



**LANCASHIRE**

COMBINED COUNTY  
AUTHORITY

# Lancashire Transport Plan: Implementation Plan

Habitats Regulations Assessment (HRA)

<b>Title</b>	
Version number	Final
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<b>Date of creation</b>	<b>Oct 2025</b>	<b>Review cycle</b>	
Last review	Feb 2026	Next review date	

Version	Date	Section/Reference	Amendment
V1	04/11/2025	All	Review – internal team
V2	19/12/2025	All	Review by AtkinsRealis
V3	17/02/2026	All	Review – internal team
Final	24/02/2026		

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# 1. Introduction

## 1.1. Overview

This Habitats Regulations Assessment (HRA) has been prepared to support the Lancashire Local Transport Plan (LTP) Implementation Plan (IP). The IP sets out the actions, priorities, and investment programmes that would deliver the strategic policies established in the Local Transport Plan Core Strategy (2025–2045). This HRA builds on and is informed by, the earlier strategic HRA undertaken for the Core Strategy, while responding specifically to the scope, scale, and level of detail of the IP.

The LTP establishes a long-term vision for transport across Lancashire Combined County Authority Area: with the vision that “the LTP is for the transport network to support a stronger economy, with fairer opportunities and a sustainable future”.

The IP sets out the short-term transport programmes, schemes, strategies and investment priorities that would deliver the strategic objectives of the Core Strategy across the plan period (2026 - 2030).

A strategic HRA was prepared for the Core Strategy, undertaken alongside an Integrated Sustainability Appraisal (ISA) incorporating the requirements of a Strategic Environmental Assessment (SEA). This IP HRA builds directly on that work, applying the same principles, methodology, and evidence base to ensure consistency across the LTP framework. Moreover, this HRA reflects the comments made by Natural England on the Core Strategy HRA.

## 1.2. Purpose of this document

Under the Conservation of Habitats and Species Regulations 2017 (as amended) (the “Habitats Regulations”), Lancashire Combined County Authority (LCCA) is the competent authority responsible for assessing whether any plan or project is likely to have a significant effect on a European Site (Special Area of Conservation (SAC), Special Protection Area (SPA), or Ramsar site). The post-EU Exit amendments introduced by the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 transferred functions from the European Commission to the relevant authorities in England but did not alter the fundamental legal duties of competent authorities.

In accordance with the Habitats Regulations, it is therefore necessary to consider whether the IP may result in Likely Significant Effects (LSE) on European Sites within or functionally linked to the LCCA area. Where LSE cannot be excluded, further assessment through an Appropriate Assessment (AA) would be undertaken to determine whether the IP could adversely affect site integrity.

### 1.3. Overview of Consultation Inputs

The ISA Scoping Stage for the IP, which included consultation with Natural England (NE), the Environment Agency (EA), and Historic England (HE), has informed the approach to this IP HRA. The IP HRA has been re-scoped to ensure that the issues raised during the ISA Scoping consultation are appropriately addressed at the IP level.

Natural England's LTP ISA Scoping consultation response (March 2025) advised that the IP HRA should:

- Recognise and assess the potential role of functionally linked land (FLL) supporting qualifying species of coastal and estuarine sites.
- Consider air quality and hydrological pathways as primary mechanisms of potential impact; and
- Integrate HRA monitoring indicators within the wider ISA Monitoring Framework.

In addition, NE provided further advice in response to Lancashire Transport Plan; IP SEA Scoping report (November 2025). In this response NE emphasises that IP HRA should:

- Consider impacts on Functionally Linked Land (FLL) associated European sites, including references to available evidence such as NECR361 and NECR483;
- Ensure screening distance reflects species-specific foraging behaviours, noting that certain qualifying bird species may utilise land up to 20KM from designated sites;
- Make use of SSSI Impact Risk zone (IRZs) to inform the identification of sites requiring further assessment
- Assess potential road traffic air quality impacts in accordance with NE guidance (NEA001), where relevant;
- Consider potential impacts to surface and ground water hydrological connectivity, drawing on appropriate geological and peat datasets; and
- Avoid development on restorable peat, using available peat mapping data as an initial screening tool

The EA's response reinforced the need for the HRA to align with River Basin Management Plan (RBMP) objectives and address cumulative impacts on surface water and flood risk, particularly in relation to the Ribble, Lune, and Wyre catchments.

This HRA therefore runs in parallel with the SEA and ISA processes to ensure that biodiversity and Habitats Regulations considerations are fully embedded within the IP, it

also ensures that the outcomes of both processes remain aligned, as required by the Environmental Assessment of Plans and Programmes Regulations 2004 (SI 2004/1633).

The IP HRA report provides:

- A summary of the HRA process and methodology applied;
- Identification of the relevant European Sites within or near the IP zone of influence;
- Review of potential impact pathways arising from the IP;
- Screening of the IP for LSE (Stage 1); and, where necessary,
- Consideration of potential AA (Stage 2) requirements.

## 2. Relationship with the Core Strategy HRA

The HRA of the Core Strategy identified the European Sites within the plan's zone of influence where a Stage 2 AA was required, this list has also been used in this IP HRA.

### European Sites Located within the LCCA Area

- South Pennine Moors SAC
- Calf Hill & Cragg Woods SAC
- Morecambe Bay Pavements SAC
- North Pennine Dales Meadows SAC
- Morecambe Bay SAC
- Bowland Fells SPA
- Leighton Moss SPA
- Martin Mere SPA
- Morecambe Bay and Duddon Estuary SPA
- Ribble & Alt Estuaries SPA
- South Pennine Moors Phase 2 SPA
- Leighton Moss Ramsar Site
- Martin Mere Ramsar Site
- Ribble & Alt Estuaries Ramsar Site

- Morecambe Bay Ramsar Site

#### **European Sites Located Within 2 km of the LCCA Area**

- Ingleborough Complex SAC;
- Sefton Coast SAC;
- Liverpool Bay SPA;

#### **European Sites Located Within 15 km of the LCCA Area**

- Shell Flat and Lune Deep SAC

#### **European Sites Located Within 20 km of the LCCA Area**

- Mersey Estuary SPA
- Mersey Narrows & North Wirral Foreshore SPA
- North Pennine Moors SPA
- Peak District Moors (South Pennine Moors Phase 1) SPA
- Mersey Estuary Ramsar Site
- Mersey Narrows & North Wirral Foreshore Ramsar Site
- Duddon Estuary Ramsar Site
- Dee Estuary Ramsar Site

This IP HRA also uses the same approach to the assessment.

- Methodology and evidence base as the Core Strategy HRA;
- Site Screening criteria, distances of 2 km of the LTP Area, 20 km for birds' interest features, and 30 km for bats interest features and all European Sites upstream or downstream of watercourses within the LTP IP Area;
- Data sources, including NE's Designated Sites Information, the MAGIC Web-map, and the Joint Nature Conservation Committee (JNCC) Natura 2000 Standard Data Forms; and
- Precautionary principle, ensuring that uncertainty is treated as a potential risk to site integrity.

Through the Core Strategy HRA screening process concluded that while most policies were unlikely to result in significant effects on European Sites, some measures

associated with highway improvement and new infrastructure could not be categorically ruled out without further assessment.

The Core Strategy HRA recommended that any schemes promoted through future IPs be screened under the Habitats Regulations on a case-by-case basis. This IP HRA fulfils that requirement by providing a strategic review of all identified schemes and by setting a framework for project-level Appropriate Assessment where necessary.

This approach ensures that the IP continues to meet the requirements of the Habitats Regulations at strategic plan level, while recognising the further, more detailed assessment would be required as individual schemes are developed. The IP HRA builds upon the Core Strategy HRA and provides the next stage in a tiered assessment process, rather than representing the final stage of assessment.

### 3. Legal Context

The purpose of the IP HRA is to ensure the protection of European Designated Sites (Natura 2000) wherever practicable. European Designated Sites are designed to form an ecologically coherent network of designated spaces across Europe.

Article 6(3) of the EU Habitats Directive states that:

*“Any plan or project not directly connected with, or necessary to, the management of the [European] site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site’s conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it would not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public.”*

National Planning Policy Framework (NPPF), states that potential Special Protection Areas (pSPA) and possible Special Areas of Conservation (pSAC), listed or proposed Ramsar sites and sites identified, or required, as compensatory measures for adverse effects on habitats sites, pSPAs, pSACs, and listed or proposed Ramsar sites, should also be considered European Sites. Hereafter, all the above designated nature conservation sites are referred to as ‘European Sites’.

Definitions (taken from the DEFRA- Joint Nature Conservation Committee):

- SPAs are designated under Directive 2009/147/EC on the Conservation of Wild Birds. SPAs are strictly protected sites classified in accordance with Article 4 of the EU Birds Directive, which came into force in April 1979. They are classified for rare and vulnerable birds (as listed on Annex I of the Directive), and for regularly occurring migratory species.

- SACs are designated under the EU Habitats Directive for the protection of habitats and species of European importance. Article 3 of the Habitats Directive requires the establishment of a European network of important high-quality conservation sites that would make a significant contribution to conserving the 189 habitat types and 788 species. The listed habitat types and species are those considered to be most in need of conservation at a European level (excluding birds).

The HRA process consists of three stages.

**Stage 1** – Screening determines whether a plan or project, either alone or in combination with other plans and projects, is likely to have a significant effect on a European Site.

**Stage 2** – Appropriate Assessment evaluates whether, in view of the site’s conservation objectives, the plan or project would have an adverse effect on its integrity. If adverse impacts are anticipated, mitigation measures should be proposed and assessed.

**Stage 3** – Derogations apply where residual adverse effects remain; in such cases, a plan or project may only proceed if it meets the strict tests for derogation.

Three legal tests must be applied in the following order:

1. There are no feasible alternative solutions that would be less damaging or avoid damage to the site;
2. The proposal needs to be carried out for imperative reasons of overriding public interest;
3. The necessary compensatory measures can be secured.

## 4. Methodology

This section sets out the methodology applied to undertake the HRA IP, in accordance with Regulation 63 of the Conservation of Habitats and Species Regulations 2017 (as amended). It explains the approach to Stage 1 Screening for Likely Significant Effects (LSE) and the criteria for progressing to Stage 2 Appropriate Assessment (AA).

Project-level HRA typically necessitates site-specific survey work and the collection of new evidence to robustly assess the significance of potential impacts. This approach enables the assessment to progress beyond identifying a theoretical risk of an effect, towards providing a well-supported prediction of the likely impacts and informing the development of appropriate avoidance or mitigation measures.

However, the draft Ministry of Housing, Communities & Local Government (MHCLG) guidance clearly states that, when undertaking the HRA of land-use plans, the AA should be completed at a level of detail that is both commensurate with, and proportionate to, the level of detail contained within the plan itself.

*“The comprehensiveness of the [Appropriate] assessment work undertaken should be proportionate to the geographical scope of the option and the nature and extent of any effects identified. An AA need not be done in any more detail, or using more resources, than is useful for its purpose. It would be inappropriate and impracticable to assess the effects [of a strategic land use plan] in the degree of detail that would normally be required for the Environmental Impact Assessment (EIA) of a project.”*

*More recently, the Court of Appeal ruled that providing the Council (competent authority) was duly satisfied that proposed mitigation could be “achieved in practice” then this would suffice to meet the requirements of the Habitat Regulations. This ruling has since been applied to a planning permission (rather than a Plan document). In this case the High Court ruled that for “a multistage process, so long as there is sufficient information at any stage to enable the authority to be satisfied that the proposed mitigation can be achieved in practice it is not necessary for all matters concerning mitigation to be fully resolved before a decision maker is able to conclude that a development would satisfy the requirements of reg 61 of the Habitats Regulations”*

In effect, there is an implicit recognition that an AA may be applied in a tiered manner, and that not all potential impacts require consideration at the same level of detail at each tier. Nonetheless, it remains essential to maintain confidence that the transport interventions identified within an IP are capable of being delivered without giving rise to fundamental HRA constraints.

In accordance, any projects brought forward under the IP are likely to require consideration of their own requirements for HRA and this document does not preclude the need for further assessment at the project or lower tier level. However, the findings of this strategic level HRA can be incorporated into and explored at the appropriate level of detail at the next tier.

The most robust and defensible way to address the absence of detailed, scheme-level information at this stage is to apply the precautionary principle. This requires that the plan is not afforded the benefit of the doubt; rather, it must be assumed that any policy or intervention could give rise to impacts leading to significant adverse effects on an internationally designated site unless there is clear evidence to demonstrate otherwise.

It is important to re-emphasise that the adoption of the IP does not facilitate the granting of permissions for developments (or projects) that would be contrary to the Habitats Regulations.

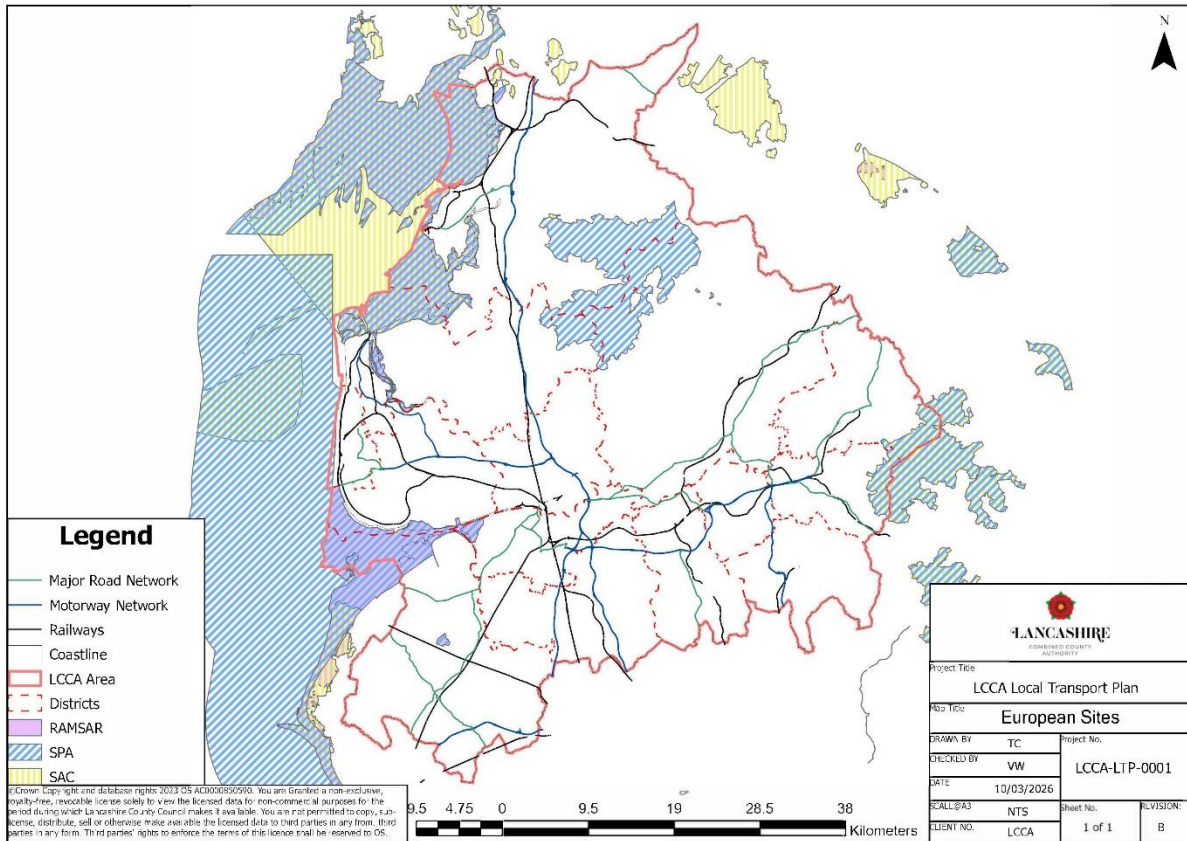
With any projects brought forward under the IP, there are several environmental control measures that it would be necessary to employ to ensure adverse impacts upon the environment are avoided (in the first instance) or minimised.

#### **4.1. Determination of European Sites**

The European Sites included within this IP HRA are those previously identified through the Core Strategy HRA. As the IP does not introduce new geographical areas the original Study Area established for the Core Strategy remains valid and has therefore been retained without modification.

The spatial distribution of European sites within and surrounding the LCCA Area is illustrated in Figure 4.1. which shows the location of SAC, SPA, and Ramsar Sites in relation to the LCCA administrative boundary.

**Figure 4.1. The location of European sites within LCCA Area**



The table 4.1. summarises the European Sites located within the LCC Area and within relevant proximity thresholds (2 km, 15 km, 20 km for bird-related sites, and 30 km for bat-related SACs, where applicable). These distance criteria reflect the methodology used in the Core Strategy HRA and ensure that all sites with a reasonable potential to experience direct, indirect or in-combination effects are included.

**Table 4.1. The European Sites located within the LCCA Area**

Location	SAC	SPA	Ramsar sites
Within the LCC Area	<ul style="list-style-type: none"> <li>South Pennine Moors</li> <li>Calf Hill &amp; Cragg Woods</li> <li>Morecambe Bay Pavements</li> <li>North Pennine Dales Meadows</li> <li>Morecambe Bay</li> </ul>	<ul style="list-style-type: none"> <li>Bowland Fells</li> <li>Leighton Moss</li> <li>Martin Mere</li> <li>Morecambe Bay and Duddon Estuary</li> <li>Ribble &amp; Alt Estuaries</li> <li>South Pennine Moors Phase 2</li> </ul>	<ul style="list-style-type: none"> <li>Leighton Moss</li> <li>Martin Mere</li> <li>Ribble &amp; Alt Estuaries</li> <li>Morecambe Bay</li> </ul>
Within 2 km of the LCC Area	<ul style="list-style-type: none"> <li>Ingleborough Complex</li> <li>Sefton Coast</li> </ul>	<ul style="list-style-type: none"> <li>Liverpool Bay</li> </ul>	

Within 15 km of the LCC Area	○ Shell Flat and Lune Deep	N/A	N/A
Within 20 km of the LCC Area Birds (SPA / Ramsar)	N/A	○ Mersey Estuary ○ Mersey Narrows & North Wirral Foreshore ○ North Pennine Moors ○ Peak District Moors (South Pennine Moors Phase 1)	○ Mersey Estuary ○ Mersey Narrows & North Wirral Foreshore ○ Duddon Estuary ○ Dee Estuary
Within 30km of the LCC Area for bat (SACs)	There are no SACs within 30km of the plan area with bats as a qualifying feature	N/A	N/A

The following SACs were identified between 2km and 10km of the LTP area, however, as there were no potential impact pathways they were discounted from the assessment:

- Roudsea Woods and Mosses SAC;
- Witherslack Mosses SAC;
- Rochdale Canal SAC;
- River Kent SAC.

The list of Habitats sites, their qualifying Interest features, conservation objectives and, key vulnerabilities / factors affecting site integrity could be found in the Core Strategy HRA appendix.

## 4.2. Information on European Sites Identified for Screening

Baseline data for the Habitats Sites covered in this HRA is derived from Core Strategy HRA, which provides detailed information on each European Sites.

## 4.3. Test of Likely Significant Effects

As required by Regulation 63 by the Conservation of Habitats and Species Regulations (2017), The first stage of a HRA is the Test of Likely Significant Effects (ToLSE), also referred to as the screening stage. This involves a concise, high-level appraisal to determine whether the proposal may affect a designated site and whether the full subsequent stage known as AA is required. The essential question is:

*” Is the proposal likely to have significant effect on the interest features of site, alone or in combination with other plans and projects?”*

Also, the IP is a transport delivery plan and is not directly connected with or necessary for the conservation management of any European Site. Screening is therefore required.

The screening exercise should be approached on a precautionary basis, Therefore, there are the steps in the HRA screening process:

1. Assemble basic information including their location, scale, nature, where this information is available to consider residual effects which are not significant alone, considering each qualifying feature of Habitats sites; These characteristics may, in some cases, allow likely significant effects to be ruled out at the screening stage.
2. Consider whether any effects in combination with other plans and projects or cumulative effects can be eliminated. Possible effects are considered and eliminated based on lack of credibility.
3. Produce screening assessment of any effects on European sites.

The purpose of this stage is to ‘screen out’ those plans and projects that can be confidently ruled out as unlikely to result in significant adverse effects on Habitats Sites without the need for detailed assessment. This is typically because no credible impact pathway exists, and to highlight schemes that require further consideration through AA.

The ToLSE considers whether a potential impact arises by identifying the source of that impact, the pathway through which it may reach a receptor, and the relevant Habitats Site receptors themselves. These receptors typically include the designated features of the site but may also extend to supporting habitats and species that are essential for maintaining those features in favourable conservation status (notably functionally linked land outside the Habitats Site boundary).

For schemes within the IP that are in the feasibility stage and currently lack sufficient detail such as confirmed location, design, or construction parameters, it is not possible to undertake a meaningful assessment at this stage. These schemes are therefore screened out of the plan-level HRA, with the requirement that they would be subject to project-level HRA screening once brought forward, and the necessary detail becomes available.

#### **4.4. Appropriate Assessment**

Where a scheme may cause LSE, the second stage is to undertake an AA of the implications of the scheme (either alone or in combination with other plans or projects) and establish whether there may be an Adverse Effect on Integrity (AEoI) of any Habitats sites in view of their Conservation Objectives. Case law has clarified that ‘Appropriate Assessment’ is not a technical term. In other words, there are no technical analyses, or level of technical analysis, that are classified by law as belonging to appropriate assessment rather than ToLSE. AA refers to whatever level of assessment is appropriate to form a conclusion regarding effects on the integrity (*"the coherence of the site's ecological structure and function, across its whole area, which enables it to sustain the habitat, complex of habitats and/ or population of species for which the site is or would be designated"*) of Habitats Sites considering their conservation objectives.

Therefore, AA in this HRA, uses best available evidence to identify which schemes may result in AEoI, and which thus would require further assessment and mitigation. Each scheme has been assessed using strict Source- Pathway-Receptor logic, considering the following pathways:

- Habitat loss and fragmentation
- Species disturbance (visual, noise, vibration)
- Changes to water quality
- Changes to air quality
- Changes to surface and groundwater hydrology
- Introduction of Invasive Non-Native Species (INNS)
- Recreation

The assessment tests each pathway against the relevant site-specific conservation objective (as detailed in Core Strategy HRA Appendix) to determine whether it can be concluded that the scheme would not affect the integrity of the European site.

Given the strategic nature of IP, there remains a high level of uncertainty regarding the precise location, design and delivery of individual schemes. As such, the AA is necessarily undertaken at a plan level and does not include the level of detailed that would normally be expected for project-level HRA of a defined scheme.

In accordance with the precautionary principle, where it is not possible to conclude with certainty that AEoI of the site can be ruled out, this HRA identifies and proposes mitigation measures to address any effects that could potentially arise.

#### **4.4.1. Distance Parameters**

Distance to European sites reference in the following tables in AA test are approximate straight-line distance measured from indicative schemes area to the nearest designated site boundary. Where precise redline boundary are not yet defined (IP stage) distances are based on the best available mapping and considered proportionate for strategic assessment purposes.

