbury would ensure good access to existing local services and facilities within the settlement, and good public transport connections including the train station. The scale of new development and regeneration of the town centre would incorporate enhancements to local facilities.

G.190 An uncertain mixed effect (minor positive / minor negative) is identified for IIA objective **5: Equalities**. Development at Tilbury, one of the Borough's larger settlements, with existing public transport links is likely to be located close to services, facilities and accessible links, and therefore focusing development to these areas could make it easier for less mobile people, including elderly and disabled people, to access services and facilities. It is also likely to enable people to more easily access community facilities which may provide support groups or faith services. This area is also located in the south of Thurrock, with high levels of traffic congestion and air pollution could affect people more vulnerable to air pollution, including younger and older people, people with cardiovascular or respiratory illnesses and pregnant women.

G.191 A significant positive effect is identified in relation to IIA **objective 6: Education and skills**. New residential development would be located within reasonable distance of existing primary and secondary educational facilities, ensuring local access for new residents. The scale of new residential development proposed is not of the scale to provide additional educational facilities within Tilbury. However, redevelopment within the Tilbury Opportunity Area could incorporate additional/enhanced adult learning facilities and early years provision.

G.192 An overall significant positive effect is identified in relation to IIA objective **7: Employment**. The Initial Proposal includes a large new employment area which will create an range of new job opportunities. New residents would also be located in close proximity and reasonable public transport time of existing employment sites within the south of the Borough, including Tilbury Docks.

G.193 An overall mixed effect (significant positive / significant negative) is identified in relation to IIA objective **8: Transport**. There is an existing train station within Tilbury town centre which would be easily accessible from the new neighbourhood at the former Tilbury Football Club and Opportunity Areas. The scale of new residential development is unlikely to have significant traffic impacts locally due to public transport connections. However, new employment sites east of Tilbury Port could exacerbate existing congestion, air and noise pollution issues within the south-west of the borough. An overall mixed effect (significant positive / significant negative) is identified in relation to IIA objective **9: Air quality**. New residential development within the Tilbury focuses development within the largest settlement of the Borough, with existing access to sustainable transport modes (rail and bus network) and local services/facilities. However, there is an AQMA within Tilbury town centre, within the Town Centre Opportunity Area. Additional traffic, likely related to large-scale employment use, in this area is likely to increase air pollution and exacerbate local air quality issues.

G.194 A minor negative effect is identified in relation to IIA objective **10: Soils**. The Initial Proposal for Tilbury locates development mainly on non-agricultural land along the waterfront and within the existing settlement.

G.195 An uncertain mixed effect (significant negative / minor positive) is identified in relation to IIA objective **11: Resource consumption and waste**. The Tilbury Initial Proposal includes a large quantum of employment land development on greenfield land. A large quantity of construction materials would be required for construction and increased waste production during the construction and operational lifetime of new development. It is unknown if recycled materials will be promoted and if energy efficiency and renewable energy measures would be promoted as they will be more influenced by policy requirements. The Tilbury Initial Proposal identifies the potential for the regeneration of Tilbury town centre which would likely support redevelopment and delivery of homes on brownfield land.

G.196 An uncertain significant negative effect is identified in relation to IIA objective **12: Water resources and quality**. There are a number of small watercourses around Tilbury and areas of proposed development, particularly

new employment sites east of Tilbury and the cruise terminal Opportunity Area, would deliver development close to the river Thames. The quantum of development proposed also has the potential to affect the SPZ.

G.197 An uncertain mixed effect (minor positive / minor negative) is identified in relation to IIA objective **13: Climate change and energy**. Addressing climate change over the plan period is most likely to be influenced by design measures incorporated in new developments to reduce greenhouse gas emissions and to improve energy efficiency, including the use of renewable or low carbon energy sources in developments, as well as promoting flood resilience which is addressed separately through IIA objective 14. These measures will be achieved through policy requirements in the Local Plan. However, directing most development towards locations with existing bus and rail connections is likely to promote more sustainable travel behaviours which will reduce the need to travel by private vehicle and associated transport-related emissions. Development within Tilbury would likely promote sustainable travel behaviours amongst residents. However, the scale of new employment land would likely generate additional traffic and associated emissions.

G.198 An uncertain significant negative effect is identified for the Tilbury Initial Proposal in relation to IIA objective **14: Flood Risk**. The settlement of Tilbury is entirely located within Flood Zone 3. The area benefits from flood defences but risk of flooding may increase with the effects of climate change, so effects are uncertain. However, enhanced and expanded greenspace north of Tilbury Fort could incorporate SuDS measures including Natural Flood Management.

G.199 An uncertain significant negative effect is identified in relation to IIA objective **15: Biodiversity and geodiversity**. Tilbury is in close proximity of a number of designated sites (e.g., Thames Estuary and Marshes, North Kent Marshes) and is therefore within SSSI Impact Risk Zones for a number of sites. The scale of development is likely to result in some loss of biodiversity, However, development of this scale has the potential to incorporate significant biodiversity enhancement. The effect is uncertain as it will depend on the exact locations and design/layout of developments/new town, as well as mitigation providing by other plan policies (e.g., BNG, green infrastructure policies).

G.200 An overall uncertain mixed effect (significant negative / minor positive) is identified in relation to IIA objective **16: Historic environment**. Tilbury Fort is located to the south of the settlement and new development (e.g., at Tilbury Cruise Terminal and employment sites to the east) may have adverse impacts on its setting. There are also a number of listed buildings, including the Cruise Terminal Main Building, nearby. However, the Initial Proposal also includes

enhanced greenspaces and improved access at Tilbury Fort, which could enhance the setting of the scheduled monument. Effects are uncertain as they will depend on the exact location and design of new development.

G.201 An uncertain mixed effect (significant negative / minor positive) is identified for the Initial Proposal in relation to IIA objective **17: Landscape, townscape and visual impacts**. The area to the east of Tilbury proposed for new employment land is located within LCA F2: Tilbury Marshes which is a flat, open and undeveloped area between Tilbury and East Tilbury. The landscape setting of this area will likely be significantly altered by the development of the Lower Thames Crossing to the east. The precise effect of new development on landscape character in the plan area will be influenced to a large degree by the design of new proposals and the detailed distribution of new development, resulting in uncertainty. However, the proposal also incorporates enhanced blue and green infrastructure with improved greenspace and access around Tilbury Fort which may offer landscape enhancements.

Reasonable Alternative (Option 2)

G.202 The Reasonable Alternative for Tilbury (Option 2) is broadly the same as the Initial Proposal (Option 1). As such, majority of environmental effects identified against the Initial Proposal remain applicable.

G.203 The significant positive effect identified for IIA objective **6: Employment** would be further strengthened, and a significant negative effect is identified in relation to IIA objective **10: Soils** as the additional employment site is located on Grade 2 ALC land, which would be lost to development.

G.204 The uncertain significant negative effect is also identified for the Tilbury Reasonable Alternative in relation to IIA objective **14: Flood Risk** for the reasons set out in relation to the Initial Proposal. The additional employment site proposed within the Tilbury Reasonable Alternative is located within a flood storage area/functional flood plain further exacerbating flood risk concerns in addition to those set out in relation to the Initial Proposal.

Summary of likely significant effects of both options at Tilbury across different strands of sustainability

G.205 Overall, the initial proposal (Option 1) at Tilbury performs very similarly to the reasonable alternative (Option 2) given that they both include the large employment development to the east of the settlement and the same quantities

of homes, facilities and services. Relative to the significant area of employment land to the east, the reasonable alternative (Option 2) includes an additional small area of employment land to the north of the settlement, which results in the following differences:

- **Economic objectives** (7: Economy and employment)
 - The reasonable alternative will perform better for economic growth and employment provision given that it would involve the development of more employment land.
- **Environmental objectives** (10: Soils; 14: Flood risk)
 - The development of the additional small employment site to the north of Tilbury in the reasonable alternative (Option 2) would result in the loss of more greenfield land classified as Grade 2 agricultural land and within the functional flood plain.

G.206 On balance, the benefits of the additional, relatively small area of employment land in the reasonable alternative (Option 2) is considered to be outweighed by the additional negative environmental impacts. Therefore, the initial proposal (Option 1) is considered to perform better.

Mitigation and enhancement opportunities

G.207 Significant adverse effects are identified for IIA objectives 2: Health, wellbeing and safety, 8: Transport, 9: Air quality, 11: Resource consumption and waste, 12: Water resources and quality, 14: Flood risk, 15: Biodiversity and geodiversity, 16: Historic environment, and 17: Landscape, townscape and visual impacts. The following bullet points identify potential opportunities to mitigate and minimise the adverse effects and potential opportunities to enhance its positive effects, improving the overall sustainability of this option:

- **IIA objective 2: Health, wellbeing and safety:** The development proposals should be carefully masterplanned and designed to incorporate substantial green infrastructure and planting to minimise air/noise/light pollution, particularly along the boundaries adjacent to the proposed employment sites and improve access to green space, which is particularly poor in the area.
- **IIA objectives 8: Transport and 9: Air quality:** The proposals should include adequate provision of walking and cycling infrastructure, enhancing connectivity particularly to and from the employment sites and the centre of Tilbury and Tilbury train station. The development proposals

should be carefully masterplanned and designed to incorporate substantial green infrastructure and planting to improve air quality in the area, including street trees, hedges, green walls and green roofs on buildings, particularly along the boundaries near the Lower Thames Crossing and the railway line.

- **IIA objective 10: Soils and 11: Resource consumption and waste:** The development of Tilbury will involve the loss of a significant area of greenfield land. The new development should retain areas of greenfield land as open space, where appropriate.
- **IIA objective 12: Water resources and quality and 14: Flood risk:** New development should be directed away from areas at high risk of flooding. The development proposals should be carefully masterplanned and designed to ensure there is no adverse impact on waterbodies or water dependent SSSIs and to incorporate appropriate mitigation against flooding, including the provision of SuDS and green and blue infrastructure.
- **IIA objective 15: Biodiversity and geodiversity:** The development proposals should be carefully masterplanned and designed to protect the nearby biodiversity sites including Thames Estuary and Marshes, North Kent Marshes. The development should secure enhancements for biodiversity and contribute to the protection and enhancement of the Nature Recovery Network. Adequate provision of recreational space should be integrated into the developments to mitigate potential recreational pressures on existing wildlife areas, particularly at the aforementioned sites.
- **IIA objective 16: Historic environment:** The development proposals should be carefully masterplanned and designed to preserve and enhance the historic assets and character of the historic assets near Tilbury including Tilbury Fort and the Cruise Terminal Main Building. Measures should be taken at a project level to protect and enhance the setting of both designated and undesignated heritage assets.
- **IIA objective 17: Landscape, townscape and visual impacts:** The development proposals should be carefully masterplanned and designed to protect local landscape character. Green infrastructure and planting should be incorporated in the design of the neighbourhoods, particularly along the boundaries of the new employment sites.

Rural Villages

Table G.10: Appraisal findings for Rural Villages

IIA objective	Rural Villages Initial Proposal	Rural Villages Reasonable Alternative
1: Housing	+	+
2: Health, wellbeing and safety	--/+	--/+
3: Community cohesion	+/-?	--/+?
4: Access to services and facilities	+/-	--/+
5: Equalities	+/-?	+/-?
6: Education and skills	+/-	++/-
7: Economy and employment	-	-
8: Transport	--	--/+?
9: Air quality	--	--
10: Soils	+/-	--/+
11: Resource consumption and waste	--?	--?
12: Water resources and quality	--?	--?
13: Climate change and energy	--?	--?
14: Flood risk	-?	-?
15: Biodiversity and geodiversity	-?	-?
16: Historic environment	--?	--?
17: Landscape, townscape and visual impacts	--?	--?

Initial Proposal (Option 1)

G.208 A minor positive effect is identified for the Rural Villages Initial Proposal in relation to IIA objective **1: Housing**. This option would deliver a total of around 250 new homes (90-110 in Orsett and 40-50 at Horndon-on-the-Hill) with a focus on affordable homes and housing suitable for older people. Minor amendments to Green Belt boundaries are also likely to identify additional small infill development opportunities.

G.209 An overall mixed effect (minor positive / significant negative) is identified for the Rural Villages Initial Proposal in relation to IIA objective **2: Health**,

wellbeing and safety. There is an existing hospital within Orsett and GP practice in Horndon-on-the-Hill ensuring local access to health facilities. However new residential development at Orsett is proposed on the site of the existing hospital, resulting in loss of local facilities and development is not expected to incorporate any additional facilities. The two settlements also have generally good existing access to local greenspace and the surrounding countryside.

G.210 An uncertain mixed effect (minor positive / minor negative) is identified in relation to IIA objective **3: Community Cohesion**. The scale of development in the Borough's smaller villages has the potential to disrupt existing community networks. However, the potential to create settlement extensions in which community networks are fostered and that fit cohesively with the existing village will depend largely on design of new development. The provision of new housing would emphasise affordable first/family homes and housing suitable for older people to ensure the long-term vitality of the villages.

G.211 An overall mixed effect (minor positive / minor negative) is identified in relation to IIA objective **4: Access to services and facilities**. The two villages, Orsett and Horndon-on-the-Hill have generally good existing services and facilities, such as local shops. However, residents will likely still be required to travel to larger settlements to meet many of their needs. There are limited existing public transport connections. The scale of development proposed in the Initial Proposal will bring enhancements to existing facilities in these rural settlements, however is unlikely to be of a scale to introduce new facilities.

G.212 An uncertain mixed effect (minor positive / minor negative) is identified for IIA objective **5: Equalities**. Many residents would be able to meet several of their needs within Orsett and Horndon-on-the-Hill. The Initial Proposal has a focus on the provision of affordable family homes and housing suitable for older people, benefiting groups with protected characteristics (older people). This focus would also help to address rural deprivation and therefore a positive effect is identified in relation to people living in deprived/rural areas. However, the Borough's rural villages have poor existing public transport facilities. As such, opportunities for less mobile people, including the elderly and disabled people, to access services and facilities, may be more limited.

G.213 An overall mixed effect (minor positive / minor negative) is identified for IIA objective **6: Education and Skills**. The two villages provide local access to primary schools. The Initial Proposal could potentially provide for the expansion of the existing Orsett Village School, ensuring additional population growth will

be accommodated. However, residents would be required to travel to the Borough's larger settlements to meet the rest of their educational needs.

G.214 An overall minor negative effect is identified in relation to IIA objective **7: Economy and employment**. There are limited employment opportunities in the village settlements and no additional employment land is proposed within the Rural Villages Initial Proposal. Locating new development away from existing and proposed employment sites in the Borough's larger settlements will require residents to travel and there are limited existing public transport services in Orsett and Horndon-on-the-Hill.

G.215 A significant negative is identified in relation to IIA objective **8: Transport**. There are no existing local rail links, and the villages are currently only served by infrequent bus services. Additional development is likely to promote reliance on private vehicle use. The scale of development proposed at each village is unlikely to be of the scale to offer significant public transport improvements.

G.216 A significant negative effect is identified in relation to IIA objective **9: Air quality**. The lack of rail connections, frequency of bus services, and lack of active travel infrastructure in the villages, coupled with the location of existing services and employment sites in the urban areas primarily in the south of the Borough is likely to increase air pollution due to increased traffic movements, particularly along the A13 which passes through an AQMA.

G.217 A mixed effect (minor positive / minor negative) is identified in relation to IIA objective **10: Soils**. Development at Orsett would be located on brownfield land, supporting efficient use of land. The land around Horndon on the Hill is Grade 3 agricultural land (proposed for 40-50 homes) which, if developed, would result in potential loss of a small area of the Borough's best and most versatile land.

