

Appendix F - Cumulative Impact Assessment

1 Background

1.1 Introduction

The cumulative impact of development should be considered at both the Local Plan making stage and the planning application and development design stages.

Paragraph 166 of the National Planning Policy Framework (NPPF, 2023) states:

'Strategic policies should be informed by a strategic flood risk assessment and should manage flood risk from all sources. They should consider cumulative impacts in, or affecting, local areas susceptible to flooding, and take account of advice from the Environment Agency and other relevant flood risk management authorities, such as lead local flood authorities and internal drainage boards.'

Appropriate mitigation measures should be undertaken to prevent exacerbation of flood risk, and where possible the development should be used to reduce existing flood risk issues, both onsite and downstream of the development.

To understand the potential impacts of future development on flood risk in the Fylde Coast Authorities study area, catchments were identified where development may have the greatest potential effect on flood risk, and where further assessment would be required within a Level 2 Strategic Flood Risk Assessment (SFRA) or site-specific Flood Risk Assessment (FRA). Communities sensitive to increased risk of surface water, fluvial and tidal flooding were identified and then assessed against potential areas of development across the three authority areas. A qualitative assessment of the potential cumulative impact of development was then undertaken for each of the three authority areas (see Section 2.3).

Planning policy recommendations have been set out to help manage the risk from the cumulative impact of development.

1.2 Strategic flood risk solutions

1.2.1 Local solutions

Blackpool Council, Fylde Council, and Wyre Council (referred to hereafter as the Councils) are reviewing and updating their planning policies through a process known as the Local Plan Update (LPU). This will set out local policies in accordance with the national framework for the future management of flood risk and drainage in the respective council areas. This includes flood risk management, alongside wider environmental and water quality enhancements. Strategic solutions that the LPU may directly or indirectly help to shape include upstream flood storage, integrated major

infrastructure/ flood risk management schemes, new defences, and watercourse improvements as part of regeneration and enhancing green infrastructure, with opportunities for Natural Flood Management (NFM) and retrofitting Sustainable Drainage Systems (SuDS).

Existing specific actions for the authority area are set out in a joint Local Flood Risk Management Strategy (LFRMS) between Blackpool Council, Blackburn with Darwen Council, and Lancashire County Council. This documentation can be downloaded from Blackpool Council's website [here](#) or Lancashire County Council's website [here](#). The six main themes set out for managing flood risk across the area are:

- Delivering Effective Flood Risk Management Locally
- Understanding our Local Risks and Challenges
- Supporting Sustainable Flood Resilient Development
- Improving Engagement with our Flood Family
- Maximising Investment Opportunities to better protect our Businesses and Communities
- Contributing towards a Climate Resilient Lancashire

The relevant River Basin District (RBD) Flood Risk Management Plans (FRMPs) also set out local measures relevant to the authority area. The study area falls into the North West RBD. Measures set out within the North West RBD that are applicable to the Fylde Coast Authorities include:

- Collaborate with environmental partners and major landowners to significantly increase upland and lowland peat and wetland restoration in the North West of England.
- Identify and map opportunities to deliver nature-based solutions on Risk Management Authority owned land in the North West of England.
- Work in unison to map opportunity catchments for habitat creation and develop a programme for joint delivery in the North West of England.
- Work together to deliver conventional, innovative, and nature-based improvements to flood risk, water, and habitat quality in the North West of England.
- Work with local planning authorities, developers, and other placemakers to ensure the wider use and adoption of Sustainable Drainage practices in the North West of England.

The RBD FRMPs are available on the Government website, [here](#).

These objectives need to be delivered by new development alongside retrofitting and enhancing green infrastructure and flood defence schemes in existing developed areas.

Further details on strategic plans that exist for the Fylde Coast Authorities can be found in Section 2 of the main report.

1.2.2 National solutions

The Environment Agency is developing a new National Flood Risk Assessment (NaFRA2) which is expected to be published in 2024 and will provide a wide range of new data to assess flood risk from rivers, the sea and surface water. This new assessment will provide an improved evidence base from which to inform our management of risk. However, this will only provide a starting point in the assessment and mitigation of cumulative risk.

Flood risk is likely to increase, perhaps substantially, as a result of climate change so planners, emergency planners, asset managers, and others will need to mitigate this through a mix of collaborative working, planning policies, consideration of 'worst case' scenarios, development of contingency plans, and some detailed analysis.

1.2.3 Opportunities and projects in and/or affecting the Fylde Coast Authorities

The following sections address partnerships and project delivery schemes that affect the study area.

1.2.3.1 Catchment Based Approach (CaBA)

The Catchment Based Approach (CaBA) was introduced by the Government to establish catchment partnerships throughout England to jointly deliver improved water quality and reduce flood risk, directly supporting achievement of many of the targets set out within the Government's 25-year Environment Plan. CaBA partnerships are actively working in all 100+ river catchments across England and cross-border with Wales. Further details are available on the CaBA website, [here](#).

There are three catchment partnerships within the study area: Living Lune, Wyre Waters, and Ribble Life Together.

The Living Lune is hosted by Lune Rivers Trust. Their primary vision is to "To create a healthy water environment within the Lune Catchment that will bring social and economic benefits for all". So far, they have held nine workshops across the catchment to encourage communication regarding the future of their rivers and have over 150 ideas and projects that will be going into an Action/Delivery Plan. Further information on the Living Lune can be found [here](#).

The Wyre Waters Catchment Partnership was founded in 2013 by the Wyre Rivers Trust. The aim of the partnership is to promote collaborative working and improve the status of all waterbodies to 'Good' under the Water Framework Directive by 2027. So far, their projects have included monitoring and researching rivers and brooks in the catchment, river restoration and creating buffer zones, and education and engagement with the local public. Further information on Wyre Waters can be found [here](#).