#### **4.4.2 Confirming Other Plans and Projects that may act as "In Combination"**

The Habitats Regulations Assessment Handbook requires schemes in the IP to be assessed 'in combination' with other projects and plans. Other projects and plans can include the following:

- Planning applications submitted but not yet determined

- Planning application refusals subject to appeal procedures and not yet determined;
- Projects authorised but not yet started;
- Projects started but not yet completed;
- Known projects that do not require external authorisation, e.g. permitted development;
- Projects subject to periodic review, e.g. annual licences, during the time that the renewal is under consideration;
- Proposals in adopted plans (e.g. land use plans, transport plans, minerals and waste plans, shoreline management plans, etc.);
- Proposals in finalised draft plans (see examples above) formally published or submitted for final consultation, examination or adoption;
- Nationally Significant Infrastructure Projects (NSIPs) that could reasonably be expected to have effects in combination with the IP;
- The Greater Manchester Joint Development Plan (“Places for Everyone”);and
- National Highways Road Investment Strategy (RIS) schemes

A desktop review of local authority planning websites and online planning portals was undertaken to identify plans and projects that have either been subject to HRA or could give rise to LSEs in combination with the IP.

The search included the following local authority planning website(s) for relevant planning documents, planning applications and consents, as well as a review of allocated and proposed sites:

- Lancashire County Council;
- Blackburn with Darwen Borough Council;
- Blackpool Council;
- Burnley Borough Council;
- Chorley Council;
- Fylde Borough Council
- Hyndburn Borough Council;
- Lancaster City Council;
- Pendle Borough Council;
- Preston City Council;
- Ribble Valley Borough Council;
- Rossendale Borough Council;
- South Ribble Borough Council;
- West Lancashire Borough Council;
- Wyre Council;

- Westmorland and Furness Council;
- North Yorkshire Council;
- Bolton Council;
- Bury Council;
- Rochdale Borough Council;
- Wigan Council;
- Knowsley Council;
- St. Helens Borough Council;
- Sefton Council;
- City of Bradford Metropolitan District Council;
- Calderdale Council

This comprehensive review ensures that transport development not currently addressed within adopted Local Plans has been assessed in accordance with the Habitats Regulations and Natural England's advice.

The Core Strategy HRA included an in-combination assessment of other plans and projects at a strategic level. This HRA builds on this previous assessment by reviewing and updating the in-combination context to reflect the more detailed programme of transport schemes and the identification of LSE requiring AA. In addition, NE has advised that the in-combination assessment at this stage should consider a broader range of reasonably foreseeable plans and projects, including transport schemes outside Local Plans, committed but not yet constructed infrastructure, live and undetermined planning applications and strategic network redistribution effects. Accordingly, while the Core Strategy HRA provides useful context, its conclusions are not relied upon to rule out in-combination effects, and a precautionary approach has been applied.

At this plan stage, detailed scheme design and link-based traffic modelling are not yet available. Consequently, while credible in-combination pathways can be identified, quantitative assessment of traffic flows, visitor redistribution, or deposition change cannot be undertaken at this level.

Where uncertainty exists, AEoI cannot be ruled out.

In accordance with the precautionary principle, such pathways are identified and carried forward, with safeguards embedded within the LTP requiring project-level HRA prior to scheme progression.

The IP does not rely solely on mitigation secured by other competent authorities. Where existing mitigation strategies are in place, scheme-level assessment would confirm that cumulative effects remain within their design capacity and do not undermine their effectiveness.

## 5. Mitigation and Control Measures

Once an AA, if required, has been completed there may be a requirement for mitigation where adverse effects have been identified on Integrity.

## 6. Potential Impact Pathways

Plans or projects can adversely affect a European Site by causing delays or interruptions in progress towards achieving its conservation objectives, disrupting the factors that maintain its favourable conditions, and interfering with the balance, distribution, and density of key species that indicate the site's favourable condition.

Supplementary Advice from Natural England describes the measures necessary to achieving the Conservation objectives for a European Site, a range of ecological attributes that are most likely to contribute to the overall integrity of a European Site. With reference to the Supplementary Advice on Conservation objectives (SACOs), effect pathways on the Conservation objectives for the European Site were considered against the following list:

- **Habitat loss and fragmentation** – includes direct loss of habitats under the footprint of temporary or permanent works. Indirect effects through the loss of functionally linked habitats (FLL), i.e. the impact on site features (species) which travel outside the protected sites may be relevant where a development could result in effects on qualifying interest species within the Habitats sites, for example through the loss of feeding grounds for an identified species.
- **Species disturbance (visual, noise, vibration)** – this refers to disturbance during construction, operation or decommissioning works on species that may cause behavioural effects, e.g. avoidance, change in foraging behaviour. Physical works, vehicle movements, light pollution and presence of staff/workers are all considered.
- **Changes to water quality** – considers effects on species (and their prey) because of contamination, changes in pH, increased nutrient loads, salinity, turbidity, alterations in the thermal regime, discharges or changes in sedimentation levels. These changes may affect supporting ecological process and therefore have the potential to affect site integrity.
- **Changes to air quality** – evaluates the risk of discharges to air, including fugitive dust and combustion emissions. At the IP stage, detailed traffic data and dispersion modelling are not available. Where scheme types have the potential to alter traffic flows in proximity to European sites, LSE cannot be ruled out and project-level air quality assessment, including modelling where necessary, would be required through project-level HRA in accordance with relevant guidance and NE advice, including assessment of road traffic emissions where roads fall within 200m of European sites.
- **Changes to surface and groundwater hydrology** – changes to the flow, supply, availability and drainage of water, and increased risks associated with flooding. At the IP stage, detailed ground investigation and hydrological modelling are not available. Where scheme types have potential to affect water-sensitive European Sites, further hydrological assessment including detailed ground investigation and assessment of hydrological connectivity,

would be required through project-level HRA to ensure no adverse effect on site integrity.

- **Introduction of Invasive Non-Native Species (INNS)** – construction activity may facilitate the introduction or spread of invasive species through the movement of machinery, aerial and soils. This may affect habitat structure and function and therefore the conservation objectives of European sites. Appropriate biosecurity measures would be required at project level.
- **Recreation** – direct and indirect impacts on species and habitats because of increased recreational use, including increased visitor numbers, dog walkers, vehicle or watercraft use and associated issues such as dog fouling, litter and anti-social behaviour (littering, vandalism and fires).

## 7. Stage 1 Screening Assessment

### 7.1. Screening Assessment - Matrix

Table 7.1 provides the full ToLSE for each IP scheme either alone or in combination, taking into consideration the precautionary principle (under a worst-case scenario). The assessment considers the construction and operation of the IP. As the IP would be operational for the foreseeable future and is to be reviewed and updated, decommissioning has not been considered within the assessment.

The screening assessment applies the methodology which set out in section 4.3 and is proportionate to the level of detail available within the IP.

#### Interpretation of Outcomes

- Screened in: scheme proceeds to Stage 2 Appropriate Assessment (AA).
- Screened out: scheme screened out based on distance, scale, and lack of credible impact pathways and detailed at this stage.

**Table 7.1. IP Schemes Test of Likely Significant Effects Screening Matrix Table**

Scheme Name	Scheme Description	Screening Outcome	Justification
New Cottam Parkway railway station	New railway station at Cottam Parkway, Lea Road, Preston	Screened out	This scheme has already been subject to a planning application and EIA and has therefore considered any significant impacts.
Preston and Blackpool North Station upgrades	Major improvements to the Preston and Blackpool North railway stations to make them "Quality Gateways" to Lancashire	Screened out	This scheme is not proposed for delivery within the IP period, being expected to come forward over a longer-term time frame of approximately 5-10 years. The scheme could therefore be considered as part of a future IP and would be assessed through HRA at that stage along any new schemes. So, at this stage, there are no likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites.
New Ewood / Lower Darwen Rail Station	New Rail Station on Clitheroe-Manchester line between Blackburn and Darwen	Screened out	This scheme is not proposed for delivery within the IP period, being expected to come forward over a longer-term time frame of approximately 5-10 years. The scheme could therefore be considered as part of a future IP and would be assessed through HRA at that stage along any new schemes. So, at this stage, there are no likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites.
Lancashire (East – West) rail service improvements	Improvements to services on rail lines between Blackpool and Colne, such as timetable enhancements (Ormskirk Sundays and Blackpool North seasonal improvements)	Screened out	This scheme is not proposed for delivery within the IP period, being expected to come forward over a longer-term time frame of approximately 5-10 years. The scheme could therefore be considered as part of a

			future IP and would be assessed through HRA at that stage along any new schemes. So, at this stage, there are no likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites.
Lancashire (East – West) rail infrastructure improvements	Support of improvements to rail infrastructure between Blackpool and Colne, such as station improvements, extension of the Roses line electrification and infrastructure to support reliability, resilience and journey time improvements	Screened out	This scheme is not proposed for delivery within the IP period, being expected to come forward over a longer-term time frame of approximately 5-10 years. The scheme could therefore be considered as part of a future IP and would be assessed through HRA at that stage along any new schemes. So, at this stage, there are no likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites.
Restoring Your Railways (RYR) schemes	Review and further development of former RYR schemes, such as the South Fylde Line, new Midge Hall station, Clitheroe-Hellifield line and Burscough Curves	Screened out	This scheme is not proposed for delivery within the IP period, being expected to come forward over a longer-term time frame of approximately 5-10 years. The scheme could therefore be considered as part of a future IP and would be assessed through HRA at that stage along any new schemes. So, at this stage, there are no likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites.
Colne - Skipton reinstatement	Opening of a new trans-Pennine rail route, relieving congestion on the Calder Valley, Standedge and Hope Valley routes and providing an alternative east-west route for freight traffic. Also increasing the frequency of passenger services between Preston and Leeds and potentially reducing journey times	Screened out	This scheme is not proposed for delivery within the IP period, being expected to come forward over a longer-term time frame of more than 10 years. The scheme could therefore be considered as part of a future IP and would be assessed through HRA at that stage along any new schemes. So, at this stage, there are no likely significant effects, either alone or in

	and opening East Lancashire to electrified suburban passenger services out of Leeds.		combination with other plans and projects arise in relation to European sites.
Skew Bridge & Preston Road Improvements, Heat Charnock, Chorley	Junction and bridge upgrades Improve safety and traffic flow	Screened out	This scheme is already on-going and therefore any significant impacts should already have been taken account of.
Lancashire Central Mitigation	Junction improvements on M65 terminus and other local highway mitigation, relating to Lancashire Central site	Screened out	This scheme has already been subject to a planning application and EIA and has therefore considered any significant impacts. There are no likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites.
A582 South Ribble Western Distributor	Technology and other upgrades including dualling of the A582, junction improvements, and active travel enhancements an introduction of a bus gate on B5254.Reduce congestion, improve safety and journey times	Screened out	This scheme has already been subject to a planning application and EIA and has therefore considered any significant impacts at this stage.
A588 (Ashton Road), A683 (Caton Road) and A6 (Sylne Road) corridor improvements, Lancaster	Potential to include speed reduction measures, improvements to visibility, removal of pinch points, verge maintenance, review of and subsequent upgrades to signing, improvements to side road access and egress and parking restrictions	Screened in	The scheme is located close to Morecambe Bay and Duddon Estuary SPA, Morecambe Bay Ramsar site, Bowland Fells SPA and associated FLL. The corridors pass through these European sites. Given potential disturbance, changes in access and in combination effects. So, there are likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites, therefore this scheme has been taken forward for the AA.
A570 Corridor Enhancements, M58 to A59 Industrial Estate Burscough	Junction upgrades and signal optimisation, Linking M58 to A59 Industrial Estate in Burscough. Improve traffic flow and safety	Screened in	This scheme close to Ribble & Alt Estuaries SPA and Ramsar site, Liverpool Bay SPA, Martin Mere SPA and Ramsar site, and associated FLL. Upgrading corridor could have effects on air quality and potential of disturbance, and in combination effect. So, there are likely significant effects, either alone or in

			combination with other plans and projects arise in relation to European sites, therefore this scheme has been taken forward for the AA.
A666 Corridor Enhancements, Blackburn to Darwen	Improvements including bus priority measures, active travel provision and upgrades to existing junctions	Screened out	This scheme is not proposed for delivery within the IP period, being expected to come forward over a longer-term time frame of approximately 5-10 years. The scheme could therefore be considered as part of a future IP and would be assessed through HRA at that stage along any new schemes. So, at this stage, there are no likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites.
M6 Junction 34 network improvements, Lancaster	Improvements to feeder roads to the motorway junction to satisfy future demand, including provision for sustainable modes	Screened out	This scheme is not proposed for delivery within the IP period, being expected to come forward over a longer-term time frame of approximately 5-10 years. The scheme could therefore be considered as part of a future IP and would be assessed through HRA at that stage along any new schemes. So, at this stage, there are no likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites.
M55 Junction 3 to Windy Harbour, improvements, near Kirkham	Improvements to motorway junction to give better access for reliability and safety	Screened out	This scheme is not proposed for delivery within the IP period, being expected to come forward over a longer-term time frame of approximately 5-10 years. The scheme could therefore be considered as part of a future IP and would be assessed through HRA at that stage along any new schemes. So, at this stage, there are no likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites.

<p>A56 - M66 corridor improvements, East Lancashire</p>	<p>Junction improvements to increase capacity and journey time reliability, including provision for active modes</p>	<p>Screened out</p>	<p>This scheme is not proposed for delivery within the IP period, being expected to come forward over a longer-term time frame of approximately 5-10 years. The scheme could therefore be considered as part of a future IP and would be assessed through HRA at that stage along any new schemes. So, at this stage, there are no likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites.</p>
<p>Botany Bay/ Hartwood S278, Chorley</p>	<p>Improved capacity through roundabouts linked to adjacent development.</p>	<p>Screened in</p>	<p>The scheme is located close to Martin Mere SPA and Ramsar Site, Ribble &amp; Alt Estuaries SPA and Ramsar Site. The creation of additional highway infrastructure and changes to traffic patterns are likely to result in adverse effects on air quality, carbon emissions and noise. So, there are likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites, therefore this scheme has been taken forward for the AA.</p>
<p>Eden Project transport infrastructure, Lancaster-Morecambe</p>	<p>Rail station infrastructure and improved services, bus and cycle access to development site</p>	<p>Screened in</p>	<p>This scheme is located proximity to Morecambe Bay and Duddon Estuary SPA, Morecambe Bay SAC, Morecambe Bay Ramsar sites, Bowland Fells SPA and associated FLL, there is potential for localised adverse effects, depending on the extent of new infrastructure, land take, traffic redistribution and construction activity. Possible pathways for effects include disturbance, habitat loss or fragmentation, and changes in air quality or hydrology. So, there are likely significant effects, either alone or in combination with other plans and projects arise in</p>

			relation to European sites, therefore this scheme has been taken forward for the AA.
M65 Junction 13 phase 2 improvements	Improvements to active travel provisions, bus priority and junction capacity and safety	Screened in	The scheme is located close to South Pennine Moors Phase 2 SPA. Increase junction capacity and Given potential to increased traffic flows. So, there are likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites, therefore this scheme has been taken forward for the AA.
Blackburn Cyber Campus Transport Package	Transport measures to support new skills and education campus	Screened out	The package involves supporting transport education and has not physical works, habitat loss or land take. No impact pathways have been identified at this stage. There are no likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites
Southeast Blackburn Strategic Employment Site (SES) Transport Package	M65 junction 5 and southeast Blackburn Active Travel Network, including a signalised access junction and sustainable transport package	Screened out	No FLL and European sites (SPA, SAC, Ramsar) are located within 20 km of the scheme. No impact pathways have been identified at this stage. There are no likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites.
Samlesbury Enterprise Zone Transport Package (BwD)	Transport measures to improve connectivity to Samlesbury EZ, including cycle infrastructure improvements linking to Blackburn and new and improved bus services	Screened in	The scheme is located close to Ribble & Alt Estuaries SPA and Ramsar sites, associated FLL and Bowland Fells. The scheme has potential of increasing air pollution and traffic flow. So, there are likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites, therefore this scheme has been taken forward for the AA.

<p>North Blackburn Strategic Housing Site (SHS) Transport Package Phase 1</p>	<p>Transport measures to support delivery of new housing, including improvements to Brownhill Drive / Emerald Avenue junction and Link Road</p>	<p>Screened in</p>	<p>The scheme is located close to Bowland Fells SPA. The provision of additional highway infrastructure and increased traffic associated with new residential development is likely to lead to adverse effects. So, there are likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites, therefore this scheme has been taken forward for the AA.</p>
<p>East Lancashire Rail Freight Terminal</p>	<p>New freight terminal in partnership with the private sector</p>	<p>Screened out</p>	<p>This scheme is not proposed for delivery within the IP period, being expected to come forward over a longer-term time frame of approximately 5-10 years. The scheme could therefore be considered as part of a future IP and would be assessed through HRA at that stage along any new schemes. So, at this stage, there are no likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites.</p>
<p>Blackpool to Fleetwood Tramway extension</p>	<p>Expansion of Blackpool to Fleetwood Tramway to Poulton-le-Fylde (a former RYR scheme)</p>	<p>Screened out</p>	<p>This scheme is not proposed for delivery within the IP period, being expected to come forward over a longer-term time frame of approximately 5-10 years. The scheme could therefore be considered as part of a future IP and would be assessed through HRA at that stage along any new schemes. So, at this stage, there are no likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites.</p>
<p>LCWIP network delivery</p>	<p>LCWIP key routes and walking zone, for example: canal towpath improvements between Blackburn and Hyndburn, and</p>	<p>Screened in</p>	<p>This scheme is located near to South Pennine Moors Phase 2 SPA. This scheme may increase recreational access, given rise to disturbance of qualifying species, particularly for SPA bird features. So, there</p>

	development of the East Lancashire cycle network in Rossendale		are likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites, therefore this scheme has been taken forward for the AA.
Public Rights of Way (PRoW)	Resurfacing, drainage and step replacement schemes across the PRoW network improving	Screened out	The absence of location-specific information on which Public Rights of Way would be brought forward within the plan period have not yet been confirmed. Where individual scheme is brought forward, they would be subject to project-level HRA screening to ensure that no likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites.
Further LCWIP development and delivery	Further development and delivery of the prioritised LCWIP key routes and walking zones	Screened out	This scheme is not proposed for delivery within the IP period, being expected to come forward over a longer-term time frame of approximately 5-10 years. The scheme could therefore be considered as part of a future IP and would be assessed through HRA at that stage along any new schemes. So, at this stage, there are no likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites.
Bus stop accessibility	Improving accessibility to bus stops, for example including safe crossing points and ensuring there isn't conflict between cyclists and bus users near stops.	Screened out	Routine renewal of existing bus stops within the highway boundary is unlikely to have significant environmental effects. No impact pathways have been identified at this stage. There are no likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites.
Bus Infrastructure Programme	Package of bus and highway-related infrastructure improvements, including	Screened out	Location-specific and design information has not yet been confirmed for this programme. Where individual

	measures such as junction improvements, bus stop improvements and parking restrictions.		scheme is brought forward, they would be subject to project-level HRA screening to ensure that no likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites.
Further Bus Infrastructure Development Programme	Further development of bus and highway-related infrastructure, focusing on public transport priority corridors.	Screened out	This scheme is not proposed for delivery within the IP period, being expected to come forward over a longer-term time frame of approximately 5-10 years. The scheme could therefore be considered as part of a future IP and would be assessed through HRA at that stage along any new schemes. So, at this stage, there are no likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites.
Blackpool Coach Station	Feasibility study and option appraisal exercise with the aim of having a coach station and associated facilities within Blackpool	Screened out	This scheme is not proposed for delivery within the IP period, being expected to come forward over a longer-term time frame of approximately 5-10 years. The scheme could therefore be considered as part of a future IP and would be assessed through HRA at that stage along any new schemes. So, at this stage, there are no likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites.
Management of the bus network	Maintaining the existing network of bus services, including the continued roll-out of multi-operator ticketing.	Screened out	Maintaining the existing network of bus services, including the continued roll-out of multi-operator ticketing, is not expected to generate any significant environment effect on European site. No impact pathways have been identified at this stage. There are no likely significant effects, either alone or in

			combination with other plans and projects arise in relation to European sites.
Bus network/service enhancements	Continue to improve overall bus network through addition of evening and Sunday journeys, enhanced provision in rural areas and kick-start frequency uplifts on Superbus interurban corridors	Screened out	Increasing bus frequency on an existing route is unlikely to have significant environmental effects and it would attract more public transport users which would reduce the use of private cars and congestion, and as a result lead to lower air pollution. No impact pathways have been identified at this stage. There are no likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites.
Bus Fares	Standardising fare levels for children and young people	Screened out	As this is a policy intervention there are no likely impacts on the European sites. No impact pathways have been identified at this stage. There are no likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites.
Re: Fresh Community project	Behaviour change programme helping people who live or work in Blackburn with Darwen to be more active.	Screened out	The scheme comprises behavioural change measures aimed at promoting active and sustainable travel and does not include any physical works or infrastructure that could give rise to impact pathways affecting European sites. The scheme is not expected to result in increases in traffic flows, air pollution, disturbance, habitat loss or changes to hydrology. So, there are no likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites.
Active/Sustainable Travel Behaviour Change	A package of measures focusses on active travel related capital projects. Ensuring local communities are aware of the new active	Screened out	This package of measures, projects and initiatives to encourage people especially children, families and commuters to shift from car-based travel to walking

	travel opportunities available using behaviour change models		and cycling. No impact pathways have been identified at this stage. There are no likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites.
Further Active/Sustainable Travel activation and behavioural change	Engagement behaviour changes and promotional activities	Screened out	This package of engagement, behaviour-change and promotional activities are not going to have significant effect on environment and habitat. Moreover, this scheme is not proposed for delivery within the IP period, being expected to come forward over a longer-term time frame of approximately 5-10 years. So, at this stage, there are no likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites.
Community Transport	Wider provision of Community Transport in Lancashire	Screened out	The scheme does not involve physical development or new infrastructure. No impact pathways have been identified at this stage. There are no likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites.
Road Safety Programme	Road safety and casualty reduction schemes including signing and road marking improvements, traffic calming measures and changes to traffic signals.	Screened out	This programme would have minor works within the existing highway network, with no requirement for land take or new infrastructure. These works are not expected to give rise to impact pathways such as habitat loss, changes in air and water quality. No impact pathways have been identified at this stage. There are no likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites.
School Streets and Route Audits	Programme of safety improvements, education and awareness activities	Screened out	This scheme comprises behavioural change, education and management measures, it does not involve construction works, land take or new

	surrounding limiting access to specific streets at school start and finish times.		infrastructure. These works are not expected to give rise to impact pathways such as habitat loss, changes in air and water quality. No impact pathways have been identified at this stage. There are no likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites.
A682 Colne Road – Corridor Improvements	Installation of speed management cameras on the A682 Colne Road in Burnley and Brierfield	Screened out	This appears to be an installation of speed management cameras along the existing corridor, with no widening, no new land take, and entirely within the existing highway boundary. No impact pathways have been identified at this stage. There are no likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites.
A583 Blackpool Road – Corridor Improvements	Installation of speed management cameras on the A583 Blackpool Road in Kirkham	Screened out	This appears to be a corridor installation of speed management cameras along the existing corridor, with no widening, no new land take, and entirely within the existing highway boundary. No impact pathways have been identified at this stage. There are no likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites.
A6 Lancaster to Preston Safety and Connectivity Improvements	Compliments the road safety work being done on A6 and development in the area. Runs from Hampson Green roundabout (J33) to Broughton Roundabout	Screened in	This improvement is going to be near Morecambe Bay and Duddon Estuary SPA and Bowland Fells. This appears to be a road safety / corridor improvement along the existing A6 route, however, could have potential effect on European site. So, there are likely significant effects, either alone or in combination with other plans and projects arise in relation to European

			sites, therefore this scheme has been taken forward for the AA.
Pointer Roundabout, Lancaster	Improved cycling and pedestrian provision	Screened in	This scheme is located near to Morecambe Bay SAC and Ramsar Site, Morecambe Bay and Duddon Estuary SPA and Ramsar site, and Bowland Fells SPA. The scheme may involve physical works within the highway and could give rise to impact pathways including increased recreational access, disturbance, and changes in air quality. So, there are likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites, therefore this scheme has been taken forward for the AA.
A5105 Safer Roads- Morecambe to Hest Bank	Improved safety features along the A5105 corridor	Screened in	The scheme is located close to Morecambe Bay and Duddon Estuary SPA, Morecambe Bay SAC and Ramsar sites and associated FFLL, and Bowland Fell SPA. The scheme does not involve physical development or new infrastructure but maybe could cause the slightly increase in air pollution and noise, and in combination effects. So, there are likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites, therefore this scheme has been taken forward for the AA.
Hostile Vehicle Mitigation	Programme of protective measures implemented to locations of high footfall in Blackburn with Darwen including barriers, bollards, planters	Screened out	The proposal is a security-focused intervention with negligible environmental effect. No impact pathways have been identified at this stage. There are no likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites.