G.218 An uncertain mixed effect (significant negative / minor positive) is identified in relation to IIA objective **11: Resource consumption and waste**. The Rural Villages Initial Proposal would generally result in large-scale development of greenfield land, however, the proposal at Orsett would comprise the development of brownfield land. A large quantity of construction materials would be required for construction and increased waste production during the construction and operational lifetime of these homes, from day-to-day living. It is unknown if recycled materials will be promoted and if energy efficiency and renewable energy measures would be promoted as they will be more influenced by policy requirements. Therefore, the effect is uncertain.

G.219 An uncertain minor negative effect is identified in relation to IIA objective **12: Water resources and quality**. There are two Source Protection Zones within Thurrock, in Linford and North Stifford, and the entire catchments of these two zones fall within central Thurrock. Therefore, development at Orsett and Horndon-on-the-Hill have the potential to affect the SPZ. There are no waterbodies directly adjacent to the two settlements. However, the effect is uncertain depending on the exact location, design and layout of development.

G.220 A significant negative effect is identified in relation to IIA objective **13: Climate change and energy**. Addressing climate change over the plan period is most likely to be influenced by design measures incorporated in new developments to reduce greenhouse gas emissions and to improve energy efficiency, including the use of renewable or low carbon energy sources in developments, as well as promoting flood resilience which is addressed separately through IIA objective 14. These measures will be achieved through policy requirements in the Local Plan. However, directing most development towards locations with existing bus and rail connections is likely to promote more sustainable travel behaviours which will reduce the need to travel by private vehicle and associated transport-related emissions. There are few existing public transport connections to the Borough's existing small village and the scale of development proposed is unlikely to offer significant enhancements. Therefore, development in these locations is likely to promote private vehicle use and associated transport-related emissions.

G.221 An uncertain minor negative effect is identified for the Rural Villages Initial Proposal in relation to IIA objective **14: Flood risk**. Areas proposed for development around Orsett and Horndon-on-the-Hill are not located within Flood Zone 2 or 3. However, the loss of greenfield land will increase impermeable surfaces and could therefore increase overall flood risk in the area. The location of development does not take into account mitigation such as the incorporation of SuDS, open spaces for flood storage or green infrastructure which is more likely to be influenced by policy requirements.

G.222 An uncertain minor negative effect is identified in relation to IIA objective **15: Biodiversity and geodiversity**. Orsett and Horndon-on-the-Hill and Bulphan are not located in close proximity to any designated sites, however development of this scale in a rural area is likely to result in some loss of biodiversity. This is uncertain as rural areas, particularly areas of arable farmland, can have limited biodiversity value.

G.223 An uncertain significant negative effect is identified in relation to IIA objective **16: Historic environment**. Horndon on the Hill and Orsett include

conservation areas, with most listed buildings in the villages associated with these. There is a cropmark and a number of Heritage Conservation Records within Horndon on the Hill, including historic monuments and Medieval vessels and coins, although these are mostly within the existing built-up area. There are also cropmarks and a number of Essex Heritage Conservation Records, within and around Orsett (particularly to the north). Additionally, there are two Scheduled Monuments adjacent to Orsett (Bishop Bonner's Palace and Springfield style enclosure and Iron Age enclosures south of Hill House). Therefore, expansion of this village has greatest potential for harm to the historic environment. As such, expansion of smaller villages has potential for significant negative effects, but these are uncertain as it depends on the location and design of development.

G.224 An uncertain significant negative effect is identified in relation to IIA objective **17: Landscape, townscape and visual impacts**. This focuses development at the Borough's smaller villages in more rural locations. The less developed nature of these settlements may mean that a relatively high number of new homes, compared to the existing settlement size, may have adverse effects in terms of existing landscape character. Horndon-on-the-Hill and Orsett lie within the Landscape Character Area (LCA) H2: Orsett and Horndon on the Hill Open Undulating Farmland which is of high/medium-high sensitivity to the scale of development expected. The precise effect of new development on landscape character in the plan area will be influenced to a large degree by the design of new proposals, the incorporation of green infrastructure, and the detailed distribution of new development, resulting in uncertainty.

Reasonable Alternative (Option 2)

G.225 The higher scale of growth proposed in the reasonable alternative will result in the same effects as identified for the initial proposal in relation to IIA objectives **1: Housing**,

G.226 The overall mixed effect (minor positive / significant negative) remains applicable for the reasonable alternative in relation to IIA objective **2: Health, wellbeing and safety** for the reasons set out against the Initial Proposal. Additionally, removal of Fobbing, North Stifford and West Tilbury from the Green Belt is likely to result in additional development at the Borough's smallest villages with few existing local services/facilities, including healthcare.

G.227 The Rural Villages reasonable alternative brings greater potential to disrupt existing community networks due to the scale of growth compared to the existing size of the settlements. However, new development would support

additional community facilities including enhanced sports facilities at Orsett which new and existing residents will benefit from. As such, an overall uncertain mixed effect (significant negative / minor positive) remains valid for IIA objective **3: Community cohesion** for the reasons set out against the initial proposal.

G.228 An overall mixed effect (minor positive / significant negative) is identified in relation to IIA objective **4: Access to services and facilities** for the reasons set out against the initial proposal. Additionally, development at Bulphan and removal of Fobbing, North Stifford and West Tilbury from the Green Belt is likely to result in additional development at the Borough's smallest villages with few existing local services/facilities and limited public transport connections. However, the larger scale of development proposed in Orsett will incorporate some new local facilities (e.g., new sport facilities).

G.229 The overall uncertain mixed effects (minor positive / minor negative) remain applicable for IIA objective **5: Equalities** in relation to the Rural Villages reasonable alternative for the reasons set out against the initial proposal.

G.230 An overall mixed effect (significant positive / minor negative) is identified for the Rural Villages Reasonable Alternative in relation to IIA objective **6: Education and skills**. The larger quantum of growth proposed at Orsett would include the delivery of a new primary school, linked/additional early years provision and potentially an onsite Special Education Needs school. Residents would still be required to travel to other areas to meet further educational needs.

G.231 The overall minor negative effect remains applicable for the reasonable alternative in relation to IIA objective **7: Economy and employment**, for the reasons set out against the initial proposal. Additionally, removal of Fobbing, North Stifford and West Tilbury from the Green Belt is likely to result in additional development at the Borough's smallest villages with few existing local employment opportunities.

G.232 An overall uncertain mixed effect (significant negative / minor positive) is identified for the reasonable alternative in relation to IIA objective **8: Transport**. In addition to the initial proposal, removal of Fobbing, North Stifford and West Tilbury from the Green Belt is likely to result in additional development at the Borough's smallest villages with few existing local services/facilities. However, the scale of development proposed at Orsett (750 homes) will incorporate additional enhancements to local community facilities and could offer improvements to the local public transport network, reducing the need to travel by private vehicle, although this is uncertain. As such, the significant negative effect is mixed with an uncertain minor positive effect.

G.233 The significant negative effect identified in relation to IIA objective **9: Air quality** remains applicable for the reasonable alternative. The higher quantum of growth proposed at Orsett may lead to improvements/new public transport connections however the removal of smaller settlements from the Green Belt will likely result in additional development at settlements remote from the Borough's existing services/facilities, promoting private vehicle use and exacerbating air quality issues.

G.234 A mixed effect (significant negative / minor positive) is identified in relation to the reasonable alternative in relation to IIA objective **10: Soils**. The land proposed for development east and west of Orsett is Grade 2 agricultural land, resulting in loss of some of the Borough's best and most versatile land.

G.235 An uncertain significant negative effect is identified for the reasonable alternative in relation to IIA objective **11: Resource consumption and waste**. The reasonable alternative would deliver an additional quantum of growth and therefore the significant negative effect remains applicable for the reasons set out in relation to the Initial Proposal.

G.236 The uncertain minor negative effect remains applicable for the reasonable alternative in relation to IIA objective **12: Water resources and quality**, for the reasons set out against the Initial Proposal.

G.237 The uncertain significant negative effect identified in relation to IIA objective **13: Climate change and energy** remains applicable for the reasonable alternative for the reasons set out against the initial proposal.

G.238 The uncertain significant negative effect identified remains applicable for the reasonable alternative in relation to IIA objective **14: Flood Risk**, for the reasons set out under the initial proposal.

G.239 The uncertain minor negative effect identified remains applicable for the reasonable alternative in relation to IIA objective **15: Biodiversity and geodiversity**, for the reasons set out under the initial proposal.

G.240 The significant negative effect identified for the initial proposal in relation to IIA objective **16: Historic environment** remains applicable for the reasonable alternative, for the reasons set out under the initial proposal. The reasonable alternative would introduce a high quantum of growth adjacent to the Conservation Area, increasing the potential for adverse effects on the historic environment.

G.241 The significant negative effect remains applicable for IIA objective **17: Landscape, townscape and visual impacts**. The reasonable alternative would involve a higher quantum of growth at Orsett and removal of Fobbing, North Stifford and West Tilbury from the Green Belt. In addition to the effects set out in relation to the initial proposal, negative effects on the rural landscape and setting of the Borough's villages would likely be exacerbated.

Summary of likely significant effects of both options at in the rural villages across different strands of sustainability

G.242 Overall, the initial proposal (Option 1) for the rural villages performs better than the reasonable alternative (Option 2):

- **Economic objectives** (1: Housing, 6: Education and skills, 7: Economy and employment, and 8: Transport)
 - Both options will generate positive effects for housing and adverse effects for the economy and the transport network. The larger quantum of growth proposed at Orsett under the reasonable alternative will have greater positive effects for education as it would include the delivery of a primary school. Similarly, the higher quantum of development proposed at Orsett under the reasonable alternative could offer improvements to the local public transport network, reducing the need to travel by private vehicle.
- **Environmental objectives** (9: Air quality; 10: Soils; 11: Resource consumption and waste; 12: Water resources and quality; 13: Climate change and energy; 14: Flood risk; 15: Biodiversity and geodiversity; 16: Historic environment; and 17: Landscape, townscape and visual impacts)
 - Both options will generate significant negative effects for the environmental objectives. However, the scale of development as proposed in the reasonable alternative will result in greater loss of best and most versatile agricultural land and greater impacts on landscape character due to the removal of several villages from the Green Belt.
- **Social objectives** (including health and qualities): 2: Health, wellbeing and safety; 3: Community cohesion; 4: Access to services and facilities; 5: Equalities)
 - The higher quantum of growth proposed in the rural villages brings greater potential to disrupt existing community networks due to the scale of growth compared to the existing size of the settlements. The reasonable alternative also proposes development at Bulphan and the

removal of Fobbing, North Stifford and West Tilbury from the Green Belt which is likely to result in additional development at the Borough's smallest villages with few existing local services/facilities and limited public transport connections.

Mitigation and enhancement opportunities

G.243 Although the initial proposal (Option 1) at the rural villages performs better than the reasonable alternative (Option 2), significant adverse effects are identified for IIA objectives **2: Health, wellbeing and safety, 8: Transport, 9: Air quality, 11: Resource consumption and waste, 12: Water resources and quality, 13: Climate change and energy, 16: Historic environment and 17: Landscape, townscape and visual impacts**. The following bullet points identify potential opportunities to mitigate and minimise the adverse effects and potential opportunities to enhance its positive effects, improving the overall sustainability of this option:

- **IIA objective 2: Health, wellbeing and safety, 8: Transport, 9: Air quality and 13: Climate change and energy:** The proposal should include adequate provision of walking and cycling infrastructure, enhancing connectivity particularly to the village centres, schools, community facilities and areas of open space to enable people to actively travel to access services, facilities and nature.
- **IIA objective 11: Resource consumption and waste:** The development of Hordon on the Hill is likely to result in the development of greenfield land which comprises Grade 3 agricultural land. The new development should retain areas of greenfield land as open space, where appropriate.
- **IIA objective 16: Historic environment:** The development proposal for the settlement should be carefully masterplanned and designed to preserve and enhance the numerous historic assets around Orsett and Hordon on the Hill and their settings. Measures should be taken at a project level to protect and enhance the setting of both designated and undesignated heritage assets.
- **IIA objective 17: Landscape, townscape and visual impacts:** The development proposal for the settlement should be carefully masterplanned and designed to protect local landscape character. Green infrastructure and planting should be incorporated in the design of the settlement to minimise adverse effects.

New Place – Southfields

Table G.11: Appraisal findings for Southfields

IJA objective	New Place - Southfields
1: Housing	++
2: Health, wellbeing and safety	--
3: Community cohesion	+/-?
4: Access to services and facilities	++/-?
5: Equalities	+/-?
6: Education and skills	++/-?
7: Economy and employment	+/-?
8: Transport	--/+
9: Air quality	--/+
10: Soils	--
11: Resource consumption and waste	--?
12: Water resources and quality	-?
13: Climate change and energy	--/+?
14: Flood risk	-?
15: Biodiversity and geodiversity	--?
16: Historic environment	--?
17: Landscape, townscape and visual impacts	--?

Initial Proposal (Option 1)

G.244 A significant positive effect is identified for the Southfields New Place Opportunity Area in relation to IJA objective **1: Housing**. The settlement would deliver an estimated 1,300 - 1,700 new homes. Southfields is located within the 10% most deprived for 'Barriers to Housing and Services' in the Index of Multiple Deprivation. It is assumed that the scale of new development would deliver an appropriate range of housing in terms of sizes, tenures and affordability.

G.245 The opportunity area proposed at Southfields ranks poorly in Natural England's 'Access Network Mapping' in terms of access to green and blue infrastructure (e.g. County Parks, Local Nature Reserves, National Trails, Public Rights of Way, etc.), although new 'green walking and cycling links' are proposed connecting Stanford Road to Holford Road/Buckingham Hill Road. There are no existing healthcare facilities in Southfield and the expansion of the settlement does not propose any new healthcare facilities. While some needs may be met locally with the provision of a new local centre, it is likely that residents will be required to travel further to meet most of their needs, reducing opportunities for active travel. Overall, a significant negative effect is identified in relation to IIA objective **2: Health, wellbeing and safety**.

G.246 An uncertain mixed effect (minor positive / minor negative) is identified in relation to IIA objective **3: Community cohesion**. The scale of development proposed by the New Place Opportunity Area has the potential to disrupt existing community networks. However, the potential to create settlement extensions in which community networks are fostered and that fit cohesively with the existing village will depend largely on design of new development. The provision of new community facilities including a small neighbourhood centre will benefit new and existing residents and increase opportunity for informal interaction.

G.247 An overall mixed effect (significant positive / minor negative) is identified in relation to IIA objective **4: Access to services and facilities**. Southfields currently has limited services meaning residents have to travel longer to meet their needs. The scale of development proposed could support a new primary school with linked/additional early years provision, a small neighbourhood centre/small convenience store and community facilities, providing more sustainable access for new and existing residents. However, residents will still likely be required to travel longer and be reliant on private vehicles to meet many of their needs.

G.248 A mixed effect (minor positive / minor negative) is identified in relation to IIA objective **5: Equalities**. The provision of a small neighbourhood centre/community facilities will mean residents are less likely to have to travel longer distances to access services and facilities. However, certain groups may not have access to more specialist facilities, such as support or faith groups. There are existing bus services to Lakeside, Grays and Tilbury serving Southfields and it is likely that the scale of new development would encourage public transport improvements to the village, providing opportunities for less mobile people, including elderly and disabled people, to access to services and facilities.

G.249 An uncertain mixed effect (significant positive / minor negative) is identified in relation to IIA objective **6: Education and skills**. Southfields currently has no existing education facilities. The scale of development proposed could support a new primary school, although this is uncertain. This would provide locally accessible primary education for new and existing residents. However, residents would still be required to travel longer distances to access secondary and further education.