Ribble Life Together is hosted by the Ribble Rivers Trust and is the flagship project of the Ribble Catchment Partnership. Their vision is as follows: "Working collaboratively, we'll deliver a substantially healthier Ribble river system by 2020 for the benefit of people and wildlife. We'll celebrate the heritage of the river, improve access, and use the river to inspire and educate. Through practical environmental action, based on science, we'll leave a positive legacy for future generations." Further information on Ribble Life Together can be found [here](#).

1.2.3.2 Lancashire Wildlife Trust

Lancashire Wildlife Trust manage two nature reserves within the Fylde Authorities study area. These are:

- Barnaby's Sands and Burrows Marsh - one of the last extensive areas of ungrazed saltmarsh in the county, home to both Lapwings and Redshanks.
- Winmarleigh & Cokerham Moss - a lowland raised peat bog, currently undergoing extensive restoration to repair years of destructive activity and help repopulate animal and plant species.

NFM techniques could be encouraged at some of the reserves to aid flood storage and improve natural habitats.

Further information on their reserves and the work they do is available on the Wildlife Trust website [here](#).

1.3 Assessment of Cross-Boundary Issues

The study area is bordered by Lancaster to the north, Ribble Valley to the north east, and Preston to the south east. The bordering authorities to the south have not been considered as the River Ribble flows along this border so there are no cross boundary catchments. The neighbouring Local Authority areas are shown in Figure 1-1. The study area is predominantly coastal lowland, with multiple watercourses including the River Wyre, River Ribble, and Pilling Water discharging into the Irish Sea.

Due to the location of the three administrative boundaries, there are limited cross boundary issues as they are situated along the coastline.

The River Wyre and River Ribble, originate from further east of the study area, and flow into the study area from neighbouring authorities Lancaster and Preston respectively. As such, any development in these authorities could impact flood risk in Wyre or Fylde. This is also the case for smaller tributaries that originate in neighbouring authorities such as New Draught which flows from Preston into Wyre.

Several small tributaries have their headwaters within the study area flowing out of one catchment and into another, or into one of the neighbouring authorities. This includes Main Dyke/Hillylaid Pool which flows eastwards from Blackpool to Fylde, Lords Brook that flows northwards from Fylde Borough into Wyre, and Liggard Brook

which flows south-eastwards from Blackpool to Fylde. Section 1.5 of the main report provides further details on the study area.

Future development, both within and outside of the study area, as well as climate change, have the potential to affect flood risk to existing development and the surrounding areas through increased runoff, depending on the effectiveness of SuDS and drainage implementation.

Development Management should ensure that the impact on receiving watercourses from development has been sufficiently considered during the planning stage. The NPPF sets out how developments should demonstrate they will not increase flood risk elsewhere. Therefore, providing developments near watercourses in neighbouring authorities comply with the latest planning policy, guidance and legislation relating to flood risk and sustainable drainage, they should result in no increase in flood risk within the study area.

The neighbouring authorities were contacted for information on their site allocations, to determine where development in neighbouring authorities may have an impact on the Fylde Coast Authorities. The following Local Plans have been adopted by the neighbouring local authorities and include policies relevant to flood risk and drainage, with hyperlinks to the documents provided:

- [Lancaster Council Local Plan \(2020 - 2035\)](#) (currently under review)
- [Ribble Valley Local Plan \(2022 - 2038\)](#)
- [Preston Local Plan \(2012 - 2026\)](#)

