Inverclyde council

AGENDA ITEM NO: 10

Report To:	Safe Sustainable Communities Committee	**Date:**	30 August 2011
Report By:	Corporate Director Regeneration & Environment	**Report No:**	SSC/ENV/IM/11.92
Contact Officer:	Gordon Leitch	**Contact No:**	01475 714826
Subject:	**Inverclyde Council's Response to SEPA's Consultation Document on the National Flood Risk Assessment and the Identification of Potentially Vulnerable Areas and Local Plan Districts**		

1.0 PURPOSE

1.1 The purpose of this report is to seek approval of the draft response to the consultation on the National Flood Risk Assessment and the Identification of Potentially Vulnerable Areas and Local Plan Districts

2.0 SUMMARY

2.1 In June 2011 the Scottish Environment Protection Agency (SEPA) published a document entitled Flooding in Scotland : A Consultation on Potentially Vulnerable Areas and Local Plan Districts

2.2 The consultation asks for agreement to the new assessment of flood risk methodology and if the correct threshold levels have been set. The consultation also asks have the all Potentially Vulnerable Areas been highlighted and are the Local Plan Districts are correct.

3.0 RECOMMENDATIONS

3.1 That the committee agrees to approve the draft response to the Consultation on National Flood Risk Assessment and the Identification of Potentially Vulnerable Areas and Local Plan Districts on the new approach to the National assessment and planning for floods and how this affects responsible authorities, as detailed in this report.

Ian Moffat
Head of Environmental and Commercial Services

4.0 BACKGROUND

4.1 The Flood Risk Management (Scotland) Act 2009 (FRM Act) places duties on SEPA and responsible authorities to manage flooding in a sustainable manner. The responsible authorities are Local Authorities Scottish Water, and any other public bodies and office-holders designated as such by the Scottish Ministers.

4.2 Inverclyde Council, as a local authority (a responsible authority) has functions under Part 3 (flood risk assessment, maps and plans) and Part 4 (flood risk management: local authority functions) of the FRM Act 2009.

4.3 As part of their central role as set out in the Act, Scottish Environment Protection Agency (SEPA) has been given a new strategic role in the assessment and management of flood risk. Local authorities, along with Scottish Water, will need to work with SEPA to use best available information and data to ensure Scotland's efforts to tackle flooding are targeted at the most vulnerable areas. SEPA will also work to ensure that the public is provided with appropriate information and advice to be better prepared for floods.

4.4 SEPA has launched a formal consultation seeking views on how the National Flood Risk Assessment informs the identification of areas for flood risk management planning. The National Flood Risk Assessment will:

- identify those areas that are likely to experience significant impacts from floods (Potentially Vulnerable Areas)
- set geographical boundaries for the production of Flood Risk Management Plans; and
- represents a key step forward towards Scotland being able to better target efforts to plan and invest in reducing impacts in areas most vulnerable to flooding.

4.5 The consultation was published on 15 June with a response deadline of 15 August 2011.

4.6 The consultation is set out in six sections providing background information as well as the following main areas

i. The new approach to the assessment and planning for floods

SEPA and the Responsible Authorities are required to co-ordinate their work and approach flood risk management in a way that integrates national consistency and strategic decision-making with local knowledge and accountability. The National Flood Risk Assessment presented in the consultation document is a broad, strategic scale assessment of likely flood impacts. It provides public bodies with an important tool to help them plan and prioritise their efforts at a regional scale. The national assessment should not be confused with an assessment of how likely it is that an individual property or business may be flooded. Areas identified as having a low overall flood risk, will still contain homes and businesses affected by flooding. Similarly, areas identified as having a high overall flood risk, will contain homes and businesses not at risk from flooding

ii. The approach adopted to assessing flood risk in Scotland

The National Flood Risk Assessment represents the first step in providing a picture of past, current and future flood risk. SEPA has worked closely with the Scottish Government and other stakeholders to develop the principals, methods and tools required to undertake the National Flood Risk Assessment.

iii. The approach adopted to identify areas at significant risk of being affected by flooding (Potentially Vulnerable Areas)

A risk-based approach to managing flood requires an assessment of where the impacts of floods are likely to be greatest in future. This allows responsible public bodies to target efforts in a way which has the greatest benefit to people, the economy and the environment. These areas are called Potentially Vulnerable Areas. The identification of a Potentially Vulnerable Area has important implications for subsequent efforts to understand and address flood risk.

iv. Sets out proposals for geographical boundaries (Local Plan Districts) which will be used for the production of Flood Risk Management Plans

Local Plan Districts will be the geographical areas for which SEPA and local authorities will develop Flood Risk Management Plans. SEPA and its partner organisations have developed a set of principals based on the requirements of the FRM Act that has led to the identification of 14 proposed Local Plan Districts in Scotland. Each Local Plan District will have a Flood Risk Management Strategy prepared by SEPA, and a Local Flood Risk Management Plan prepared by a Lead Local Authority

4.7 The council's proposed detailed response to the consultation is attached to this report

5.0 PROPOSALS

5.1 It is proposed that the committee approve the responses to the consultation document.

6.0 FINANCIAL IMPLICATIONS

FINANCE

Cost Centre	Budget Heading	Budget Year	Proposed Spend this Report	Virement From	Other Comments
N/A					

Financial Implications – Annually Recurring Costs/ (Savings)

Cost Centre	Budget Heading	With Effect from	Annual Net Impact	Virement From (If Applicable)	Other Comments
N/A					

6.1 There are no financial implications arising directly as a result of the recommendations contained in this report.

7.0 CONSULTATION

None

8.0 EQUALITIES

This report has no impact on the Council's Equality Agenda

ATTACHMENTS

- Flooding in Scotland : A Consultation on Potentially Vulnerable Areas and Local Plan Districts;
- Clyde and Loch Lomond Local Plan District;
- FRA Grid Output (Inverclyde). Flood risk plan;
- nFRA ICC Output (Inverclyde). Vulnerable areas; and
- Response to Consultation Questions.