G.250 An overall mixed effect (minor positive / minor negative) is identified in relation to IIA objective **7: Economy and employment**. The expansion of Southfields into a more sustainable settlement with more small-scale local employment opportunities and a small village centre would improve local access to employment opportunities. There are also generally good existing bus services to existing employment areas in the south of the Borough (Grays, Tilbury, Lakeside) and the scale of new development in Southfields would likely encourage public transport improvements for the village. However, new development would be located away from existing employment hubs.

G.251 An overall mixed effect (significant negative / minor positive) is identified in relation to IIA objective **8: Transport**. The Southfields New Place Opportunity Area would lead to development that is remote from Thurrock's existing larger urban areas, meaning residents are more likely to be reliant on private vehicles than in better connected areas of the Borough. However, the provision of new local services and facilities would reduce existing resident's need to travel further to meet their needs. While there is no local train station there are generally frequent existing bus services serving Southfields to larger settlements in the Borough and the scale of development could support further public transport improvements. The settlement is close to the A13, likely exacerbating existing congestion issues on the strategic road network. The surrounding road network is already at capacity (Orsett Cock Junction) or insufficient (Stanford Road) for the scale of development proposed.

G.252 A significant negative effect is identified in for the Southfields Opportunity Area in relation to IIA objective **9: Air quality**. The development proposed in the Opportunity Area would result in a significant increase in new homes in close proximity to the strategic road network (A13) and it would be likely that residents would be reliant on private vehicles for many of their journeys. The new settlement would not be located directly near an AQMA however there are a number of AQMAs located in the south-west of the Borough, including on the A13 further west.

G.253 A significant negative effect is identified in relation to IIA objective **10: Soils**. The land surrounding Southfields to the north and north-east comprises Grade 2 agricultural land and therefore development in these areas would result in the loss of best and most versatile land. The land to the east of Southfields is classified as non-agricultural land.

G.254 An uncertain significant negative effect is identified in relation to IIA objective **11: Resource consumption and waste**. The expansion of Southfields would result in large-scale development of greenfield land. The proposed area to the south of the existing settlement contains River Terrace Deposits. Surface planning permission for sand and gravel extraction (both valid and expired) are noted at Collingwood, Southfield Gravel, Dansand, Hoford Road, and Collingwood Farm. In addition, there would likely be increased waste produced during the construction process and throughout the operational lifetime of these homes, from day-to-day living. It is unknown if recycled materials will be promoted for construction and if energy efficiency measures and renewable energy would be promoted as these will be influenced more by policy requirements.

G.255 Southfields is within a groundwater Source Protection Zone. However, there are no waterbodies in close proximity of the area. It is also unknown whether the new opportunity area will promote the efficient use of water or whether there is sufficient water resources / waste water treatment capacity to accommodate the proposed new development. Overall, a precautionary minor negative effect IIA objective **12: Water resources and quality**.

G.256 Addressing climate change over the plan period is most likely to be influenced by design measures incorporated in new developments to reduce greenhouse gas emissions and to improve energy efficiency, including the use of renewable or low carbon energy sources in developments, as well as promoting flood resilience which is addressed separately through IIA objective 14. These measures will be achieved through policy requirements in the Local Plan. The Southfields New Place Opportunity Area would lead to development that is remote from Thurrock's existing larger urban areas, meaning residents are more likely to be reliant on private vehicles than in better connected areas of the Borough. However, the provision of new local services and facilities would reduce existing resident's need to travel further to meet their needs thereby limiting transport-related emissions. While there is no local train station there are generally frequent existing bus services serving Southfields to larger settlements in the Borough and the scale of development could support further public transport improvements. An uncertain mixed effect (significant negative /

minor positive) is expected in relation to **IIA objective 13: Climate change and energy**.

G.257 An uncertain minor negative effect is identified in relation to IIA objective **14: Flood risk**. Southfields is not located within Flood Zone 2 or 3. However, the scale of development proposed on greenfield land would increase impermeable surfaces and potentially increase overall flood risk in the area. The location of development does not take into account mitigation such as the incorporation of SuDS, open spaces for flood storage or green infrastructure which is more likely to be influenced by policy requirements.

G.258 An uncertain significant negative effect is identified in relation to IIA objective **15: Biodiversity and geodiversity**. There are designated Local Wildlife Sites to the south of Southfields which could be adversely affected by new development. The settlement is also within SSSI Impact Risk Zones for Hangman's Wood and Deneholes and for Mucking Flats and Marshes. Expansion of the settlement at Southfields may disturb species and increase recreational pressure at these sites. The effect is uncertain as it will depend on the design/layout of developments, as well as mitigation provided by other plan policies.

G.259 There is a Scheduled Monument, 'Causeway enclosure and Anglo-Saxon cemetery 500m ENE of Heath Place', located to the west of the Southfields, although this is outside the New Place Opportunity Area. The Grade II Listed Building at Old Kennels Farm is however within the opportunity area. Therefore, there is potential for negative effects to occur on the setting of these assets. Effects are uncertain as they are dependent on the exact location and design of development. Overall, an uncertain minor negative effect is identified in relation to IIA objective **16: Historic environment**.

G.260 An uncertain significant negative effect is identified in relation to IIA objective **17: Landscape, townscape and visual impact**. Southfields is within the Landscape Character Area (LCA) H1: East and West Tilbury Open Undulating Farmland which is of high sensitivity to very large housing development. However, there is potential for the incorporation of green infrastructure and landscaping at the settlement to help mitigate the adverse effects, however any improvements provided would be determined by the design of the development, which is unknown at this stage.

Reasonable alternative (Option 2)

G.261 There are no materially different growth scenarios being considered for Southfields. Therefore, only one assessment is presented for Southfields.

Summary of likely significant effects of the option at Southfields across different strands of sustainability

G.262 There are no materially different growth scenarios being considered for Southfields. Therefore, the initial proposal (Option 1) at Southfields represents the best option available.

Mitigation and enhancement opportunities

G.263 The following bullet points identify potential opportunities to mitigate and minimise the adverse effects and potential opportunities to enhance its positive effects, improving the overall sustainability of this option:

- **IIA objective 2: Health, wellbeing and safety:** The settlement currently ranks poorly in terms of access to green and blue infrastructure and access to healthcare facilities. New healthcare facilities should be provided to support the scale of proposed development at Southfields, particularly as there are no existing healthcare facilities in the settlement. Green and blue infrastructure should be incorporated in the design of the new proposal to help mitigate adverse effects on health and wellbeing.
- **IIA objectives 8: Transport, 9: Air quality and 13: Climate change and energy:** This option focuses a high quantum of new development in Southfields which is remote from Thurrock's existing larger urban areas. Therefore, residents may be reliant on private vehicles to travel to access services and facilities. The settlement is close to the A13, and the surrounding road network is already at capacity. Development of this scale is likely to exacerbate air pollution and congestion along these routes. Consideration should be given to identifying other routes or upgrading the existing road network to manage the additional traffic. The proposal should include adequate provision of walking and cycling infrastructure, enhancing connectivity particularly to the proposed new local centre to enable people to actively travel to access services and facilities.
- **IIA objective 10: Soils and 11: Resource consumption and waste:** The expansion of Southfields is likely to result in large-scale development of greenfield land which comprises Grade 2 agricultural land. The

development of existing brownfield sites and the reuse/enhancement of existing buildings in the village centre should be prioritised in preference to the development of greenfield land. The new settlement should retain areas of greenfield land as open space. Development of areas containing potential mineral resources (mostly sand and gravel resources) should be avoided, including at Collingwood, Southfield Gravel, Dansand, Hoford Road, and Collingwood Farm, to avoid the sterilisation of mineral resources.

- **IIA objective 15: Biodiversity and geodiversity:** The development proposal for the settlement should be carefully masterplanned and designed to protect the nearby Local Wildlife Sites. The development should secure enhancements for biodiversity and contribute to the protection and enhancement of the Nature Recovery Network. Adequate provision of recreational space should be integrated into the new settlement to mitigate potential recreational pressures on existing wildlife areas, including at Hangman's Wood and Deneholes SSSI and for Mucking Flats and Marshes SSSI.
- **IIA objective 16: Historic environment:** The development proposal for the settlement should be carefully masterplanned and designed to preserve and enhance the historic assets and character of the historic assets near Southfields including the 'Causeway enclosure and Anglo-Saxon cemetery 500m ENE of Heath Place' Scheduled Monument, and the Grade II Listed Building at Old Kennels Farm. Measures should be taken at a project level to protect and enhance the setting of both designated and undesignated heritage assets.
- **IIA objective 17: Landscape, townscape and visual impacts:** The development proposal for the settlement should be carefully masterplanned and designed to protect local landscape character. The proposal should incorporate substantial green infrastructure and planting to help mitigate adverse effects.

New Place - West Horndon

Table G.12: Appraisal findings for West Horndon

I/A objective	New Place – West Horndon	New Place – West Horndon Reasonable Alternative
1: Housing	++	++
2: Health, wellbeing and safety	++	++
3: Community cohesion	++/-?	++/-?
4: Access to services and facilities	++	++/-
5: Equalities	+	+/-?
6: Education and skills	++	++
7: Economy and employment	++/-	++/-
8: Transport	++/--	++/--
9: Air quality	--/+	--/+
10: Soils	--	--
11: Resource consumption and waste	--?	--?
12: Water resources and quality	-?	-?
13: Climate change and energy	--/+?	--/+?
14: Flood risk	--	--
15: Biodiversity and geodiversity	--/+?	--/+?
16: Historic environment	--?	--?
17: Landscape, townscape and visual impacts	--?	--?

Initial Proposal (Option 1)

G.264 A significant positive effect is identified for the West Horndon New Place in relation to I/A objective **1: Housing**. The settlement would deliver an estimated 5,000 - 7,000 new homes. West Horndon is located within the 20% most deprived for 'Barriers to Housing and Services' in the Index of Multiple

Deprivation. It is assumed that the scale of new development would deliver an appropriate range of housing in terms of sizes, tenures and affordability.

G.265 A significant positive effect is identified in relation to IIA objective **2: Health, wellbeing and safety** for the West Horndon Initial Proposal. Although there are no existing healthcare facilities within West Horndon, the significant expansion of the area would be expected to provide new social infrastructure including health facilities, community services and multiple local centres, benefiting new and existing residents. As West Horndon is located in the more rural part of the Borough, it ranks highly in Natural England's 'Access Network Mapping' in terms of access to green and blue infrastructure (e.g. County Parks, Local Nature Reserves, National Trails, Public Rights of Way, etc.), and its health and nature benefits. The new town would also likely provide sufficient open and green space, local services and active travel infrastructure, encouraging healthy lifestyles.

G.266 An overall uncertain mixed effect (significant positive / minor negative) is identified for the new town in relation to IIA objective **3: Community cohesion**. The delivery of a new town in this location would provide new services and facilities to the borough's more rural areas, with limited existing access. As there is an existing train station at West Horndon, this option would ensure easy and equitable access by sustainable modes of transport. New local services and facilities, community facilities and neighbourhood centres would encourage higher levels of pedestrian activity/outdoor interaction, contributing to creating a new neighbourhood where people mix. However, the creation of a new settlement of this scale is likely to take some time to establish and it may not be possible to promote these aims in the early stages of development. The potential to create a settlement in which community networks are fostered and that fits cohesively with the existing West Horndon village will depend largely on its design. It is noted that creating a new town is likely to present challenges in terms of establishing a sense of community and there is potential for existing community networks to be disrupted. The physical barrier between the new town and the existing settlement of West Horndon created by the railway line would be likely to make it more difficult to integrate the two. Furthermore, during the early stages of development, residents of the new town may lack access to facilities, depending on the phasing of infrastructure development.

G.267 An overall significant positive effect is identified in relation to IIA objective **4: Access to services and facilities**. The delivery of a new place of this scale would be expected to contain a range of educational facilities, community facilities, sports/events hall, health facilities within multiple neighbourhood centres. There is an existing train station at West Horndon, providing links to

London/Basildon and the scale of development proposed would likely deliver new public transport routes, such as bus services, to the local area.

G.268 An overall minor positive effect is identified for IIA objective **5:**

Equalities. The potential location for the new town at West Horndon is close to a railway station and the development of a new town is likely to be of a scale that is expected to provide additional public transport infrastructure, as well as local community facilities. As such, it may provide opportunities for less mobile people, including elderly and disabled people, to access services and facilities. Provision of new community facilities may also support faith groups or other support groups for those with protected characteristics.

G.269 There is an existing primary school within the village, West Hordon Primary School, which is at capacity. The New Place would be expected to contain early years, primary, secondary and SEN education facilities ensuring good local access to education infrastructure. A significant positive effect is therefore identified for IIA objective **6: Education and skills.**

G.270 With the exception of the Horndon Industrial Park, West Hordon is situated away from the majority of the existing employment sites located within the south-west of the Borough. However, the expansion of West Hordon would create new employment opportunities in the north of the borough where existing opportunities are limited, balancing economic growth across the borough. It is expected that the New Place would incorporate land for all employment uses (light industrial, research and development, office, general industrial and storage/distribution). West Hordon also has existing train connections to London/Basildon which enables people to travel sustainably to access employment opportunities further afield. Overall, a mixed effect (significant positive / minor negative) is identified in relation to IIA objective **7: Economy and employment.** The minor negative effect reflects that some residents will continue to have to travel further afield for employment.

G.271 An overall mixed effect (significant positive / significant negative) is identified in relation to IIA objective **8: Transport.** West Horndon has an existing train station that connects to London Fenchurch Street and Shoeburyness via Basildon and is also served by infrequent bus services. Therefore, new development at the north of the new settlement would be located close to existing public transport links. The proposed new town is also expected to be of scale to provide additional or improved public transport infrastructure. However, based on the location, many residents may still need to commute north-south by car in the Borough, particularly as many services/employment areas are in the urban areas in the south of Thurrock,

which may result in higher levels of traffic, congestion, and pollution, particularly along the A128.

G.272 A mixed effect (minor positive / significant negative) is identified in relation to IIA objective **9: Air quality**. Development of a new town at West Horndon is not expected to substantially increase traffic in any AQMA. As set out against IIA objective 8, public transport connections to the new town are likely to be enhanced, although travel by private vehicle may still be undertaken for some trips, which may result in higher levels of traffic, congestion, and pollution, particularly along the A128.

G.273 A significant negative effect is identified in relation to IIA objective **10: Soils**. The potential location for the new town at West Horndon would result in the loss of significant areas of Grade 3 (Good to moderate) agricultural land. Therefore, the development of the new town would result in the loss of productive agricultural land.

G.274 An uncertain significant negative effect is identified in relation to IIA objective **11: Resource consumption and waste**. The West Horndon Initial Proposal would deliver 5,000-7,000 new homes on greenfield land, requiring a large quantity of construction materials and new infrastructure. There are no known mineral resources on site. There would be increased waste production during the construction and operational lifetime of the new settlement. It is unknown if recycled materials will be promoted and if energy efficiency and renewable energy measures would be promoted as they will be more influenced by policy requirements.

G.275 An uncertain minor negative effect is identified in relation to IIA objective **12: Water resources and quality**. The location of the New Place at West Horndon is not within a SPZ. However, there a number of small watercourses which run through the area proposed for development and the scale of development proposed has the potential to adversely affect these, either through culverting or degradation from contaminated surface water runoff. The effect is uncertain depending on the exact location, design and layout of development.

G.276 An uncertain mixed effect (minor positive / significant negative) is identified in relation to **IIA objective 13: Climate change and renewable energy**. Addressing climate change over the plan period is most likely to be influenced by design measures incorporated in new developments to reduce greenhouse gas emissions and to improve energy efficiency, including the use of renewable or low carbon energy sources in developments, as well as promoting flood resilience which is addressed separately through IIA objective

14. These measures will be achieved through policy requirements in the Local Plan. However, directing most development towards locations with existing bus and rail connections is likely to promote more sustainable travel behaviours which will reduce the need to travel by private vehicle and associated transport-related emissions. West Horndon has existing rail connections and the scale of development proposed is likely to improve bus connections. However, travel by private vehicle, may still be supported due to the location of the new settlement in the borough.