<p>Safety Training and Education Programmes</p>	<p>Comprehensive programme of targeted training and education including:</p> <ul style="list-style-type: none"> <li>• ‘Right Start’</li> <li>• Road User training</li> <li>• School and College training</li> <li>• Bikeability training</li> </ul>	<p><b>Screened out</b></p>	<p>The proposed programme of such as Right Start, Road User Training, School and College programmes, and Bike ability is a non-infrastructure, behaviour change focused intervention. As it involves training, awareness campaigns and educational. No impact pathways have been identified at this stage. There are no likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites.</p>
<p>Safer Routes to School programme</p>	<p>Enhancing safety for children travelling to/from school, promoting walking, wheeling, cycling, and other forms of active travel, reducing car dependency and emissions near schools</p>	<p><b>Screened out</b></p>	<p>The scheme comprises small-scale, localised measures to improve pedestrian and cycling safety around schools, with no requirement for significant new infrastructure or land take. Given the nature of works no impact pathways have been identified at this stage. There are no likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites.</p>
<p>A59 Safer Road Corridor Fleetwood Road North</p>	<p>Package of road safety improvement measures along the corridor</p>	<p><b>Screened out</b></p>	<p>This scheme is within the existing highway boundary, is not increase road capacity, alter traffic flows materially, or result in land take. Given the nature of works no impact pathways have been identified at this stage. There are no likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites.</p>
<p>Further School Streets</p>	<p>Future programme of infrastructure improvements, education and awareness activities around schools</p>	<p><b>Screened out</b></p>	<p>No land take, habitat loss or new access to European site is proposed. The programme is not expected to martially alter traffic flows on routes within proximity to European sites. However, since location-specific information has not yet been confirmed for this programme, where an individual scheme is brought</p>

			forward, they would be subject to project-level HRA screening to ensure that no likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites
Darwen Station Access Improvements	Improvements to footways and crossings leading to Darwen Station	Screened out	No FLL and European sites (SPA, SAC, Ramsar) are located within 20 km of the scheme. The proposed works comprise improvements within the exist highway boundary and do not introduce any impact pathway to European sites. So, there is no potential pathway on designated habitats, either alone or in combination with other plans and projects.
Integrated Transport Hubs	Provision of multi-modal facilities at major Lancashire rail and/or bus stations including Preston.	Screened in	This scheme may involve infrastructure improvements, increased passenger activity and changes in traffic flow, could have potential effect on European site. So, there are likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites, therefore this scheme has been taken forward for the AA.
Access for All delivery	Delivery of step-free access at Squires Gate and Burnley Manchester Road railway stations.	Screened out	The changes should be in rail station boundary, no significant construction works, land take and habitat lose are proposed, therefore no direct impact on designated sites. There are no likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites.
Access for All Future Schemes	Development work to support the delivery of step-free access at Accrington, Ramsgreave & Wilpshire, Mill Hill, and Rose Grove railway stations.	Screened out	The changes should be in rail station boundary, no significant construction works, land take and habitat lose are proposed, therefore no direct impact on designated sites. There are no likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites.

Clitheroe Interchange Improvements	Upgrade of Clitheroe bus and rail interchange to improve integration and accessibility	Screened in	Bowland fells SPA and South Pennine Moors Phase 2 SPA are located at a substantial distance from the proposed Clitheroe Interchange Improvements. This scheme may involve infrastructure improvements, increased passenger activity and changes in traffic flow, could have potential effect on European site. So, there are likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites, therefore this scheme has been taken forward for the AA.
Accessible Vibrant Town Centres schemes	A programme of works to improve town centre environments and public spaces, making it safer and easier to walk and wheel around and through town centres. These are in Rawtenstall, Burnley and Nelson	Screened out	The programme is strategic and does not identify detailed designs at this stage. Where individual scheme is brought forward, they would be subject to project-level HRA screening to ensure that no likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites.
Transport Lancashire Integrated Network	Transport Lancashire integrated network, including new branding, improved integration between modes, and the expansion of smart ticketing	Screened out	This scheme is not proposed for delivery within the IP period, being expected to come forward over a longer-term time frame of approximately 5-10 years. The scheme could therefore be considered as part of a future IP and would be assessed through HRA at that stage along any new schemes. So, at this stage, there are no likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites.
Safer, Greener, Healthier Street Schemes	A programme to deliver improvements to local streets to make travel easier between homes, jobs, shops and services for everyone (including better crossings facilities, wider	Screened out	The programme is strategic and does not identify detailed designs at this stage. Where individual scheme is brought forward, they would be subject to project-level HRA screening to ensure that no likely

	pavements, new surfacing, better street environments etc.) across Burnley, Hyndburn, Pendle and Rossendale		significant effects, either alone or in combination with other plans and projects arise in relation to European sites.
Great Harwood Queen Street	Public realm / active travel improvements to Queen St (high street) in Great Harwood.	Screened out	The proposals relate to small-scale improvements within an existing urban high street, focused on pedestrian and cycle enhancements within the current highway boundary. The scheme is located approximately 16 km from South Pennine Moors SPA. Given this distance and the urban nature of the works, there is no credible pathway through which the scheme could result in effects on this site. The proposals do not involve land take, new infrastructure extending into undeveloped areas, or any changes that would affect hydrological or ecological processes linked to European sites. Furthermore, the scale and nature of the scheme are such that it would not give rise to increased recreational pressure. There are no likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites.
Destination Darwen	Darwen Town Deal measures to improve access to parks and create heritage walking route around the town centre	Screened out	No FLL and European sites (SPA, SAC, Ramsar) are located within 20 km of the scheme. No impact pathways have been identified at this stage. There are no likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites.
Blackpool Town Centre Access and public realm improvements	Traffic management and public realm improvements scheme across multiple sites in Blackpool.	Screened out	This scheme is not proposed for delivery within the IP period, being expected to come forward over a longer-term time frame of approximately 5-10 years. The scheme could therefore be considered as part of a

			future IP and would be assessed through HRA at that stage along any new schemes. So, at this stage, there are no likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites.
Penwortham Town Centre s278 Scheme	S278 scheme led by south Ribble, technical approval process via Highways Development control. Public realm improvements to the town centre including parking rationalisation, greening, and introduction of bidirectional cycle lane extending Penwortham to Preston cycleway	Screened in	Ribble & Alt Estuaries SPA and Ramsar site, Martin Mere SPA and Ramsar site and within FLLs are located at distance from the Penwortham Town Centre s278 Scheme. This scheme has the potential to influence travel patterns and recreational access to the Ribble corridor, giving the rise to potential in combination effect through increased recreational disturbance/pressure, depending on traffic redistribution, potential air quality implication. So, there are likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites, therefore this scheme has been taken forward for the AA.
St Anne's Pier Link	Public realm - to link the Pier and St Annes town centre, and support development activity in the vicinity, including The Island Regen project	Screened in	Ribble & Alt Estuaries SPA, Ramsar, Liverpool Bay SPA, Shell Flat and Lune Deep SAC, Morecambe Bay and Duddon Estuary SPA, Morecambe Bay Ramsar, Martin Mere SPA and Ramsar site, and within FLLs are located at distance from the Pier and St Annes town centre. Given the coastal location and potential for increased recreational activity and disturbance within the intertidal environment. So, there are likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites, therefore this scheme has been taken forward for the AA.

Lancaster Road, Preston Public Realm	Improvement to add to already completed Old Vicarage Rd improvement. Improve accessibility between bus station and Cinema/Harris	Screened out	Ribble & Estuary SPA, Ramsar is the nearest European sites. The scheme comprises minor urban accessibility improvements within Preston city centre the works do not introduce new access to estuary, alter hydrology, or materially traffic flows in proximity to the SPA. No impact pathways have been identified at this stage. So, there are no likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites
Lancaster city centre public realm	Public realm improvements across Lancaster city centre, to include wider technology improvements, road space reallocation and other transformative measures	Screened in	The Lancaster surrounded within Morecambe Bay Ramsar site, Morecambe Bay and Duddon Estuary SPA, and Bowland Fells. The programme is confined to urban public realm enhancement wider technology improvements transformative measures. So, there are likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites, therefore this scheme has been taken forward for the AA.
Pride in Place programme	Package of town centre improvements that could include security, digital connectivity, EV charging, wayfinding improvements, green corridors and health and community hub measures in Preston, Blackpool, Fleetwood, Morecambe, Skelmersdale and Blackburn	Screened out	The programme is strategic and does not identify specific schemes' location and detailed designs at this stage. Where individual schemes are brought forward, they would be subject to project-level HRA screening to ensure that no likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites.
Masterplans	Development work to support public realm improvements in key local centres including supporting active travel, unlocking development opportunities and supporting	Screened out	No specific site, land allocations or development are identified at this stage. Accordingly, no impact pathway to European sites is identified at this strategic level. Where proposals are brought forward, they would be subject to project-level HRA screening

	multi-modal journeys in Burnley, Hyndburn, Pendle and Rossendale		to ensure that no likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites.
Dropped Crossing Improvements	Improving consistency of crossing points	Screened out	This scheme comprises of improvements and minor accessibility works within the existing urban highway network. The scheme does not result in habitat loss, land take and increased access to European sites. No impact pathway has been identified at this stage. So, there are no likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites.
Pedestrian Prioritisation	Adjustments to signal timings to reduce pedestrian wait times at crossing points	Screened out	The scheme is related to technology and does not result in habitat loss, land take and increased access to European sites. No impact pathway has been identified at this stage. So, there are no likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites.
Pelican Crossing Replacements	Replace obsolete pelican crossings with modern puffin or toucan crossings to meet current standards	Screened out	This scheme comprises minor infrastructure upgrades within existing highway boundary. The scheme does not result in habitat loss, land take and increased access to European sites. No impact pathway has been identified at this stage. So, there are no likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites.
Blackburn with Darwen junction improvement schemes	Junction improvements to facilitate additional capacity and/or provide crossing points. Junction locations including:	Screened out	There are no European sites near Goose House Lane/Hollins Grove Street and Jack Walker Way. However, Lammack junction is near the Bowland Fell SPA but still given the distance and absence of

	<ul style="list-style-type: none"> <li>• Goose House Lane/Hollins Grove Street</li> <li>• Jack Walker Way</li> <li>• Lammack junction</li> </ul>		ecological or functional connectivity. No impact pathways have been identified at this stage. There are no likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites.
Clitheroe Sustainability Package	Measures include footway widening and clearing, additional crossings, bike stands, bus stop enhancements, additional lighting, parking restrictions	Screened out	The package comprises minor urban accessibility and public transport improvements within existing town footprint. The works do not introduce new access to estuary, alter hydrology, or materially traffic flows, and no habitat loss. No impact pathways have been identified at this stage. There are no likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites.
Preston Station Quarter project	Deliver Grade A office space to retain existing private sector occupiers within Preston and Lancashire. Provide a welcoming gateway to the city centre which does not currently exist	Screened out	This scheme is not proposed for delivery within the IP period, being expected to come forward over a longer-term time frame of more than 10 years. The scheme could therefore be considered as part of a future IP and would be assessed through HRA at that stage along any new schemes. So, at this stage, there are no likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites.
Huncoat Garden Village Access	New highway infrastructure to enable residential development.	Screened in	South Pennine Moors SPA and South Pennine Moors Phase 2 SPA are located from the proposed Huncoat Garden Village Access scheme. The proposal involves new infrastructure to support residential development. Given the potential for increased traffic and population growth to give rise to in combination air quality and recreational pressure effects. So, there are likely significant effects, either alone or in

			combination with other plans and projects arise in relation to European sites, therefore this scheme has been taken forward for the AA.
A666 Jack Walker Way South Junction Improvement Scheme	Junction improvements to facilitate new Bog height link road.	Screened out	No FLL and European sites (SPA, SAC, Ramsar) are located within 20 km of the scheme. In the absence of any potential impact pathways, there are no likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites.
Local Plan Transport Package	Transport measures to support delivery of Local Plan allocated sites including, but not limited to: <ul style="list-style-type: none"> <li>• Holden Fold, Darwen</li> <li>• Roman Road, Darwen</li> <li>• Hollins Grove, Darwen</li> <li>• Moulden Brow, Blackburn</li> <li>• Jack Walker Way, Blackburn</li> </ul>	Screened in	No FLL and European sites (SPA, SAC, Ramsar) are located within 20 km of the Holden Fold, Roman Road, Hollins Grove and Jack Walker Way. However, Moulden Brow is located close to the Ribble & Estuary SPA and Ramsar site, and FLL. Given potential disturbance, changes in access and in combination effects. So, there are likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites, therefore this scheme has been taken forward for the AA.
Tramway Maintenance	Upkeep of the light rail system in the Blackpool and Fylde Coast area	Screened out	The proposal involves routine maintenance of existing tramway infrastructure. The works do not introduce new works, alter hydrology, or materially traffic flows, and no habitat loss. No impact pathways have been identified at this stage. There are no likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites.
Highway Maintenance	Ongoing maintenance of roads, footways, cycle routes, bridges and other structures, street lighting, traffic signals and vehicle restraint systems	Screened out	The proposal involves routine maintenance of existing highway infrastructure. The works do not introduce new works, alter hydrology, or materially traffic flows, and no habitat loss. No impact pathways have been

			identified at this stage. There are no likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites.
Upgraded maintenance management system	Improvements to public-facing fault-reporting tools and enhanced repair delivery through a managed service contract	Screened out	This scheme is an operational and digital service improvement rather than a physical intervention. As such, the scheme does not involve construction, land-take or changes to the transport network that could give rise to environmental effects. No impact pathway has been identified at this stage. So, there are no likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites.
Traffic signal replacement works	Package of upgrade works at traffic signal sites across Lancashire to ensure assets are fully connected, operate efficiently and effectively, and are future-ready for emerging technologies	Screened out	This package comprises maintenance and upgrade work to existing transport assets across the county, with no new infrastructure, land take or changes to network capacity. No impact pathway has been identified at this stage. So, there are no likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites.
Lane Rental scheme for street works	A system that charges organisations for carrying out roadworks on busy roads at peak times, encouraging them to work during less disruptive periods	Screened out	The scheme does not result in habitat loss, land take and increased access to European sites. No impact pathway has been identified at this stage. So, there are no likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites.
Halogen Replacement programme	This programme would identify, prioritise and replace all remaining halogen units with modern, energy-efficient alternatives, improving reliability, reducing maintenance	Screened out	The programme involves replacement of existing halogen within existing highway infrastructure does not result in habitat loss, land take and increased access to European sites. No impact pathway has

	risks and completing the transition to sustainable signalling technology		been identified at this stage. So, there are no likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites.
Real Time Transport Modelling Trial	On-street displays providing real time bus information to passengers waiting for buses.	Screened out	This is a short-term proof-of-concept digital intervention with no physical works, land take and increased access to European sites. No impact pathway has been identified at this stage. So, there are no likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites.
Real-Time Passenger Information (RTPI)	On-street passenger information displays	Screened out	The proposal involves the installation of enhanced on-street passenger information displays and does not involve physical transport infrastructure works, land take and increased access to European sites. No impact pathway has been identified at this stage. So, there are no likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites.
Intelligent Bus Priority (IBP) programme	To reduce delays to buses and improve timetable reliability	Screened out	This programme does not involve physical works, habitat loss, land take and increased access to European sites. No impact pathway has been identified at this stage. So, there are no likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites.
Bus Pinch Point Analysis Tool	Monitoring bus journey reliability at pinch points and along corridors to guide investments	Screened out	Administrative/analytical measure. It does not involve physical works, habitat loss, land take and increased access to European sites. No impact pathway has been identified at this stage. So, there are no likely

			significant effects, either alone or in combination with other plans and projects arise in relation to European sites.
Implementation of the Route Management Strategy (RMS) on North Valley Road, Colne	Completion of the signal linking and optimisation elements of the RMS project along the A6068 key corridor through Colne, connecting to Keighley, to reduce journey time variability, tackle air quality problems and provide better connectivity with West Yorkshire.	Screened out	This measure is operational in nature and aim to improve traffic efficiency and does not involve physical works, habitat loss, land take and increased access to European sites. No impact pathway has been identified at this stage. So, there are no likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites.
Collaborative Traffic Management (CTM) with neighbouring authorities and National Highways	Collaborate with National Highways in sharing data, developing a Northwest collaborative UTC programme and develop motorway incident mitigation strategies	Screened out	It is strategic and operational in nature and does not involve physical works, land take or changes to road layout or capacity. No impact pathway has been identified at this stage. So, there are no likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites.
Future Mobility Platform	The Future Mobility Platform (FMP) a programme of data-sharing infrastructure, focused on delivering improved data availability and use in transport planning	Screened out	It's a data-sharing/analytics platform. No direct change to infrastructure. No impact pathway has been identified at this stage. So, there are no likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites.
A6 Corridor Preston Technology Improvement	Upgrade all junctions along the A6 within Preston to a linked network management system.	Screened out	The proposal involves upgrading existing junctions along the A6 within Preston to operate as a linked network management system and does not involve new highway infrastructure, land take or changes to road alignment or capacity.

Strategic transport models	The development and maintenance of strategic transport models across the county to support decision-making and guide investments in the transport network.	Screened out	It's an analytical/forecasting tool only. No direct change to infrastructure. No impact pathway has been identified at this stage. So, there are no likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites.
Urban Traffic Management Control (UTMC)	A programme to upgrade traffic signal and network technology to provide real-time visibility and operational control across the network.	Screened out	This programme involves upgrading existing traffic signal and network technology to provide enhanced real-time visibility and operational control, without introducing new infrastructure, land take or changes to highway layout or capacity. So, there are no likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites.
Electric Vehicle Charging Infrastructure	Delivery of a comprehensive electric vehicle public charging network, to provide thousands of new charge points across Lancashire through a coordinated, multi-year installation programme.	Screened out	This scheme is not proposed for delivery within the IP period, being expected to come forward over a longer-term time frame of approximately 5-10 years. The scheme could therefore be considered as part of a future IP and would be assessed through HRA at that stage along any new schemes. So, at this stage, there are no likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites.
Improved pothole repair service contract	Strengthening repair delivery through a new managed service contract.	Screened out	It's managing a contract. No direct change to infrastructure. No impact pathway has been identified at this stage. So, there are no likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites.

<p>AI-powered highway inspections</p>	<p>Incorporating enhanced data analytics to support safer highways, better insights, and more informed decision-make</p>	<p><b>Screened out</b></p>	<p>The introduction of AI-powered highway inspections represents a technological and analytical enhancement to existing maintenance processes rather than a physical intervention in the transport network. The scheme involves incorporating advanced data analytics and digital tools to improve the accuracy, speed and consistency of condition assessments. As this approach does not involve construction, land-take or any alteration to the physical environment. So, there are no likely significant effects, either alone or in combination with other plans and projects arise in relation to European sites.</p>
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## 7.2. Screening Results

### 7.2.1. LSEs on Schemes

Table 7.1 provides the full Test of LSE for each Scheme. Of the 98 schemes, 18 Schemes were considered to have the potential to result in likely significant effects either alone or in combination with other plans and projects.

The screened in schemes are:

- A588 (Ashton Road), A683 (Caton Road) and A6 (Sylne Road) corridor improvements, Lancaster
- A570 Corridor Enhancements, M58 to A59 Industrial Estate Burscough
- Botany Bay/ Hartwood S278, Chorley
- Eden Project transport infrastructure, Lancaster-Morecambe
- M65 Junction 13 phase 2 improvements
- Samlesbury Enterprise Zone Transport Package (BwD)
- North Blackburn SHS Transport Package Phase1
- LCWIP network delivery
- A6 Lancaster to Preston Safety and Connectivity Improvements
- Pointer Roundabout, Lancaster
- A5105 Safer Roads - Morecambe to Hest Bank
- Integrated Transport Hubs
- Clitheroe Interchange Improvements
- Penwortham Town Centre s278 Scheme
- St Anne's Pier Link
- Lancaster city centre public realm
- Huncoat Garden Village Access
- Local Plan Transport Package

### 7.2.2. LSEs on European Sites

A precautionary approach has been taken in terms of the potential for impacts on European Sites as some details are not yet available for all schemes.

Even with the application of the precautionary principle, it is considered very unlikely that the IP schemes would cause an impact to in the following sites:

- Morecambe Bay Pavements SAC
- Ingleborough Complex SAC
- North Pennine Dales Meadows SAC
- Leighton Moss Ramsar Site
- Mersey Estuary SPA, Ramsar site
- Mersey Narrows & North Wirral Foreshore SPA, Ramsar site
- Duddon Estuary Ramsar Site
- Dee Estuary Ramsar site
- Sefton Coast

This is due to the distance of the European Sites from the IP schemes and taking into consideration the qualifying features, which are not considered likely to be impacted by any actions within Schemes, as outlined in Table 7.1 above. Therefore, these European Sites have been screened out of further assessment.