SEPA
Scottish Environment Protection Agency

Flood Risk Management (Scotland) Act 2009

Flooding in Scotland: A consultation on Potentially Vulnerable Areas and Local Plan Districts

Acknowledgement

The assessments undertaken in the preparation of this document were developed in partnership with the Scottish Advisory and Implementation Forum for Flooding (SAIFF) programme.

We would like to thank the individuals from the organisations involved in the Scottish Advisory and Implementation Forum for Flooding for their support and contributions to the development of these proposals.

Foreword

Flooding has devastating impacts on people, communities and business. When floods happen they disrupt our day-to-day lives and their impacts can be long lasting. Climate change is likely to make the situation even more challenging in coming years.

The impacts of floods can never be removed entirely. Flooding is the price we pay for choosing to live and work in the floodplain. However, we can do more to help reduce the impacts of floods. Making better use of science and information, we can plan and target our investment to protect communities more effectively. Public bodies can also co-ordinate our work more effectively to have a greater impact on reducing the harm caused by floods, and to engage with individuals and businesses to provide them with the information they need to take action.

The new approach to flood risk management set out in this consultation provides Scotland with the opportunity to do just that. This consultation is an important first step in adopting this new approach. It provides an overview of the main sources and impacts of floods in Scotland. For the first time, we now have a national picture of the distribution and potential damage caused by floods. We can use this information to help focus the resources of public bodies and others and target our efforts on those areas where greatest benefit can be gained.

SEPA has been given a central role in this new approach. Our job is to provide national oversight, help co-ordinate action and encourage engagement. We have significant new duties, but we are just one of many key partners. We have worked closely with our partners in developing the proposals in this consultation and would value your views.

Campbell Gemmell
SEPA Chief Executive

Contents

1 Introduction to this consultation

Flood Risk Management in Scotland is changing. New Scottish and European legislation have introduced improvements to how we manage the impacts of floods. These important changes will advance our understanding of flooding, its causes and impacts and help us to better protect our communities, businesses and the environment.

The Scottish Environment Protection Agency (SEPA) has been given a new strategic role in the assessment and management of flood risk. Working with local authorities and Scottish Water, we will use the best available information and data to ensure Scotland's efforts to tackle flooding are targeted at the most vulnerable areas. SEPA will also work to ensure that the public is provided with appropriate information and advice to be better prepared for floods.

Delivering this new approach requires SEPA to prepare Scotland's first National Flood Risk Assessment. This has been used to identify those areas that are likely to experience significant impacts from floods. We have also used the National Flood Risk Assessment to set geographical boundaries for the production of Flood Risk Management Plans. This consultation document is an important part of that assessment. It represents a key step towards Scotland being able to better target efforts to plan and invest in reducing impacts in areas most vulnerable to flooding.

In this consultation, we are seeking views on how the National Flood Risk Assessment informs the identification of areas for flood risk management planning. Questions are located within the relevant sections of the consultation, and summarised at the end of this section. Responses will be taken on board and revised outputs will be submitted to Scottish ministers for approval.

How we developed proposals in this consultation document

Proposals in this consultation document were developed in partnership through the Scottish Advisory and Implementation Forum for Flooding (SAIFF). The Scottish Government has established a set of advisory groups under the umbrella of its Scottish Advisory and Implementation Forum for Flooding programme. These groups advise on technical issues, including the development of the methodology to support the production of a National Flood Risk Assessment, and national policy issues, such as guidance on delivering sustainable flood risk management. SAIFF groups include representatives from Scottish Water, local authorities, technical experts, and other stakeholders.

How is this document set out?

Sections 1 and 2 provide background information to this consultation. The following sections are then presented as follows:

- **Section 3 describes the new approach to the assessment and planning for floods**
  SEPA and the Responsible Authorities[1] are required to co-ordinate their work and approach flood risk management in a way that integrates national consistency and strategic decision-making with local knowledge and accountability. This section describes this integrated approach and how it will be embodied in the preparation, approval and implementation of Flood Risk Management Plans.

- **Section 4 sets out the approach we adopted to assessing flood risk in Scotland**
  The National Flood Risk Assessment represents the first step in providing a picture of past, current and future flood risk. SEPA has worked closely with the Scottish Government and other stakeholders to develop the principles, methods and tools required to undertake the National Flood Risk Assessment.

[1] Scottish Water and local authorities are designated as Responsible Authorities under the Flood Risk Management (Scotland) Act 2009. They have specific duties relating to the exercise of their flood risk related functions. Scottish ministers can designate additional public bodies as Responsible Authorities as required.

- **Section 5 sets out the approach we adopted to identifying areas at significant risk of being affected by flooding (called Potentially Vulnerable Areas)**
  A risk-based approach to managing floods requires an assessment of where the impacts of floods are likely to be greatest in future. This allows responsible public bodies to target efforts in a way which has the greatest benefit to people, the economy and the environment. These areas are called Potentially Vulnerable Areas. The identification of a Potentially Vulnerable Area has important implications for subsequent efforts to understand and address flood risk.

- **Section 6 sets out proposals for geographical boundaries (Local Plan Districts) which will be used for the production of Flood Risk Management Plans**
  Local Plan Districts will be the geographical areas for which SEPA and local authorities will develop Flood Risk Management Plans. SEPA and its partner organisations have developed a set of principles based on the requirements of the Flood Act that has led to the identification of 14 proposed Local Plan Districts in Scotland. Each Local Plan District will have a Flood Risk Management Strategy prepared by SEPA, and a Local Flood Risk Management Plan prepared by a lead local authority.