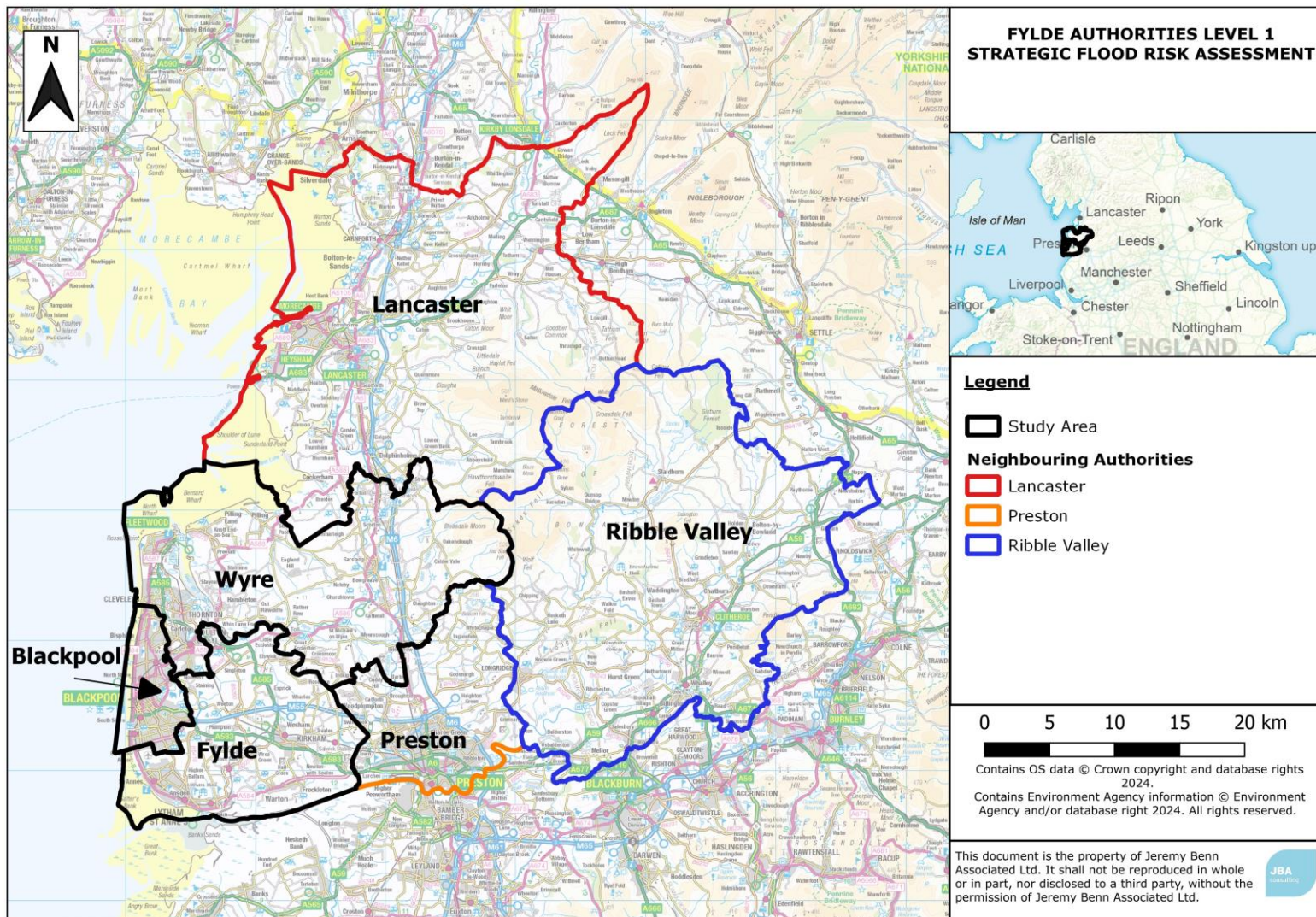


Figure 1-1: Neighbouring authorities to the Fylde Coast Authorities.

1.4 Cumulative Impact Assessment Methodology

For the CIA, the study area was assessed at a catchment level, with these catchments shown in Figure 1-2: Catchments within the study area. The WFD catchments were used as a starting point but as these are fluvial catchments these were altered to provide a full representation of the coastal location of the study area and incorporate all communities which may be at surface water risk:

- **Hillylaid Pool - Main Dyke:** this catchment was extended northwards and eastwards to incorporate the full land area along the left bank of the River Wyre until it reaches the coast.
- **Warton and Freckleton:** an additional catchment was added here to include the area around Warton and Freckleton which drains south to the River Ribble.
- **Lytham St Annes:** an additional catchment was added here to incorporate the coastal area at Lytham St Annes.
- **Main Dyke:** an additional catchment was added here to cover the Main Dyke catchment across Blackpool and Wyre, draining north into the River Wyre.
- **Pilling Water:** this catchment was extended further west towards Preesall.
- **Wyre - Coastal:** an additional catchment added to cover the tidal reach of the Wyre, particularly along the right bank.
- **Clifton Marsh and Preston:** an additional catchment added to cover the tidal reach of the River Ribble from Clifton Marshes east towards Preston.
- **Liggard Brook:** the existing catchment boundary was extended slightly eastward.
- **Main Drain (Ribble):** the existing catchment boundary was extended slightly southward.

This broadscale assessment determines which catchments are likely to be most sensitive to increased flood risk, which could then be exacerbated as a result of development pressures. The availability of development data varies across the three authorities and therefore was not included within the quantitative ranking assessment, however, a qualitative assessment of the potential cumulative impact of development has been undertaken for each authority area (see Section 2.3). Potential change in developed areas within each catchment from neighbouring authorities was also considered where data was available. No georeferenced historic data was available for use in this assessment.

There are three stages to the Level 1 Cumulative Impact Assessment (CIA):

1. Assess sensitivity to surface water, fluvial and tidal flood risk.
 - This will be assessed by calculating the change in the number of properties at risk from the 1% AEP to the 0.1% AEP events for surface water flooding and the 1% AEP fluvial / 0.5% AEP tidal to the 0.1% AEP events for fluvial

and tidal flooding, given as a percentage of the total properties in the catchment.

2. Identify the most sensitive catchments.
 - Rank catchments in each category.
 - Discussion of catchments which are at higher risk.
3. Discussion of potential cumulative impacts of development for each of the three authority areas.
 - Policy recommendations for developments in higher risk catchments.
 - Identify catchments needing further consideration within a Level 2 SFRA (if required).

The next stage after this process would be to assess the impacts of individual sites in the Fylde Coast Authorities. However, this is beyond the scope of a Level 1 SFRA and would be assessed within a Level 2 SFRA (if required) and site-specific FRA.