## 8. Stage 2 Appropriate Assessment

### 8.1. Appropriate Assessment Test

The following tables present stage 2 AA of each scheme within the IP and applies integrity test that were set out in the methodology section.

The AA has considered the potential effects of the IP schemes on the following European sites:

- Ribble & Alt Estuaries SPA and Ramsar
- Morecambe Bay and Duddon Estuary SPA
- Morecambe Bay Ramsar
- Morecambe Bay SAC

- Shell Flat and Lune Deep SAC
- Liverpool Bay SPA
- South Pennine Moors SPA
- South Pennine Moors Phase 2 SPA
- Bowland Fells SPA
- Martin Mere SPA and Ramsar

In addition, FLL parcels supporting SPA qualifying bird species have been assessed where identified (including Lytham Moss, Mythop and associated farmland parcels, River Ribble corridor, Marton Mere and others).

**Table 8.1. Stage 2 Appropriate Assessment - A588 (Ashton Road), A683 (Caton Road) and A6 (Sylne Road) corridor improvements, Lancaster**

Pathway	Site / FLL	Distance	Receptor	Source–Pathway–Receptor Logic	Integrity Test	AA Conclusion
Habitat loss / fragmentation (incl. FLL)	Morecambe Bay & Duddon Estuary SPA	2.12 km	Wintering <i>assemblage incl. pink-footed goose, black-tailed godwit, ruff, greenshank, golden plover etc; intertidal mudflats and supporting feeding land</i>	The scheme comprises minor highway improvements within existing corridor (speed controls, signage, verge works, access improvements). No significant widening or new land-take is described. Removal of pinch points may involve small, localised works.	On the basis that works are confined largely to existing highway boundary and do not involve expansion into adjacent farmland or estuarine habitat, there is no mechanism for measurable loss or fragmentation of SPA supporting habitat.	No AEol from habitat loss, subject to confirmation that no permanent land-take from adjacent farmland or river margin occurs.
Habitat loss / fragmentation (incl. FLL)	Morecambe Bay Ramsar	2.12 km	<i>Ramsar intertidal habitats and waterbird assemblage</i>	As above. Works are maintenance/optimisation-based rather than corridor expansion.	No credible pathway for reduction in extent of Ramsar habitat or supporting land.	No AEol from habitat loss.
Habitat loss	Bowland Fells SPA	4.5 km	<i>Breeding hen harrier, merlin, peregrine, golden plover etc; upland moorland habitat</i>	Works are within urban/lowland road corridor. No encroachment into upland SPA.	No direct or indirect land-take mechanism affecting upland habitat.	No AEol.
Species disturbance	Morecambe Bay &	2.12 km	<i>Pink-footed goose, black-tailed godwit,</i>	Construction likely short-term, localised and	Given scale and nature of works	No AEol from construction disturbance, subject to

(construction phase)	Duddon Estuary SPA		<i>ruff, greenshank; River Lune assemblage incl. bar-tailed godwit, spoonbill, wigeon, ringed plover</i>	daytime. Disturbance propagation limited by distance (>2 km to designated boundary). No evidence of works at estuary edge.	(minor corridor measures), and distance from SPA boundary, significant displacement of SPA birds is unlikely.	standard good practice controls (no night floodlighting toward estuary).
Species disturbance (operational)	Morecambe Bay & Duddon Estuary SPA / Ramsar	2.12 km	<i>Same assemblage as above</i>	Scheme likely to reduce speeds and improve flow; not a capacity-led expansion. Operational noise increases unlikely; may reduce stop-start disturbance.	No mechanism for increased chronic disturbance affecting SPA bird populations identified.	No AEoI.
Species disturbance	Bowland Fells SPA	4.5 km	<i>Breeding upland raptors and golden plover</i>	Distance and urban context mean no credible disturbance pathway.	No effect on breeding territories.	No AEoI.
Changes to water quality	Morecambe Bay & Duddon Estuary SPA / Ramsar	2.12 km	<i>Intertidal mudflats and estuarine prey resources</i>	Verge maintenance and minor highway works may mobilise sediment; however, works are small-scale and within existing drainage network. No new outfalls described.	Provided standard highway pollution prevention measures are applied (temporary drainage protection, sediment control), no material change to estuarine water	No AEoI subject to standard CEMP and pollution control measures. Project-level drainage review required to confirm no new outfalls or increased impermeable area.

					quality is anticipated.	
Changes to air quality (construction and operational)	Morecambe Bay & Duddon Estuary SPA	2.12 km	<i>Saltmarsh</i> /coastal grazing <i>marsh</i> vegetation supporting SPA <i>assemblage</i>	Speed management and junction efficiency measures typically reduce congestion-related emissions. No significant traffic growth described.	No evidence of material traffic increase or new road alignment; therefore, no plausible nitrogen deposition pathway affecting designated habitats.	No AEol, subject to confirmation that traffic flows do not materially increase.
Changes to surface and groundwater hydrology	Morecambe Bay & Duddon Estuary SPA / Ramsar	2.12 km	Supporting freshwater inflows to River Lune estuary	Scheme description does not include culvert replacement, realignment or new attenuation basins. Works appear within existing highway drainage footprint.	No mechanism for alteration of catchment hydrology at scale affecting estuarine processes.	No AEol.
INNS	Morecambe Bay & Duddon Estuary SPA, Bowland Fells SPA, Morecambe Bay Ramsar and FLL	<2.5–4.5 km	River Lune corridor and farmland margins sensitive to invasive plant spread	Linear works and verge maintenance can spread invasive species.	With standard biosecurity procedures (clean-down of machinery, appropriate disposal of arisings), no adverse effect on designated	No AEol subject to secured biosecurity measures (CEMP).

					habitats is anticipated.	
Recreation / access pressure	Morecambe Bay & Duddon Estuary SPA / Ramsar	2.12 km	Disturbance-sensitive waterbirds at <i>estuary margins</i>	Scheme does not introduce new car parks, access points or visitor facilities; parking restrictions may reduce informal access.	No credible mechanism for increased recreational pressure on SPA.	No AEol.

**Table 8.2. Stage 2 Appropriate Assessment - A570 Corridor Enhancements, M58 to A59 Industrial Estate Burscough**

Pathway	Site / FLL	Distance	Receptor	Source–Pathway–Receptor Logic	Integrity Test	AA Conclusion
Habitat loss / fragmentation (incl. FLL)	Martin Mere SPA / Ramsar	2 km	Wetland SPA/Ramsar supporting wintering <i>swans/geese and waterbird assemblage; supporting wet grassland and open water habitat</i>	Scheme description limited to junction upgrades and signal optimisation. No carriageway widening or new highway alignment described. Works assumed largely within existing highway boundary.	In absence of land-take beyond existing highway verge and no works within SPA boundary, there is no mechanism for direct loss or fragmentation of SPA/Ramsar habitat.	No AEol from habitat loss, subject to confirmation no permanent land-take outside highway boundary.
Habitat loss / fragmentation (incl. FLL)	FLL (<4 km) <i>Higgins Lane South (pink-footed goose); Curlew Lane East (whooper</i>	<4 km	Farmland feeding fields and wetland habitats used by <i>wintering pink-footed goose and whooper swan; wetland</i>	Junction optimisation works do not inherently require land outside the existing highway footprint. No evidence of encroachment into adjacent farmland or wetland.	Provided works are confined to the existing highway boundary and do not remove supporting farmland or alter wetland edges, supporting habitat	No AEol from habitat loss, subject to confirmation that no compounds or widening affect

	<i>swan</i> ); <i>Back Moss Lane (pink-footed goose)</i> ; <i>Meadow Lane (pink-footed goose)</i> ; <i>Mere Sands Wood NR (teal, pink-footed goose, great white egret, cormorant)</i>		<i>assemblage at Mere Sands Wood</i>		availability would not be reduced.	identified FLL parcels.
Habitat loss	Ribble & Alt Estuaries SPA / Ramsar	10 km	Qualifying wintering <i>swans/geese and large wader assemblage</i> ; intertidal habitats	Distance and nature of works (minor junction improvements) mean no credible direct habitat loss pathway.	No mechanism for reduction in SPA habitat extent.	No AEol.
Habitat loss	Liverpool Bay SPA	14 km	Marine SPA features incl. <i>red-throated diver, common scoter, little gull; breeding terns</i>	Inland road junction works; no marine or coastal component.	No credible pathway.	No AEol.
Species disturbance (construction)	Martin Mere SPA / Ramsar	2 km	Disturbance-sensitive wintering <i>swans/geese and wildfowl assemblage</i>	Construction activity (short-term traffic management, plant movement) may generate temporary noise. At 2 km, attenuation likely significant; no works at wetland edge described.	Given scale (junction optimisation) and distance, significant displacement of SPA birds is unlikely.	No AEol from construction disturbance, subject to standard daytime working and no floodlighting

						directed toward SPA.
Species disturbance (operational)	Martin Mere SPA / Ramsar	2 km	Same <i>assemblage</i>	Signal optimisation typically smooths traffic flow rather than increasing capacity. No material increases in traffic volume described.	No evidence of increased chronic disturbance affecting SPA/Ramsar bird populations.	No AEol.
Species disturbance	FLL parcels	<4 km	<i>Pink-footed goose; whooper swan; teal; great white egret; cormorant</i>	No land-take or works within these parcels described. Disturbance propagation at several kilometres unlikely to cause measurable displacement.	No mechanism for reduction in effective feeding habitat availability.	No AEol.
Changes to water quality	Martin Mere SPA / Ramsar	2 km	Wetland water quality supporting SPA/Ramsar <i>assemblage</i>	Junction works may involve minor resurfacing and local drainage adjustments. No new outfalls or large impermeable area increase described.	Provided existing drainage regime is maintained and standard pollution prevention measures are applied, no material change to wetland water quality is anticipated.	No AEol subject to standard CEMP pollution controls and confirmation of no new discharge points.
Changes to water quality	Ribble & Alt Estuaries SPA / Ramsar	10 km	Estuarine intertidal habitat and prey base	Hydrological connectivity at 10 km unlikely to result in material change from minor junction works.	No credible pathway for measurable estuarine water quality change.	No AEol.
Changes to air quality (construction and operational)	Martin Mere SPA / Ramsar	2 km	Nitrogen-sensitive wetland vegetation and supporting habitat processes	Signal optimisation typically reduces stop-start congestion and may reduce emissions locally. No capacity expansion described.	No evidence of material traffic increases leading to exceedance of critical loads.	No AEol, subject to confirmation that traffic flows do not materially increase beyond

						baseline forecasts.
Changes to surface and groundwater hydrology	Martin Mere SPA / Ramsar	2 km	Wetland hydrological regime supporting habitat function	Scheme description does not include culvert replacement, new attenuation basins or major drainage redesign.	No mechanism for alteration of wetland water levels identified.	No AEol, subject to confirmation drainage regime remains unchanged.
INNS	All sites and FLL parcels	2–14 km	Farmland margins and wetland habitats vulnerable to invasive spread	Construction plant movement presents minor propagule transfer risk.	With standard biosecurity procedures secured via CEMP, no adverse effect anticipated.	No AEol subject to secured biosecurity controls.
Recreation / access pressure	Martin Mere SPA / Ramsar	2 km	<i>Waterbird assemblage</i> sensitive to disturbance from increased visitation	Scheme does not introduce new parking, visitor facilities or access routes. Traffic smoothing does not inherently increase visitor numbers.	No credible mechanism for increased recreational pressure identified.	No AEol.

**Table 8.3. Stage 2 Appropriate Assessment - Botany Bay/ Hartwood S278, Chorley**

Pathway	Site / FLL	Distance	Receptor	Source–Pathway–Receptor Logic	Integrity Test	AA Conclusion
Habitat loss / fragmentation (incl. FLL)	Martin Mere SPA / Ramsar	17 km	Wetland SPA/Ramsar supporting <i>wintering swans, geese and waterbird assemblage dependent on open water, reedbed and</i>	Scheme comprises roundabout capacity upgrades within existing highway infrastructure. No works within or adjacent to SPA boundary. No FLL identified.	No mechanism for direct habitat loss or fragmentation of SPA/Ramsar habitat or supporting land.	No AEol.

			<i>wet grassland habitats</i>			
Habitat loss / fragmentation	Ribble & Alt Estuaries SPA / Ramsar	15 km	<i>Wintering swans/geese and large estuarine wader assemblage; intertidal mudflat and saltmarsh habitats</i>	Inland junction works; no land-take within SPA or supporting habitat.	No pathway for reduction in habitat extent or distribution.	No AEoI.
Species disturbance (construction)	Martin Mere SPA / Ramsar	17 km	Disturbance-sensitive <i>wintering swans/geese and wetland assemblage</i>	Construction noise and lighting attenuate rapidly with distance. No visual connectivity or works within SPA catchment margin.	At 17 km, no credible disturbance propagation mechanism.	No AEoI.
Species disturbance (construction/operational)	Ribble & Alt Estuaries SPA / Ramsar	15 km	Disturbance-sensitive <i>wintering birds and estuarine assemblage</i>	Roundabout works and increased traffic confined to Chorley urban context. No disturbance pathway at this distance.	No mechanism for behavioural displacement of SPA birds.	No AEoI.
Changes to water quality	Martin Mere SPA / Ramsar	17 km	Wetland water quality supporting SPA/Ramsar assemblage	Roundabout upgrades may alter local drainage patterns and generate runoff (sediment, hydrocarbons). However, at 17 km, no direct hydrological connectivity to SPA wetland system is indicated.	Without evidence of catchment linkage, no mechanism for discharge reaching SPA at material scale.	No AEoI, subject to confirmation no hydrological connectivity to Martin Mere catchment.
Changes to water quality	Ribble & Alt Estuaries SPA / Ramsar	15 km	Estuarine water quality and intertidal prey base	Potential pathway only if scheme lies within catchment draining directly	In absence of evidence of direct hydrological connectivity causing	No AEoI, subject to standard highway

				to Ribble estuary and results in material pollutant load increase. Given scale (junction upgrade) and distance, significant change unlikely.	material discharge change, no adverse effect anticipated.	drainage controls and confirmation of no direct discharge pathway to estuary.
Changes to air quality (construction and operational)	Ribble & Alt Estuaries SPA / Ramsar	15 km	Nitrogen-sensitive <i>saltmarsh</i> and coastal grazing marsh habitats; supporting vegetation processes	Capacity improvements may increase traffic throughput locally. However, effect on SPA habitats depends on whether materially changed traffic flows occur on links within 200 m of designated habitat. Scheme location is 15 km from SPA boundary.	No affected road links adjacent to designated habitat; therefore, no deposition pathway to SPA habitats.	No AEoI.
Changes to air quality	Martin Mere SPA / Ramsar	17 km	Wetland and grassland habitats sensitive to nitrogen deposition	Same logic as above. No materially changed road links adjacent to SPA.	No pathway for nitrogen deposition effects at this distance.	No AEoI.
Changes to surface and groundwater hydrology	Martin Mere SPA / Ramsar	17 km	Wetland hydrological regime supporting habitat function	Roundabout upgrades may modify local drainage only. No evidence of groundwater or surface water linkage to SPA hydrological system.	No credible mechanism for alteration of SPA hydrological regime.	No AEoI.
INNS	Both sites	15–17 km	Wetland and estuarine habitats vulnerable to invasive spread	Construction plant movement poses negligible risk to designated sites at this distance without direct hydrological or land linkage.	No pathway for invasive transfer to designated sites identified.	No AEoI.

Recreation / access pressure	Martin Mere SPA / Ramsar	17 km	<i>Waterbird</i> assemblage sensitive to disturbance	Roundabout capacity improvements in Chorley do not create new access routes, parking or connectivity to SPA.	No credible recreation pressure pathway.	No AEoI.
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**Table 8.4. Stage 2 Appropriate Assessment - Eden Project transport infrastructure, Lancaster-Morecambe**

Pathway	Site / FLL	Distance	Receptor	Source–Pathway–Receptor Logic	Integrity Test	AA Conclusion
Habitat loss / fragmentation (incl. FLL)	Morecambe Bay & Duddon Estuary SPA	<1 km	Internationally important wintering waterbird assemblage including <i>pink-footed goose</i> , <i>oystercatcher</i> , <i>lapwing</i> , <i>knot</i> , <i>dunlin</i> ; <i>tern</i> features; <i>extensive intertidal mudflat and saltmarsh habitats</i>	New railway station infrastructure and associated access works may require land-take, embankment works, compounds and new hardstanding. If works extend into coastal margin or FLL used by SPA birds, habitat availability could reduce.	Given proximity (<1 km) and confirmed nearby FLL use by SPA-relevant species, reduction or fragmentation of supporting feeding/roosting habitat cannot be excluded at this stage.	Potential AEoI cannot be excluded. Project-level HRA must include: (i) detailed footprint mapping; (ii) FLL survey and verification; (iii) land-take assessment; (iv) functional habitat/carrying capacity appraisal.
Habitat loss / fragmentation	Morecambe Bay SAC	<1 km	Annex I habitats including intertidal mudflats/sandflats and estuarine habitats; supporting	If works occur near coastal margin, physical encroachment or alteration of supporting coastal	Without defined site boundary relationship and confirmation of no encroachment into SAC boundary or supporting	Potential AEoI cannot be excluded. Project-level HRA must confirm no direct

			processes including sediment dynamics and tidal regime	processes could affect qualifying habitats.	processes, effects cannot be excluded.	land-take within SAC and no alteration to coastal geomorphological processes.
Habitat loss	Morecambe Bay Ramsar	<1 km	Ramsar ecological character: extensive intertidal habitats and internationally important waterbird assemblages	Same mechanism as SPA; ecological character sensitive to loss of feeding/roost habitat and supporting land.	Ecological character effects cannot be excluded without defined scheme footprint and FLL appraisal.	Potential AEoI cannot be excluded.
Habitat loss	Bowland Fells SPA	10.5 km	Breeding <i>hen harrier</i> , <i>merlin</i> , <i>peregrine</i> , <i>golden plover</i> ; <i>upland moorland habitat</i>	Inland coastal scheme; no works within upland SPA or supporting habitat.	No direct habitat loss pathway.	No AEoI.
Species disturbance (construction)	Morecambe Bay & Duddon Estuary SPA / Ramsar	<1 km	Disturbance-sensitive wintering assemblage incl. <i>pink-footed goose</i> , <i>oystercatcher</i> , <i>lapwing</i> ; <i>tern features</i> (seasonal sensitivity)	Construction of station infrastructure likely to involve piling, earthworks, lighting, crane activity and plant movement. Birds using adjacent intertidal areas or FLL may be displaced.	Given proximity (<1 km), disturbance zone of influence likely to overlap SPA supporting habitat. Displacement effects cannot be excluded without modelling and seasonal controls.	Potential AEoI cannot be excluded. Project-level HRA must include disturbance modelling (noise, vibration, visual), seasonal sensitivity analysis, and mitigation strategy (buffers,

						timing restrictions).
Species disturbance (operational)	Morecambe Bay & Duddon Estuary SPA / Ramsar	<1 km	<i>Wintering waterbird</i> assemblage; breeding/foraging <i>terns</i> (if applicable)	Increased rail services and visitor access may increase chronic noise and human presence near coastal habitats.	Without operational noise assessment and visitor behaviour modelling, displacement and reduced habitat use cannot be excluded.	Potential AEoI cannot be excluded. Project-level operational noise and visitor disturbance assessment required.
Species disturbance	Morecambe Bay SAC	<1 km	Supporting bird foraging habitat associated with intertidal Annex I habitats	Disturbance may indirectly affect use of SAC habitats by SPA birds.	Without disturbance assessment, indirect effect on SAC supporting processes cannot be excluded.	Potential AEoI cannot be excluded.
Changes to water quality	Morecambe Bay SAC / SPA / Ramsar	<1 km	<i>Intertidal mudflats</i> and <i>sandflats</i> supporting invertebrate prey base for SPA birds; estuarine water quality	Construction runoff (sediment, hydrocarbons, concrete washout) may enter coastal drainage network. Proximity increases likelihood of direct discharge to coastal waters.	Without defined drainage strategy and pollution prevention controls, degradation of intertidal habitat quality cannot be excluded.	Potential AEoI cannot be excluded. Project-level HRA to include hydrological connectivity mapping, SuDS design, construction runoff modelling and WFD screening.

Changes to air quality (construction and operational)	Morecambe Bay SAC / SPA / Ramsar	<1 km	Nitrogen-sensitive <i>saltmarsh</i> and coastal habitats; supporting vegetation processes	Station development may alter traffic flows and increase vehicle access to coastal area. Deposition effects depend on magnitude of traffic increase and proximity of affected links to designated habitat.	Without traffic modelling and deposition screening, exceedance of critical loads cannot be excluded.	Potential AEol cannot be excluded. Project-level air quality assessment required (construction dust + operational deposition modelling).
Changes to surface and groundwater hydrology	Morecambe Bay SAC / SPA / Ramsar	<1 km	Supporting hydrological processes maintaining intertidal habitat stability (tidal exchange, sediment transport, freshwater inputs)	Station infrastructure may alter impermeable area and drainage regime. Altered discharge rates could influence coastal sediment dynamics locally.	Without hydrological modelling, change to supporting processes cannot be excluded.	Potential AEol cannot be excluded. Project-level surface water and flood risk assessment required.
INNS	Morecambe Bay and Duddon Estuary SPA, Morecambe Bay SAC, Morecambe Bay Ramsar sites	<1 km	<i>Intertidal habitats and coastal margins</i> vulnerable to invasive species spread	Construction plant movement near coastal zone presents invasive spread risk.	With secured biosecurity measures, no adverse effect anticipated.	No AEol subject to secured biosecurity plan within CEMP.

Recreation / access pressure	Morecambe Bay SPA / Ramsar	<1 km	Disturbance-sensitive wintering and passage waterbirds; estuary margin roost sites	Improved rail access and cycle connectivity are likely to increase visitor numbers to the coast and development site. Increased footfall, dog walking and shoreline access may disturb SPA birds.	Given proximity and improved access function, recreational disturbance pathway is credible and cannot be excluded without visitor modelling and mitigation.	Potential AEol cannot be excluded. Project-level visitor uplift and disturbance assessment required (alone and in-combination), with mitigation strategy if necessary.
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**Table 8.5. Stage 2 Appropriate Assessment - M65 Junction 13 phase 2 improvements**

Pathway	Site / FLL	Distance	Receptor	Source-Pathway-Receptor Logic	Integrity Test	AA Conclusion
Habitat loss / fragmentation (incl. FLL)	South Pennine Moors Phase 2 SPA	4.4 km	Qualifying breeding upland species including <i>merlin</i> , <i>golden plover</i> , <i>short-eared owl</i> ; <i>upland moorland</i> and <i>blanket bog</i> supporting habitat	Scheme comprises junction upgrades and active travel measures at M65 J13. Works are within existing highway infrastructure and urban/edge-of-settlement context. No land-take within SPA boundary or supporting upland habitat identified.	No mechanism for reduction in extent or fragmentation of SPA habitat or supporting breeding territory.	No AEol.
Species disturbance (construction)	South Pennine Moors	4.4 km	Breeding <i>merlin</i> , <i>golden plover</i> , <i>short-eared owl</i> (sensitive to disturbance during breeding season)	Construction noise and lighting are localised to junction area. At 4.4 km separation, and with no	No credible disturbance pathway affecting breeding	No AEol.