Who should respond?

This consultation covers an assessment of flood risk in Scotland and is aimed at local authorities, Scottish Water and other stakeholders with a technical knowledge and understanding of flooding issues. We would also welcome comments and contributions from individuals, businesses and the wider community.

The National Flood Risk Assessment presented in this document is a broad, strategic scale assessment of likely flood impacts. It provides public bodies with an important tool to help them plan and prioritise their efforts at a regional scale. The national assessment should not be confused with an assessment of how likely it is that an individual property or business may be flooded. Areas identified as having a low overall flood risk, will still contain homes and businesses affected by flooding. Similarly, areas identified as having a high overall flood risk, will contain homes and businesses not at risk from flooding. For information on individual flood risk, please refer to: www.sepa.org.uk/flooding

Summary of consultation questions

Table 1: A summary of consultation questions

Section	Question
5	1. Do you support the setting of a significance threshold that will capture the majority of flood impacts and subsequent action in a comprehensive planning system (i.e. based around the 'Medium' risk level)?
	2. Are there areas identified as Potentially Vulnerable Areas following this assessment that you believe should not be designated as at significant risk of flooding?
	3. Are there areas NOT identified as Potentially Vulnerable Areas following this assessment that you believe should be designated as at significant risk of flooding?
6	4. Do you agree that the amendments made to the boundaries of the Local Plan Districts are an appropriate response to the consultation exercise held in 2010? If not, what changes would you suggest and why?
	5. Do you agree with the broad remit, membership and procedure of the local advisory groups?
	6. Do you support the use of the Area Advisory Group boundaries established under the Water Framework Directive as the basis for establishing local advisory groups as required in section 50 of the Flood Act? If not, what alternative arrangements would you suggest and why?

How and when to respond

Please respond to the consultation by Monday 15 August 2011 in one of the following ways:

- By email: floodactconsultation@sepa.org.uk
- In writing to: FRM Act Consultation; SEPA, Clearwater House, Heriot-Watt Research Park, Avenue North, Riccarton, Edinburgh EH14 4AP
- If you have a query about how to respond to the consultation or need further information, you can also contact the Flood Risk Management Planning team on 0131 273 7262

What will happen next?

A summary of responses and a statement of how responses have been considered will be published on the SEPA website in September 2011. A revised version of Potentially Vulnerable Areas and Local Plan Districts will then be submitted to Scottish ministers for approval. A final version of the National Flood Risk Assessment will be published in December 2011.

If you wish your response to remain anonymous please indicate this on your submission. In line with the requirements of the Data Protection Act 1998 the information you provide will be used only for the purpose of this consultation. It will not be used, retained or distributed for any other purpose.

Public authorities, including SEPA, are subject to the provisions of the Freedom of Information (Scotland) Act 2002 and would therefore have to consider any request made to it under the act for information relating to responses made to this consultation.

2 A New Approach to Flood Risk Management in Scotland

There are many areas in Scotland at risk from flooding. Approximately one in 20 of all residential properties and one in 14 of all non-residential or business properties in Scotland are at risk from flooding. Flooding is predominantly a natural event that becomes a problem when it has an impact on people. It can't be prevented entirely, and all rivers, coastlines and urban areas will flood from time to time. However, it is possible to have some influence on flooding and reduce the damage it causes. In order to do that, we need to improve our understanding of the causes and impacts of flooding so that we can plan and co-ordinate our actions. The changes being introduced will allow us to do just that.

Why do we need this new approach?

Our approach to flood risk management in the past has been based on reacting to floods by building flood defences and improving flood warnings, so that the next time a flood happens, the impacts will be less. As the climate changes, Scotland is likely to experience rising sea levels, warmer, wetter winters and hotter, drier summers. Predictions indicate that Scotland is also likely to experience more extreme weather events including intense rainfall in summer months. All this means we are likely to experience damaging floods more frequently. We therefore need a new approach that co-ordinates actions to pre-empt floods and helps reduce and avoid impacts.

How is flood management changing?

The biggest change to flood management is the emphasis on managing flood risk in a sustainable way. This means considering all sources of flooding, whether from rivers, the sea or from surface water run-off in our towns and cities. It also means looking at where floods are likely to occur and taking action in advance to reduce the impact on those communities most at risk from flooding without moving the problem elsewhere. This concept is illustrated in Figure 1.

Another important change is the introduction of Flood Risk Management Plans. These will look both at flood risk issues being experienced now and those that we are likely to experience in future as a result of climate change. This will help us target investment in those areas most at risk, and therefore maximise the benefit from that investment. The plans will be produced jointly by a number of organisations, alongside local communities, who will also have an important role.

When will the new approach be delivered?

This new approach has been put in place with new legislation. The Flood Risk Management (Scotland) Act 2009, herein referred to as the Flood Act, creates a framework for the assessment and sustainable management of flooding. It sets out a number of steps which are already underway and which will lead to the publication of Local Flood Risk Management Plans in 2016. Actions taken to manage flooding before then will also benefit from the improved knowledge and understanding that the new approach will deliver.

However, the work does not end there. The plans will summarise actions that will be implemented over a six-year period, as well as setting out a road map for addressing flood risk in Scotland in the long-term (up to 50 years). The plans, and actions they contain, will be reviewed and updated every six years.