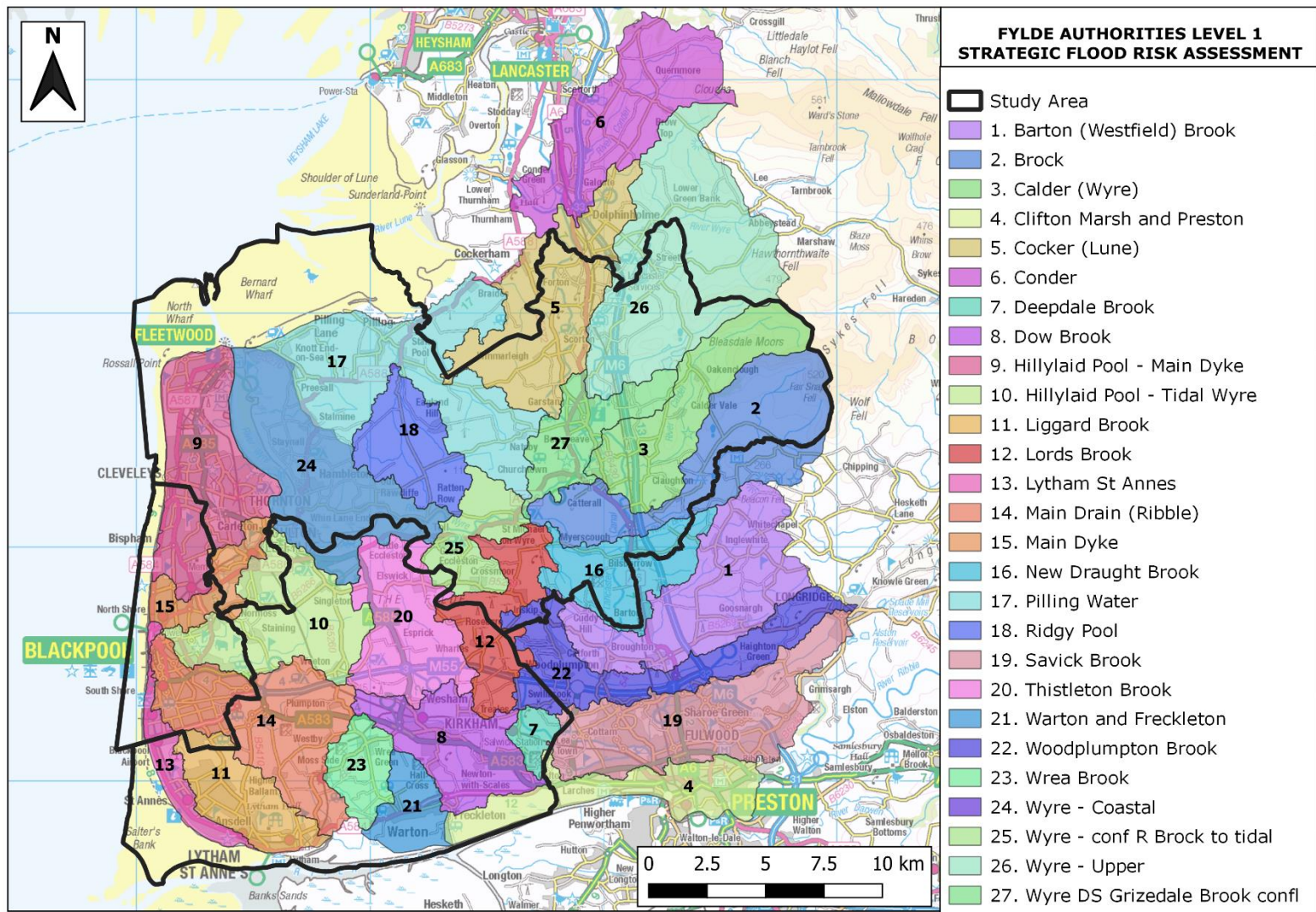


Figure 1-2: Catchments within the study area.

Table 1-1 summarises the datasets used within the Fylde Coast Authorities CIA.

Table 1-1: Summary of datasets used within the CIA.

Dataset	Coverage	Sources of Data	Use of Data
Catchment boundaries	Fylde Coast Authorities and neighbouring authorities	Water Framework Directive Catchments	Assessment of susceptibility to cumulative impacts of development by catchment
National Receptor Dataset (2021)	Fylde Coast Authorities (does not extend across all cross-boundary catchments)	EA (obtained via the Fylde Coast Authorities)	Properties for the assessment of flood risk
Risk of Flooding from Surface Water	Fylde Coast Authorities and neighbouring authorities	EA	Assessing the number of properties at risk of surface water flooding within each catchment
Flood Zones 2 and 3a (from the Flood Map for Planning)	Fylde Coast Authorities and neighbouring authorities	EA	Assessing the number of properties at risk of fluvial and tidal flooding within each catchment
Future development areas (recently built out sites/sites under construction/sites with planning permission/previously allocated sites/currently allocated sites)	Wyre Council Fylde Council Lancaster Council Preston Council	Wyre Council Fylde Council (not available in GIS format) Lancaster Council Preston Council	Assessing the impact of proposed future development on risk of flooding

1.4.1 Sensitivity to increases in fluvial and tidal flooding

This is the measure of the increase in the number of properties at risk of fluvial and tidal flooding from the 1% AEP fluvial and 0.5% AEP tidal event to the 0.1% AEP event. It is an indicator of where local topography makes an area more sensitive to increases in flood risk that may be due to any number of reasons, including climate

change, new development etc. It is not an absolute figure or prediction of the impact that new development will have on flood risk.

The National Receptor Database (NRD) dataset 2021 was used to identify all properties within the catchments. The NRD was filtered so that only residential and non-residential properties were included within the analysis, excluding other services and features represented within the NRD. The NRD provided by the Councils covers the full extent of the three authority areas with a small buffer. However, it does not cover all cross-boundary catchments as this data is not held by the Councils. The main catchments affected are:

- Conder
- Savick Brook

The NRD was intersected with the 1% AEP fluvial / 0.5% AEP tidal and 0.1% AEP flood extents separately to determine the number of properties in each catchment, in each flood extent. The difference between the two values was then taken as a percentage of the total number of properties within the catchment to allow comparison between catchments of different sizes.

1.4.2 Sensitivity to increases in surface water flooding

This is the measure of the increase in the number of properties at risk of surface water flooding in a 1% AEP event to a 0.1% AEP event and follows the same process as for fluvial and tidal flood risk, see Section 1.4.1 above.