	Phase 2 SPA			direct visual connectivity to upland SPA habitat, disturbance propagation to breeding territories is not plausible.	success or territory occupancy.	
Species disturbance (operational)	South Pennine Moors Phase 2 SPA	4.4 km	Same breeding assemblage	Operational traffic change confined to junction. No evidence of new road corridors approaching SPA.	No mechanism for chronic disturbance within SPA.	No AEol.
Changes to water quality	South Pennine Moors Phase 2 SPA	4.4 km	Moorland hydrological systems supporting <i>blanket bog/heath</i> habitat and breeding birds	Junction works may alter local drainage within highway boundary. No indication of hydrological connectivity to upland SPA catchments.	Without hydrological linkage between junction drainage and SPA upland systems, no pathway for material water quality change.	No AEol, subject to confirmation of no hydrological connectivity to SPA catchment.
Changes to air quality (construction and operational)	South Pennine Moors Phase 2 SPA	4.4 km	Nitrogen-sensitive upland habitats ( <i>blanket bog, heath</i> ) supporting <i>qualifying birds</i>	Capacity and bus priority improvements may alter traffic flows locally. Air quality effects on SPA depend on materially changed traffic flows on links within 200 m of SPA habitat. No such links identified.	At 4.4 km, no affected road links are adjacent to SPA boundary; therefore, no nitrogen deposition pathway affecting designated habitats.	No AEol.
Changes to surface and groundwater hydrology	South Pennine Moors Phase 2 SPA	4.4 km	<i>Moorland</i> hydrological regime supporting <i>blanket bog</i> and breeding habitat	Junction improvements confined to existing infrastructure; no peatland works or drainage alteration within SPA.	No mechanism for alteration of SPA hydrological regime.	No AEol.

INNS	South Pennine Moors Phase 2 SPA	4.4 km	<i>Moorland</i> and upland habitats vulnerable to invasive spread	Construction plant movement limited to junction area; no direct habitat connectivity to SPA moorland.	No credible pathway for invasive species transfers into SPA.	No AEol.
Recreation / access pressure	South Pennine Moors Phase 2 SPA	4.4 km	Breeding upland bird's sensitive to recreational disturbance and fire risk	Scheme improves active travel and bus priority at motorway junction; does not create new access routes into SPA moorland.	No mechanism for increased recreational pressure within SPA.	No AEol.

**Table 8.6. Stage 2 Appropriate Assessment - Samlesbury Enterprise Zone Transport Package (BwD)**

Pathway	Site / FLL	Distance	Receptor	Source-Pathway-Receptor Logic	Integrity Test	AA Conclusion
Habitat loss / fragmentation (incl. FLL)	Bowland Fells SPA	14 km	Breeding upland features including <i>hen harrier, merlin, peregrine, golden plover; moorland/blanket mire supporting habitat</i>	Scheme comprises active travel/cycle measures and bus service enhancements around Samlesbury EZ and connectivity routes. No upland habitat works are described.	No mechanism for habitat loss/fragmentation within SPA or supporting upland habitat at 14 km.	No AEol.
Habitat loss / fragmentation (incl. FLL)	Ribble & Alt Estuaries SPA / Ramsar	14 km	Qualifying wintering birds incl. <i>Bewick's swan, whooper swan, pink-footed goose; large estuarine wader/wildfowl assemblage; intertidal habitats</i>	Package improvements are inland and not described as requiring land-take in the estuary or coastal zone. At 14 km, direct habitat loss in SPA	No credible pathway for direct habitat loss/fragmentation within SPA.	No AEol.

				is not a plausible mechanism.		
Habitat loss / fragmentation (incl. FLL)	FLL: River Ribble (Ruff)	7 km	<i>Ruff</i> (passage/winter use), dependent on <i>wet grassland/riverine margins; disturbance-sensitive foraging</i> behaviour	Only relevant if scheme footprint affects the River Ribble corridor (e.g., new cycle infrastructure, bridges, riverbank works, land-take). Current description does not confirm works at this location.	Without confirmation of works within/adjacent to river corridor habitat used by ruff, habitat loss cannot be assessed, but no mechanism is currently defined.	Likely no AEoI, subject to project-level confirmation whether any works occur within the River Ribble corridor and, if so, habitat loss assessment and avoidance measures.
Habitat loss / fragmentation (incl. FLL)	FLL: River Ribble – Bull Nose	10 km	<i>Black-headed gull, lapwing, greenwing, whooper swan</i> ( <i>wetland/river margin</i> users; some disturbance-sensitive)	As above. Works would need to intersect the river corridor to create a habitat loss mechanism.	No mechanism identified without confirmation of physical works within these FLL areas.	Likely no AEoI, subject to project-level mapping of any works near River Ribble FLL.
Species disturbance (construction)	Bowland Fells SPA	14 km	Breeding upland <i>raptors and golden plover sensitive during breeding season</i>	Construction disturbance from urban transport measures would not propagate to moorland breeding territories at this distance.	No credible disturbance pathway.	No AEoI.
Species disturbance (construction/operational)	Ribble & Alt Estuaries SPA / Ramsar	14 km	<i>Wintering swans/geese/wader assemblage</i>	No pathway for construction noise/light to affect SPA birds at 14 km.	No credible disturbance mechanism.	No AEoI.

Species disturbance	FLL: River Ribble corridor	7–10 km	<i>Ruff</i> ; <i>whooper swan</i> ; lapwing (disturbance-sensitive in winter/passage periods)	Disturbance only credible if cycling infrastructure or works increase human presence along sensitive river margin feeding/roost areas. Current description is non-spatial.	Without knowing whether cycle routes/ alignments run adjacent to sensitive riverine bird use areas, disturbance cannot be fully screened out.	Potential AEoI cannot be excluded (precautionary) only for the River Ribble FLL, pending project-level route alignment and disturbance assessment (buffers/screening/timing).
Changes to water quality	Ribble & Alt Estuaries SPA / Ramsar	14 km	Estuarine water quality supporting intertidal prey resources	Water quality effects require a hydrological pathway from scheme drainage to estuary at material scale. The transport package is dispersed and likely within existing urban drainage networks.	No material pathway is indicated, but connectivity is unconfirmed.	No AEoI likely, subject to project-level drainage screening confirming no direct discharge pathway to SPA waters at material scale.
Changes to water quality	FLL: River Ribble corridor	7–10 km	Riverine habitats supporting <i>ruff</i> and other waterbirds	New cycling infrastructure or works near river could increase sediment/runoff during construction.	Without route-level detail, effects on local river habitat cannot be excluded.	Potential AEoI cannot be excluded (local River Ribble FLL only) pending project-level drainage/CEMP controls and works extent near river.
Changes to air quality (construction)	Bowland Fells SPA	14 km	Nitrogen-sensitive upland habitats supporting SPA birds	Package includes bus enhancements and cycling infrastructure; likely reduces car	No plausible deposition pathway to SPA habitats.	No AEoI.

and operational)				dependency rather than increasing traffic. Air quality effects on SPA require materially changed traffic flows on links adjacent to SPA boundary (not indicated).		
Changes to air quality	Ribble & Alt Estuaries SPA / Ramsar	14 km	Nitrogen-sensitive <i>saltmarsh</i> /coastal vegetation	Same logic: affected transport links are not adjacent to designated habitats.	No pathway.	No AEoI.
Changes to surface and groundwater hydrology	Ribble & Alt Estuaries SPA / Ramsar	14 km	Supporting estuarine hydrological processes	No evidence that scheme would alter catchment flows to estuary in a material way.	No credible pathway.	No AEoI, subject to project-level drainage screening.
INNS	All sites / River Ribble corridor	7–14 km	River <i>margins</i> and wet habitats vulnerable to invasive spread	INNS introduction possible with works along linear corridors and riverbanks (if applicable).	With standard biosecurity measures, adverse effects are avoidable.	No AEoI subject to CEMP biosecurity controls, especially if works occur near River Ribble.
Recreation / access pressure	Bowland Fells SPA	14 km	<i>Moorland</i> breeding birds and habitats sensitive to increased access (disturbance/fire/trampling)	Improved cycling/bus connectivity could marginally increase access to countryside, but scheme is targeted at EZ commuting connectivity, not visitor infrastructure.	No mechanism for material recreation uplift into SPA identified.	No AEoI.

				No new access points/parking described.		
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**Table 8.7. Stage 2 Appropriate Assessment - North Blackburn SHS Transport Package Phase1**

Pathway	Site / FLL	Distance	Receptor	Source-Pathway-Receptor Logic	Integrity Test	AA Conclusion
Habitat loss / fragmentation (incl. FLL)	Bowland Fells SPA	16 km	Qualifying breeding upland species including <i>hen harrier, merlin, peregrine, golden plover; blanket bog and moorland supporting habitat</i>	Scheme comprises junction improvements and link road works within North Blackburn urban context. No works within SPA boundary or supporting upland habitat are identified. No FLL present.	No mechanism for reduction in extent or fragmentation of SPA habitat or supporting breeding territories.	No AEol.
Species disturbance (construction)	Bowland Fells SPA	16 km	Breeding upland bird's sensitive to disturbance during nesting period	Construction noise and lighting from urban road works attenuate rapidly and are geographically separated from upland SPA. No visual connectivity.	No credible disturbance propagation pathway to breeding territories.	No AEol.
Species disturbance (operational)	Bowland Fells SPA	16 km	Same breeding <i>assemblage</i>	Operational traffic changes confined to Blackburn urban road network.	No mechanism for chronic disturbance within SPA.	No AEol.
Changes to water quality	Bowland Fells SPA	16 km	<i>Moorland</i> hydrology and supporting habitat processes	Junction/link road works may modify local urban drainage. No evidence of	Without hydrological linkage between scheme drainage and	No AEol, subject to confirmation of no direct hydrological

				hydrological connectivity to SPA upland catchments.	SPA peatland systems, no pathway exists.	connectivity to SPA catchment.
Changes to air quality (construction and operational)	Bowland Fells SPA	16 km	Nitrogen-sensitive upland habitats ( <i>blanket bog, heath</i> ) supporting SPA features	Air quality effects on SPA require materially changed traffic flows on links within 200 m of designated habitat. Scheme roads are 16 km distant.	No affected road links adjacent to SPA boundary; therefore, no nitrogen deposition pathway.	No AEol.
Changes to surface and groundwater hydrology	Bowland Fells SPA	16 km	<i>Moorland</i> hydrological regime underpinning <i>blanket bog function</i>	Urban transport works do not alter SPA hydrology.	No credible pathway.	No AEol.
INNS	Bowland Fells SPA	16 km	Upland habitats vulnerable to invasive spread	Construction activity confined to urban highway network. No ecological connectivity to SPA moorland.	No pathway for invasive species transfers to SPA.	No AEol.
Recreation / access pressure	Bowland Fells SPA	16 km	<i>Moorland</i> breeding bird's sensitive to disturbance from increased recreational access	Transport measures support housing but do not create new direct access routes or car parks into SPA. No strategic recreation linkage identified.	No mechanism for increased visitor pressure within SPA attributable to this transport package alone.	No AEol.

**Table 8.8. Stage 2 Appropriate Assessment - A5105 Safer Roads - Morecambe to Hest Bank**

Pathway	Site / FLL	Distance	Receptor	Source–Pathway–Receptor Logic	Integrity Test	AA Conclusion
Habitat loss / fragmentation (incl. FLL)	Morecambe Bay & Duddon Estuary SPA	1 km	Internationally important <i>wintering waterbird assemblage incl. pink-footed goose, oystercatcher, redshank, golden plover (non-breeding), Eurasian curlew, and other waders; intertidal mudflat and saltmarsh habitats</i>	Safety improvements may require verge widening, embankment works or localised land-take. If works extend beyond highway boundary toward coastal margin or supporting farmland used by SPA birds, habitat availability could reduce.	Given proximity (1 km) and presence of SPA-relevant species in the wider landscape, interaction with supporting habitat cannot be excluded without defined footprint.	Potential AEoI cannot be excluded. Project-level HRA required: detailed footprint mapping, FLL assessment, confirmation no land-take from coastal margin or feeding fields.
Habitat loss	Morecambe Bay SAC	1 km	Annex I habitats: estuaries, <i>intertidal mudflats and sandflats</i> ; supporting sediment and tidal processes	Direct land-take within SAC boundary would be required for habitat loss. Current description suggests highway-based works inland.	No direct encroachment identified at this stage, but spatial confirmation required.	Likely no AEoI, subject to confirmation that works remain outside SAC boundary and do not alter coastal geomorphology.
Habitat loss	Morecambe Bay Ramsar	1 km	Ramsar ecological character: intertidal habitats and internationally important waterbird assemblage	As per SPA; ecological character sensitive to loss of feeding/roost habitat and supporting land.	Without confirmation of no land-take within supporting habitat, ecological character effects cannot be excluded.	Potential AEoI cannot be excluded, pending project-level footprint review.
Habitat loss	Bowland Fells SPA	1 km (confirm)	Breeding <i>hen harrier, merlin, peregrine, golden plover; upland moorland habitat etc.</i>	If distance is accurate, spatial relationship must be confirmed. If scheme remains within coastal	No mechanism for upland habitat loss unless works extend into SPA boundary.	No AEoI, subject to confirmation of no encroachment into SPA boundary.

				lowland corridor, no upland habitat interaction occurs.		
Species disturbance (construction)	Morecambe Bay & Duddon Estuary SPA / Ramsar	1 km	Disturbance-sensitive <i>wintering waterbirds incl. curlew, golden plover, redshank, oystercatcher, pink-footed goose, whooper swan etc.</i>	Construction plant, noise, vibration and lighting may disturb birds using adjacent coastal or farmland feeding areas.	Given proximity and potential line-of-sight, displacement effects cannot be excluded without disturbance assessment.	Potential AEoI cannot be excluded. Project-level HRA must include noise/visual disturbance modelling and seasonal timing controls.
Species disturbance (operational)	Morecambe Bay & Duddon Estuary SPA / Ramsar	1 km	Same <i>assemblage</i>	Safety scheme may alter traffic speed and flow. If capacity increases or lighting intensifies, chronic disturbance may increase.	Without traffic flow and lighting assessment, operational disturbance cannot be excluded.	Potential AEoI cannot be excluded. Operational noise and lighting assessment required at project stage.
Species disturbance	Bowland Fells SPA	1 km (confirm)	Breeding upland species	If works are coastal/lowland and not within upland SPA, disturbance unlikely.	No credible disturbance mechanism unless spatial overlap occurs.	No AEoI, subject to confirmation of spatial separation.
Changes to water quality	Morecambe Bay SAC / SPA / Ramsar	1 km	<i>Intertidal mudflats and estuarine waters supporting invertebrate prey for SPA birds</i>	Highway works may mobilise sediment, hydrocarbons and pollutants via drainage network discharging to coastal waters. At 1 km, hydrological connectivity is plausible.	Without drainage strategy and pollution prevention measures, degradation of coastal water quality cannot be excluded.	Potential AEoI cannot be excluded. Project-level hydrological connectivity assessment, SuDS design, runoff modelling and WFD screening required.

Changes to air quality (construction and operational)	Morecambe Bay SPA / SAC / Ramsar	1 km	Nitrogen-sensitive <i>saltmarsh</i> and coastal habitats supporting SPA <i>assemblage</i>	Traffic changes could alter emissions. Deposition effects depend on whether materially changed traffic flows occur on links within 200 m of designated habitat.	Without traffic modelling, nitrogen deposition effects cannot be excluded.	Potential AEoI cannot be excluded. Project-level air quality modelling required if traffic flows materially change.
Changes to surface and groundwater hydrology	Morecambe Bay SAC / SPA / Ramsar	1 km	Supporting hydrological and sedimentary processes maintaining intertidal habitat	Drainage alteration or impermeable area increase could modify runoff rates and discharge regime.	Without hydrological modelling, effects on supporting processes cannot be excluded.	Potential AEoI cannot be excluded. Project-level surface water and flood risk assessment required.
INNS	Coastal complex	1 km	Intertidal and <i>saltmarsh</i> habitats vulnerable to invasive spread	Construction near coastal margin presents invasive plant transfer risk.	With secured biosecurity measures, risk is manageable.	No AEoI subject to CEMP biosecurity plan.
Recreation / access pressure	Morecambe Bay SPA / Ramsar	1 km	Disturbance-sensitive <i>wintering waterbirds</i>	Safety improvements may increase accessibility and traffic throughput, potentially increasing informal coastal access.	Without visitor behaviour and access pathway assessment, increased recreational disturbance cannot be excluded.	Potential AEoI cannot be excluded. Project-level visitor/access assessment required (alone and in-combination).

**Table 8.9. Stage 2 Appropriate Assessment -Penwortham Town Centre s278 Scheme**

Pathway	Site / FLL	Distance	Receptor	Source–Pathway–Receptor Logic	Integrity Test	AA Conclusion
Habitat loss / fragmentation (incl. FLL)	Ribble & Alt Estuaries SPA / Ramsar	5 km	SPA qualifying features incl. wintering <i>swans/geese (e.g., whooper swan), and large wader assemblage; intertidal habitats and supporting river corridor feeding/roosting land</i>	Scheme is confined to Penwortham town centre. No works within SPA boundary. Direct habitat loss within designated site not credible.	No mechanism for reduction in SPA habitat extent at 5 km.	No AEoI from direct habitat loss.
Habitat loss / fragmentation (incl. FLL)	FLL: River Ribble corridor (Ruff)	<2 km	<i>Ruff (passage/winter use), reliant on wet grassland and river margin feeding areas; disturbance-sensitive</i>	If cycleway extension or associated works encroach into River Ribble corridor habitats (e.g., widening, embankment works, compound siting), permanent or temporary habitat loss could reduce functional feeding area supporting SPA populations.	Without confirmation that cycle infrastructure remains within existing urban carriageway and does not extend into riparian habitat, functional habitat loss cannot be excluded.	Potential AEoI cannot be excluded. Project-level HRA required: route alignment plan, redline boundary, and FLL habitat appraisal.
Habitat loss / fragmentation (incl. FLL)	FLL: River Ribble – Bull Nose	<2 km	<i>Black-headed gull, lapwing, whooper swan (winter feeding/roosting),</i>	Same mechanism as above: land-take or compounds in riparian	Integrity of SPA bird populations depends on maintaining	Potential AEoI cannot be excluded. Project-level HRA required if

			<i>waterbirds using river margins</i>	grassland could reduce feeding/loafing habitat.	supporting habitat. Loss cannot be ruled out without spatial detail.	works intersect river corridor.
Habitat loss	Martin Mere SPA / Ramsar	15.5 km	Wintering <i>swans/geese</i> and <i>wetland assemblage</i>	No direct land-take, disturbance, hydrological or air quality linkage at this distance from urban scheme.	No credible mechanism for reduction in habitat extent.	No AEoI.
Species disturbance (construction)	Ribble & Alt Estuaries SPA (via FLL linkage)	5 km (SPA), <2 km (FLL)	Wintering/passage waterbirds incl. <i>ruff</i> , <i>lapwing</i> , <i>whooper swan</i> ; disturbance-sensitive during winter energy stress	Construction noise, plant movement and lighting from cycleway/public realm works could disturb birds using nearby river margin FLL. Repeated disturbance may displace birds from feeding/roost areas.	Given <2 km proximity to river corridor FLL, disturbance effects cannot be excluded without defining working hours, lighting and line-of-sight.	Potential AEoI cannot be excluded. Project-level HRA required including disturbance zone assessment and seasonal timing controls.
Species disturbance (operational – increased cycle use)	FLL: River Ribble corridor	<2 km	<i>Ruff</i> , <i>lapwing</i> , <i>whooper swan</i> and other riverine waterbirds sensitive to human presence	New/improved bidirectional cycle lane may increase human presence along river corridor if alignment follows or connects to riverside routes. Increased disturbance frequency can reduce habitat usability.	Without confirming whether cycleway alignment is within or adjacent to sensitive river margin habitats, operational disturbance cannot be excluded.	Potential AEoI cannot be excluded. Project-level assessment of route alignment and bird-sensitive buffers required.

Species disturbance	Martin Mere SPA / Ramsar	15.5 km	Wintering <i>swans/geese</i> assemblage	No disturbance pathway given separation distance and intervening urban context.	No credible mechanism for displacement or disturbance.	No AEoI.
Changes to water quality	Ribble & Alt Estuaries SPA / Ramsar	5 km	Estuarine water quality and invertebrate prey base supporting SPA bird assemblage	Public realm and parking rationalisation may alter impermeable area and drainage. If runoff drains to River Ribble, sediment/hydrocarbon input could reach SPA estuary downstream.	Without drainage design and connectivity mapping, water quality effects on downstream SPA cannot be excluded.	Potential AEoI cannot be excluded. Project-level HRA to include drainage connectivity mapping, pollution prevention measures and WFD screening.
Changes to water quality	Martin Mere SPA / Ramsar	15.5 km	Wetland water quality and supporting ecological processes	No hydrological connectivity between scheme drainage and Martin Mere catchment.	No credible mechanism for alteration of water quality.	No AEoI.
Changes to air quality (construction and operational)	Ribble & Alt Estuaries SPA	5 km	Nitrogen-sensitive saltmarsh/coastal grazing <i>marsh</i> habitats supporting SPA assemblage	Parking rationalisation and cycle infrastructure may reduce vehicular emissions locally. No capacity-led expansion described.	No mechanism for materially increased traffic flows on links adjacent to SPA boundary.	No AEoI likely, subject to confirmation no material traffic growth affecting roads within 200 m of SPA boundary.
Changes to air quality	Martin Mere SPA / Ramsar	15.5 km	Nitrogen-sensitive wetland habitats	No mechanism for materially increased traffic adjacent to Martin Mere boundary.	No credible mechanism for increased nitrogen deposition.	No AEoI.
Changes to surface and	Ribble & Alt Estuaries SPA	5 km	Supporting hydrological	Altered runoff rates from urban realm could influence downstream	Without hydrological assessment,	Potential AEoI cannot be excluded. Project-level drainage and

groundwater hydrology			processes of River Ribble estuary	discharge characteristics. Magnitude likely small, but pathway exists if hydrologically connected.	alteration of discharge regime cannot be entirely excluded.	surface water assessment required.
Changes to surface and groundwater hydrology	Martin Mere SPA / Ramsar	15.5 km	Supporting hydrological regime	Urban scheme with no catchment linkage to Martin Mere.	No credible mechanism for hydrological alteration.	No AEoI.
INNS	River Ribble FLL corridor	<2 km	Riparian habitats vulnerable to invasive plant spread	Construction and landscaping (greening) may introduce invasive species along river corridor.	With secured biosecurity and planting controls, integrity impacts avoidable.	No AEoI subject to secured CEMP biosecurity plan.
INNS	Martin Mere SPA / Ramsar	15.5 km	Wetland vegetation communities	No works near designated site boundary.	No credible pathway for invasive species introduction.	No AEoI.
Recreation / access pressure	Ribble & Alt Estuaries SPA (via river corridor linkage)	5 km	Disturbance-sensitive waterbirds dependent on undisturbed feeding/roosting areas	Improved cycle connectivity may increase recreational use of the River Ribble corridor. Increased footfall/dog walking near river margins could disturb birds.	Without visitor uplift/pathway assessment, increased disturbance pressure cannot be excluded.	Potential AEoI cannot be excluded (alone/in-combination). Project-level visitor/disturbance assessment required if cycleway connects to riverside paths.
Recreation / access pressure	Martin Mere SPA / Ramsar	15.5 km	Disturbance-sensitive wintering birds	Scheme does not increase visitor access to Martin Mere.	No credible mechanism for increased disturbance.	No AEoI.