2.1 Managing flooding sustainably

The new approach to flood risk management moves us away from a predominantly reactive system to one where the impacts of floods are pre-empted using better information and data on the causes and impacts of floods. This approach will prompt a wider range of co-ordinated actions, with public bodies working closely with each other, as well as with communities and businesses at risk.

Floods from rivers and surface water are determined mainly by the characteristics of the catchment on which rainfall lands. Coastal floods are similarly influenced by the nature of our coastlines and how water moves inland. It follows that by adopting a catchment-based approach we are best able to improve our understanding of the sources and impacts of floods, as well as the wider impacts of our actions. This catchment approach needs to consider whole river systems, coastlines and urban areas. Once we have developed a better understanding of the catchment system, the impacts of floods can be managed in a number of ways.

Avoiding flood risk – planning and development

Building new property and infrastructure away from the floodplain is the best way to avoid increasing flood risk. Scottish ministers and planning authorities are responsible for the development planning system in Scotland. Information and advice on flood risk will be provided to the development planning system by SEPA and the Responsible Authorities to help guide decision making. The impact of development on flood risk will be tracked and reported through the National Flood Risk Assessment and subsequent plans.

Reducing flood risk – protecting communities, infrastructure and individual properties

The assessments and plans produced under this new approach will also help Scotland target its efforts to reduce the likelihood of floods occurring, and if they do occur, the impact they have on homes and businesses.

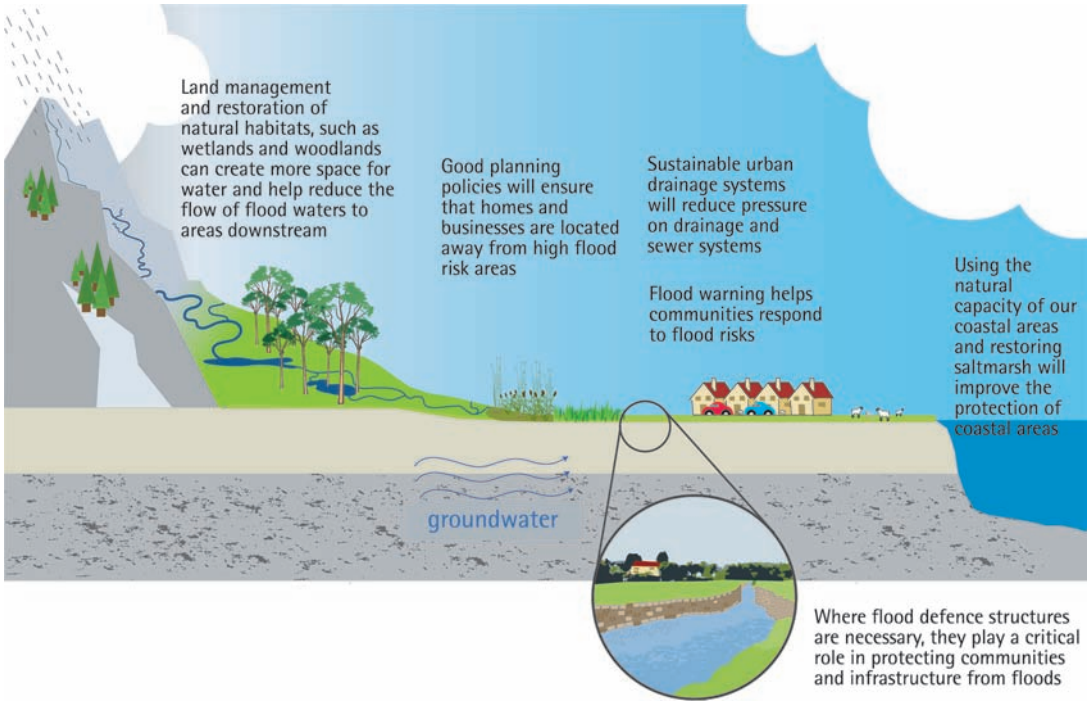
To help reduce the likelihood of flooding, the new approach will help us better understand the sources of flood waters so that we can identify opportunities to store and slow down water in our catchments and city centres. We will also be better placed to understand where we need investment in new flood protection schemes. Measures to reduce the impacts of floods when they do occur, through increasing awareness, providing flood warning and increasing the resilience of individual properties and infrastructure, are also an important element of the new approach.

Living with risk

We have to accept that flooding will always occur, and that it will have damaging impacts on people and the economy. This is the price we pay for living and working in areas that are naturally prone to floods. However, the new assessments, plans and actions will help reduce those impacts as far as is practical, and help us all understand the risks with which we are living.

Figure 1: Sustainable flood management

Managing flooding sustainably means considering all sources of floodwaters and taking pro-active actions to reduce the impact of flooding on communities



2.2 Responsibilities for managing floods

The responsibility for taking action to reduce the impact of floods in Scotland is shared between a number of public bodies. The public and businesses also have an important role to play. The Flood Act improves the existing functions of SEPA, local authorities and Scottish Water and provides a framework for ensuring that these functions are properly co-ordinated. The Flood Act requires that all responsible public bodies seek to reduce overall flood risk and ensure that they are working together to raise awareness of flood risk.

SEPA

Under the Flood Act, SEPA has been given significant new responsibilities including delivery of the national framework for flood risk management. This will be achieved through the preparation of the National Flood Risk Assessment, flood risk and hazard maps for all Potentially Vulnerable Areas and Flood Risk Management Strategies in each Local Plan District. The Flood Risk Management Strategies will set out objectives and measures to manage flood risk sustainably. The first step for SEPA in delivering this framework has been the preparation of the National Flood Risk Assessment, identifying those areas where the likely future impacts from floods on people, businesses and the environment are greatest. SEPA is also responsible for providing flood warnings, and for giving appropriate flood risk advice to development planning authorities.