G.277 An uncertain significant negative effect is identified in relation to IIA objective **14: Flood risk**. Areas to the south of West Horndon lie within Flood Zone 2 and Flood Zone 3. This location does not benefit from flood defences and the development of up to 7,000 additional homes on greenfield land in this area is likely to exacerbate flood risk due to the introduction of impermeable surfaces. There are a number of small watercourses in this area and the adjacent land has a high probability of surface water flooding. The location of development does not take into account mitigation such as the incorporation of SuDS, open spaces for flood storage or green infrastructure which is more likely to be influenced by policy requirements.

G.278 An overall uncertain mixed effect (significant negative / minor positive) is identified in relation to IIA objective **15: Biodiversity and geodiversity** for the West Horndon New Place. The New Place location is not within close proximity of any designated biodiversity or geodiversity sites however development of this scale, particularly in the rural area, is likely to have adverse effects on biodiversity. This is uncertain as rural areas, particularly areas of arable farmland, can have limited biodiversity value. However, there is potential to incorporate significant biodiversity enhancement within a development of this scale. The effect is uncertain as it will depend on the exact locations and design/layout of developments/new town, as well as mitigation providing by other plan policies (e.g. Biodiversity Net Gain, green infrastructure policies).

G.279 An uncertain significant negative effect is identified in relation to IIA objective **16: Historic environment**. There are a number of Grade II Listed Buildings in West Horndon which could be negatively affected, particularly in terms of setting, by development of the scale proposed at the new town. Similarly, there may be additional pressure on the nearby Thorndon Hall Registered Park and Garden from the addition of 7,000 new homes in the area. Effects are dependent on the exact location and design of development and therefore are uncertain.

G.280 An uncertain significant negative effect is identified in relation to IIA objective **17: Landscape, townscape and visual impact**. The new town at West Horndon would be located within the Landscape Character Area (LCA) A1: Bulphan Fenland which has high sensitivity to large scale housing development. The focus of a high quantum of development at a new town location would require a large amount of greenfield land take in a presently undisturbed area where significant disruption to the existing landscape character could result. There is potential for the incorporation of substantial green infrastructure and landscaping at the new town to help mitigate the adverse effects however any improvements provided would be determined by the design of the developments, which is unknown at this stage.

Reasonable Alternative (Option 2)

G.281 The reasonable alternative proposes a smaller scale of growth in West Horndon (2,000 new homes; new school, neighbourhood centre, and community facilities).

G.282 Mixed effects are identified for IIA objective **4: Access to services and facilities** (significant positive / minor negative) and **5: Equalities** (minor positive / minor negative) for the reasonable alternative proposed at West Horndon. Positive effects are identified as, whilst not delivering the same scale of development and supporting infrastructure, the reasonable alternative would still incorporate a number of new local services / facilities within local neighbourhood centres. However, it may be likely that residents would be required to travel to other settlements to meet some of their needs.

G.283 The lower scale of growth proposed in the reasonable alternative will result in the same effects as identified for the Initial Proposal in relation to IIA objectives **1: Housing, 2: Health, wellbeing and safety, 3: Community cohesion, 6: Education and skills, 7: Employment and economy, 8: Transport, 9: Air quality, 10: Soil, 11: Resource consumption and waste, 12: Water resources and quality, 13: Climate change and renewable energy, 14: Flood risk, 15: Biodiversity and geodiversity, 16: Historic environment, and 17: Landscape, townscape and visual impact**.

Summary of likely significant effects of both options at West Horndon across different strands of sustainability

G.284 Overall, the initial proposal (Option 1) at West Hordn performs marginally better than the reasonable alternative (Option 2):

- **Economic objectives** (1: Housing, 6: Education and skills, 7: Economy and employment, and 8: Transport)
 - The same effects are identified for the initial proposal and reasonable alternative for the economic objectives, however, the higher scale of growth proposed under Option 1 is likely to deliver greater employment and education opportunities, particularly as the proposal supports the delivery of multiple education facilities (early years, primary, secondary, and special education needs) and the creation of multiple neighbourhood centres providing local opportunities for convenience and comparison shopping. Note: The exact amount of employment land is not yet quantified for either option.
- **Environmental objectives** (9: Air quality; 10: Soils; 11: Resource consumption and waste; 12: Water resources and quality; 13: Climate change and energy; 14: Flood risk; 15: Biodiversity and geodiversity; 16: Historic environment; and 17: Landscape, townscape and visual impacts)
 - The same effects are identified for both options in relation to the environmental objectives.
- **Social objectives** (including health and qualities): 2: Health, wellbeing and safety; 3: Community cohesion; 4: Access to services and facilities; 5: Equalities)
 - More positive effects are identified for the social objectives for the initial proposal as the higher scale of growth proposed under Option 1 will deliver more social infrastructure, including healthcare facilities, sports/events hall, community facilities and multiple neighbourhood centres. Although the reasonable alternative would still incorporate a number of new local services / facilities within local neighbourhood centres, it may be likely that residents would be required to travel to other settlements to meet some of their needs.

Mitigation and enhancement opportunities

G.285 Although the initial proposal (Option 1) at West Hordon performs better than the reasonable alternative (Option 2), significant adverse effects are identified for IIA objectives **8: Transport, 9: Air quality, 10: Soils, 11: Resource consumption and waste, 13: Climate change and energy, 14: Flood risk, 16: Historic environment, and 17: Landscape, townscape and visual impacts**. The following bullet points identify potential opportunities to mitigate and minimise the adverse effects and potential opportunities to enhance its positive effects, improving the overall sustainability of this option:

- **IIA objectives 8: Transport, 9: Air quality and 13: Climate change and energy:** This option focuses a high quantum of new development in West Hordon which is remote from Thurrock's existing larger urban areas. Although there is an existing train station, many residents may be reliant on private vehicles to travel to access services and facilities, which may result in higher levels of traffic, congestion and pollution, particularly along the A128. Consideration should be given to identifying new routes or upgrading the existing road network to manage the additional traffic. The proposal should include adequate provision of walking and cycling infrastructure, enhancing connectivity particularly to the proposed new local centres to enable people to actively travel to access services and facilities.
- **IIA objective 10: Soils and 11: Resource consumption and waste:** This option is likely to result in large-scale development of greenfield land which comprises Grade 3 agricultural land. The development of existing brownfield sites and the reuse/enhancement of existing buildings in the town centre should be prioritised in preference to the development of greenfield land. The new settlement should retain areas of greenfield land as open space, where appropriate.
- **IIA objective 14: Flood risk:** The area is at risk of flooding, particularly to the south-west of West Horndon. New development should be directed away from areas at high risk of flooding. The development proposal for the settlement should be carefully masterplanned and designed to incorporate appropriate mitigation against flooding, including the provision of SuDS and green and blue infrastructure.
- **IIA objective 16: Historic environment:** The development proposal for the settlement should be carefully masterplanned and designed to preserve and enhance the historic assets and their settings including the Grade II Listed Buildings in West Horndon and the Thorndon Hall Registered Park and Garden. Measures should be taken at a project level to protect and enhance the setting of both designated and undesignated heritage assets.
- **IIA objective 17: Landscape, townscape and visual impacts:** The development proposal for the settlement should be carefully masterplanned and designed to protect local landscape character. The proposal should incorporate substantial green infrastructure and planting to help mitigate adverse effects.

New Place - Lower Langdon

Table G.13: Appraisal findings for Lower Langdon

IIA objective	New Place – Lower Langdon
1: Housing	++
2: Health, wellbeing and safety	++
3: Community cohesion	++/-
4: Access to services and facilities	++/-
5: Equalities	+/-?
6: Education and skills	++
7: Economy and employment	++/-
8: Transport	--/+
9: Air quality	--/+
10: Soils	--
11: Resource consumption and waste	--?
12: Water resources and quality	--?
13: Climate change and energy	--/+?
14: Flood risk	--?
15: Biodiversity and geodiversity	--/+?
16: Historic environment	-?
17: Landscape, townscape and visual impacts	--?

Initial Proposal (Option 1)

G.286 A significant positive effect is identified for the Lower Langdon New Place in relation to IIA objective **1: Housing**. The settlement would deliver an estimated 4,000-5,000 new homes. Lower Langdon is located within the 10-20% most deprived neighbourhoods for 'Barriers to Housing and Services' in the Index of Multiple Deprivation. It is assumed that the scale of new development would deliver an appropriate range of housing in terms of sizes, tenures and affordability.

G.287 A significant positive effect is identified in relation to IIA objective **2: Health, wellbeing and safety** for the Lower Langdon New Place. Although there are no existing healthcare facilities in Lower Langdon, a new town of this scale would be expected to provide new social infrastructure including health facilities, community services including a sports/events hall, and multiple local centres, benefiting new and existing residents. As Lower Langdon is located in the more rural part of the Borough, it ranks highly in Natural England's 'Access Network Mapping' in terms of access to green and blue infrastructure (e.g. County Parks, Local Nature Reserves, National Trails, Public Rights of Way, etc.), including access to the Langdon Hills Country Park. The new town would also be likely to provide sufficient open and green space, local services and active travel infrastructure, encouraging healthy lifestyles.

G.288 An overall uncertain mixed effect (significant positive / minor negative) is identified for the new town in relation to IIA objective **3: Community cohesion**. The delivery of a new town in this location would provide new services and facilities to the borough's more rural areas, with limited existing access. New local services and facilities, community facilities and neighbourhood centres would encourage higher levels of pedestrian activity/outdoor interaction, contributing to creating a new neighbourhood where people mix. However, the creation of a new settlement of this scale is likely to take some time to establish and it may not be possible to promote these aims in the early stages of development. It is noted that creating a new town is likely to present challenges in terms of establishing a sense of community and there is potential for existing community networks to be disrupted. Furthermore, during the early stages of development, residents of the new town may lack access to facilities, depending on the phasing of infrastructure development.

G.289 An overall mixed effect (significant positive / minor negative) is identified in relation to IIA objective **4: Access to services and facilities**. The development of the New Place at Lower Langdon would introduce local services and facilities to an area with poor existing access. The New Place would incorporate a range of educational facilities, sports/events hall, health facilities within multiple neighbourhood centres. However, the A13 acts as a physical barrier to access existing services and facilities located in neighbouring settlements to the south. The area does not have any existing public transport connections however the scale of development is expected to enhance the local provision (e.g., bus services).

G.290 The new town at Lower Langdon is of a scale expected to provide additional public transport infrastructure, as well as local community facilities. As such, it may provide opportunities for less mobile people, including elderly

and disabled people, to access services and facilities. Provision of new community facilities may also support faith groups or other support groups for those with protected characteristics. However, residents may need to travel to more established settlements to meet more specialist facilities, such as faith or support groups. The proposal also supports the creation of a New Place in close proximity to the A13 which could affect people more vulnerable to air pollution, including younger and older people, people with cardiovascular or respiratory illnesses and pregnant women. An overall uncertain mixed effect (minor positive / minor negative) is identified for IIA objective **5: Equalities**.

G.291 The New Place at Lower Langdon would be expected to contain early years, primary, secondary and SEN education facilities ensuring good local access to education. Therefore, a significant positive effect is identified for IIA objective **6: Education and skills**.

G.292 The majority of existing employment sites are located within the south-west of the Borough so new residents of this settlement may have to travel to existing employment areas. However, the New Place at Lower Langdon would create new employment opportunities in the north of the borough where existing opportunities are limited, balancing economic growth across the borough. It is expected that the New Place would incorporate provision of land for all employment uses (light industrial, research and development, office, general industrial and storage/distribution). Overall, a mixed effect (significant positive / minor negative) is identified in relation to IIA objective **7: Economy and employment**.

G.293 An overall mixed effect (significant negative / minor positive) is identified in relation to IIA objective **8: Transport**. There are no existing bus or rail connections to the local area, however the scale of new development would likely incorporate public transport provision (e.g., bus service). The A13 currently acts as a physical barrier to active travel between the new town and areas to the south. Due to the location of the new settlement in relation to existing urban areas, many residents may still be reliant on travel by private vehicle, potentially resulting in higher levels of traffic, congestion, and pollution along the A13.

G.294 A mixed effect (significant negative / minor positive) is identified in relation to IIA objective **9: Air quality**. As set out against IIA objective 8, the scale of development at the new town should ensure good public transport connections however there is no existing train station at this location. The A13 also creates a physical barrier to walking/cycling. Therefore, the location of the new town may encourage travel by private vehicle for many journeys.

Therefore, development of a new town at Lower Langdon would likely increase traffic, congestion and associated pollution on the A13 which passes through an AQMA to the west.

G.295 The potential location for the new town at Lower Langdon would result in the loss of significant areas of Grade 3 (Good to moderate) agricultural land. A significant negative effect is identified in relation to IIA objective **10: Soils** as the development of the New Place would result in the large-scale loss of productive agricultural land.

G.296 An uncertain significant negative effect is identified in relation to IIA objective **11: Resource consumption and waste**. The Lower Langdon New Place would deliver 4,000-5,000 new homes on greenfield land, requiring a large quantity of construction materials and new infrastructure. There are no known mineral resources on site. There would be increased waste production during the construction and operational lifetime of the new settlement. It is unknown if recycled materials will be promoted and if energy efficiency and renewable energy measures would be promoted as they will be more influenced by policy requirements.

G.297 An uncertain significant negative effect is identified in relation to IIA objective **12: Water resources and quality**. The location of the New Place at Lower Langdon is within the catchment of a groundwater Source Protection Zone. There are a number of small watercourses (e.g., the River Hope) which run through the area proposed for development and the scale of development proposed has the potential to adversely affect these, either through culverting or degradation from contaminated surface water runoff. However, the effect is uncertain depending on the exact location, design and layout of development.

G.298 Addressing climate change over the plan period is most likely to be influenced by design measures incorporated in new developments to reduce greenhouse gas emissions and to improve energy efficiency, including the use of renewable or low carbon energy sources in developments, as well as promoting flood resilience which is addressed separately through IIA objective 14. These measures will be achieved through policy requirements in the Local Plan. The Lower Langdon New Place Opportunity Area would lead to development that is remote from Thurrock's existing larger urban areas in the south-west of the Borough, meaning residents are more likely to be reliant on private vehicles than in better connected areas of the Borough. However, the provision of new local services and facilities would reduce resident's need to travel further to meet their needs thereby limiting transport-related emissions. While there is no local train station, the scale of development is likely to support

public transport improvements. An uncertain mixed effect (minor positive / significant negative) is identified in relation to IIA objective **13: Climate change and renewable energy**.

G.299 An uncertain significant negative effect is identified in relation to IIA objective **14: Flood risk**. The area at Lower Langdon is not within Flood Zones 2 or 3 however there is a high probability of surface water flooding in this area. The development of such a large area of greenfield land will also increase impermeable surfaces and potentially increase overall flood risk in the area. The location of development does not take into account mitigation such as the incorporation of SuDS, open spaces for flood storage or green infrastructure which is more likely to be influenced by policy requirements.

G.300 An overall uncertain mixed effect (significant negative / minor positive) is identified in relation to IIA objective **15: Biodiversity and geodiversity** for the New Place. The development of the New Place has the potential to adversely affect nearby biodiversity sites including Langdon Ridge SSSI ((also designated as the Northlands Wood Country Park) and the Grove House Wood Local Nature Reserve through disturbance and damage from increased pressure on the sites. The area is also within SSSI Impact Risk Zones. Development of the scale proposed is likely to result in loss of biodiversity. This is uncertain as in rural areas, particularly areas of arable farmland, can have limited biodiversity value. However, there is potential to incorporate significant biodiversity enhancement within a development of this scale. The effect is uncertain as it will depend on the exact locations and design/layout of developments/new town, as well as mitigation providing by other plan policies (e.g., Biodiversity Net Gain, green infrastructure policies).