**Table 8.10. Stage 2 Appropriate Assessment -St Anne's Pier Link**

Pathway	Site / FLL	Distance	Receptor	Source-Pathway-Receptor Logic	Integrity Test	AA Conclusion
Habitat loss / fragmentation (incl. FLL)	Ribble & Alt Estuaries SPA / Ramsar	<1 km	SPA birds incl. <i>tundra swan, whooper swan, pink-footed goose; waders incl. black-tailed godwit, oystercatcher, redshank, knot, dunlin; supporting coastal habitat and high-tide roosts</i>	Public realm works may require land-take, temporary compounds, or coastal margin alteration affecting supporting habitat and roost function.	Reduction in supporting habitat extent or functional availability for SPA qualifying species cannot be excluded without defined redline and construction footprint.	AEoI cannot be ruled out (alone/in-combination). Project-level HRA required.
Habitat loss / fragmentation (incl. FLL)	FLL parcels (<3 km): Lytham Moss 1; Mythop & Mythop Grange 2; Weeton 2; Staining Wood Farm; Lower Ballam; Todderstaffe Hall; Marton Mere	<3 km	<i>Whooper swan, Bewick's swan, pink-footed goose; black-tailed godwit; ruff; wetland birds at Marton Mere</i>	Construction footprint, lighting and increased activity may reduce feeding/loafing habitat usability through displacement or land-take.	The continued functional role of these parcels in maintaining SPA bird carrying capacity and distribution cannot be demonstrated without mapped proximity and disturbance zone assessment.	AEoI cannot be ruled out. Project-level FLL interaction assessment required.
Species disturbance	Ribble & Alt Estuaries	<1 km	Disturbance-sensitive wintering	Construction activity, lighting and increased	Effects on SPA population	AEoI cannot be ruled out (alone/in-combination).

(visual, noise, vibration, lighting)	SPA / Ramsar		and passage waterbirds	operational use may cause displacement from feeding and roosting areas.	distribution and availability of undisturbed habitat remain uncertain where activity levels, lighting and event use are undefined.	Project-level disturbance assessment required.
Species disturbance (visual, noise, vibration, lighting)	Liverpool Bay SPA	2.5 km	<i>Red-throated diver, common scoter, little gull; common and little tern</i> (foraging)	Increased coastal access and activity may alter disturbance patterns affecting nearshore foraging areas.	Disturbance effects on qualifying marine birds cannot be discounted without defined spatial relationship to sensitive coastal areas.	AEol cannot be ruled out (precautionary). Project-level screening required.
Species disturbance (visual, noise, vibration, lighting)	Morecambe Bay & Duddon Estuary SPA / Ramsar	13 km	SPA waterbird assemblage	Disturbance from works at St Annes would not realistically propagate to receptors at this distance.	No credible mechanism linking operational disturbance to receptor populations at 13 km.	No AEol.
Species disturbance (visual, noise, vibration, lighting)	Martin Mere SPA / Ramsar	16 km	<i>Wintering swan/goose and waterfowl</i> assemblage	No disturbance pathway identified between scheme and inland site.	Absence of spatial or behavioural linkage indicates integrity would not be affected.	No AEol.

Changes to water quality	Ribble & Alt Estuaries SPA / Ramsar	<1 km	Intertidal habitats and invertebrate prey base	Drainage alterations and construction runoff may introduce sediment or contaminants to estuarine waters.	Deterioration of habitat condition or prey resource cannot be excluded without confirmed drainage design and pollution controls.	AEoI cannot be ruled out. Project-level drainage and WFD assessment required.
Changes to water quality	Liverpool Bay SPA	2.5 km	Marine supporting environment for SPA birds	Potential pathway via coastal discharge affecting nearshore water quality; dependent on drainage connectivity.	Adverse change to supporting marine water quality processes cannot be excluded in absence of drainage confirmation.	AEoI cannot be ruled out (precautionary). Screening required.
Changes to water quality	Shell Flat & Lune Deep SAC	8 km	<i>Sandbanks</i> (1110) and <i>reefs</i> (1170)	Only plausible pathway is altered discharge affecting coastal water quality or sediment regime.	Impact on supporting marine processes cannot be discounted without outfall connectivity confirmation.	AEoI cannot be ruled out (precautionary) pending drainage screening.
Changes to water quality	Morecambe Bay & Duddon Estuary SPA / Ramsar	13 km	Intertidal habitats and SPA assemblage	No defined catchment linkage identified at this stage.	Lack of demonstrated hydrological pathway indicates integrity effect	Likely no AEoI (subject to drainage screening).

					unlikely, subject to confirmation.	
Changes to air quality	Ribble & Alt Estuaries SPA / Ramsar	<1 km	Nitrogen-sensitive coastal habitats	Construction dust and potential traffic redistribution may alter local deposition levels.	Compliance with critical loads and habitat condition objectives cannot be confirmed without modelling.	AEoI cannot be ruled out (precautionary). Project-level air quality assessment required.
Changes to surface and groundwater hydrology	Ribble & Alt Estuaries SPA / Ramsar	<1 km	Estuarine hydrological processes	Altered impermeable area and discharge location may modify runoff patterns influencing intertidal function.	Alteration of supporting hydrological processes cannot be excluded without drainage and discharge detail.	AEoI cannot be ruled out. Project-level hydrological assessment required.
INNS	Ribble & Alt Estuaries SPA / Ramsar and FLL network	<1–3 km	<i>Intertidal margins</i> and supporting habitats vulnerable to invasive spread	Soil movement and landscaping may introduce invasive species.	Habitat structure and function can be safeguarded through secured biosecurity and invasive species control measures.	No AEoI subject to secured CEMP and Biosecurity Plan.
Recreation / access pressure	Ribble & Alt Estuaries SPA / Ramsar	<1 km	Disturbance-sensitive waterbirds	Improved permeability and attractiveness may increase visitor numbers and redistribution to shoreline.	Increased disturbance frequency reducing effective habitat availability cannot be excluded without	AEoI cannot be ruled out (alone/in-combination). Visitor impact assessment required.

					visitor uplift assessment.	
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**Table 8.11. Stage 2 Appropriate Assessment - Huncoat Garden Village Access**

Pathway	Site / FLL	Distance	Receptor	Source–Pathway–Receptor Logic	Integrity Test	AA Conclusion
Habitat loss / fragmentation (incl. FLL)	South Pennine Moors SPA	11.5 km	Breeding upland birds incl. <i>merlin</i> , <i>golden plover</i> , <i>short-eared owl</i> ; <i>blanket bog and upland heath habitat</i>	New road and junctions located in lowland/settlement context. No land-take within SPA boundary or supporting upland habitat identified.	No mechanism for reduction in SPA habitat extent, structure or fragmentation at 11.5 km.	No AEol.
Habitat loss / fragmentation	South Pennine Moors Phase 2 SPA	18 km	Breeding upland bird's dependent on <i>moorland/blanket bog habitat</i>	Same logic as above.	No credible habitat loss pathway.	No AEol.
Species disturbance (construction)	Both SPAs	11.5–18 km	Breeding upland bird's sensitive to disturbance during nesting	Construction noise, lighting and vibration attenuate over distance; no direct visual or functional connectivity to moorland territories.	No plausible disturbance propagation to breeding territories at this distance.	No AEol.
Species disturbance (operational)	Both SPAs	11.5–18 km	Same breeding <i>assemblage</i>	Operational traffic noise confined to new road corridor in lowland setting.	No mechanism for chronic disturbance within SPA.	No AEol.

Changes to water quality	South Pennine Moors SPA	11.5 km	Peatland hydrology supporting <i>blanket bog</i> and breeding habitat	New road increases impermeable area and runoff. Pathway only credible if drainage connects to upland SPA catchment affecting peatland hydrology or water quality.	Without catchment mapping, hydrological connectivity cannot be confirmed.	Likely no AEoI, subject to project-level confirmation of no hydrological linkage to SPA peatland systems.
Changes to air quality (construction and operational)	South Pennine Moors SPA	11.5 km	Nitrogen-sensitive blanket bog and upland heath habitats supporting qualifying birds	New road may increase traffic flows locally. Air quality effect on SPA only occurs if materially changed traffic flows occur on road links within ~200 m of SPA boundary. No such links identified at 11.5 km.	No deposition pathway affecting SPA habitats at this separation distance.	No AEoI, subject to confirmation that no materially changed road links occur adjacent to SPA boundary.
Changes to surface and groundwater hydrology	Both SPAs	11.5–18 km	<i>Moorland</i> hydrological regime underpinning habitat structure/function	Road drainage confined to local catchment. No evidence of direct hydrological connection to upland SPA peat systems.	No credible mechanism for altering SPA hydrological processes.	No AEoI, subject to project-level drainage screening.
INNS (Invasive Non-Native Species)	Both SPAs	11.5–18 km	<i>Moorland</i> habitats vulnerable to invasive spread	Construction confined to development corridor; no ecological corridor linking directly to SPA moorland.	No plausible pathway for invasive transfer into SPA.	No AEoI.
Recreation / access pressure	South Pennine Moors SPA	11.5 km	Breeding upland birds sensitive to increased recreational	Garden Village housing may increase population; however, access road	The access scheme alone does not create	No AEoI attributable to the access scheme alone. Wider housing

			disturbance and fire risk	itself does not create new access into SPA. Any recreation uplift is associated with housing, not the access road alone.	direct access routes to SPA.	allocation may require separate HRA consideration.
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**Table 8.12. Stage 2 Appropriate Assessment - Local Plan Transport Package**

Pathway	Site / FLL	Distance	Receptor	Source–Pathway–Receptor Logic	Integrity Test	AA Conclusion
Habitat loss / Fragmentation (incl. FLL)	Ribble & Alt Estuaries SPA / Ramsar	17.5 km	SPA qualifying wintering <i>swans/geese and wader assemblage</i> ; <i>intertidal mudflat</i> and saltmarsh habitats	Transport package works (junctions, link roads, access improvements) are associated with allocated sites inland. No land-take within SPA boundary.	Conservation objectives for SPA require maintaining habitat extent and distribution; no mechanism for habitat loss at 17.5 km.	No AEol.
Habitat loss / fragmentation (incl. FLL)	FLL: River Ribble corridor (Ruff)	11 km	<i>Ruff (passage/winter use), reliant on wet grassland and river margin feeding habitat</i>	Works would need to occur within or adjacent to River Ribble corridor to affect functional habitat. At 11 km, unless transport measures directly intersect river corridor, no land-take pathway exists.	Supporting habitat extent and function maintained where works remain outside river corridor.	No AEol, subject to confirmation no direct works within River Ribble FLL parcels.
Species disturbance	Ribble & Alt Estuaries	17.5 km	Disturbance-sensitive <i>wintering waterbirds</i>	Noise/light disturbance attenuates over distance. No visual or	Population/distribution objectives not undermined by	No AEol.

(construction/operational)	SPA (via FLL linkage)			functional connectivity to SPA at 17.5 km.	disturbance at this separation.	
Species disturbance	FLL: River Ribble – Bull Nose	11 km	<i>Black-headed gull, lapwing, whooper swan, teal</i>	Disturbance only credible if works are located directly adjacent to river corridor habitat. At 11 km from SPA and absent riverbank works, no disturbance pathway.	Functional habitat availability maintained where works do not encroach into river corridor.	No AEoI, subject to confirmation of no direct adjacency to sensitive river margin habitats.
Changes to water quality	Ribble & Alt Estuaries SPA / Ramsar	17.5 km	Estuarine water quality and intertidal prey base supporting SPA birds	Transport works may alter impermeable area and runoff locally. Pathway only credible if runoff drains into River Ribble catchment and materially increases pollutant load reaching estuary.	Conservation objectives require maintaining supporting processes (water quality). At 17.5 km, with standard drainage design and pollution control, material estuarine impact unlikely.	No AEoI, subject to project-level drainage screening confirming no significant pollutant load increase to Ribble catchment.
Changes to air quality (construction and operational)	Ribble & Alt Estuaries SPA	17.5 km	Nitrogen-sensitive coastal habitats supporting SPA <i>assemblage</i>	Air quality effects occur only where materially changed traffic flows occur on road links within ~200 m of SPA boundary. Local Plan transport works are inland.	No deposition pathway affecting SPA habitats.	No AEoI, subject to confirmation that no materially changed traffic flows occur on links adjacent to SPA boundary.
Changes to surface and	Ribble & Alt Estuaries SPA	17.5 km	Supporting hydrological	Altered runoff from local road works unlikely to materially affect	No credible mechanism for altering estuarine	No AEoI, subject to standard drainage

groundwater hydrology			processes of River Ribble estuary	estuarine discharge regime at this distance without large-scale hydrological connectivity.	hydrological processes at this scale.	and flood risk assessment.
INNS	River Ribble corridor	11 km	<i>Riparian habitats</i> vulnerable to invasive spread	Construction plant movement confined to allocated site corridors. No direct connectivity to SPA unless riverbank works undertaken.	With biosecurity measures secured, habitat integrity maintained.	No AEoI subject to secured CEMP biosecurity plan.
Recreation / access pressure	Ribble & Alt Estuaries SPA	17.5 km	Disturbance-sensitive SPA waterbirds	Transport measures may support housing growth, but do not directly create new access routes to SPA.	Access pressure attributable to transport package alone is negligible.	No AEoI attributable to transport scheme alone. Wider Local Plan growth assessed separately.

**Table 8.13. Stage 2 Appropriate Assessment - A6 Lancaster to Preston Safety and Connectivity Improvements**

Pathway	Site / FLL	Distance	Receptor	Source–Pathway–Receptor Logic	Integrity Test	AA Conclusion
Habitat loss / fragmentation (incl. FLL)	FLL parcels: Cockerham fields; Cockhall Farm (associated with Morecambe Bay &	1.5–1.8 km	<i>Pink-footed goose</i> and SPA waterbird assemblage dependent on inland feeding habitat	Road improvements may require land-take, temporary compounds, verge works or access changes. Increased traffic, lighting and activity may reduce feeding habitat usability	The continued functional role of these parcels in maintaining SPA bird carrying capacity and distribution cannot be demonstrated without defined footprint and	AEoI cannot be ruled out. Project-level FLL interaction assessment required

	Duddon Estuary SPA / Ramsar)			through disturbance or displacement	disturbance assessment	
Habitat loss / fragmentation (incl. European sites)	Morecambe Bay & Duddon Estuary SPA / Ramsar	3.5 km	SPA waterbird assemblage and supporting intertidal habitats and roost sites	Works are expected within the existing highway corridor. No direct land-take within the SPA is anticipated at this distance	No credible mechanism linking the scheme to direct habitat loss or fragmentation within the SPA is identified	No AEoI
Habitat loss / fragmentation (incl. European sites)	Morecambe Bay SAC / Ramsar	3.5 km	Estuarine habitats, mudflats, sandflats, saltmarsh and dune systems	The scheme is located outside designated boundaries. Direct habitat loss within the SAC is unlikely	No pathway for direct habitat loss affecting SAC habitats is identified	No AEoI
Species disturbance (visual, noise, vibration, lighting)	Morecambe Bay & Duddon Estuary SPA / Ramsar and FLL	1.5–3.5 km	Disturbance-sensitive waterbirds including <i>pink-footed goose</i> , <i>swans</i> and <i>waders</i>	Construction works and increased traffic may cause disturbance to birds using nearby feeding areas or commuting between feeding and roosting sites	Effects on SPA population distribution and availability of undisturbed feeding habitat cannot be excluded without disturbance assessment	AEoI cannot be ruled out. Project-level disturbance assessment required
Changes to water quality	Morecambe Bay SAC / Ramsar and Morecambe Bay & Duddon Estuary SPA	3.5 km	Intertidal habitats and invertebrate prey base supporting SPA birds	Construction runoff, sediment and pollutants may enter watercourses draining to Morecambe Bay, affecting water quality and prey availability	Deterioration of habitat condition or prey resource cannot be excluded without confirmed drainage design and pollution controls	AEoI cannot be ruled out. Project-level drainage and pollution prevention measures required

Changes to air quality	Morecambe Bay SAC / Ramsar and Bowland Fells SPA	3.5 km 5.5 km	Nitrogen-sensitive coastal habitats and upland habitats supporting SPA species	Changes in traffic flow may increase emissions and nitrogen deposition on sensitive habitats	Compliance with critical loads and habitat condition objectives cannot be confirmed without air quality modelling	AEoI cannot be ruled out. Project-level air quality assessment required
Changes to surface and groundwater hydrology	Morecambe Bay SAC and Bowland Fells SPA	3.5–5.5 km	Estuarine processes and upland hydrological systems	Drainage changes may alter runoff patterns, discharge and sediment transport affecting downstream habitats	Alteration of supporting hydrological processes cannot be excluded without drainage and hydrological assessment	AEoI cannot be ruled out
Invasive non-native species	Morecambe Bay SAC / Ramsar and Bowland Fells SPA	Within influence	Coastal and upland habitats sensitive to invasive species	Ground disturbance and material movement may introduce invasive species affecting habitat structure and function	Effects on habitat structure and function cannot be excluded without biosecurity measures	AEoI cannot be ruled out
Recreation	Morecambe Bay & Duddon Estuary SPA / Ramsar and Bowland Fells SPA	Within wider influence	SPA waterbirds and upland bird's sensitive to disturbance	Improved connectivity may increase access to coastal and upland areas, increasing recreational pressure and disturbance	Effects on feeding efficiency, breeding success and availability of undisturbed habitat cannot be excluded without visitor assessment	AEoI cannot be ruled out in-combination

**Table 8.14. Stage 2 Appropriate Assessment -Integrated Transport Hubs**

Pathway	Site / FLL	Distance	Receptor	Source–Pathway– Receptor Logic	Integrity Test	AA Conclusion
Habitat loss / fragmentation (incl. FLL)	FLL parcels: Lytham Moss, Mythop & Mythop Grange, Weeton, Staining Wood Farm, Lower Ballam, Marton Mere (associated with Ribble & Alt Estuaries SPA/ Ramsar)	4 km	SPA birds including <i>pink-footed goose</i> , <i>whooper swan</i> , <i>Bewick’s swan</i> and other wintering waterbirds dependent on inland feeding habitat	Transport hub works may include infrastructure, access works, lighting and associated activity. Increased disturbance and lighting may reduce the functional availability of nearby FLL through displacement or avoidance	The continued functional role of these parcels in maintaining SPA bird carrying capacity and distribution cannot be demonstrated without defined location and disturbance assessment	AEoI cannot be ruled out. Project-level FLL interaction assessment required
Habitat loss / fragmentation (incl. European sites)	Ribble & Alt Estuaries SPA/ Ramsar	8 km	SPA waterbird assemblage including swans, geese and waders; intertidal habitats and roost sites	Works are expected within existing developed areas. No direct land-take within the SPA is anticipated at this distance	No credible mechanism linking the scheme to direct habitat loss or fragmentation within the SPA is identified	No AEoI
Species disturbance (visual, noise,	Ribble & Alt Estuaries	8 km	Disturbance-sensitive wintering and passage waterbirds	Construction disturbance is unlikely to propagate to the SPA.	Effects on SPA population distribution and	AEoI cannot be ruled out in-combination

vibration, lighting)	SPA / Ramsar			Improved connectivity may increase access to estuarine areas, increasing recreational disturbance	availability of undisturbed habitat cannot be excluded without visitor assessment and access modelling	
Changes to water quality	Ribble & Alt Estuaries SPA / Ramsar	8 km	Intertidal habitats and invertebrate prey base	Construction runoff and operational drainage may enter watercourses connected to the Ribble catchment, affecting water quality	Deterioration of habitat condition or prey resource cannot be excluded without confirmed drainage design and pollution controls	AEoI cannot be ruled out. Project-level drainage assessment required
Changes to air quality	Ribble & Alt Estuaries SPA / Ramsar	8 km	Nitrogen-sensitive habitats and supporting environment for SPA birds	Changes in traffic patterns and increased activity at hubs may alter emissions and deposition	Compliance with critical loads and habitat condition objectives cannot be confirmed without air quality modelling	AEoI cannot be ruled out. Project-level air quality assessment required
Changes to surface and groundwater hydrology	Ribble & Alt Estuaries SPA / Ramsar	8 km	Estuarine hydrological processes and sediment dynamics	Drainage changes may alter runoff patterns and discharge affecting downstream systems	Alteration of supporting hydrological processes cannot be excluded without drainage and discharge detail	AEoI cannot be ruled out
Invasive non-native species	Ribble & Alt Estuaries SPA /	4–8 km	Wetland and coastal habitats sensitive to invasive species	Ground disturbance and soil movement may introduce invasive	Effects on habitat structure and function cannot be excluded	AEoI cannot be ruled out

	Ramsar and FLL			species affecting habitat structure and function	without biosecurity measures	
Recreation	Ribble & Alt Estuaries SPA / Ramsar	8 km	SPA waterbirds sensitive to disturbance	Improved transport hubs may increase accessibility to estuarine and coastal sites, increasing visitor pressure and disturbance	Effects on feeding efficiency and availability of undisturbed habitat cannot be excluded without visitor management assessment	AEoI cannot be ruled out in-combination
Changes to air quality and disturbance (screening check)	Bowland Fells SPA	15 km	Breeding upland birds including hen harrier and merlin	At this distance, direct disturbance and air quality effects are unlikely. Indirect effects may arise through increased access	No clear mechanism linking the scheme to measurable effects at this distance is identified	Likely no AEoI
Recreation	Bowland Fells SPA	15 km	Breeding upland bird's sensitive to disturbance	Improved connectivity may increase access to upland areas leading to increased recreation	Effects on qualifying species and undisturbed habitat cannot be excluded without visitor assessment	AEoI cannot be ruled out in-combination

**Table 8.15. Stage 2 Appropriate Assessment - Clitheroe Interchange Improvements**

Pathway	Site / FLL	Distance	Receptor	Source–Pathway–Receptor Logic	Integrity Test	AA Conclusion
Habitat loss / fragmentation (incl. FLL)	Bowland Fells SPA	13.5 km	Breeding upland birds including <i>hen harrier</i> , <i>merlin</i> and <i>lesser</i>	Interchange improvements are expected within an	No credible mechanism linking the scheme to loss or	No AEoI