Local authorities

Local authorities will continue to play a central role in managing flooding and building flood protection schemes. In each Local Plan District, local authorities must choose a lead local authority to co-ordinate the preparation of a Local Flood Risk Management Plan. These plans will supplement the strategies prepared by SEPA and translate them into co-ordinated actions to reduce flood risk. While lead local authorities will drive this work, they will need to do so in close partnership with other Responsible Authorities and SEPA. All local authorities within a Local Plan District must agree the contents of the Local Flood Risk Management Plan before it can be finalised.

Scottish Water

Scottish Water is responsible for assessing the risk of flooding from surface water and combined (surface water and foul) sewers that results from higher than usual rainfall. Once risks are identified, Scottish Water, working with local authorities and SEPA, will look for opportunities to reduce those risks through its capital investment programme. This will be co-ordinated with work to address surface water and other sources of flooding.

The Scottish Government

The Scottish Government has been, and will continue to be, responsible for setting the policy framework for managing flooding in Scotland. The Scottish Government is responsible for approving the identification of Potentially Vulnerable Areas and Local Plan Districts. The Scottish Government will also be responsible for approving SEPA's Flood Risk Management Strategies.

The public

It is impossible and impractical to reduce all flood risk, or to defend against all possible floods in all places. Those at risk of flooding need to make use of available information and advice to protect themselves and their property from floods. SEPA is keen that the public, stakeholders and communities are given every opportunity to be actively engaged in the process of producing and implementing Flood Risk Management Plans. Members of the public and other groups will have an important role to play in sharing local knowledge and engaging in the design of flood protection actions for their areas. This may be achieved through input to Local Advisory Groups and direct engagement with Responsible Authorities and SEPA.

3 Assessment and Planning for Floods

3.1 Introduction

SEPA and the Responsible Authorities are required to co-ordinate their work and approach flood risk management in a way that integrates national consistency and strategic decision-making with local knowledge and accountability. This integrated approach will be embodied in the preparation, approval and implementation of Flood Risk Management Plans. The plans will introduce a risk-based, long-term and sustainable view of catchment management.

This catchment-led approach will require Responsible Authorities and SEPA to work together to identify, and then co-ordinate the delivery of a range of actions that cross administrative boundaries. Key to success in this will be the development of close and productive working relationships between local authorities, SEPA and Scottish Water, as well as with other stakeholders and the public.

The Scottish Government requires SEPA, in consultation with Responsible Authorities, to set objectives and identify the most sustainable measures to address flood risk. SEPA will appraise the cost effectiveness of strategic objectives and measures, providing them to Scottish Government for approval. These will then be incorporated and developed further by lead local authorities into Local Flood Risk Management Plans. Responsible Authorities and SEPA will each have a role and a vested interest in the successful operation of local partnerships to deliver this process, so that the partnerships can make decisions jointly and co-own issues and actions.

3.2 The new flood risk management planning framework

Figure 2 summarises the key stages in assessing and planning for floods. At each stage, the geographical scope, level of assessment, and co-ordination between responsible bodies becomes more focused on areas of greatest risk.

The completion of the National Flood Risk Assessment and identification of Potentially Vulnerable Areas and Local Plan Districts is the first stage in establishing this new planning framework. Section 5 of this consultation sets out proposals for the identification of Potentially Vulnerable Areas.

Once an area is identified as potentially vulnerable to flooding, it triggers a number of important statutory requirements, most significantly the requirement for a Flood Risk Management Plan to be produced for the Local Plan District. The proposals set out in Section 5 will mean that all Local Plan Districts will be required to produce a Flood Risk Management Plan, and that the majority of flood risk management activities carried out by all relevant partners will be documented and co-ordinated within the national planning process.

A comprehensive approach to flood risk management planning that incorporates the majority of activity presents a number of challenges. The process will need to be flexible enough to allow Responsible Authorities and SEPA to retain sufficient resources to complete the detailed work and close partnership working that is required where complex flooding issues exist and major capital investment is needed. To ensure this capacity is retained and that resources are targeted to areas of greatest benefit, a subset of Potentially Vulnerable Areas will be identified for detailed appraisal and partnership working.

These areas will be used to help target major capital scheme development for the preparation and duration of the first planning cycle (2015 to 2021). The location and number of such areas will be determined by various factors, including internal resources within local authorities, Scottish Water and SEPA, as well as the affordability of subsequent measures.

Figure 2: Summary of the new approach to assessing and planning for floods

2011			2016
Stage 1	**Stage 2**	**Stage 3**	**Stage 4**
National Flood Risk Assessment and establishment of Local Plan Districts	More detailed Assessments focused on Potentially Vulnerable Areas	Flood Risk Management Strategies	Local Flood Risk Management Plans

Stage 1 – National Flood Risk Assessment and establishment of Local Plan Districts

The National Flood Risk Assessment is a high-level screening tool that will bring together available and readily derivable information on the sources and impacts of flooding in Scotland. It will provide a useful tool to help SEPA and the Responsible Authorities target their efforts to greatest effect. Over the last year, SEPA has been working closely with the Scottish Government and other stakeholders via the Scottish Advisory and Implementation Forum for Flooding (SAIFF) to develop the methods and tools required to undertake this assessment.

The National Flood Risk Assessment takes account of the likelihood of flooding from all sources, together with the potential impact of flooding on people, the economy and the environment. This has required us to examine what we expect to happen in the future (i.e. where flooding could occur) while at the same time taking account of what has happened in the past. The National Flood Risk Assessment provides the backbone of the new approach to managing floods. The way flood risk is assessed is developed further in subsequent more detailed assessments and plans. It is vital our approach to the National Flood Risk Assessment is based on sound science and reliable information. Further information on the National Flood Risk Assessment is provided in Section 4.