1.5 Ranking the results

The results for the assessment of flood risk were ranked into high, medium, and low sensitivity as shown in Table 1-2. Ranking delineations were given at natural breaks in the results.

The ranking results were combined from both assessments to give an overall high, medium, and low ranking for all catchments within the study area. Each catchment was assigned a score for each assessment based on its ranking (high = 3, medium = 2, low = 1) and these were then averaged to produce a final score and ranking. Any catchment producing an overall score greater than or equal to 2.5 was considered to have a high sensitivity.

There is currently no national guidance available for assessing the cumulative impacts of development. These rankings provide a relative assessment of the catchments within the study area and are not comparable across other boroughs/districts. The thresholds used have been based on natural breaks in the data and professional judgement.

Table 1-2: Ranking assessment criteria

Flood risk ranking	Properties at increased risk of fluvial and tidal flooding	Properties at increased risk of surface water flooding
Low sensitivity	<3%	<1.4%
Medium sensitivity	3-6%	1.4-2%
High sensitivity	>6%	>2%

1.5.1 Assumptions

The assumptions made when conducting the CIA are shown in Table 1-3.

Policy recommendations with regards to managing the cumulative impact of development have been made in Section 2 below. This will help to ensure there is no incremental increase in flood risk both within and downstream of the study area.

Table 1-3: Assumptions of the CIA.

Assessment aspect	Assumption made	Details of limitation in method	Justification of method used
Surface water flood risk; Fluvial and tidal flood risk	Total number of properties	Assumption that all properties have been included in the 2021 NRD dataset. It may not include all new build properties. It also does not include all properties across some of the larger cross-boundary catchments.	This was the most up to date and accurate data available. The cross-boundary catchments most affected by the missing NRD data lie mostly outside the study area.

Assessment aspect	Assumption made	Details of limitation in method	Justification of method used
Surface water flood risk	Climate change proxy	Used the 0.1% AEP extent from the Risk of Flooding from Surface Water Map as an indicative estimate of the impacts of climate change across the study area.	Although the Risk of Flooding from Surface Water Map was uplifted for climate change as part of this study, the uplifts were only applied to the study area, the Risk of Flooding from Surface Water Map covers the entire area of the catchments both within and outside the study area and therefore provided a consistent approach for this high level assessment. The 0.1% AEP event is noted to show a similar extent to the 1% AEP plus 50% (upper end) climate change event.
Fluvial and tidal flood risk	Climate change proxy	Used the Flood Map for Planning Flood Zone 2 as an indicative estimate of the impacts of climate change across the study area.	Although detailed climate change modelling was available for one watercourse, the broader Flood Map for Planning covers the entire area of the catchments both within and outside the study area and therefore provided a consistent approach for this high level assessment.
Historic flooding incidents	Data coverage	No flooding incident data was provided that could be georeferenced with XY coordinates to produce GIS files.	Historic flooding data was not used within this assessment as no appropriate data was provided which covered the study area.
Development	Area of development	Have assumed all promoted sites provided by Wyre Council and	This is a reasonable worst-case scenario as we do not have further

Assessment aspect	Assumption made	Details of limitation in method	Justification of method used
		<p>the neighbouring authorities are taken forward to development. For Wyre, sites include all promoted sites provided by the Council as of the 5 December 2023.</p> <p>Have not considered whether sites are greenfield or brownfield sites (with brownfield regeneration having the potential to reduce flood risk) or the proposed allocation type and land use of the site.</p>	<p>information to inform which sites are most likely to go forward to development.</p> <p>Information on greenfield and brownfield sites was not readily available so this will be considered further in a Level 2 assessment if required.</p>

1.6 Cumulative Impact Assessment

1.6.1 Sensitivity to fluvial and tidal flooding

The number of properties located within Flood Zone 2, but not presently within Flood Zone 3a was calculated, as a percentage of the total properties across the whole catchment. These properties are considered sensitive to increased flood risk as a result of climate change. Flood Zone 2 can be used as an indicative climate change extent given the upper end climate change estimates are often similar to the 0.1% AEP/ Flood Zone 2 extents.

Catchments with greater than 6% of properties at increased risk were considered to have high sensitivity and are listed in Table 1-4 below.

Table 1-4: Catchments considered highly sensitive to increased fluvial and tidal flood risk in the future.

Catchment	Percentage of properties sensitive to increased fluvial and tidal flood risk (%)	Rank
Clifton Marsh and Preston	20.1	1
Wyre - conf R Brock to tidal	17.9	2
Hillylaid Pool - Main Dyke	16.3	3
New Draught Brook	9.5	4

Catchment	Percentage of properties sensitive to increased fluvial and tidal flood risk (%)	Rank
Conder	8.5	5
Wyre - Upper	7.6	6
Wyre DS Grizedale Brook confluence	7.0	7

1.6.2 Sensitivity to surface water flooding

The number of properties located within the 0.1% AEP surface water extent not presently within the 1% AEP extent was calculated, as a percentage of the total properties across the whole catchment. These properties are considered sensitive to increased flood risk as a result of climate change.

Catchments with greater than 2% of properties at increased risk were considered high risk and are listed in Table 1-5.

Table 1-5: Catchments considered highly sensitive to increased surface water flood risk in the future.