G.301 An uncertain minor negative is identified in relation to IIA objective **16: Historic environment**. There are a number of listed buildings located in the west of the proposed Lower Langdon New Place Opportunity Area which could be adversely affected by new development. Effects are dependent on the exact location and design of development and therefore are uncertain.

G.302 An uncertain significant negative effect is identified in relation to IIA objective **17: Landscape, townscape and visual impact**. The new settlement at Lower Langdon is Green Belt farmland which currently safeguards the countryside from encroachment and prevents Stanford le Hope and Langdon from merging into one another. The new settlement at Lower Langdon would be located partially within Landscape Character Area (LCA) H2: Orsett and Horndon on the Hill Open Undulating Farmland and partially within LCA J1: Langdon Lower Hill Slopes. These LCAs are of high / moderate-high and high

sensitivity to large and very large housing development as this would affect the open and rural character of this area resulting in significant negative effects. The focus of a high quantum of development at a new town location would require a large amount of greenfield land take in a presently undisturbed area where significant disruption to the existing landscape character could result. The land at Lower Langdon currently provides important separation space between the urban areas of Thurrock and the surrounding boroughs, preventing coalescence of major settlements and maintaining rural tranquillity that is rare in Thurrock. There is potential for the incorporation of substantial green infrastructure and landscaping at the new towns to help mitigate the adverse effects however any improvements provided would be determined by the design of the developments, which is unknown at this stage.

Reasonable alternative (Option 2)

G.303 There are no materially different growth scenarios being considered for Lower Langdon. Therefore, only one assessment is presented for Lower Langdon.

Summary of likely significant effects of the option at Lower Langdon across different strands of sustainability

G.304 There are no materially different growth scenarios being considered for Lower Langdon. Therefore, the initial proposal (Option 1) at Lower Langdon represents the best option available.

Mitigation and enhancement opportunities

G.305 The following bullet points identify potential opportunities to mitigate and minimise the adverse effects and potential opportunities to enhance its positive effects, improving the overall sustainability of this option:

- **IIA objectives 8: Transport, 9: Air quality and 13: Climate change and energy:** The scale of development proposed at Lower Langdon is likely to incorporate public transport provision. Consideration should be given to identifying new routes or upgrading the existing road network to manage the additional traffic. The proposal should include adequate provision of walking and cycling infrastructure, enhancing connectivity particularly to the proposed new local centres and to the Country Park to enable people to actively travel to access services, facilities and nature.

- **IIA objective 10: Soils and 11: Resource consumption and waste:** The development of Lower Langdon is likely to result in large-scale development of greenfield land which comprises Grade 3 agricultural land. The new settlement should retain areas of greenfield land as open space, where appropriate.
- **IIA objective 12: Water resources and quality and 14: Flood risk:** Lower Langdon is within a groundwater Source Protection Zone and there is a high probability of surface water flooding. New development should be directed away from areas at high risk of flooding. The development proposal for the settlement should be carefully masterplanned and designed to ensure there is no adverse impact on the quality of the groundwater resource to maintain public water supplies and to incorporate appropriate mitigation against flooding, including the provision of SuDS and green and blue infrastructure.
- **IIA objective 15: Biodiversity and geodiversity:** The development proposal for the settlement should be carefully masterplanned and designed to protect the nearby biodiversity sites including Langdon Ridge SSSI (also designated as the Northlands Wood Country Park) and the Grove House Wood Local Nature Reserve. The development should secure enhancements for biodiversity and contribute to the protection and enhancement of the Nature Recovery Network. Adequate provision of recreational space should be integrated into the new settlement to mitigate potential recreational pressures on existing wildlife areas, particularly at the aforementioned sites.
- **IIA objective 17: Landscape, townscape and visual impacts:** The focus of a high quantum of development at a new town location would require a large amount of greenfield land take in a presently undisturbed area where significant disruption to the existing landscape character could result. Therefore, the development proposal for the settlement should be carefully masterplanned and designed to protect local landscape character. The proposal should incorporate substantial green infrastructure and planting to help mitigate adverse effects, particularly along the boundary with the Langdon Hills Country Park.

Appendix H

Equalities Impact Assessment

H.1 The requirement to undertake formal Equalities Impact Assessment (EqIA) of development plans was introduced in the Equality Act 2010 but was abolished in 2012. Despite this, authorities are still required to have regard to the provisions of the Equality Act, namely the Public Sector Duty which requires public authorities to have due regard for equalities considerations when exercising their functions.

H.2 In fulfilling this duty, many authorities still find it useful to produce a written record of equalities issues having been specifically considered. Therefore, this appendix sets out how the policies in the Local Plan are likely to be compatible or incompatible with the requirements of the Equality Act 2010.

H.3 There are three main duties set out in the Equality Act 2010, which public authorities including Thurrock Council must meet in exercising their functions:

- to eliminate discrimination, harassment, victimisation and other conduct that is prohibited under the Act;
- to advance equality of opportunity between persons who share relevant protected characteristics and persons who do not share it; and
- to foster good relations between persons who share a relevant protected characteristic and persons who do not share it.

H.4 The Equality Act 2010 identifies nine 'protected characteristics' and seeks to protect people from discrimination on the basis of these characteristics. Socio-economic status (people on low incomes, young and adult carers, people living in deprived areas/rural areas, groups suffering multiple disadvantages etc.) is not a characteristic protected by the Equality Act 2010. However, the Council is committed to also considering the impact that new policy changes will have on these groups.

H.5 This appendix presents an assessment of the likely impacts of the Publication Local Plan on each of the nine protected characteristics from the Equality Act 2010 as well the socio-economic groups considered to be of relevance to the assessment by the Council. The groups against which the Local Plan options have been considered are as follows:

- Protected characteristics identified in the Equality Act 2010:

- Age: Children (0-4), Younger people (aged 18-24), older people (aged 60 and over);
 - Disability: Disabled people, people with physical and mental impairment;
 - Gender reassignment;
 - Marriage and civil partnership;
 - Pregnancy and maternity;
 - Race;
 - Religion or belief;
 - Sex; and
 - Sexual orientation.
- Socio-economic status groups highlighted for consideration by Thurrock Council:
- People on low incomes, young and adult carers, people living in deprived areas/rural areas, groups suffering multiple disadvantages.

Thurrock Local Plan

H.6 As described in the main body of the IIA Report, the emerging Thurrock Local Plan will set out the planning framework for the Borough up to 2044 and will cover issues such as housing provision, the economy, retail and town centres, infrastructure provision and the environment.

H.7 The first Local Plan Issues and Options (Stage 1) was published for consultation in February 2016 [See reference [cccxliv](#)] while the second Local Plan Issues and Options (Stage 2) consultation took place from December 2018 to March 2019 [See reference [cccxlvi](#)]. Following on from this consultation, the Council piloted the Prince's Foundation Design Charette in Aveley in late 2019. In early 2020, the Council rolled out this process to other locations to work with local stakeholders to build a better understanding of the need and opportunities for growth and investment throughout the Borough. This exercise was severely delayed as a result of the COVID-19 pandemic and was formally completed in March 2022.

H.8 The Council has undertaken the Regulation 18 stage before proceeding to Regulation 19 consultation. As part of the first Regulation 18 consultation, the Council proposed five broad strategic spatial options for where new

development will be located in the Borough. These strategic spatial options were developed into a spatial strategy for the Local Plan.

H.9 The Publication Local Plan will be issued for consultation in late summer 2026 with the submission of the Local Plan to the Secretary of State for examination expected by the end of 2026.

H.10 The Publication Local Plan comprises the following main sections:

- A Spatial Vision for Thurrock – setting out an aspirational vision of how the Borough will look at the end of the plan period in 2044.
- Objectives outlining how the Council aims to deliver the Vision and administer the Local Plan policies.
- Strategic Policies that set the direction for how the Local Plan sees the places in Thurrock developing and changing.
- Development Management Policies that, alongside the Strategic Policies, will be used to guide and assess the detail of proposals requiring planning permission.
- Place Policies that set out the range of housing and employment provision and other land use considerations at settlements and other areas in the plan area. This includes the allocation of specific sites for development.

H.11 The purpose of the Local Plan is to guide development in the Borough up to 2044. Strategic planning is only one of the functions of Thurrock Borough Council, so it is not expected that the Local Plan alone would address all of the duties of the Equality Act.

Baseline information

H.12 Chapter 3 and Appendix C of this IIA Report set out baseline information about Thurrock Borough, including information relevant to the protected characteristics covered by the Equality Act. The most relevant information is summarised below:

- **Population and sex:** The population of Thurrock was 176,000 in 2021 [See reference [cccxlvi](#)], increasing by 11.6% from 157,000 in 2011. This is in comparison to the 6.6% increase in England as a whole. By 2043, it is estimated that the population of Thurrock will increase to 205,469, which equates to an approximately 17.0% increase from the 2020-estimate [See reference [cccxlvi](#)]. Based on Census 2021 figures [See reference

[cccxlix](#)], there are 86,213 males (49%) and 88,787 females (51%) in Thurrock.

- **Life expectancy:** Life expectancy at birth in 2024 in Thurrock was 78.9 years for males and 82.7 years for females, which is slightly lower than the England average of 79.1 years for males but the same as the England average of 82.7 years for females. [\[See reference cccl\]](#). Life expectancy at birth in Thurrock was 9.4 years lower for men and 6.5 years lower for women in the most deprived areas of Thurrock when compared to the least deprived areas [\[See reference cccli\]](#).
- **Age:** The median age for residents in Thurrock is 36 years which is lower than the England median age (40). In 2021, Thurrock had a higher proportion of people under the age of 65 (86.5%) compared to the national average (81.5%), so has fewer people over the age of 65 compared to the national average [\[See reference ccclii\]](#). Between 2011 and 2021, Thurrock has seen an increase of 19.4% in people aged 65 years and over. This is slightly below the 20.1% increase seen at national level in England [\[See reference cccliii\]](#). However, the older population (over 65), is projected to grow significantly, moving more in line with the national average, placing additional pressures on housing and social care services.
- **Race:** Thurrock is becoming more ethnically diverse. White British is the most common ethnicity in Thurrock (76.7%) while the second largest ethnic group is Black, Black British, Black Welsh, Caribbean or African: African (11.9%). Asian, Asian British or Asian Welsh account for 6.9% of Thurrock's population; 3% of residents are of mixed or multiple ethnic groups; and 1.5% of residents are of 'other ethnic groups'. [\[See reference cccliv\]](#).
- **Religion / beliefs:** In 2021, the majority of Thurrock's population considered themselves to be Christian, with 90,940 residents falling within this classification (51.7%). The second largest group within Thurrock is 61,043 (34.7%) residents who classify themselves as having no religion. Other religions recorded in the Borough were Muslim (4.9%); Hindu (1.4%); Sikh (1.2%); Buddhist (0.4%); Jewish (0.1%); and 'any other religion' (0.5%). In line with national trends, the number of residents reporting to have no religion has grown significantly since 2011 and the number of residents recorded as Christian has fallen [\[See reference ccclv\]](#).
- **Disability:** According to the 2021 Census, 83.3% of residents are not disabled, 9.5% are disabled and limited a little and 7.2% are disabled and limited a lot. Every local authority area across the East of England saw a

fall in the proportion of residents who were identified as being disabled and limited a lot, as the regional proportion fell from 7.8% to 6.6%. The 2021 Census was undertaken during the COVID-19 pandemic, which may have influenced how people perceived their health status and activity limitations [See reference ccclvi].

- **Marriage and civil partnership:** According to the 2021 Census, 45.0% of Thurrock's population were married or registered in a civil partnership and 38.6% never married and never registered in a civil partnership. The increase in the percentage of people aged 16 years and over who had never been married or in a civil partnership was greater in Thurrock (4.7 percentage points) than across the East of England (3.7 percentage points, from 31.3% to 34.8%). Across England, the percentage increased by 3.3 percentage points, from 34.6% to 37.9% [See reference ccclvii].
- **Pregnancy and maternity:** In 2024, the total fertility rate in Thurrock was 1.62. This is higher than the East of England (1.50) and England (1.42). In 2024, there was a total of 2,106 live births in Thurrock [See reference ccclviii]
- **Health:** Thurrock ranked around average among local authority areas in England for health in 2021. The Health Index score for the plan area during this period was 100.0, which was an increase of 1.0 point from the previous year [See reference ccclix]. Thurrock's best score across all subdomains was 126.9 for health relating to "physical health conditions". "Physical health conditions" looks at cancer, cardiovascular conditions, dementia, diabetes, kidney and liver disease, musculoskeletal conditions, and respiratory conditions. The second highest scoring subdomain was "mental health", while Thurrock's worst score was for "physiological risk factors".
- **Deprivation:** According to the Index of Multiple Deprivation [See reference ccclx] Thurrock is more deprived overall than 61% of local authority districts. The most deprived areas within Thurrock lie around the more built-up centres of South Ockendon, Grays and Tilbury. There are three LSOAs (Thurrock 012F, 018H and 018D) in the Chadwell St Mary and Tilbury that fall within the 10% most deprived areas in England. There are also ten LSOAs within the 10% to 20% most deprived areas in England. The rural parts of Thurrock to the north and east, and parts of South Chafford, fall within the least deprived areas. Thurrock 010C (in Little Thurrock) is the only neighbourhood within Thurrock that falls within the 10% least deprived.

- **Income deprivation affecting children:** This type of deprivation reflects how many children ages 0 to 15 are living in income deprived families. In terms of income deprivation affecting children, Thurrock is more deprived than 60% of local authority districts in England [See reference ccclxi]. Low-income households are at a greater risk of fuel poverty, contributing to social and health inequalities. Cold homes can affect or exacerbate respiratory, circulatory and mental health problems. Cold homes can also affect wider determinants of health, such as educational performance among children and absence from work. Vulnerable groups such as young children, older people and those with pre-existing health problems are particularly susceptible to cold-related illnesses [See reference ccclxii].
- **Income deprivation affecting older people:** This type of deprivation reflects how many people aged 60 or over experience income deprivation. In terms of income deprivation affecting older people, Thurrock is more deprived than 72% of local authority districts in England [See reference ccclxiii]. Among older people, cold temperatures can increase the likelihood of strokes, circulatory problems, respiratory problems, hospital admissions, and lower strength and dexterity leading to falls and accidental injuries. In addition to the general risks associated with deprivation, older people are at more risk of being admitted to hospital or dying if they suffer from “fuel poverty” in the winter months [See reference ccclxiv].
- **Housing affordability:** Affordability of accommodation in Thurrock is an ongoing challenge, both in the private rental sector and for those aiming to purchase properties:
 - **Rental Market:** Housing affordability can be assessed using the private rental affordability ratio, which measures median private rent as a proportion of median household income for private-renting households. In 2024, around two-thirds of local authorities in England and Wales recorded private rents at or below 30% of median household income. Thurrock’s affordability ratio of 38.7% [See reference ccclxv]. While Thurrock is not among the least affordable authorities nationally, this figure is higher than the national average, suggesting that private renting is less affordable than in many other parts of England and Wales.
 - **Purchasing Market:** Research undertaken as part of the Council’s Housing Strategy [See reference ccclxvi] assesses the proportion of first-time buyer and existing owner-occupier households in Thurrock that are priced out of the housing market, based on a borrowing

assumption of four times household income, local property prices and national loan-to-value ratios. The analysis indicates that 92% of first-time buyer households are priced out of detached houses, 82% of semi-detached houses, 73.9% of terraced houses and 48.6% of flats. This suggests that a substantial proportion of households are unable to access home ownership, increasing pressure on both the private rented and affordable housing sectors

- **Access to services and facilities:** According to the most recent Department for Transport 'journey time statistics' [See reference ccclxvii], the average journey time taken to reach the nearest key services in Thurrock by car was 10.4 minutes, which is less than the regional average for East of England (11.3 minutes) but marginally above the national average for England (10.3 minutes). The average journey time by public transport/walking was 18.4 minutes which is below the regional average for East of England (20.7) but again is above the national average (17.9 minutes). The same pattern exists for cycling, where the average journey time of 16.3 minutes was lower than the East of England average of 18.6 minutes but above the national average (15.6 minutes). The average journey time by walking was 31.4 minutes which is also below the East of England average (34.1 minutes) but is above the national average of 28 minutes. These results suggest that access to key services and facilities in Thurrock is above average for the East of England region but below the national average.
- **Access to open spaces:** Thurrock has a variety of parks and open spaces however, adequate and equitable access to high-quality green and blue environments is an issue, with 22% of Thurrock neighbourhoods having poor access to nature and 47% having only moderate access, particularly affecting disadvantaged neighbourhoods.
- **Skills and education:** In terms of education, skills and training deprivation, Thurrock is more deprived than 77% of local authority districts in England [See reference ccclxviii]. Across Thurrock there is a total of 43 primary schools, with 69% of pupils meeting the 'expected standard' which is higher than the national average of 62% [See reference ccclxix]. 45.1% of the 18 secondary schools in Thurrock have achieved a favourable attainment 8 score (based on how well pupils in a school have performed in up to 8 qualifications, which include English and maths) compared to national average of 43.7%. More than 80% of schools in Thurrock are achieving either 'outstanding' or 'good' Ofsted ratings [See reference ccclxx].