Based on the National Flood Risk Assessment, SEPA has identified those areas where the scale of potential impact is sufficient to justify further assessment and appraisal. SEPA is now consulting on the identification of these areas and they will ultimately be designated by ministers. This requires the setting of a threshold above which the overall impact of floods in a given area is considered *significant*. The setting of objectives and appraisal of measures within these areas (termed Potentially Vulnerable Areas) will form the basis on which we track the progress of flood risk management in Scotland across multiple planning cycles. This is an important step, and it is crucial the threshold is set at an appropriate level. Further detail on how this threshold is set has been provided in Section 5.

As well proposing Potentially Vulnerable Areas in this consultation, SEPA is publishing maps of proposed Local Plan Districts. Local Plan Districts are the most appropriate boundaries within which responsible bodies can work together with stakeholders to produce Local Flood Risk Management Plans.

The proposed Local Plan Districts will provide full national coverage of Local Flood Risk Management Plans. Within each Local Plan District, SEPA will work with the lead local authority to establish the necessary local partnerships and advisory groups to enable the subsequent stages of plan development.

In certain Potentially Vulnerable Areas where flooding problems are particularly complex and intractable, it may be necessary to establish formal local partnerships. These will exist between SEPA and the Responsible Authorities to support the detailed appraisal work necessary to inform major capital investment (through new river and coastal flood protection schemes, or in measures to address surface water flooding).

Stage 2 – Detailed assessments of hazards, impacts and actions

The next stage of the new planning framework will be focused on Potentially Vulnerable Areas identified as part of the National Flood Risk Assessment. It will involve bringing together the necessary information and data to enable SEPA and the Responsible Authorities to identify the most appropriate response to the predicted flood risks.

An important part of these detailed assessments is the production of flood hazard and risk maps. They will show varying details of flood events for a range of probabilities. A flood hazard map shows basic information that describes the nature of a flood in terms such as the extent of flooding, water level, depth and velocity where appropriate. A flood risk map provides additional detail on the impacts on people, the economy and the environment. The maps will cover flooding from rivers, the sea, surface water run-off and groundwater. This information will improve our understanding of flooding and inform the selection of actions to manage flood risk. The extent and detail of flood hazard and risk mapping carried out for each Local Plan District will be dependent on the spread of Potentially Vulnerable Areas and severity of risk within those areas.

SEPA, in consultation with its partners, will produce high-level objectives for all Potentially Vulnerable Areas. These might include, for example, 'reduce the risk to life from coastal flooding', 'reduce economic damage arising from surface water flooding' or 'reduce disruption to important infrastructure'. For all Potentially Vulnerable Areas, SEPA will co-ordinate a high-level appraisal of the costs and benefits of measures, to identify the most sustainable approach. This appraisal will cover measures such as flood warning, potential for natural flood management, maintenance activity, awareness raising and building resilience. Draft objectives and measures will be agreed by SEPA and the Responsible Authorities.

In areas where the need for surface water management plans or major capital investment in new river and coastal schemes has been identified, the local partnerships will appraise and identify more detailed measures than required elsewhere. The appraisal of these measures will be carried out by the most appropriate organisation under guidance from Scottish Government. Flood hazard and flood risk maps of an additional level of detail will be required in such areas. These will be developed by SEPA, local authorities and Scottish Water as appropriate.

Stage 3 – Production of Flood Risk Management Strategies

The preparation and implementation of Flood Risk Management Plans will be at the heart of efforts to tackle flooding in Scotland. The Flood Act provides for two sets of plans to be produced – Flood Risk Management *Strategies* prepared by SEPA, and Local *Implementation* Plans prepared by lead local authorities. The production of these plans will require close collaboration between SEPA, local authorities, Scottish Water, and other stakeholders, leading to joint decision-making and joint ownership of issues and actions.

Scottish Government requires SEPA to help ensure that the development of Flood Risk Management Plans is nationally consistent. This will be achieved through the setting of objectives and measures within SEPA's Flood Risk Management Strategies that are then developed further in Local Flood Risk Management Plans. Local authorities and Scottish Water are then responsible for delivering the structural measures on the ground.

The Flood Risk Management Strategies will be prepared by SEPA for each Local Plan District. They will summarise catchment information generated through the National Flood Risk Assessment and subsequent more detailed assessments of Potentially Vulnerable Areas. They will also set out the objectives and appraisal of measures within each Local Plan District. A draft of the strategies will be prepared for consultation by 2014, with a final set of strategies published in 2015. SEPA will co-ordinate production, consultation and publication of the strategies with the lead local authority in each Local Plan District.

The Flood Risk Management Strategies will not just focus on each six-year cycle; instead they will set out a road map to address current and future flood risk. This means that the plans will set out the long-term direction for flood risk management (up to 50 years), while also identifying short-term objectives.

In preparing the strategies for consultation, SEPA will ensure national consistency is applied to the setting of objectives and the appraisal of measures in all Potentially Vulnerable Areas. This will enable SEPA to provide Scottish Government with an assessment of national priorities. For investment through the Quality and Standards[2] process, this work will be closely co-ordinated with Scottish Water.