			<i>black-backed gull; upland habitats</i>	existing urban footprint with no direct land-take within the SPA	fragmentation of SPA habitats at this distance	
Habitat loss / fragmentation (incl. FLL)	South Pennine Moors SPA	15.5 km	Breeding upland birds including <i>golden plover and merlin</i> ; peatland and heath habitats	Works are confined to urban areas and no pathway for direct habitat loss within the SPA is identified	Absence of a pathway for habitat loss indicates integrity would not be affected	No AEoI
Species disturbance (visual, noise, vibration, lighting)	Bowland Fells SPA	13.5 km	Disturbance-sensitive breeding birds including hen harrier and merlin	Construction disturbance would be localised. Improved connectivity may increase access to upland areas, leading to recreational disturbance	Effects on SPA population distribution and availability of undisturbed habitat cannot be excluded without assessment of visitor access and activity levels	AEoI cannot be ruled out in-combination
Species disturbance (visual, noise, vibration, lighting)	South Pennine Moors SPA	15.5 km	Breeding upland birds including golden plover and merlin	Improved accessibility may increase visitor numbers to upland areas, resulting in disturbance	Effects on qualifying species and undisturbed habitat cannot be excluded in the absence of visitor assessment	AEoI cannot be ruled out in-combination
Changes to water quality	Bowland Fells SPA	13.5 km	Upland habitats and water-dependent systems	Construction runoff would be localised and no hydrological pathway to the SPA is identified	No hydrological pathway linking the scheme to SPA receptors is identified	No AEoI
Changes to water quality	South Pennine Moors SPA	15.5 km	<i>Peatland and moorland habitats</i>	No catchment or drainage linkage	Absence of a hydrological pathway	No AEoI

				between the scheme and the SPA is identified	indicates integrity would not be affected	
Changes to air quality	Bowland Fells SPA	13.5 km	Upland habitats sensitive to nitrogen deposition	Changes in traffic patterns may alter emissions, but the distance reduces the likelihood of a measurable effect	Effects on habitat condition and critical loads cannot be excluded without traffic and air quality assessment	AEoI cannot be ruled out (precautionary)
Changes to air quality	South Pennine Moors SPA	15.5 km	<i>Moorland</i> habitats sensitive to air pollution	The SPA is sensitive to airborne pollutants. In-combination traffic changes may contribute to deposition	Effects on habitat condition and supporting processes cannot be excluded without modelling	AEoI cannot be ruled out in-combination
Changes to surface and groundwater hydrology	Bowland Fells SPA	13.5 km	<i>Peatland</i> habitats dependent on hydrology	No direct hydrological linkage is identified between the scheme and the SPA	Absence of a hydrological pathway indicates integrity would not be affected	No AEoI
Changes to surface and groundwater hydrology	South Pennine Moors SPA	15.5 km	<i>Moorland</i> habitats sensitive to hydrological change	No direct linkage identified between scheme drainage and SPA hydrology	No credible mechanism linking the scheme to changes in SPA hydrology	No AEoI
Recreation	Bowland Fells SPA	13.5 km	Breeding upland bird's sensitive to disturbance	Improved transport connectivity may increase visitor access to upland areas	Effects on breeding success and disturbance levels cannot be excluded without visitor modelling	AEoI cannot be ruled out in-combination

Recreation	South Pennine Moors SPA	15.5 km	Breeding upland bird's sensitive to disturbance	Increased accessibility may lead to increased recreational pressure	Effects on qualifying species and habitat use cannot be excluded in absence of evidence	AEoI cannot be ruled out in-combination
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**Table 8.16. Stage 2 Appropriate Assessment - Lancaster city centre public realm**

Pathway	Site / FLL	Distance	Receptor	Source–Pathway–Receptor Logic	Integrity Test	AA Conclusion
Habitat loss / fragmentation (including FLL)	Morecambe Bay & Duddon Estuary SPA	3.5 km	Qualifying wintering waterbirds ( <i>pink-footed goose</i> , <i>whooper swan</i> , <i>golden plover</i> , <i>curlew</i> , <i>redshank</i> , <i>oystercatcher</i> ) and intertidal supporting habitats	Source: urban streetscape, surfacing, road reallocation within city centre. Pathway would require direct or indirect land-take within SPA or supporting farmland habitat. Scheme confined to build urban footprint; no overlap with coastal grazing marsh or estuarine margin.	Conservation objectives require maintenance of habitat extent and supporting habitat processes. No mechanism identified for reduction in SPA habitat or supporting land.	No AEoI.
Habitat loss / fragmentation (including FLL)	FLL farmland parcels (<7 km)	<7 km	<i>Pink-footed goose</i> , <i>whooper swan</i> ( <i>winter farmland feeders</i> ); <i>curlew</i> , <i>golden plover</i> ,	Works located within urban centre; no land-take, fragmentation or compound siting within rural FLL parcels. No	Functional supporting habitat availability maintained.	No AEoI.

			<i>redshank (open-field feeding/roosting)</i>	severance of feeding habitat.		
Species disturbance (construction and operational)	Morecambe Bay SPA / Ramsar	3.5 km	Wintering/passage waterbirds sensitive to repeated disturbance	Source: construction noise, lighting, increased urban activity. Pathway would require disturbance propagation to estuary roost/feeding areas. At 3.5 km with intervening urban fabric and no line-of-sight, disturbance propagation is not ecologically credible.	Population and distribution objectives unaffected.	No AEol.
Species disturbance	Bowland Fells SPA	5 km	Breeding upland birds (e.g., <i>hen harrier, merlin, golden plover</i> ) dependent on moorland	Urban city centre works have no visual, hydrological or functional connectivity to upland breeding territories.	Breeding habitat extent and function maintained.	No AEol.
Changes to water quality	Morecambe Bay SPA / Ramsar	3.5 km	Estuarine intertidal habitats and invertebrate prey base supporting SPA birds	Source: minor surfacing and drainage modifications. Pathway: runoff via River Lune catchment to estuary. No evidence of new outfalls, river engineering, or major impermeable	Supporting processes (water quality regime) maintained where standard pollution prevention and drainage controls are secured. No material change in discharge	No AEol, subject to standard CEMP and drainage controls at project stage.

				expansion. Standard drainage, SuDS and pollution controls apply under highways/planning regulation.	regime identified at Plan stage.	
Changes to air quality (construction and operational)	Morecambe Bay SPA / Ramsar	3.5 km	Nitrogen-sensitive coastal habitats supporting SPA <i>assemblage</i>	Air quality effects require materially changed traffic flows on links within 200 m of designated habitat. City centre reallocation unlikely to increase flows on estuary-edge links; no evidence of increased AADT adjacent to SPA boundary.	Critical levels and loads for designated habitats not affected.	No AEoI.
Changes to surface and groundwater hydrology	Morecambe Bay SPA / Ramsar	3.5 km	Estuarine hydrological supporting processes	Scheme does not involve riverbank modification; flood defence works or altered tidal discharge. Urban drainage modifications remain within existing managed catchment controls.	No alteration to hydrological regime influencing SPA.	No AEoI.

INNS	Morecambe Bay & Duddon Estuary SPA; Morecambe Bay SPA / Ramsar; Bowland Fells SPA	3.5–7 km	Coastal and riparian habitats vulnerable to invasive spread	Construction materials and planting could introduce invasive species; pathway controlled via standard biosecurity measures. No direct interaction with designated habitats.	Habitat structure and function maintained where biosecurity controls secured.	No AEol subject to secured CEMP biosecurity measures.
Recreation / access pressure	Morecambe Bay SPA / Ramsar	3.5 km	Disturbance-sensitive coastal <i>waterbirds</i>	Urban public realm scheme does not create new coastal access routes, shoreline car parks, or visitor transport infrastructure. No mechanism for measurable visitor redistribution to SPA.	Population and distribution objectives unaffected.	No AEol.

**Table 8.17. Stage 2 Appropriate Assessment - LCWIP network delivery**

Pathway	Site / FLL	Distance	Receptor	Source–Pathway–Receptor Logic	Integrity Test	AA Conclusion
Habitat loss / fragmentation (incl. European sites)	South Pennine Moors Phase 2 SPA	15.5 km	Breeding upland birds including <i>golden plover</i> , <i>merlin</i> and <i>moorland</i> assemblage;	The scheme comprises improvements to existing walking and cycling routes including canal towpaths and cycle networks. Works	No credible mechanism linking the scheme to habitat loss or fragmentation within the SPA is identified	No AEol

			<i>peatland</i> and heath habitats	are expected to be largely within existing corridors, with limited land-take		
Species disturbance (visual, noise, vibration, lighting)	South Pennine Moors Phase 2 SPA	15.5 km	Disturbance-sensitive breeding upland birds including <i>golden plover</i> and <i>merlin</i>	Construction effects would be localised. The credible pathway is indirect, through improved access to the countryside via enhanced walking and cycling routes, leading to increased recreational disturbance	Effects on SPA population distribution and availability of undisturbed habitat cannot be excluded without assessment of visitor behaviour and access patterns	AEoI cannot be ruled out in-combination
Changes to water quality	South Pennine Moors Phase 2 SPA	15.5 km	Upland habitats and water-dependent ecosystems	Works are largely within existing routes and canal corridors, with no identified hydrological connection to the SPA	No hydrological pathway linking the scheme to SPA receptors is identified	No AEoI
Changes to air quality	South Pennine Moors Phase 2 SPA	15.5 km	<i>Moorland</i> habitats sensitive to nitrogen deposition	The scheme promotes active travel and is unlikely to increase traffic emissions. No pathway for increased air pollution affecting the SPA is identified	Absence of a pathway indicates integrity would not be affected	No AEoI
Changes to surface and groundwater hydrology	South Pennine Moors Phase 2 SPA	15.5 km	<i>Peatland and moorland</i> habitats dependent on hydrology	No drainage or hydrological changes are expected that would	No credible mechanism linking the scheme to changes in SPA hydrology	No AEoI

				affect the SPA at this distance		
Invasive non-native species	South Pennine Moors Phase 2 SPA	15.5 km	<i>Moorland</i> habitats sensitive to invasive species	Works are limited to existing routes and urban or canal environments. No pathway for spread of INNS to the SPA is identified	Absence of a pathway indicates integrity would not be affected	No AEoI
Recreation	South Pennine Moors Phase 2 SPA	15.5 km	Breeding upland bird's sensitive to recreational disturbance	Improvements to walking and cycling routes, including canal towpaths and cycle networks, may increase accessibility to the wider countryside and designated sites, leading to increased visitor pressure and disturbance	Effects on qualifying species and availability of undisturbed habitat cannot be excluded without assessment of visitor increase and routing	AEoI cannot be ruled out in-combination

**Table 8.18. Stage 2 Appropriate Assessment - Pointer Roundabout, Lancaster**

Pathway	Site / FLL	Distance	Receptor	Source–Pathway–Receptor Logic	Integrity Test	AA Conclusion
Habitat loss / fragmentation (incl. European sites)	Morecambe Bay SAC / Ramsar and Morecambe Bay &	2.1 km	Intertidal habitats including <i>mudflats</i> , <i>sandflats</i> and <i>saltmarsh</i> ; SPA bird assemblage	The scheme comprises minor improvements to cycling and pedestrian infrastructure within the existing highway. No direct	No direct habitat loss or fragmentation within European sites is identified, and no mechanism affecting	No AEoI

	Duddon Estuary SPA / Ramsar		including <i>oystercatcher, knot, dunlin and redshank</i> ; supporting high <i>tide roosts</i>	land-take within European sites is anticipated	supporting habitats is apparent at this distance	
Habitat loss / fragmentation (incl. FLL)	Functionally Linked Land supporting SPA birds	<2 km	Qualifying and supporting SPA species using inland feeding and roosting areas (including areas used by <i>pink-footed goose, black-tailed godwit, whimbrel and great white egret</i> )	The scheme is located within an urban highway corridor and is unlikely to require land-take from agricultural or wetland habitats used by SPA birds	No reduction in supporting habitat extent or function is anticipated	No AEol
Species disturbance (visual, noise, vibration, lighting)	Morecambe Bay & Duddon Estuary SPA / Ramsar	2.1 km	Disturbance-sensitive SPA waterbirds including <i>waders and wildfowl</i>	Construction disturbance would be temporary and localised. The main pathway is indirect through improved walking and cycling access, which may increase recreational activity along the coast	Effects on SPA population distribution and use of undisturbed feeding and roosting areas cannot be excluded without assessment of access patterns	AEol cannot be ruled out (in-combination). Project-level disturbance assessment required
Species disturbance (visual, noise,	Bowland Fells SPA	5.9 km	Breeding upland birds including <i>hen harrier, merlin and golden plover</i>	No direct disturbance pathway identified due to distance. Indirect pathway via increased recreational	Effects on breeding success and distribution cannot be excluded in	AEol cannot be ruled out in-combination

vibration, lighting)				access to upland areas may occur	combination with other access-related schemes	
Changes to water quality	Morecambe Bay SAC / Ramsar and SPA	2.1 km	<i>Intertidal habitats and invertebrate</i> prey base supporting SPA birds	Minor construction works may generate runoff, but works are within existing urban drainage systems with no direct discharge pathway confirmed to the Bay	No credible pathway to affect water quality within European sites is identified at this stage	No AEoI
Changes to air quality	Morecambe Bay SAC / Ramsar and SPA	2.1 km	Nitrogen-sensitive coastal habitats	The scheme promotes active travel and is unlikely to increase traffic flows; may reduce local emissions	No adverse change in air quality at European sites is anticipated	No AEoI
Changes to surface and groundwater hydrology	Morecambe Bay SAC / Ramsar and SPA	2.1 km	<i>Coastal and estuarine</i> hydrological processes	No changes to drainage regime or hydrological connectivity to European sites are identified	No credible pathway affecting site hydrology	No AEoI
Invasive non-native species	All sites	within influence	<i>Coastal and wetland</i> habitats sensitive to invasive species	Minor works within existing infrastructure present low risk of INNS spread	No credible pathway identified	No AEoI
Recreation	Morecambe Bay & Duddon Estuary SPA / Ramsar and	2.1–5.9 km	SPA bird assemblages <i>including waders, wildfowl and</i> upland breeding species sensitive to disturbance	Improved cycling and pedestrian provision may increase accessibility to coastal and upland areas. This may lead to increased visitor numbers, dog	Effects on qualifying species and availability of undisturbed habitat cannot be excluded without assessment	AEoI cannot be ruled out (in-combination). Visitor pressure assessment required

	Bowland Fells SPA			walking and disturbance to qualifying species	of visitor numbers and behaviour	
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## 8.2. Appropriate Assessment Result

Following the Appropriate Assessment, 8 out of 18 schemes were determined to have no adverse effects on site integrity. The remaining 10 schemes could not be excluded and are assessed as potentially having adverse effects on the integrity of the relevant European sites.

### 8.2.1. Schemes Where Adverse Effects on Integrity Can Be Ruled Out

The following schemes have been assessed and are concluded to have no AEol of any European site, at IP stage:

- A588 (Ashton Road), A683 (Caton Road) and A6 (Sylne Road) corridor improvements, Lancaster
- A570 Corridor Enhancements (M58 to A59, Burscough)
- Botany Bay Hartwood S278
- M65 Junction 13 Phase 2 Improvements
- North Blackburn SHS Transport Package
- Lancaster city centre public realm
- Huncoat Garden Village Access
- Local Plan Transport Package

Reasoned basis for these schemes:

- They are sufficiently distant from European sites and/or within fully urbanised or inland contexts.
- No land-take occurs within European sites or identified FLL.
- No credible disturbance pathway exists at the separation distance.
- No hydrological linkage to designated habitat has been identified.
- No materially changed traffic flows occur on road links within 200 m of European site boundaries.
- No recreation redistribution toward European sites is facilitated.

### 8.2.2. Schemes Where Adverse Effects on Integrity Cannot Be Ruled Out

For the following schemes, credible ecological pathways remain at IP stage due to proximity to coastal/estuarine SPAs or identified FLL parcels:

- Eden Project Transport Infrastructure
- A5105 Safer Roads – Morecambe to Hest Bank
- Penwortham Town Centre S278
- St Anne’s Pier Link
- A6 Lancaster to Preston Safety and Connectivity Improvements
- Integrated Transport Hubs
- Clitheroe Interchange Improvements
- LCWIP network delivery
- Pointer Roundabout, Lancaster

Reasoned basis, for these schemes, one or more of the following credible pathways remain

- Habitat loss and, or Interaction with FLL
- Supporting farmland and wetland parcels within 1–6 km support disturbance-sensitive SPA species (e.g. pink-footed goose, whooper swan, Bewick’s swan, black-tailed godwit, ruff, golden plover, curlew).
- Without confirmed redline boundaries and construction compound locations, temporary or permanent loss or functional reduction of supporting habitat cannot be excluded.
- Disturbance Near Coastal/Estuarine Margins
- Schemes within 1–3.5 km of Ribble & Alt Estuaries SPA or Morecambe Bay SPA present credible disturbance pathways through noise, lighting, and operational activity.
- Recreation and Access Redistribution
- Public realm and Park & Ride schemes may increase coastal permeability and visitor pressure, particularly in-combination with regeneration proposals.

- Hydrological and Water Quality Pathways
- New impermeable area and altered drainage regimes may affect estuarine supporting processes where hydrological connectivity exists. Drainage design is not yet defined.
- Traffic Redistribution and Air Quality

In the absence of detailed modelling, materially changed traffic flows adjacent to designated site boundaries cannot be excluded.

### 8.2.3. Conditional / Pathway-Dependent Scheme

Samlesbury Enterprise Zone Transport Package

- AEol can be ruled out in relation to Bowland Fells SPA and Ribble & Alt Estuaries SPA/Ramsar due to separation distance and absence of identified disturbance or hydrological pathway.
- However, if detailed design includes direct works within River Ribble corridor habitat or materially increases access pressure within sensitive river margin FLL parcels, AEol could arise

Project-level screening would be required to confirm no interaction with River Ribble FLL parcels prior to consent.

## 8.3. Appropriate Assessment - In-Combination Effect

The in-combination assessment which is set out in the table 8.3.1. has been undertaken to consider on those 10 schemes for which AEol of European sites could not be ruled out at the AA stage. These schemes have been identified as having potential impact pathways including changes in traffic flows, increased recreational accessibility, construction disturbance, and, where relevant, potential effects on FLL. Therefore, these schemes have been assessed in combination with other relevant plans and projects, including adopted and emerging Local Plans, National Highways programmes, and Network Rail enhancement schemes.

Schemes for which AEol of European sites were ruled out at the AA stage have not been taken forward into the in-combination assessment, as no credible impact pathway has been identified for those schemes, either alone or in combination.

The in-combination assessment therefore focuses on the potential for cumulative effects arising from the interaction of the above schemes with other reasonably foreseeable plans and projects, considering shared impact pathways, the sensitivity of European sites, and the potential for effects to act together.

In-combination effects may arise through cumulative impacts on:

- hydrology and water quality within shared catchments;
- air quality affecting sensitive upland habitats; and
- disturbance to qualifying species from concurrent construction activity.

**Table 8.3.1. Register of Other Plans and Projects Considered in Combination with IP schemes**

Plan / Project / Authority	Status	Interaction with Implementation Plan Schemes	Relevant European Sites	Mitigation & Capacity Consideration	AA In-Combination Conclusion
Lancashire District Local Plans (Central Lancashire, West Lancashire, Wyre, Fylde, Blackpool, Blackburn with Darwen, Burnley, Pendle, Hyndburn, Lancaster, Ribble Valley, Preston, Chorley, South Ribble)	Adopted / Emerging	Housing and employment allocations increase baseline traffic and recreation, interacting with Eden Project Transport Infrastructure, Lancaster–Morecambe; A5105 Safer Roads – Morecambe to Hest Bank; Penwortham Town Centre S278; St Anne’s Pier Link; A6 Lancaster to Preston Safety and Connectivity Improvements; Integrated Transport Hubs; Clitheroe Interchange Improvements; LCWIP Network Delivery; Pointer Roundabout, Lancaster; Samlesbury Enterprise Zone Transport Package, leading to increased accessibility, traffic redistribution and visitor pressure.	Morecambe Bay & Duddon Estuary SPA; Morecambe Bay Ramsar site; Morecambe Bay SAC; Ribble & Alt Estuaries SPA; Ribble & Alt Estuaries Ramsar site; Martin Mere SPA; Martin Mere Ramsar site; Liverpool Bay SPA; South Pennine Moors Phase 2 SPA; Bowland Fells SPA	District HRAs include mitigation (visitor management, air quality policies, avoidance of FLL); however, mitigation is based on Local Plan growth assumptions and does not account for additional redistribution and accessibility increases arising from the Implementation Plan schemes. No confirmed mitigation capacity or headroom is demonstrated.	In-combination pathway established. AEol cannot be ruled out without further assessment.

<p>Neighbouring Authorities' Local Plans (Westmorland &amp; Furness, North Yorkshire, Sefton, Knowsley, St Helens, Bradford, Calderdale, Greater Manchester districts)</p>	<p>Adopted / Emerging</p>	<p>Cross-boundary commuting, freight and recreation flows may interact with Eden Project Transport Infrastructure, Lancaster–Morecambe; A5105 Safer Roads – Morecambe to Hest Bank; A6 Lancaster to Preston Safety and Connectivity Improvements; St Anne’s Pier Link; LCWIP Network Delivery; Integrated Transport Hubs; Clitheroe Interchange Improvements; Samlesbury Enterprise Zone Transport Package, increasing visitor access and traffic flows towards coastal and upland European sites.</p>	<p>Manchester Mosses SAC; North Pennine Moors SPA; South Pennine Moors Phase 2 SPA; Morecambe Bay &amp; Duddon Estuary SPA; Morecambe Bay SAC; Ribble &amp; Alt Estuaries SPA; Liverpool Bay SPA</p>	<p>HRAs have been undertaken separately by each authority. Mitigation is designed for Local Plan growth only and does not demonstrate capacity to accommodate additional transport-related redistribution arising from the Implementation Plan schemes.</p>	<p>Cross-boundary in-combination pathway credible. AEoI cannot be ruled out.</p>
<p>Places for Everyone (Greater Manchester Joint Development Plan)</p>	<p>Adopted 2024</p>	<p>Strategic growth and transport redistribution across the M60, M61 and M62 network may interact with A6 Lancaster to Preston Safety and Connectivity Improvements;</p>	<p>Manchester Mosses SAC (Holcroft Moss)</p>	<p>Policy JP-C8 requires assessment where traffic increases exceed 100 AADT or 20 HGV per day. Existing mitigation is based on Places for Everyone growth assumptions. There is no</p>	<p>Air quality in-combination pathway credible. AEoI cannot be ruled out without further assessment.</p>

		Samlesbury Enterprise Zone Transport Package; Clitheroe Interchange Improvements; Integrated Transport Hubs, contributing to changes in traffic flows affecting the M62 corridor near Holcroft Moss.		evidence that additional redistribution arising from the Implementation Plan schemes would remain within these thresholds.	
National Highways Road Investment Strategy (RIS) Schemes and Development Consent Order Projects	Committed / RIS Programme / Emerging	Improvements on the Strategic Road Network including M6, M61, M62 and M65 corridors may combine with A6 Lancaster to Preston Safety and Connectivity Improvements; Samlesbury Enterprise Zone Transport Package; Clitheroe Interchange Improvements; Pointer Roundabout, Lancaster, resulting in increased traffic flows and redistribution of HGV movements.	South Pennine Moors Phase 2 SPA; Bowland Fells SPA; Manchester Mosses SAC; Ribble & Alt Estuaries SPA and Ramsar site	RIS schemes include project-level mitigation based on forecast traffic; however, this does not account for additional redistribution arising from the Implementation Plan schemes. No strategic cumulative air quality headroom is demonstrated.	In-combination air quality pathway credible. AEol cannot be ruled out.
Network Rail / Strategic Rail Enhancements and Service Changes	Committed / Emerging	Rail improvements and service changes may interact with Eden Project Transport Infrastructure,	Morecambe Bay & Duddon Estuary SPA; Ribble & Alt Estuaries SPA;	Rail schemes are assessed individually. Cumulative visitor redistribution and	Recreation and air quality pathways plausible. AEol cannot be ruled out.