H.13 There is little baseline information available that is directly relevant to other protected characteristics including gender reassignment, and sexual orientation.

Method

H.14 The Publication Local Plan policies have been reviewed to consider their likely impacts on each of the nine protected characteristics from the Equality Act 2010, as well as the additional groups of relevance listed above. For each protected characteristic and group, consideration has been given to whether policies are compatible or incompatible with the three main duties set out in the Equality Act 2010.

H.15 Where relevant, the justification text makes reference to relevant sub-groups within the protected characteristics and groups which might be most influenced by the policy being considered. For example, the protected characteristic ‘age’ includes people over 65, as well as infants and young children.

H.16 A colour coded scoring system has been used to show the effects that the Local Plan is likely to have on each protected characteristic, as shown in **Table H.1**.

Table H.1: Key to symbols and colour coding used in the EqIA

Score	Likely effect
+	Positive
0	Neutral
-	Negative
+/-	Mixed effect (positive and negative)

H.17 Note that the criteria applied to the appraisal of options as part of the EqIA differ from the criteria applied to the appraisal of options as part of the Sustainability Appraisal in the main IIA Report; therefore, the effects identified are not the same between the two assessments.

Findings for the Publication Version Local Plan

H.18 The detailed findings of the equalities assessment for the Publication Version Local Plan are presented in the tables below. The Local Plan document does not directly affect a number of the protected characteristics. The document

is therefore considered to be generally compatible with the three main duties of the Equality Act 2010. The assessment of options for each of the protected characteristics and groups are described in the subsequent paragraphs.

Strategic Policies

SP01 – Development Requirement and Spatial Strategy

H.19 This section presents the EqIA findings for the strategic policy ‘Development Requirement and Spatial Strategy’. The effects are presented in **Table H.2** and described below the table.

Table H.2: SP01 – Development Requirement and Spatial Strategy

Spatial Policy	SP01
Age	+
Disability	+?
Gender reassignment	0
Marriage and civil partnership	0
Pregnancy and maternity	0
Race	+
Religion/belief	0
Sex	0
Sexual orientation	0
People on low incomes	+?
People on benefits	+?
Unemployed people	+?
Young and adult carers	0
People living in deprived areas/rural areas	+/-?
People with poor literacy and/or numeracy	0

H.20 SP01 establishes the scale and distribution of housing and employment growth required in Thurrock. It sets housing requirement, allocates land for employment growth, provides for Gypsy and Traveller and Travelling Showpeople accommodation and directs development to the most sustainable locations in accordance with the settlement hierarchy.

H.21 The requirement to deliver a minimum of 28,880 homes to meet housing need and support economic growth is likely to benefit younger households seeking to enter the housing market. As such, a positive effect is expected in relation to the protected characteristic of 'age'. New housing provision also has the potential to benefit people with disabilities through the delivery of accessible and adaptable homes and to support those with more limited financial resources where affordable housing is secured. Positive effects are therefore expected in relation to the protected characteristics of 'disability', 'people on low incomes', 'people on benefits', 'unemployed people' and 'people living in deprived areas / rural areas'. However, as the specific tenure, affordability thresholds and accessibility standards are not directly referenced within this policy, the certainty of these benefits is dependent on individual development. As such, uncertain effects are also identified.

H.22 SP01 makes provision for pitches and plots for Gypsies and Travellers and Travelling Showpeople. This will help reduce inequalities in terms of access to appropriate accommodation for these communities. As such, a positive effect is expected in relation to the protected characteristic of 'race' for SP01.

H.23 The spatial strategy's focus on directing growth to the principal urban area and towns is likely to improve access to essential services and facilities for those without access to private vehicles. This may particularly benefit younger people, older people, people with disabilities and those on lower incomes who are more likely to rely on public transport and local services. As such, further positive effects are expected in relation to 'age', 'disability', 'people on low incomes', 'people on benefits', 'unemployed people' and 'people living in deprived areas / rural areas'. However, the policy's approach to restricting development within the Green Belt and limiting growth in villages and rural settlements may constrain housing and employment opportunities in rural areas where affordability pressures and more limited service provision may already exist. As such, a negative effect is expected in relation to 'people living in deprived areas / rural areas'.

SP02 – Healthy, inclusive places and high-quality new development

H.24 This section presents the EqIA findings for the strategic policy ‘Healthy, inclusive places and high-quality new development’. The effects are presented in **Table H.3** and are described below the table.

Table H.3: SP02 – Healthy, inclusive places and high-quality new development

Spatial Policy	SP02
Age	+
Disability	+
Gender reassignment	0
Marriage and civil partnership	0
Pregnancy and maternity	0
Race	+
Religion/belief	0
Sex	+
Sexual orientation	0
People on low incomes	+
People on benefits	+
Unemployed people	+
Young and adult carers	0
People living in deprived areas/rural areas	+
People with poor literacy and/or numeracy	0

H.25 SP02 seeks to promote a healthy and inclusive borough through high quality design, accessible buildings and public realm, active lifestyles and community cohesion.

H.26 The policy establishes a requirement for development to deliver accessible homes and non-residential buildings. This is likely to particularly benefit people with disabilities and older people, who are more likely to have mobility limitations. As such, positive effects are expected in relation to the protected characteristics of ‘disability’ and ‘age’ for SP02.

H.27 The policy places an emphasis on active travel, high quality green spaces, play provision and recreation opportunities which is expected to benefit children and young people by supporting physical activity. These measures are also likely to benefit older people by promoting opportunities for social interaction and low-impact exercise. Accessible open space also provides significant benefits for the elderly, acting as critical 'spaces of encounter' that foster physical health, mental wellbeing and social connection. As such, positive effects are expected in relation to the protected characteristics of 'age' for SP02.

H.28 The requirement for Health Impact Assessments for large schemes strengthens the policy's focus on reducing health inequalities. This is likely to benefit groups that experience poorer health outcomes, including people who have more limited financial resources and live in deprived areas, disabled people and certain ethnic minority communities. As such, positive effects are expected in relation to the protected characteristics of 'disability', 'race', 'people on low incomes', 'people on benefits', 'unemployed people' and 'people living in deprived areas / rural areas'.

H.29 The policy's focus on creating environments that create a feeling of familiarity and safety and minimise opportunities for crime and anti-social behaviour may particularly benefit women and girls, who can be disproportionately affected by concerns about personal safety in public spaces. As such, a positive effect is expected in relation to the protected characteristic of 'sex' for SP02.

SP03 – The Economy and skills

H.30 This section presents the EqIA findings for the strategic policy ‘Economy and skills’. The effects are presented in Table H.4 and are described below the table.

Table H.4: SP03 – The Economy and Skills

Spatial Policy	SP03
Age	+
Disability	0
Gender reassignment	0
Marriage and civil partnership	0
Pregnancy and maternity	0
Race	0
Religion/belief	0
Sex	0
Sexual orientation	0
People on low incomes	+
People on benefits	+
Unemployed people	+
Young and adult carers	0
People living in deprived areas/rural areas	0
People with poor literacy and/or numeracy	+

H.31 SP03 sets out the Council’s approach to supporting sustainable economic growth in Thurrock over the plan period. The provision of new employment land, as well as safeguarding existing land, will help to ensure that there is a sufficient supply of land to meet future demands. Supporting employment provision will particularly benefit younger people and unemployed people, and may offer opportunities for people to increase their incomes. Positive effects are therefore identified for the protected characteristics of ‘age’, ‘people on low incomes’ and ‘unemployed people’. Positive effects are also identified for ‘people on benefits’ as new employment provision may enable more job seekers to find employment, although it is recognised that this is not the only reason for people to be on benefits.

H.32 The policy makes specific reference to investing in skills, education and training opportunities, which may benefit ‘people with poor literacy and/or numeracy’.

H.33 The policy also refers to improving the availability of accommodation for business in easily accessible locations. This may be particularly beneficial to those who rely on public transport, reinforcing the positive effects identified for the characteristics of ‘age’ and ‘people on low incomes’.

SP04 – Thurrock’s Centres and their Futures

H.34 This section presents the EqIA findings for the strategic policy ‘Thurrock’s Centres and their Futures’. The effects are presented in **Table H.5** and are described below the table.

Table H.5: SP04 – Thurrock’s Centres and their Futures

Spatial Policy	SP04
Age	+
Disability	+
Gender reassignment	+
Marriage and civil partnership	0
Pregnancy and maternity	+
Race	0
Religion/belief	+
Sex	0
Sexual orientation	0
People on low incomes	+
People on benefits	0
Unemployed people	0
Young and adult carers	0
People living in deprived areas/rural areas	0
People with poor literacy and/or numeracy	0

H.35 SP04 seeks to provide the majority of shops, services and facilities in the larger centres which are generally more easily accessible, in particular for people without access to a private car. Positive effects are therefore identified for the characteristics of ‘age’ and ‘people on low incomes’, reflecting the people who may be less likely to have access to a car.

H.36 The community services which may be more easily accessed as a result of this policy are likely to include healthcare facilities, which is likely to have positive effects on a number of the protected characteristics: ‘disability’, ‘age’ and ‘pregnancy and maternity’. It is also possible that people within the ‘gender reassignment group’ benefit from better access to such facilities.

H.37 Community services may be more easily accessible to all, which may benefit the 'religion/belief' characteristic, as a result of better access to places of worship and associated meeting places.

SP05 – Housing

H.38 This section presents the EqIA findings for the strategic policy ‘Housing’. The effects are presented in **Table H.6** and are described below the table.

Table H.6: SP05 – Housing

Spatial Policy	SP05
Age	+
Disability	+
Gender reassignment	0
Marriage and civil partnership	0
Pregnancy and maternity	0
Race	+
Religion/belief	0
Sex	0
Sexual orientation	0
People on low incomes	+
People on benefits	+
Unemployed people	+
Young and adult carers	+
People living in deprived areas/rural areas	0
People with poor literacy and/or numeracy	0

H.39 Policy SP05 sets out the Council’s approach to planning for projected housing growth, including securing the types, sizes and tenures of housing to meet the needs of residents, including those who require access to specialist housing. The provision of specialist housing is particularly likely to benefit older people and those with disabilities or health concerns; therefore positive effects are identified in relation to the ‘age’, ‘disability’ and ‘young and adult carers’ characteristics.

H.40 Maximising the delivery of affordable housing will benefit those who are more likely to be priced out of the housing market, including younger people and those on low incomes. Positive effects are therefore identified for the ‘people on low incomes’, ‘people on benefits’ and ‘unemployment people’ characteristics, while the positive effects already identified for ‘age’ are reinforced.

H.41 The support that the policy provides for self and custom-build housing will help those with particular accessibility needs to gain access to housing which meets their own needs and may also benefit multi-generational households. This reinforces the positive effects identified for 'age', 'disability' and 'young and adult carers'.

H.42 Safeguarding existing Gypsies & Travellers and Travelling Showpeople pitches/plots and maintaining a five-year supply of pitches and plots to meet the identified needs of Gypsies and Travellers and Travelling Showpeople will benefit those particular groups, and a positive effect is identified in relation to 'race'.

SP06 – Sustainable Development and Climate Change

H.43 This section presents the EqIA findings for the strategic policy ‘Sustainable Development and Climate Change’. The effects are presented in **Table H.7** and are described below the table.

Table H.7: SP06 – Sustainable Development and Climate Change

Spatial Policy	SP06
Age	+
Disability	+
Gender reassignment	0
Marriage and civil partnership	0
Pregnancy and maternity	0
Race	0
Religion/belief	0
Sex	0
Sexual orientation	0
People on low incomes	+
People on benefits	+
Unemployed people	+
Young and adult carers	0
People living in deprived areas/rural areas	0
People with poor literacy and/or numeracy	0

H.44 This policy sets out the Council’s approach to tackling the climate emergency through transformational action that secures a fair transition to a low-carbon, climate resilient Thurrock. The measures set out in the policy in terms of energy efficiency in new developments should help to minimise energy costs, which will benefit ‘people on low incomes’, ‘people on benefits’ and ‘unemployment people’.

H.45 The measures set out in the policy to increase climate change resilience may reduce the vulnerability of the population to flooding events, which may particularly benefit those who are most vulnerable. Positive effects are therefore identified for ‘age’ and ‘disability’.

SP07 – Environment

H.46 This section presents the EqIA findings for the strategic policy ‘Environment’. The effects are presented in Table H.8 and are described below the table.

Table H.8: SP07 – Environment

Spatial Policy	SP07
Age	+
Disability	+
Gender reassignment	0
Marriage and civil partnership	0
Pregnancy and maternity	+
Race	0
Religion/belief	0
Sex	0
Sexual orientation	0
People on low incomes	0
People on benefits	0
Unemployed people	0
Young and adult carers	0
People living in deprived areas/rural areas	0
People with poor literacy and/or numeracy	0

H.47 This policy sets out the Council’s approach to achieving a cleaner and greener Thurrock. Some of the measures in the policy will contribute towards flood risk mitigation, such as the provision of green infrastructure, which will have particular benefits for those who are most vulnerable to flooding events. Positive effects are therefore identified for ‘age’ and ‘disability’. The provision of green infrastructure will also help more people to engage in walking and recreation activities in high quality green spaces, which is expected to benefit children and young people in particular by supporting physical activity. These measures are also likely to benefit older people by promoting opportunities for social interaction and low-impact exercise. This reinforces the positive effects already identified in relation to the protected characteristics of ‘age’ for SP07.

H.48 The measures in the policy seeking to control and remediate pollution will benefit those who may be most vulnerable to air pollution including older people, those suffering from cardiovascular disease and pregnant women. Positive effects are therefore also identified in relation to the 'pregnancy and maternity' characteristic.

SP08 – Infrastructure

H.49 This section presents the EqIA findings for the strategic policy ‘Environment’. The effects are presented in **Table H.9** and are described below the table.