Stage 4 – Production of Local Flood Risk Management Plans

Local Flood Risk Management Plans will be prepared by the lead local authority in each Local Plan District. These plans will translate the strategies prepared by SEPA into co-ordinated actions to reduce flood risk. They will set out actions by all relevant bodies designed to meet the objectives and measures identified in the Flood Risk Management Strategy for that district. They can also contain additional information and activities as deemed appropriate by the lead local authority. The local plans will consist of a detailed timetable of actions for each six-year cycle. The plans will also set out the responsibilities for funding and implementation of actions. Where necessary, arrangements for co-ordination of respective functions of Responsible Authorities within the Local Plan District will also be described. The lead local authority will need to co-ordinate production, consultation and publication of the Local Flood Risk Management Plan with SEPA. Draft plans are required for consultation in December 2014, with final plans due to be published in June 2016.

[2] Quality and Standards is an investment planning process which sets objectives for Scottish Water. The objectives are set by ministers and cover improvements to drinking water quality, the environment and customer service.

4 National Flood Risk Assessment

4.1 Introduction

This section provides an overview of the approach taken to produce the National Flood Risk Assessment for Scotland. A detailed methodology is available that provides further information relating to the processes, principles, preparatory testing and underlying data. For a copy of the detailed methodology please refer to: www.sepa.org.uk/flooding/flood_risk_management/consultations.aspx

The National Flood Risk Assessment is a high-level screening tool. It is based on available and readily derivable information and is used to assess those areas of Scotland most vulnerable to flooding. The information produced by the National Flood Risk Assessment will also provide useful information for land-use planning, surface water management, and river basin management plans.

The National Flood Risk Assessment takes account of the likelihood of flooding from all sources, together with the potential impact of flooding on people, the economy and the environment. This has required us to examine what we expect to happen in the future (i.e. where flooding could occur), while at the same time taking account of what has happened in the past. The National Flood Risk Assessment provides the backbone of the new approach to managing floods. The principles developed within it and the way flood risk is assessed are developed further in subsequent more detailed assessments and plans. Over the last year, SEPA has been working closely with the Scottish Government and other stakeholders via the Scottish Advisory and Implementation Forum for Flooding to develop the methods and tools required to undertake this assessment.

4.2 Approach to the National Flood Risk Assessment

Flood risk is defined in the Flood Act as ... '*the combination of the probability of a flood with the potential adverse consequences, associated with a flood, for human health, the environment, cultural heritage and economic activity*'. What this means in practice is that for a flood risk to exist, you need a reasonable likelihood that a flood will occur in a place where it will have a negative impact on people, the economy or the environment.

A predictive approach

By definition a risk assessment is forward looking. Risk describes a potential impact of an event which has yet to occur. Our approach to assessing risk is to base the analysis predominately on predictive models of where flooding is most likely in future. However, we recognise predictive models aren't always right, so records of significant past floods are also taken into account.

Taking account of climate change

Adapting to climate change is an important element of flood risk management. The National Flood Risk Assessment therefore needs to be able to assess both flood risk as it stands now, and how it is likely to change in future as a result of a changing climate. The National Flood Risk Assessment considers how sensitive Scottish catchments are to climate change.

Multiple sources of flooding

Flooding is often a complex process, with multiple sources of flood water interacting to cause damage. These interactions are not considered fully in the National Flood Risk Assessment. Each source (river, sea, surface water and groundwater) is treated independently within the assessment. However, the National Flood Risk Assessment does allow for those areas at risk from multiple sources to be identified, so that more detailed analysis of interactions can be carried out in subsequent modelling and mapping exercises.

Existing flood defences

The National Flood Risk Assessment takes account of the benefit provided by the investment Scotland has made in flood defences over the past 50 years. However, we also need to recognise that structural defences aren't always effective. They can be overwhelmed by a flood that exceeds their design standard, or fail through

a lack of maintenance. Flooding from other sources (for example, surface water run-off) can also occur behind defences. The assessment therefore retains a residual risk in areas where flood defences are located.

Catchment-based approach

The National Flood Risk Assessment takes into account the impacts of catchment hydrology and geomorphology on flood risk management. The influence of catchment characteristics on the storage and conveyance of flood flows, potential erosion during floods, suitability for flood warnings and degree to which they have been modified (for example, through embankments and other engineering), has been assessed and the information will help inform subsequent stages of planning.

The National Flood Risk Assessment uses catchment units as a basis for classifying risk in the overall assessment and to record data against key factors, such as climate change, past floods and long-term development.

Available and readily derivable information

The National Flood Risk Assessment will develop and improve in accuracy over time. This first version is based on available and readily derivable information. To be used within the assessment, that information must also be reliable. To ensure a consistent approach across Scotland, the assessment uses information held at a national level by SEPA, Scottish Government and its associated organisations. The National Flood Risk Assessment has been developed and delivered using national datasets and at a scale that is appropriate for a nationally-applied, strategic study.

4.3 Measuring flood risk

Flood risk is defined in the Flood Act. A clear and consistent understanding of the elements that inform this definition has been sought by the Scottish Government that builds on various European initiatives to standardise how flood risk is measured. Working with the Scottish Advisory and Implementation Forum for Flooding, SEPA has further defined flood risk as a function of the following factors:

- Likelihood – the probability of flooding considered as the frequency of a flood event based on statistical analysis;
- Hazard – the impact of a flood is largely determined by its characteristics, measured in terms of extent, depth, duration, velocity, water quality and sediment content;
- Exposure – a measure of what receptors will be exposed to a flood;
- Value – the worth placed on the receptors exposed;
- Vulnerability – a measure of how likely a receptor is to be damaged during a flood and its ability to recover once damaged.

The National Flood Risk Assessment is a strategic level assessment that will support the identification of those areas most vulnerable to flooding. Due to the current availability of information, it is not practical to build into the assessment all of the factors above that make up flood risk. In subsequent planning cycles, new information to support the National Flood Risk Assessment will be available to develop a more complete picture of the elements that describe flood risk to people, the economy and the environment. In the areas identified for more detailed assessments, the same factors for defining flood risk will be used, with more detail incorporated as appropriate.