Catchment	Percentage of properties sensitive to increased surface water flood risk (%)	Rank
Woodplumpton Brook	6.7	1
New Draught Brook	2.8	2
Brock	2.7	3
Wyre - Upper	2.6	4
Warton and Freckleton	2.5	5
Wyre DS Grizedale Brook confluence	2.3	6
Savick Brook	2.2	7

1.7 Overall rankings

For each assessment, catchments were given a score of 3 (high), 2 (medium), or 1 (low) risk. These scores were then averaged across the assessment to give a combined score. Table 1-6 provides a summary of the rankings for each catchment for the individual assessments and the combined scores.

Table 1-6: Catchment rankings and combined scores.

Waterbody name	Fluvial and tidal flooding	Surface water flooding	Average score
Thistleton Brook	1	1	1
Hillylaid Pool - Tidal Wyre	1	2	1.5
Calder (Wyre)	2	2	2
Wyre - conf R Brock to tidal	3	1	2
Deepdale Brook	1	1	1
Savick Brook	1	3	2
Liggard Brook	2	1	1.5
Main Drain (Ribble)	1	2	1.5
Dow Brook	1	1	1
Wrea Brook	1	2	1.5
Woodplumpton Brook	1	3	2
Lords Brook	2	1	1.5
New Draught Brook	3	3	3
Barton (Westfield) Brook	1	1	1
Wyre DS Grizedale Brook confluence	3	3	3
Brock	2	3	2.5
Wyre - Upper	3	3	3
Ridgy Pool	2	1	1.5
Cocker (Lune)	1	1	1
Conder	3	1	2
Warton and Freckleton	1	3	2
Lytham St Annes	1	1	1

A Red-Amber-Green (RAG) rating was then applied to the catchments, with red being high sensitivity, amber being medium sensitivity and green being low sensitivity. The RAG ratings are shown in Figure 1-3. The catchments with an average score of greater than or equal to 2.5 were deemed to have a high sensitivity and are shown in Table 1-7.

Table 1-7: Catchments deemed highly sensitive as shown in Figure 1-3.

Waterbody name	Average score
New Draught Brook	3
Wyre DS Grizedale Brook confluence	3

Waterbody name	Average score
Brock	2.5
Wyre - Upper	3

The catchments classified as medium and low risk are shown in Table 1-8 and Table 1-9 respectively.

Table 1-8: Catchments deemed to have a medium sensitivity.

Waterbody name	Average score
Calder (Wyre)	2
Wyre - conf R Brock to tidal	2
Savick Brook	2
Woodplumpton Brook	2
Conder	2
Warton and Freckleton	2
Hillylaid Pool - Main Dyke	2
Clifton Marsh and Preston	2

Table 1-9: Catchments deemed to have a low sensitivity.

Waterbody name	Average score
Thistleton Brook	1
Hillylaid Pool - Tidal Wyre	1.5
Deepdale Brook	1
Liggard Brook	1.5
Main Drain (Ribble)	1.5
Dow Brook	1
Wrea Brook	1.5
Lords Brook	1.5
Barton (Westfield) Brook	1
Ridby Pool	1.5
Cocker (Lune)	1
Lytham St Annes	1
Main Dyke	1.5
Wyre - Coastal	1.5
Pilling Water	1.5

1.8 Discussion of flood risk sensitivity

It should be noted that this assessment provides a relative assessment of sensitivity to increases in flood risk between catchments within the study area.

Large parts of the study area are shown to have a low sensitivity to increases in flood risk. The highest sensitivity areas are shown to be in the north east of the area, within Wyre. There are also sensitive catchments in the south east of the study area. These cross boundary catchments lie mostly outside the study area, within Preston, but cover small areas of Fylde and Wyre. Hillylaid Pool - Main Dyke catchment, in the north west of the study area across Blackpool and Wyre, is shown to be highly sensitive to increases in fluvial and tidal flood risk. However, it should be noted that the nature of tidal flooding means that development is unlikely to impact upon this flood risk. However, tidal flood risk must still be taken into account in consideration of appropriate development sites.