Table H.9: SP08 – Infrastructure

Spatial Policy	SP08
Age	+
Disability	+
Gender reassignment	0
Marriage and civil partnership	0
Pregnancy and maternity	+
Race	0
Religion/belief	+
Sex	0
Sexual orientation	0
People on low incomes	0
People on benefits	+
Unemployed people	+
Young and adult carers	0
People living in deprived areas/rural areas	+
People with poor literacy and/or numeracy	0

H.50 SP08 aims to support the growth identified for Thurrock by securing the social and physical infrastructure necessary to meet current and future needs. It promotes the delivery of new or improved strategic infrastructure, including major highways and public transport schemes, and maintains an up-to-date Infrastructure Delivery Schedule, which identifies individual infrastructure projects and priorities such as healthcare, education facilities, libraries, and other community services. These measures are likely to particularly benefit children, young people, and older residents, resulting in positive effects on the protected characteristic of ‘age’ under SP08. Additionally, improved access to healthcare and transport infrastructure is expected to have beneficial effects on the protected characteristic of ‘pregnancy and maternity’. Community facilities are likely to be more easily accessible to all, which will have a positive effect on

the protected characteristic 'religion/belief' as a result of better access to places of worship.

H.51 The policy seeks to use formal agreements, such as S106, S278 and S38 Highways Agreements, to secure funding for or delivery of necessary infrastructure. This is likely to have a positive effect on the characteristic 'people living in deprived areas / rural areas' by improving access to essential services and facilities.

H.52 The policy also requires the Council to work in cooperation with the promoters of Nationally Significant Infrastructure Projects (NSIPs) in the Borough, including the Lower Thames Crossing (LTC) and the Norwich to Tilbury Electricity Transmission Connection of the National Grid, to mitigate potential impacts and maximise benefits for residents and businesses in Thurrock. This could support employment provision, and therefore positive effects are identified for the protected characteristic of 'unemployed people.' Positive effects are also identified for 'people on benefits' as new employment provision may enable more job seekers to find employment, although it is recognised that this is not the only reason for people to be on benefits.

SP09 – Transport and Movement

H.53 This section presents the EqIA findings for the strategic policy ‘Transport and Movement’. The effects are presented in **Table H.10** and are described below the table.

Table H.10: SP09 – Transport and Movement

Spatial Policy	SP09
Age	+
Disability	+
Gender reassignment	0
Marriage and civil partnership	0
Pregnancy and maternity	+
Race	0
Religion/belief	0
Sex	+
Sexual orientation	0
People on low incomes	+
People on benefits	0
Unemployed people	0
Young and adult carers	0
People living in deprived areas/rural areas	+
People with poor literacy and/or numeracy	0

H.54 SP09 seeks to ensure that growth delivered through the Local Plan supports improvements to transport and connectivity across the Borough. The policy aims to enable residents, employees, businesses, and visitors to access town centres, services, workplaces, and leisure opportunities more easily, while also facilitating the efficient movement of goods and freight in a way that minimises impacts on communities and the environment. The policy includes measures such as promoting sustainable travel choices, with a focus on multi-modal transport and increasing affordable travel options, and improving conditions for safe, convenient, comfortable, inclusive and accessible walking, wheeling and cycling. Positive effects are identified on ‘age’, and ‘disability’ as these measures will help to improve accessibility, safety and independence for children, young people, older residents and disabled people. In addition, the emphasis on affordable and accessible transport options is likely to particularly

benefit people who are less likely to have access to a private car, including younger people, older people, low-income households, and some disabled residents, thereby helping to reduce transport-related inequality. Positive effects are therefore also identified for the characteristic of 'people on low incomes.'

H.55 Additionally, the policy seeks to encourage and enable walking, cycling and the use of public transport with routes and travel modes that are perceived as safe and pleasant for all. This may particularly benefit women and girls, who can be disproportionately affected by safety concerns associated with travel. As such, a positive effect is expected in relation to the protected characteristic of 'sex' for SP09.

H.56 The policy promotes the delivery of transport infrastructure schemes and improvements that will reduce congestion and improve air quality and journey times, along with a range of local and borough scale improvements that will address existing identified issues and mitigate the identified impacts from planned growth. Reductions in congestion and improvements in air quality is likely to benefit those who can be most vulnerable to air pollution including the very young and elderly, pregnant women and those with particular respiratory conditions. Positive effects are therefore identified for the characteristics of 'age' and 'pregnancy and maternity.'

H.57 The policy stipulates that sustainable transport options that improve access and connectivity for rural communities will be supported and as such minor positive effects are expected in relation to the protected characteristics of 'people living in deprived/rural areas'.

SP10 – Circular Economy and Waste

H.58 This section presents the EqIA findings for the strategic policy ‘Circular Economy and Waste’. The effects are presented in **Table H.11** and are described below the table.

Table H.11: SP10 – Circular Economy and Waste

Spatial Policy	SP10
Age	+
Disability	0
Gender reassignment	0
Marriage and civil partnership	0
Pregnancy and maternity	+
Race	0
Religion/belief	0
Sex	0
Sexual orientation	0
People on low incomes	0
People on benefits	0
Unemployed people	+
Young and adult carers	0
People living in deprived areas/rural areas	+
People with poor literacy and/or numeracy	0

H.59 SP10 supports the transition to a circular economy and seeks to drive waste management up the waste hierarchy, prioritising waste prevention, reuse, recycling, recovery, and minimising disposal to landfill. The policy seeks to minimise the impacts of waste facilities, stating that the recovery or disposal of waste should take place without endangering human health, especially from the landfilling of waste. These measures are expected to benefit groups who may be more vulnerable to the effects of waste-related pollution, such as very young and elderly people, pregnant women, and people with particular respiratory conditions. Minor positive effects are therefore expected for the protected characteristics of ‘age’ and ‘pregnancy and maternity’.

H.60 The focus of the policy to co-locate waste management activities within the broad locations of Tilbury-Purfleet and London Gateway and Thames

Enterprise Park, within appropriate industrial, employment and port areas, is likely to have positive effects on 'people living in deprived areas / rural areas'. Those living in deprived communities are more likely to be disproportionately affected by poor environmental quality and exposure to pollution.

H.61 By supporting recycling, reuse, and resource efficiency, the policy may also generate local employment and training opportunities, which may benefit 'unemployed people'.

SP11 – Minerals

H.62 This section presents the EqIA findings for the strategic policy ‘Minerals’. The effects are presented in Table **H.12** and are described below the table.

Table H.12: SP11 – Minerals

Spatial Policy	SP11
Age	+/-
Disability	+/-
Gender reassignment	0
Marriage and civil partnership	0
Pregnancy and maternity	+/-
Race	0
Religion/belief	0
Sex	0
Sexual orientation	0
People on low incomes	0
People on benefits	0
Unemployed people	+
Young and adult carers	0
People living in deprived areas/rural areas	+
People with poor literacy and/or numeracy	0

H.63 SP11 is likely to have a positive effect on the socioeconomic status characteristic, as it will benefit the economy and provide some (albeit limited) employment opportunities. Effects on the characteristics of age, disability and pregnancy and maternity are likely to be mixed - while mineral working could have adverse effects on those s as a result of dust and air pollution from HGVs, which could be particular issues for elderly people, very young children, pregnant women and people with respiratory conditions, the policy also seeks to avoid adverse impacts on human health and local amenity through appropriate site location, safeguarding sites.

Development Management Policies

Climate change and sustainable development

H.64 This section presents the EqIA appraisal findings for the development management policies included under the 'Climate Change and Sustainable Development' heading of the Local Plan. The effects are presented in the Table H.13 and described below the table.

Table H.13: Climate Change and Sustainable Development

Development Management Policy	DMP01	DMP02	DMP03	DMP04	DMP05	DMP06	DMP07
Age	0	0	0	0	0	0	0
Disability	0	0	0	0	0	0	0
Gender reassignment	0	0	0	0	0	0	0
Marriage and civil partnership	0	0	0	0	0	0	0
Pregnancy and maternity	0	0	0	0	0	0	0
Race	0	0	0	0	0	0	0
Religion/belief	0	0	0	0	0	0	0
Sex	0	0	0	0	0	0	0
Sexual orientation	0	0	0	0	0	0	0
People on low incomes	0	0	0	0	0	0	0
People on benefits	0	0	0	0	0	0	0
Unemployed people	0	0	0	0	0	0	0
Young and adult carers	0	0	0	0	0	0	0
People living in deprived areas/rural areas	0	0	0	0	0	0	0
People with poor literacy and/or numeracy	0	0	0	0	0	0	0

H.65 The policies in the Climate change and sustainable development chapter seek to shift how development is planned, designed, built and operated, so that new development reduces carbon emissions, uses resources efficiently and supports the transition to a low-carbon, circular economy. Whilst these policies have associated health benefits, policies largely centre around improving environmental outcomes and long-term sustainability and do not introduce requirements or restrictions that would disproportionately benefit or disadvantage people based on any of the identified protected characteristics. As such, for all protected characteristics, negligible effects have been recorded.

Economy, Employment and Skills

H.66 This section presents the EqIA appraisal findings for the development management policies included under the ‘Economy, Employment and Skills’ heading of the Local Plan. The effects are presented in the Table **H.14** and described below the table.

Table H.14: Economy, Employment and Skills

Development Management Policy	DMP08	DMP09	DMP10
Age	0	0	+
Disability	0	0	+
Gender reassignment	0	0	0
Marriage and civil partnership	0	0	0
Pregnancy and maternity	0	0	0
Race	0	0	+
Religion/belief	0	0	0
Sex	0	0	+
Sexual orientation	0	0	0
People on low incomes	0	0	+
People on benefits	0	0	+
Unemployed people	0	0	+
Young and adult carers	0	0	0
People living in deprived areas/rural areas	0	0	+
People with poor literacy and/or numeracy	0	0	+

H.67 The policies within the Economy, Employment and Skills chapter seek to ensure that an appropriate level of employment land is delivered to meet the employment needs of Thurrock.

H.68 Policy DMP10 requires major developments to contribute to benefits for residents and local businesses. This is likely to help those from a variety of backgrounds and ages into employment while potentially helping people from more deprived backgrounds. As such, a positive effect is expected in relation to the protected characteristic of ‘age’, ‘disability’, ‘sex’, ‘people on low incomes’, ‘unemployed people’, ‘race’, ‘People on benefits’, ‘People living in deprived areas / rural areas’ and ‘People with poor literacy and / or numeracy’ for DMP10.

Housing

H.69 This section presents the EqIA appraisal findings for the development management policies included under the 'Housing' heading of the Local Plan. The effects are presented in the **Table H.15** and described below the table.

Table H.15: Housing

Development Management Policy	DMP11	DMP12	DMP13	DMP14	DMP15	DMP16	DMP17
Age	+	+	0	+	0	+	+
Disability	+	0	0	+	0	0	0
Gender reassignment	0	0	0	0	0	0	0
Marriage and civil partnership	0	0	0	0	0	0	0
Pregnancy and maternity	0	0	0	0	0	0	0
Race	0	0	+	0	0	0	0
Religion/belief	0	0	0	0	0	0	0
Sex	0	0	0	0	0	0	0
Sexual orientation	0	0	0	0	0	0	0
People on low incomes	+	+	0	0	0	+	+
People on benefits	+	+	0	0	0	+	+
Unemployed people	+	+	0	0	0	+	+
Young and adult carers	+	0	0	+	0	0	0
People living in deprived areas/rural areas	+	+	0	0	0	+	+
People with poor literacy and/or numeracy	0	0	0	0	0	0	0

H.70 The policies within the Housing chapter seek to ensure that new residential development delivers a mix of homes that meet the diverse needs the population, including affordable housing, accessible and adaptable dwellings, specialist accommodation and provision for groups with specific housing requirements.

H.71 DMP11 requires all new dwellings to meet Part M4[2] Accessible and Adaptable standards, while DMP14 supports the delivery of specialist housing for older people and those with particular housing needs in sustainable locations with access to services. Together, these policies are expected to benefit older people and disabled people by improving access to suitable housing and supporting independent living. As such, positive effects are expected in relation to the protected characteristics of 'age' and 'disability' for DMP11 and 14. The provision of specialist accommodation, appropriate on-site amenity space and access to support services also has the potential to support people with long-term health conditions and carers. As such, positive effects are also identified for 'young and adult carers'.

H.72 DMP13 specifically addresses the accommodation needs of Gypsies, Travellers and Travelling Showpeople by seeking to retain existing lawful sites and allocate new sites to meet identified need. As such, a positive effect is expected in relation to the protected characteristic of 'race' for DMP13.

H.73 DMP12 and 16 ensure the provision of affordable housing in new developments. Similarly, DMP11's emphasis on ensuring an appropriate mix of dwelling types, sizes and tenures and DM Policy 17's support for the provision of high standard houses in multiple occupation helps to ensure a broader range of affordable housing options for younger adults and lower-income households. As such, positive effects are expected in relation to the protected characteristics of 'age', 'people on low incomes', 'people on benefits', 'unemployed people' and 'people living in deprived areas / rural areas' for DMP11, 12, 16 and 17.

Centres, Retail and Services

H.74 This section presents the EqIA appraisal findings for the development management policies included under the 'Centres, Retail and Services' heading of the Local Plan. The effects are presented in the **Table H.16** and described below the table.

Table H.16: Centres, Retail and Services

Development Management Policy	DMP18	DMP19	DMP20	DMP21	DMP22
Age	+	+	+	+	0
Disability	+	+	+	0	0
Gender reassignment	0	0	0	0	0
Marriage and civil partnership	0	0	0	0	0
Pregnancy and maternity	0	0	0	0	0
Race	0	0	0	0	0
Religion/belief	0	0	0	0	0
Sex	0	0	0	0	0
Sexual orientation	0	0	0	0	0
People on low incomes	+	+	+	0	0
People on benefits	+	+	+	0	0
Unemployed people	+	+	+	0	0
Young and adult carers	0	0	0	0	0
People living in deprived areas/rural areas	+/-	+/-	+/-	0	+
People with poor literacy and/or numeracy	0	0	0	0	0

H.75 The policies within the Centres, Retail and Services chapter seek to protect and enhance Thurrock's town, district and local centres. Together, by directing retail and town centre uses to accessible locations, safeguarding local shops, managing out-of-centre development and controlling the location of hot food takeaways they seek to ensure that services are accessible within sustainable centres.

H.76 DMP18 prioritises retail, community, leisure and service uses within town, district and local centres, whilst DMP19 and 20 place measures on resisting

less accessible out-of-centre development. By locating services in centres that are typically better served by public transport, this can improve access for those who may be less able to travel by private car, such as older people, disabled people, families with young children and those experiencing higher levels of deprivation. As such, positive effects are likely in relation to the protected characteristics of 'age', 'disability', 'people on low incomes', 'people on benefits', 'unemployed people' and 'people living in deprived areas / rural areas'. However, by prioritising these facilities in Thurrock's designated centres, this may prevent opportunities for the delivery of new development in more rural areas of the District. This is further reinforced in DMP22, which seeks to retain and extend local shops for community use in areas outside of a designated centre. As such, negative effects are also likely in relation to the protected characteristics of 'people living in deprived areas / rural areas' for DMP18, 19 and 20 and a positive effect is likely in relation to the protected characteristics of 'people living in deprived areas / rural areas' for DMP22.

H.77 DMP21 introduces specific controls related to proximity of hot food takeaways to schools and youth facilities. This is likely to benefit the health and wellbeing of younger people and benefit childhood obesity levels. As such, a positive effect is likely in relation to the protected characteristic 'age' for DMP21.

Natural Environment and Landscape

H.78 This section presents the EqIA appraisal findings for the development management policies included under the 'Natural Environment and Landscape' heading of the Local Plan. The effects are presented in the **Table H.17** and described below the table.