		Lancaster–Morecambe; Integrated Transport Hubs; St Anne’s Pier Link; Lancaster city centre public realm; LCWIP Network Delivery, increasing accessibility to coastal and estuarine European sites.	Liverpool Bay SPA; South Pennine Moors Phase 2 SPA	interaction with transport accessibility improvements are not assessed at a regional level.	
Rail Franchise and Service Pattern Changes	Operational / Emerging	Increased train frequency combined with Integrated Transport Hubs; Eden Project Transport Infrastructure, Lancaster–Morecambe; St Anne’s Pier Link; LCWIP Network Delivery; Lancaster city centre public realm may increase visitor access to coastal sites.	Morecambe Bay & Duddon Estuary SPA; Ribble & Alt Estuaries SPA; Liverpool Bay SPA	Service changes are not typically subject to HRA. Visitor growth assumptions in Local Plan HRAs may not include additional accessibility enabled by the Implementation Plan schemes.	Disturbance pathway credible. AEoI cannot be ruled out.
Major Development Proposals (Eden Project Morecambe)	Live / progressing	Visitor growth and associated transport improvements may combine with A5105 Safer Roads – Morecambe to Hest Bank; St Anne’s Pier Link; Lancaster city centre public realm; LCWIP Network Delivery;	Morecambe Bay & Duddon Estuary SPA; Morecambe Bay Ramsar site; Morecambe Bay SAC	The Eden Project includes mitigation for disturbance; however, cumulative visitor pressure arising from combined transport improvements has not been assessed. No confirmed mitigation capacity.	Recreation pathway credible. AEoI cannot be ruled out.

		Integrated Transport Hubs, increasing access to the Morecambe Bay coastline.			
Committed but Not Yet Constructed Infrastructure in Lancashire	Approved / Awaiting construction	Approved schemes may combine with A6 Lancaster to Preston Safety and Connectivity Improvements; Pointer Roundabout, Lancaster; Penwortham Town Centre S278; Samlesbury Enterprise Zone Transport Package; Clitheroe Interchange Improvements, altering traffic flows and accessibility.	South Pennine Moors Phase 2 SPA; Bowland Fells SPA; Ribble & Alt Estuaries SPA; Martin Mere SPA	Individual schemes assessed separately. No regional cumulative modelling has demonstrated that combined impacts remain within acceptable limits.	In-combination pathway credible. AEoI cannot be ruled out.
Major Private-Sector Freight and Logistics Growth (including East Lancashire Rail Freight Terminal)	Emerging / Screening in AA	Freight growth may interact with Samlesbury Enterprise Zone Transport Package; A6 Lancaster to Preston Safety and Connectivity Improvements; Clitheroe Interchange Improvements, increasing HGV movements across the network.	South Pennine Moors Phase 2 SPA; Bowland Fells SPA; Manchester Mosses SAC	Freight-related mitigation is not confirmed at a cumulative regional level. Additional HGV flows may exceed existing air quality mitigation assumptions.	Air quality pathway credible. AEoI cannot be ruled out.

<p>Emerging Transport Strategies (District Transport Plans / Active Travel Strategies / Park and Ride Expansion)</p>	<p>Emerging</p>	<p>Sustainable transport strategies may combine with LCWIP Network Delivery; Penwortham Town Centre S278; St Anne’s Pier Link; Integrated Transport Hubs; Lancaster city centre public realm, increasing accessibility to coastal and estuarine European sites.</p>	<p>Morecambe Bay &amp; Duddon Estuary SPA; Ribble &amp; Alt Estuaries SPA; Liverpool Bay SPA</p>	<p>Visitor management measures exist in some HRAs; however, no evidence demonstrates that cumulative accessibility increases remain within mitigation capacity.</p>	<p>Recreation pathway plausible. AEoI cannot be ruled out.</p>
<p>Live Planning Permissions and Undetermined Major Applications</p>	<p>Ongoing</p>	<p>Development may increase baseline traffic and recreation, interacting with Eden Project Transport Infrastructure, Lancaster–Morecambe; A5105 Safer Roads – Morecambe to Hest Bank; Penwortham Town Centre S278; St Anne’s Pier Link; A6 Lancaster to Preston Safety and Connectivity Improvements; Integrated Transport Hubs; Clitheroe Interchange Improvements; LCWIP Network Delivery; Pointer</p>	<p>Morecambe Bay &amp; Duddon Estuary SPA; Morecambe Bay Ramsar site; Morecambe Bay SAC; Ribble &amp; Alt Estuaries SPA; Liverpool Bay SPA; Shell Flat and Lune Deep SAC; South Pennine Moors Phase 2 SPA; Bowland Fells SPA</p>	<p>Applications assessed individually. Cumulative effects with transport redistribution not assessed collectively.</p>	<p>AEoI cannot be ruled out.</p>

		Roundabout, Lancaster; Samlesbury Enterprise Zone Transport Package.			
Planning Appeals (Major Development)	Ongoing	Appeal approvals may introduce additional development interacting with Eden Project Transport Infrastructure, Lancaster–Morecambe; A5105 Safer Roads – Morecambe to Hest Bank; Penwortham Town Centre S278; St Anne’s Pier Link; A6 Lancaster to Preston Safety and Connectivity Improvements; Integrated Transport Hubs; Clitheroe Interchange Improvements; LCWIP Network Delivery; Pointer Roundabout, Lancaster; Samlesbury Enterprise Zone Transport Package.	Morecambe Bay & Duddon Estuary SPA; Morecambe Bay Ramsar site; Morecambe Bay SAC; Ribble & Alt Estuaries SPA; Liverpool Bay SPA; Shell Flat and Lune Deep SAC; South Pennine Moors Phase 2 SPA; Bowland Fells SPA	Appeals assessed case-by-case. No strategic cumulative assessment available.	Precautionary approach applied. AEoI cannot be ruled out.
Permitted Development Rights	Ongoing	Incremental development may interact with Penwortham Town Centre S278; Pointer Roundabout, Lancaster; Integrated Transport Hubs; LCWIP Network	Morecambe Bay & Duddon Estuary SPA; Morecambe Bay Ramsar site; Morecambe Bay SAC; Ribble & Alt Estuaries SPA;	Permitted development is not routinely assessed cumulatively. Potential for gradual increase in pressure.	Precautionary approach applied. AEoI cannot be ruled out.

		<p>Delivery; St Anne’s Pier Link; Eden Project Transport Infrastructure, Lancaster–Morecambe; A5105 Safer Roads – Morecambe to Hest Bank; A6 Lancaster to Preston Safety and Connectivity Improvements; Clitheroe Interchange Improvements; Samlesbury Enterprise Zone Transport Package, increasing baseline traffic and access.</p>	<p>Liverpool Bay SPA; Shell Flat and Lune Deep SAC; South Pennine Moors Phase 2 SPA; Bowland Fells SPA</p>		
<p>Infrastructure Currently Under Construction</p>	<p>Under construction</p>	<p>Construction and early operation may interact with Eden Project Transport Infrastructure, Lancaster–Morecambe; A5105 Safer Roads – Morecambe to Hest Bank; St Anne’s Pier Link; LCWIP Network Delivery; Integrated Transport Hubs; Clitheroe Interchange Improvements; Pointer Roundabout, Lancaster, resulting in temporary</p>	<p>Morecambe Bay &amp; Duddon Estuary SPA; Ribble &amp; Alt Estuaries SPA; South Pennine Moors Phase 2 SPA</p>	<p>Mitigation secured at project level. Overlapping construction effects not assessed cumulatively.</p>	<p>Disturbance pathway plausible. AEoI cannot be ruled out.</p>

		disturbance and accessibility changes.			
Strategic Network Redistribution (Plan-level mechanism)	Plan-wide	Combined effects of A6 Lancaster to Preston Safety and Connectivity Improvements; Samlesbury Enterprise Zone Transport Package; Clitheroe Interchange Improvements; Pointer Roundabout, Lancaster; Integrated Transport Hubs may alter route choice across the M6, M61, M62 and M65 corridors.	Manchester Mosses SAC; South Pennine Moors Phase 2 SPA; Bowland Fells SPA	No strategic modelling demonstrates that traffic increases remain below ecological thresholds, including Places for Everyone thresholds.	Strategic in-combination air quality pathway cannot be excluded. AEoI cannot be ruled out.

## 8.4. In-Combination Appropriate Assessment Result

The review of reasonably foreseeable plans and projects set out above demonstrates that LTP IP shares credible cumulative impact pathways with a wide range of adopted and emerging spatial and transport strategies at local, sub-regional and national levels.

### 8.4.1. Identified In-Combination Pathways

Across the above plans and projects, the IP shares four principal cumulative pressure pathways:

#### **Habitat Loss (Functionally Linked Land)**

Increased growth and enhanced accessibility arising from the combination of Local Plans and IP schemes may place additional pressure on FLL to SPA bird features outside designated boundaries. Existing HRAs identify FLL sensitivities; however, no strategic evidence demonstrates that cumulative transport-enabled growth would remain within established avoidance or mitigation assumptions.

An in-combination FLL pathway therefore cannot be excluded at this stage.

#### **Traffic-Related Air Quality and Strategic Redistribution**

Multiple IP schemes (including corridor enhancements, junction capacity improvements, freight terminal proposals, rail improvements and connectivity upgrades) have the potential to alter regional traffic patterns. When considered alongside Local Plan growth, RIS schemes, rail enhancements and freight development, a credible mechanism exists for cumulative increases in traffic flows and redistribution across the Strategic Road Network.

This is particularly relevant to:

- South Pennine Moors SPA,
- Bowland Fells SPA,
- Manchester Mosses SAC (Holcroft Moss),
- Estuarine and coastal SPAs where relevant road links are ecologically connected.

With specific regard to Manchester Mosses SAC, Policy JP-C8 of Places for Everyone identifies a trigger of more than 100 Annual Average Daily Traffic (AADT) movements or 20 HGVs per day on the M62 past Holcroft Moss as requiring mitigation. At this strategic plan stage, redistribution effects arising from the cumulative interaction of IP schemes with wider regional growth cannot be quantified. Accordingly, it cannot be excluded that LTP-enabled changes could contribute to traffic increases approaching or exceeding this threshold.

Similarly, for upland European sites sensitive to nitrogen deposition, no strategic link-based modelling is currently available demonstrating that cumulative AADT or HGV increases remain below ecologically significant levels when all plans and projects are considered together.

Therefore, a potential in-combination air quality pathway is recognised at this stage; however, detailed assessment, including any modelling, cannot be undertaken at the IP stage due to the absence of scheme specific information. The need for further assessment at the project-level is identified.

### **Recreation and Disturbance**

IP schemes that enhance rail frequency, public realm, park and ride provision, active travel infrastructure and coastal connectivity may increase accessibility to sensitive European sites. When combined with:

- Housing growth in adopted and emerging Local Plans,
- Tourism and regeneration strategies,
- Major visitor attractions (e.g., Eden Project),
- Rail service enhancements and RIS improvements,

There is a credible pathway for cumulative increases in visitor numbers and redistribution of recreational pressure.

This pathway is particularly relevant to:

- Morecambe Bay & Duddon Estuary SPA/Ramsar,
- Ribble & Alt Estuaries SPA/Ramsar,
- Liverpool Bay SPA,
- Martin Mere SPA/Ramsar,
- Upland SPAs where access improvements may increase visitor pressure.

While district-level HRAs include visitor management and disturbance mitigation measures, these are calibrated to defined growth assumptions. No evidence currently demonstrates that such mitigation frameworks have confirmed spare capacity to accommodate additional transport-enabled accessibility uplift beyond their assessed baselines. Nor can it be assumed that cumulative accessibility improvements would not undermine the effectiveness of those strategies.

Accordingly, a credible in-combination recreation and disturbance pathway is identified.

### **Water Quality, Surface water and groundwater hydrology**

Where transport schemes involve new infrastructure, drainage changes or works within catchments connected to European sites, there is potential for cumulative hydrological and water quality effects when considered alongside:

- Local Plan growth,
- Committed infrastructure,

- Development permitted under live permissions or appeals.

Although individual schemes are subject to environmental controls, the cumulative interaction of multiple developments within sensitive catchments cannot be fully assessed at this plan stage without scheme-specific detail.

A precautionary in-combination hydrological pathway is therefore identified.

## 9 Mitigation and Control Measures

This section sets out the strategic avoidance, mitigation and control mechanisms applicable to schemes for which AEoI cannot be ruled out at the IP stage.

At this stage, scheme design, footprint and construction methodology are not defined in sufficient detail to fully assess impacts. Therefore, a precautionary approach has been adopted. The measures below establish the framework and requirements that would be applied as schemes progress.

All 10 identified schemes would be required to undergo project-level HRA to demonstrate, beyond reasonable scientific doubt, that no adverse effect on site integrity would occur, in accordance with the Conservation of Habitats and Species Regulations 2017 (as amended).

### 9.1 Scheme-Level Mitigation Framework

#### 9.1.1 Coastal and Estuarine Proximity Schemes

Schemes include Eden Project Transport Infrastructure, A5105 Safer Roads (Morecambe to Hest Bank), Penwortham Town Centre S278, and St Anne's Pier Link.

These schemes are located within the zone of influence of coastal and estuarine European sites, including SPAs and Ramsar sites, and may also interact with FLL supporting qualifying bird species such as pink-footed goose, whooper swan, and wader assemblages.

#### **Supporting Habitat (Functionally Linked Land)**

At this stage, the presence and extent of FLL cannot be fully defined. Therefore, a precautionary approach is applied.

At project stage, schemes would be required to:

- Identify any FLL through appropriate ecological surveys, including wintering bird surveys where relevant
- Demonstrate that scheme design avoids permanent or temporary loss of supporting habitat where it contributes to SPA bird populations

- Consider potential disturbance to supporting habitats, including from construction activities, lighting and increased human activity
- Ensure that the functional role of such land, in maintaining the distribution and abundance of qualifying species, is retained

Where potential impacts cannot be excluded, mitigation measures would be defined at project-level, informed by site-specific evidence and consultation with NE.

### **Construction Disturbance**

Construction activities have the potential to generate disturbance through noise, vibration, lighting and human presence

At this stage, detailed construction methodologies are not available; therefore, schemes would be required to:

- Prepare a Construction Environmental Management Plan (CEMP) at project stage
- Consider seasonal sensitivities of qualifying species, particularly wintering birds
- Avoid or minimise disturbance in proximity to European sites and supporting habitats where practicable
- Control lighting and noise levels in accordance with best practice

The need for seasonal restrictions, exclusion zones or other controls would be determined through project-level assessment.

### **Operational Disturbance and Recreation**

Some schemes may influence access patterns and recreational use of coastal areas, which can affect disturbance-sensitive bird species.

At this stage, the extent of change in access or visitor behaviour is uncertain. Therefore, schemes would be required to:

- Assess potential changes in visitor numbers and access patterns at project stage
- Consider the sensitivity of nearby European sites to disturbance
- Identify appropriate management measures where required, such as access management, routing, or signage

### **9.1.2 River Corridor and Hydrological Connectivity Schemes**

Schemes include A6 Lancaster to Preston Safety and Connectivity Improvements, Integrated Transport Hubs, Clitheroe Interchange Improvements, and Pointer Roundabout (Lancaster), where relevant to river corridors or estuarine systems.

These schemes may interact with river systems that are hydrologically connected to European sites, including estuarine SPAs and Ramsar sites.

### **Water Quality and Pollution Control**

At this stage, detailed drainage design is not available; however, there is potential for effects on water quality during construction and operation.

Schemes would be required to:

- Implement appropriate drainage and pollution prevention measures in line with Environment Agency guidance
- Ensure no deterioration in water quality of receiving water bodies
- Consider hydrological connectivity to European sites at project stage
- Demonstrate compliance with the Water Framework Directive where relevant

Construction-phase controls, including sediment management and spill response, would be secured through project-level environmental management plans.

### **Hydrology**

Changes to surface water runoff or drainage patterns could affect hydrological processes supporting European sites.

At project stage, schemes would be required to:

- Assess drainage connectivity to European sites
- Demonstrate that hydrological regimes supporting qualifying habitats and species are maintained
- Incorporate sustainable drainage solutions where appropriate

Where a hydrological pathway exists, further assessment would be required to ensure no AEol.

### **Disturbance in River Corridors**

Where schemes are located near river corridors that support functionally linked habitats, there is potential for disturbance to bird species using these areas.

At this stage, the extent of this pathway is uncertain. Therefore, schemes would be required to:

- Consider disturbance effects at project stage
- Avoid works in sensitive locations or periods where practicable

- Implement appropriate controls where required

### 9.1.3 Air Quality and Traffic Redistribution

Air quality has been identified as a potential pathway for several schemes, including A6 Lancaster to Preston, A5105 Safer Roads, and the Eden Project Transport Infrastructure.

At this stage, changes in traffic flows and emissions cannot be quantified. Therefore, a precautionary approach is applied.

Schemes would be required to:

- Assess changes in traffic flows at project stage
- Screen for potential impacts on European sites within the zone of influence
- Undertake further assessment where screening thresholds are exceeded, in line with Natural England guidance

Where necessary, mitigation measures would be identified to ensure that air quality effects do not adversely affect sensitive habitats.

### 9.1.4 Monitoring and Adaptive Management

Given the level of uncertainty at the IP stage, monitoring and adaptive management provide an important safeguard.

Where relevant, schemes would be required to:

- Establish baseline ecological conditions at project stage
- Monitor key receptors where potential effects have been identified
- Define trigger points for further action if impacts are observed

This approach ensures that mitigation can be refined based on observed outcomes.

### 9.1.5 Regulatory Safeguards

All schemes for which AEoI cannot be ruled out at this stage would be subject to project-level Habitats Regulations Assessment.

No scheme would be progressed unless it can be demonstrated, through detailed assessment and where necessary mitigation, that:

- There would be no AEoI of any European site
- Effects are considered both alone and in combination with other plans and projects

Mitigation measures would be secured through appropriate planning conditions, agreements or design controls.

## 10. Conclusion

This Habitats Regulations Assessment for the IP has applied a precautionary approach to identify and assess potential risks to European and Ramsar sites. While the IP sets out a delivery framework rather than granting consent, its role in shaping future transport investment means that early consideration of ecological constraints is essential.

The assessment confirms that most schemes within the IP (80 out of 98) are unlikely to result in LSE on European sites, either alone or in combination with other plans and projects. This is primarily due to their small scale, location away from European sites, or their nature as improvements within the existing highway boundary, which do not give rise to credible impact pathways such as habitat loss, disturbance, changes to water quality, or air quality effects.

From those 18 schemes that were screened in from screening stage, 10 schemes have been identified at AA stage where AEoI cannot be ruled out. These schemes are generally associated with new infrastructure, increased accessibility, or proximity to coastal and estuarine European sites and/or FLL. Due to the absence of detailed design information, uncertainties remain regarding the extent of land-take, disturbance, hydrological connectivity, and potential changes in traffic patterns. Accordingly, it has not been possible to conclude no AEoI at the plan level for these schemes.

The schemes for which AEoI cannot be ruled out include:

- Eden Project Transport Infrastructure
- A5105 Safer Roads – Morecambe to Hest Bank
- Penwortham Town Centre S278
- St Anne’s Pier Link
- A6 Lancaster to Preston Safety and Connectivity Improvements
- Integrated Transport Hubs
- Clitheroe Interchange Improvements
- LCWIP network delivery
- Pointer Roundabout, Lancaster
- Samlesbury Enterprise Zone Transport Package

For these schemes, credible pathways have been identified including loss or fragmentation of FLL Land supporting SPA bird populations, disturbance effects associated with construction and increased accessibility, changes to water quality and

hydrological processes, and potential traffic-related air quality effects. In the absence of detailed scheme design, it is not possible to rule out these effects with sufficient certainty at the IP stage, and therefore a precautionary conclusion has been reached.

Conversely, 8 out of 18 schemes in AA are concluded to have no AEoI European sites at the IP stage. These schemes include:

- A588 (Ashton Road), A683 (Caton Road) and A6 (Sylne Road) corridor improvements, Lancaster
- A570 Corridor Enhancements (M58 to A59, Burscough)
- Botany Bay Hartwood S278
- M65 Junction 13 Phase 2 Improvements
- North Blackburn SHS Transport Package
- Lancaster city centre public realm
- Huncoat Garden Village Access
- Local Plan Transport Package

These schemes are typically small-scale, are located away from European sites, and do not present credible impact pathways, either alone or in combination with other plans and projects.

The IP therefore establishes a clear safeguard: no scheme would proceed to consent or delivery without demonstrating, through project-level assessment and mitigation, that it would not adversely affect the integrity of any European or Ramsar site. This commitment ensures that transport improvements can be delivered in a way that supports Lancashire's economic and connectivity objectives while maintaining the highest standards of environmental protection.

The following over-arching statement is recommended for incorporation within the accompanying supplementary guidance or directly within the IP:

'Any new transport or improvement project which would be likely to have a significant effect on a Habitats Site either alone or in combination with other plans or projects, would be subject to assessment under Part 6 of the Habitats Regulations at the application stage. The relevant authority would only support proposals where they meet the requirements of Part 6 of the Habitats Regulations.'

No further HRA work is considered necessary for the IP to be adopted as a strategic document by the LCCA subject to the condition noted above relating to the requirement that consideration for project-level HRA be undertaken for the proposed infrastructure schemes in the County as required by legislation and/or advised by policy and guidance.

By embedding these safeguards and aligning with Natural England's advice and relevant legislation, the IP provides a robust and legally compliant framework for sustainable transport delivery. While a small number of schemes have been identified for which AEoI cannot be ruled out at the Implementation Plan stage, these are subject to further assessment at the project level.

On this basis, it can be concluded that the IP would not adversely affect the integrity of any European or Ramsar site, either alone or in combination with other plans and projects, subject to the implementation of mitigation measures and project-level HRA.