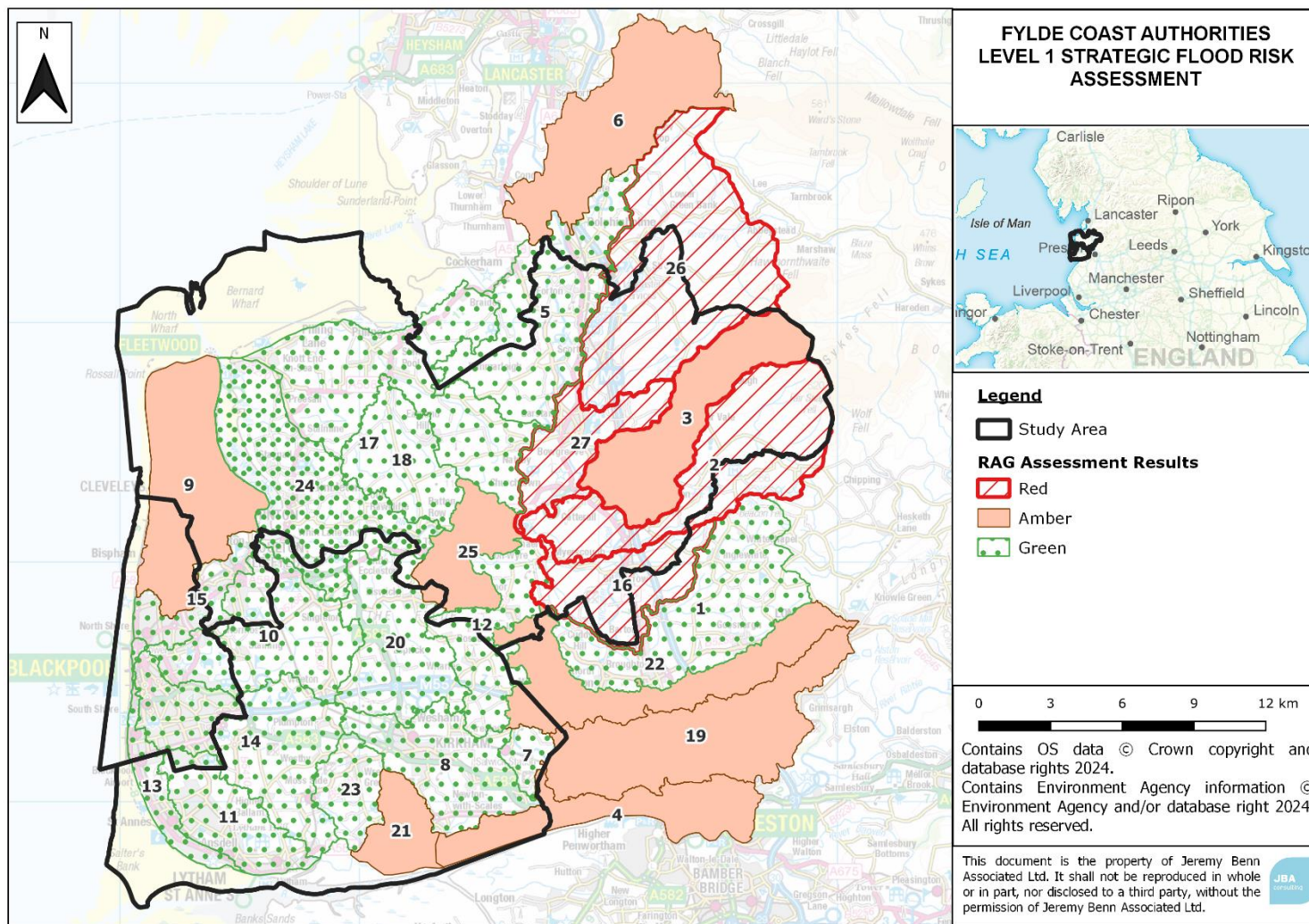


Figure 1-3: Results of the ranking assessment showing high (red), medium (amber) and low (green) sensitivity catchments across the study area.

2 Level 1 SFRA Policy recommendations

2.1 Broadscale recommendations

All developments are required to comply with the NPPF and demonstrate they will not increase flood risk elsewhere. Therefore, providing developments comply with the latest guidance and legislation relating to flood risk and sustainable drainage, and appropriate consideration is given to surface water flow paths and storage proposals, they should not normally increase flood risk downstream.

The high-level CIA for the Fylde Coast Authorities has highlighted catchments shown to be most sensitive to increases in flood risk. Catchments have been identified as high, medium, or low sensitivity, relative to the other catchments within the study area.

Flood risk can be affected by several different factors, which have been assessed as part of the CIA. As a result, incremental action and betterment in flood risk terms across all of the study area should be supported where possible.

The following policy recommendations therefore apply to all catchments within the study area:

- The Councils should work closely with neighbouring local authorities to develop complementary Local Planning Policies for catchments that drain into and out of the area to other local authorities in order to minimise any cross- boundary issues of cumulative impacts of development.
- Developers should incorporate SuDS and provide details of adoption, ongoing maintenance, and management on all development sites. Proposals will be required to provide reasoned justification for not using SuDS techniques, where ground conditions and other key factors show them to be technically feasible. Preference will be given to systems that contribute to the conservation and enhancement of biodiversity and green infrastructure where practicable. Developers should refer to the relevant Lead Local Flood Authority (LLFA) guidance for the requirements for SuDS in the study area. Further guidance on SuDS can be found in Section 9 of the main report.
- LCC and Blackpool as LLFAs will review Surface Water Drainage Strategies in accordance with their local requirements for major and non-major developments. These should consider all sources of flooding to ensure that future development is resilient to flood risk and does not increase flood risk elsewhere.
- Where appropriate, the opportunity for NFM in rural areas, SuDS retrofit in urban areas and river restoration should be maximised. Culverting should not be supported, and day-lighting existing culverts should be promoted through new developments.

- Runoff rates from all development sites must be limited to greenfield rates (including brownfield sites) unless it can be demonstrated that this is not practicable. If it is demonstrated that greenfield rates are not practicable then the runoff rates should be restricted to the closest rate that is practicable. Developers should refer to the relevant LLFA guidance for the requirements for SuDS in the study area.
- Where required, site-specific FRAs should explore opportunities to provide wider community flood risk benefits through new developments. Measures that can be put in place to contribute to a reduction in flood risk downstream should be considered. This may be either by the provision of additional storage on site e.g. through oversized SuDS, NFM techniques, green infrastructure and green-blue corridors, and/ or by providing a Partnership Funding contribution towards any flood alleviation schemes.

Section 8 of the main report details the local requirements for mitigation measures. Catchment-specific recommendations are made for highly sensitive catchments below.

2.2 Recommendations for sensitive catchments

Where development is proposed in catchments shown to be sensitive to increases in flood risk, high-level recommendations for flood storage and betterment have been proposed for sites in each of these catchments. These recommendations should be considered by developers as part of a site-specific assessment, but more detailed modelling must be undertaken by the developer to ascertain the true storage needs and potential at each site at the planning application stage. Where an FRA is required to be submitted to support an application, it should consider the potential cumulative effects of all proposed development and how this affects sensitive receptors.