Table H.17: Natural Heritage and Landscape

Development Management Policy	DMP23	DMP24	DMP25	DMP26	DMP27	DMP28	DMP29	DMP30
Age	0	0	0	0	+	+	0	+
Disability	0	0	0	0	0	0	0	0
Gender reassignment	0	0	0	0	0	0	0	0
Marriage and civil partnership	0	0	0	0	0	0	0	0
Pregnancy and maternity	0	0	0	0	0	0	0	+
Race	0	0	0	0	0	0	0	+
Religion/belief	0	0	0	0	0	0	0	0
Sex	0	0	0	0	0	0	0	0
Sexual orientation	0	0	0	0	0	0	0	0
People on low incomes	0	0	0	0	+	+	0	0
People on benefits	0	0	0	0	+	+	0	0
Unemployed people	0	0	0	0	+	+	0	0
Young and adult carers	0	0	0	0	0	0	0	0
People living in deprived areas/rural areas	0	0	0	0	+	+	0	+
People with poor literacy and/or numeracy	0	0	0	0	0	0	0	0

H.79 The policies in the Natural Environment and Landscape chapter seek to ensure that growth in Thurrock is supported by the delivery and protection of green , social and community infrastructure. Together, the policies seek to safeguard environmental quality including biodiversity assets and landscape.

H.80 DMP27 and 28 seek to protect and enhance public open space and riverside environments. Access to public open spaces is particularly important for lower-income households, who may face greater barriers to private recreational space or paid leisure facilities. Accessible open space also provides significant benefits for the elderly, acting as critical ‘spaces of encounter’ that foster physical health, mental wellbeing and social connection. As such, positive effects are likely in relation to the protected characteristics of ‘age’, ‘people on low incomes’, ‘people on benefits’, ‘unemployed people’ and ‘people living in deprived areas / rural areas’ for DMP27 and 28.

H.81 DM30 seeks to minimise pollution through measures addressing air quality, noise and lighting, with specific consideration given to child play spaces. These measures are likely to benefit younger children and groups that are disproportionately affected by poor air quality, including pregnant women, ethnically diverse communities and people living in deprived areas. As such, positive effects are expected in relation to the protected characteristics of ‘age’, ‘pregnancy and maternity’ and ‘people living in deprived / rural areas’.

Infrastructure

H.82 This section presents the EqIA appraisal findings for the development management policies included under the 'Infrastructure' heading of the Local Plan. The effects are presented in the **Table H.18** and described below the table.

Table H.18: Infrastructure

Development Management Policy	DMP31	DMP32	DMP33	DMP34	DMP35	DMP36
Age	0	+	+	+	0	0
Disability	0	+	+	+	0	0
Gender reassignment	0	0	0	0	0	0
Marriage and civil partnership	0	0	0	0	0	0
Pregnancy and maternity	0	0	+	+	0	0
Race	0	+	0	0	0	0
Religion/belief	0	0	0	0	0	0
Sex	0	0	0	0	0	0
Sexual orientation	0	+	0	0	0	0
People on low incomes	0	+	+	+	+	0
People on benefits	0	0	+	+	+	0
Unemployed people	0	0	+	+	+	0
Young and adult carers	0	0	+	+	0	0
People living in deprived areas/rural areas	0	0	+	+	+	0
People with poor literacy and/or numeracy	0	0	0	0	+	0

H.83 The policies in the Infrastructure section seek to ensure that growth in Thurrock is supported by the delivery and protection of social, community and digital infrastructure. Together, the policies seek to support access to community facilities, education, health services and digital connectivity.

H.84 DMP32 seeks to embed cultural activity within major development proposals through affordable and flexible creative workspace, temporary creative uses during construction, public art and support for festivals and cultural and community activity. The integration of play elements and public art is likely to benefit children and young people, whilst the provision of accessible cultural and community spaces may support older people and help reduce social isolation. As such, a positive effect is expected for the protected characteristic of 'age'. By requiring development proposals to have regard to the Thurrock Plan for Culture 2025-2029 and to work with cultural partners to deliver cultural life within new development, the policy provides opportunities to celebrate history, heritage and local identity. The Plan for Culture highlights that public events and festivals create visibility and local pride and references support for initiatives such as Black History Month, youth volunteering, activities aimed at residents who are differently abled and support for Thurrock's LGBTQ+ community, including the delivery of the first Thurrock Pride event in 2024. As such, positive effects are expected for the protected characteristics of 'disability', 'race' and 'sexual orientation'. DMP32 also supports the inclusion of affordable and flexible workspace, which may particularly those with more limited financial resources who might otherwise face barriers to accessing adequate workspaces. As such a positive is also expected for the protected characteristic of 'people on low incomes'.

H.85 DMP33 and 34 require new development to contribute towards accessible community, health, education and childcare facilities, which will help to reduce barriers to access a range of essential services that support everyday wellbeing. These measures are likely to provide benefits for a range of people, including those experiencing higher levels of deprivation, younger and older people, those with disabilities and pregnant or new parents. As such, positive effects are likely in relation to the protected characteristics of 'age', 'disability', 'pregnancy and maternity', 'people on low incomes', 'people on benefits', 'unemployed people', 'young and adult carers' and 'people living in deprived areas / rural areas'.

H.86 DMP35 promotes enhanced digital connectivity throughout the Borough by seeking to ensure that high speed broadband is more widely accessible. This is likely to remove barriers to things such as access to online services, education, and job opportunities for a number of people across Thurrock. This is

particularly relevant to those who have the most limited access to broadband, such as more rural or deprived areas of the Borough. As such, positive effects are likely in relation to the protected characteristics of ‘people on low incomes’, ‘people on benefits’, ‘unemployed people’, ‘people living in deprived areas / rural areas’ and ‘people with poor literacy and / or numeracy’ for DMP35.

Travel, Transport and Movement

H.87 This section presents the EqIA appraisal findings for the development management policies included under the ‘Travel, Transport and Movement’ heading of the Local Plan. The effects are presented in the **Table H.19** and described below the table.

Table H.19: Travel, Transport and Movement

Development Management Policy	DMP37	DMP38
Age	+	+
Disability	+	+
Gender reassignment	0	0
Marriage and civil partnership	0	0
Pregnancy and maternity	+	+
Race	+	+
Religion/belief	0	0
Sex	0	0
Sexual orientation	0	0
People on low incomes	+	+
People on benefits	+	+
Unemployed people	+	+
Young and adult carers	0	0
People living in deprived areas/rural areas	+	+
People with poor literacy and/or numeracy	0	0

H.88 The policies in the Travel, Transport and Movement chapter seeks to ensure that new development in Thurrock supports inclusive and sustainable transport by minimising adverse impacts of the transport network, promoting active travel and public transport use and ensuring that transport is accessible for all.

H.89 DMP37 includes requirements for new developments to include inclusive design measures, particularly for those with mobility and sensory impairments. This includes inclusive design at crossings, public transport stops and changes in level. Further requirements to align with inclusive mobility standards such as LTN1/20 and Manual for Streets enhance this provision. Similarly, DMP38 requires DDA compliant (Blue Badge) parking spaces in all developments,

including car-free proposals, which is expected to benefit people with disabilities and older people who may rely on accessible parking. As such, positive effects are expected in relation to protected characteristics 'age' and 'disability' for both DM policies 37 and 38.

H.90 Both DMP37 and 38 seek to encourage active travel and reduce reliance on motorised private car use. By providing alternative, more sustainable forms of transport, this is likely to protect the borough from the impacts of air pollution. Ambient particulates and nitrogen dioxide have been linked to multiple health effects ranging from respiratory irritation to cardiovascular diseases and premature death. As such, positive effects are expected in relation to the protected characteristics of 'pregnancy and maternity', 'race' and 'people living in deprived areas / rural areas'.

H.91 By encouraging modal shift, the policies may also particularly benefit people with more limited financial resources who are less likely to have access to a private vehicle. Improved walking, cycling and public transport connectivity can enhance access to services and facilities for all and as such positive effects are expected in relation to the protected characteristics of 'People on low incomes' 'people on benefits' 'unemployed people' and 'people living in deprived areas / rural areas'.

Greenbelt

H.92 This section presents the EqIA appraisal findings for the development management policies included under the ‘Greenbelt’ heading of the Local Plan. The effects are presented in the **Table H.20** and described below the table.

Table H.20: Greenbelt

Development Management Policy	DMP39
Age	+
Disability	0
Gender reassignment	0
Marriage and civil partnership	0
Pregnancy and maternity	0
Race	0
Religion/belief	0
Sex	0
Sexual orientation	0
People on low incomes	+
People on benefits	+
Unemployed people	+
Young and adult carers	0
People living in deprived areas/rural areas	+/-
People with poor literacy and/or numeracy	0

H.93 DMP39 seeks to maintain, protect and enhance the openness, landscape character and environmental quality of Thurrock’s Green Belt, in line with national policy.

H.94 DMP39 seeks to improve opportunities to access to countryside, including opportunities for outdoor sport and recreation and public rights of way. Access to green and open spaces is particularly important for lower-income households, who may face greater barriers to private recreational space or paid leisure facilities. As such, positive effects are likely in relation to the protected characteristics of ‘people on low incomes’, ‘people on benefits’ and ‘unemployed people’ for DMP39. Access to natural settings helps combat the social isolation often experienced in older age, while supporting active and

independent living. As such, a positive effect is also expected in relation to the protected characteristic of 'age' for DMP39.

H.95 DMP39 supports the sustainability of rural settlements by allowing limited development where it meets demonstrable need. This is likely to benefit those living in rural communities by providing a level of new development to support access to essential facilities whilst maintaining village character and identity. As such, a positive effect is likely in relation to the protected characteristic of 'people living in deprived areas / rural areas' for DMP39. However, the restrictive nature of Green Belt policy may also act as a barrier to the delivery of larger-scale development, including new housing or employment space that could be important to the needs of rural communities. As such, a negative effect is also expected.

Good Design

H.96 This section presents the EqIA appraisal findings for the development management policies included under the 'Good Design' heading of the Local Plan. The effects are presented in the **Table H.21** and described below the table.

Table H.21: Good Design

Development Management Policy	DMP40	DMP41	DMP42	DMP43	DMP44	DMP45	DMP46	DMP47	DMP48	DMP49	DMP50	DMP51	DMP52	DMP53
Age	+	+	+	+	+	+	+	+	+	0	+	0	0	+
Disability	+	+	+	+	+	+	+	+	+	0	+	0	0	0
Gender reassignment	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Marriage and civil partnership	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pregnancy and maternity	+	0	+	0	0	0	0	0	0	0	0	0	0	0
Race	+	0	+	0	0	0	0	0	0	0	0	0	0	0
Religion/belief	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sex	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sexual orientation	0	0	0	0	0	0	0	0	0	0	0	0	0	0
People on low incomes	+	+	+	0	0	+	+	+	0	0	+	0	0	0
People on benefits	+	+	+	0	0	+	+	+	0	0	+	0	0	0
Unemployed people	+	+	+	0	0	+	+	+	0	0	+	0	0	0
Young and adult carers	0	0	0	+	+	0	0	0	0	0	0	0	0	0
People living in deprived areas/rural areas	+	+	+	0	0	+	+	+	0	0	+	0	0	0
People with poor literacy and/or numeracy	0	0	0	0	0	0	0	0	0	0	0	0	0	0

H.97 The policies within the Good Design chapter seek to ensure that new development delivers inclusive, healthy and accessible places. This includes requirements that seek to benefit Thurrock's public realm, housing and green-blue infrastructure.

H.98 DMP40 seeks to minimise pollution by ensuring that where major transport corridors adjoin sensitive uses, environmental benefits are achieved. Similarly, DMP42 seeks to ensure that current air quality in the borough is maintained and where possible improved. These measures are likely to benefit younger children and groups that are disproportionately affected by poor air quality, including pregnant women, ethnically diverse communities and people living in deprived areas. As such, positive effects are expected in relation to the protected characteristics of 'age', 'pregnancy and maternity' and 'people living in deprived / rural areas'.

H.99 DMP40, 41, 42, 45, 47, 48 and 53 include requirements for high-quality, healthy development that relates positively to its site and wider surroundings. DMP40, 41, 42 and 47 promote schemes that deliver enhancements to Thurrock's green spaces and public realm, highlighting their importance as an integral element of the proposal. Public realm and other forms of publicly accessible green space acts as an important 'space of encounter' for the elderly, fostering physical health, mental wellbeing and social connection. DMP45 and 48 places further emphasis on accessible and inclusive design, which will benefit the elderly and disabled people. Both policies include requirements for Design and Access Statements submitted with the proposals to demonstrate how they are in alignment with inclusivity policies whilst Policy 48 places a need to demonstrate appropriate design wayfinding and access to inclusive facilities and amenities. As such, positive effects are expected in relation to the protected characteristics of 'age' for DMP40, 41, 42, 45, 47, 48 and 53. Further positive effects are expected in relation to 'disability' for DMP45 and 48.

H.100 A number of policies seek to integrate new development with improved access to public transport and active travel opportunities, including DMP45, 46, 47 and 50. By ensuring that new design is accessible by public transport, this can improve access for those who may be less able to travel by private car, such as older people, disabled people, families with young children and those experiencing higher levels of deprivation. As such, positive effects are expected in relation to the protected characteristics of 'age', 'disability', 'people on low incomes', 'people on benefits', 'unemployed people and 'people living in deprived areas / rural areas'.

H.101 DMP43 and 44 require new residential development to meet the standards of Building Regulations Approved Document M, ensuring that dwellings are accessible and adaptable over their lifetime. By enabling residents to live independently for longer and adapt their homes as needs change, this approach is likely to deliver benefits for older people and disabled people. The policies are also likely to benefit young and adult carers, by supporting safer and more functional living spaces for those they care for. As such, positive effects are expected in relation to the protected characteristics of 'age', 'disability' and 'young and adult carers'.

Heritage

H.102 This section presents the EqlA appraisal findings for the development management policies included under the ‘Heritage’ heading of the Local Plan. The effects are presented in the **Table H.22** and described below the table.

Table H.22: Heritage

Development Management Policy	DMP54	DMP55	DMP56	DMP57
Age	+	0	0	+
Disability	+	0	0	+
Gender reassignment	0	0	0	0
Marriage and civil partnership	0	0	0	0
Pregnancy and maternity	0	0	0	0
Race	0	0	0	0
Religion/belief	0	0	0	0
Sex	0	0	0	0
Sexual orientation	0	0	0	0
People on low incomes	+	0	0	+
People on benefits	+	0	0	+
Unemployed people	+	0	0	+
Young and adult carers	0	0	0	0
People living in deprived areas/rural areas	+	0	0	+
People with poor literacy and/or numeracy	0	0	0	0

H.103 The policies within the Heritage chapter are concerned with the protection and enhancement of designated and non-designated heritage assets, conservation areas and archaeological assets within Thurrock.

H.104 DMP54 and 57 include provision to protect historic parks and gardens and other parks and landscaped public gardens, respectively. These are important open spaces for the local population and play an important role in providing access to green infrastructure. In doing so, the policy supports opportunities for recreation, social interaction and contact with nature. Access to green spaces is particularly important for lower-income households, who may

face greater barriers to private recreational space or paid leisure facilities. As such, positive effects are likely in relation to the protected characteristics of 'people on low incomes', 'people on benefits' and 'unemployed people' for DMP54 and 57. Publicly accessible green space also acts as an important 'space of encounter' for the elderly, fostering physical health, mental wellbeing and social connection. As such, positive effects are also expected in relation to the protected characteristics of 'age' for both DM policies.

H.105 The majority of the policies in this chapter do not introduce requirements or restrictions that would disproportionately benefit or disadvantage people based on any of the identified protected characteristics. As such, negligible effects are recorded for the remaining policies in this chapter.

Consultation on the Local Plan

H.106 As well as the content of the Local Plan, it is important that the protected characteristics of the Equality Act are taken into consideration when preparing and consulting on the Plan, in particular ensuring that all groups of people have the opportunity to access and participate in consultations.

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