The following recommendations are made for development in sensitive catchments:

- In catchments at surface water risk, developers should include a construction surface water management plan to support the Construction Drainage Phasing Plan. This should provide information to the EA, the LLFA and the LPA regarding the proposed approach to surface water management in storm events during the construction phase.
- The LLFA and LPA should consult with Local Not-For-Profit organisations such as wildlife trusts, rivers trusts and catchment partnerships. This will help to understand ongoing and upcoming projects where NFM, flood storage and attenuation, and environmental betterment may be possible alongside developments and aid in reducing flood risk.
- LPAs should work closely with the EA and the LLFA to identify any areas of land that should be safeguarded for any future flood alleviation schemes and NFM features. Investigations should seek to determine where developments have the potential to contribute towards works to reduce flood risk and enable

regeneration in catchments as well as contributing to the wider provision of green infrastructure.

- There is the potential for development in these catchments to contribute towards works to reduce flood risk and enable regeneration as well as contributing to the wider provision of green infrastructure.

2.3 Development assessment

Wyre Council provided their initial call for sites for inclusion within this assessment. Blackpool have an ongoing call for sites but do not currently have any site data which could be provided for use in this assessment. Fylde Council provided their site allocations from their existing local plan, which all have planning permission, and also their four key development areas. Having only last reviewed their local plan in 2021 their five year review is not due for another three years.

As the three authorities are at different stages of their local plan update, the following sections provide an overview of the development pressures and recommendations for development in each area.

2.3.1 Blackpool Council

No development data has currently been provided by Blackpool Council.

However, most of the catchments within the area shown to have a low sensitivity to increased flood risk other than Hillylaid Pool - Main Dyke. This ranked overall as medium sensitivity but with a significant fluvial and tidal flood risk, with over 20,000 properties located in Flood Zone 3a. However, the risk in this catchment is predominantly tidal, which will not be affected by development.

In general, as Blackpool is highly urbanised and given its coastal location, there are very limited cases where development would be likely to increase downstream flood risk. The priority within Blackpool is using development of brownfield sites to provide betterment wherever possible.

2.3.2 Fylde Council

Fylde's current development strategy is to direct the majority of their new development to four strategic locations for development:

- Lytham St Annes
- The Blackpool Periphery
- Warton
- Kirkham and Wesham

It is unlikely that this development strategy will change for the duration of the current local plan (up to 2032) and following that it is expected that the lack of unconstrained

land around Lytham St Annes may mean development will need to be focussed on the three other locations, but the strategy is unlikely to change further.

The Blackpool Periphery lies across several catchments, which all show low sensitivity to increases in flood risk. However, development in this area should ensure flood risk within Blackpool is not increased, and Fylde Council should work in conjunction with Blackpool Council to address any cross boundary impacts of development in this area.

Lytham St Annes lies across the Lytham St Annes and Liggard Brook catchments which are both shown to have low sensitivity to increases in flood risk. Due to its coastal location, development in Lytham St Annes is unlikely to increase upstream flood risk or increase flood risk which is predominantly tidal in this area. The focus here should be on opportunities to provide betterment through development of brownfield sites.

Warton lies within the Warton and Freckleton catchment which is shown to be sensitive to increases in surface water flood risk. Any future development within this catchment must not exacerbate any existing surface water issues and should seek to provide betterment.

Kirkham and Wesham lie within the Dow Brook catchment, which has low sensitivity to increases in flood risk.

Outside of the study area, Fylde is bordered by Preston who provided their current local plan site allocations. The main development areas within Preston are shown to be within the Savick Brook and Woodplumpton Brook catchments. These catchments lie predominantly outside the study area and do not correspond to Fylde's strategic development locations. Both these catchments ranked as medium sensitivity to increased flood risk due to predicted increases in surface water flood risk. Any future development within these catchments must not exacerbate any existing surface water issues and should seek to provide betterment.

2.3.3 Wyre Council

Wyre Council provided site boundaries that were submitted as part of recent call for sites exercises in 2022 and 2023. These sites had been submitted as potential future development sites. It should be noted that submission to this exercise was not guaranteeing that a site would be taken forward for development purposes and would be subject to further assessment. This shows that there are potential site allocations within the catchments in the northeast of the area shown to be highly sensitive to increases in flood risk:

- Wyre - Upper
- Wyre DS Grizedale Brook confluence
- Brock
- New Draught Brook

New Draught Brook is a cross boundary catchment across Wyre and Preston, shown to be sensitive to increases in both fluvial and surface water flood risk. There is a small housing allocation located within the Preston area alongside several sites that may be considered for future development within the Wyre area. It is recommended that Wyre and Preston should work closely to mitigate any cumulative impacts of development within this catchment.

There are also a number of potential future development sites within Hillylaid Pool - Main Dyke which is a cross boundary catchment across Wyre and Blackpool. This catchment is shown to be sensitive to increases in fluvial and tidal risk, however, this risk is predominantly tidal due to its coastal location. As discussed in Section 2.3.1, by its nature tidal flood risk is not impacted by development.

Lancaster provided their current development site allocations. These predominantly fall outside the cross-boundary catchments however there are a small number of proposed sites in the Cocker (Lune) and Wyre - Upper catchments. The Cocker (Lune) catchment is not shown to be sensitive to increases in flood risk, however, development is proposed in both Wyre and Lancaster; it is therefore recommended the two authorities work closely to ensure there are no cumulative impacts of development on flood risk within this catchment. A smaller number of sites are proposed within the Wyre - Upper catchment, however, this catchment is shown to be highly sensitive to increases in both fluvial and surface water risk. Therefore, Wyre and Lancaster should work collaboratively to ensure that any development upstream within Lancaster does not result in an increase in flood risk downstream in Wyre.