Likelihood and hazard

The National Flood Risk Assessment uses the best nationally available data on river and coastal flood hazards. This is SEPA's Indicative River and Coastal Flood Map. In addition, SEPA has produced new national outlines of surface water (pluvial) and groundwater flooding. All of the hazard outlines reflect flooding with a 1 in 200 chance of being exceeded in any given year. The indicative maps are not sufficiently detailed to provide reliable information on depths, velocities or other hazard characteristics. Therefore, only the extent of flooding is used within the National Flood Risk Assessment to characterise hazard.

The National Flood Risk Assessment is flexible enough to accommodate further probability and hazard data as it becomes available in subsequent planning cycles.

Assessing impact – exposure, value and vulnerability

Impact is measured against seven receptors grouped according to impacts on human health, economic activity, the environment and cultural heritage. For each receptor, risk is assessed using available information on exposure, value and vulnerability. Table 2 summarises the receptors and impact values used in the National Flood Risk Assessment.

Table 2: Summary of receptors and impact values used in the National Flood Risk Assessment

Receptor	Risk factors considered
Human Health	
People	Exposure – number of people estimated from residential property count. Value – n/a. Vulnerability – social vulnerability of the area using a Social Flood Vulnerability Index (SFVI). This takes account of factors such as home ownership and unemployment.
Community Services	Exposure – community services considered to include hospitals, schools, residential care homes, GP practices, police and fire stations, ambulance services, post offices, dentists and drinking water and waste water facilities. An 'Off/On' approach is used to reflect where a community service is located within a floodplain. Value – due to limited alternative support services, the importance of the community service increases in remote rural locations. Vulnerability – not incorporated.
Economic Activity	
Businesses	Exposure – number of non-residential properties. Value – Weighted Average Annual Damage (WAAD) score. Derived from the Flood Hazard Research Centre's Multi-Coloured Handbook. Vulnerability – not incorporated.
Transport	Exposure – an 'Off/On' approach is used to reflect where a road, railway or airport exists within a floodplain. Value – importance of road/railway/airport. For example, the road classification. Vulnerability – rural versus urban location of road or railway.
Agriculture	Exposure – 'Off/On' approach where an area of agricultural land is located within a floodplain. Value – importance of land class (for example arable land versus pasture). Vulnerability – not incorporated.
The Environment	
Designated sites	Exposure – 'Off/On' approach where an area of designated nature conservation land (SSSIs, SACs and SPAs) is located within a floodplain. Value – not incorporated. Vulnerability – consideration is given to the susceptibility of the species/habitat to flooding and the resilience of that species/habitat.
Cultural Heritage	
Cultural sites	Exposure – 'Off/On' approach where a cultural site (listed buildings, scheduled monuments, World Heritage Sites, gardens and designated landscapes) is located within a floodplain. Value – importance or level of designation of the cultural site. Vulnerability – not used in this version of the National Flood Risk Assessment. Will be developed in future in consultation with Historic Scotland.

A weighting has been applied to each category in terms of the influence each receptor may have on the overall output of the National Flood Risk Assessment. This weighting has been applied to ensure impacts to human health and economic activity are given greater consideration in relation to impacts to the environment and cultural heritage.

Data on hazards and impacts outlined above were combined using a 1km^2 grid. This produced a 'score' for each 1km^2 grid cell in Scotland. The grid scores were then transferred to catchment units by summing up all of the grid scores within each catchment unit. This produced an overall risk score for all catchment units within Scotland. The risk scores were then sub-divided to produce five classes of risk for catchment units ranging from Very High risk to Very Low risk.

Catchment units have been chosen to represent the results of the National Flood Risk Assessment. Various units of reporting were considered (amalgamation of 1km^2 grid cells, 'buffered areas' around grid cells, postal code areas etc.). The catchment units were regarded as the most appropriate option because they remain fixed through time (i.e. boundaries don't change each time the National Flood Risk Assessment is reviewed), so allow effective tracking of progress against Flood Risk Management Plans. They also allow catchment data to be shared easily between flood risk management and river basin management systems, and fit within the wider catchment-based approach of flood risk management in Scotland.

In addition to the assessment of flood risk built on the available hazard and receptor data (described above), other important datasets that influence risk have been built into the National Flood Risk Assessment to provide a full picture of potential impacts. These include data on key infrastructure, past floods, catchment sensitivity to climate change, the role of existing defences and planned developments. Each of these additional factors is described in more detail below.

Accounting for climate change and long-term developments

SEPA has characterised river catchments based on their sensitivity to climate change. This considers the potential flood risk in catchments as a result of increased peak river flows. The assessment looked at a range of emission scenarios with time horizons of 2050 and 2080. This approach provides a strong baseline assessment of the potential impact of climate change which can be used in the setting of objectives and appraisal of measures. The assessment also contributes to our understanding of how catchments influence flood risk and how they can be used in managing that risk.

SEPA has developed an initial characterisation of the coast in relation to sea level change and coastal erosion. This provides a review of the implications of climate change on coastal landforms and processes around Scotland and an assessment of future behaviour and vulnerability of the coastline. Whilst this information is not used within the National Flood Risk Assessment, it will inform subsequent stages of more detailed assessments and plans.

Another important factor affecting flood risk is long-term developments. Information on long-term developments has been obtained from the National Planning Framework 2. By understanding where future development is planned, we can assess the future impact of flooding and seek to inform appropriate development that avoids flood risk areas.

Accounting for existing defences and infrastructure

The benefit provided by existing defences is incorporated within the National Flood Risk Assessment using available information on the age, condition and standard of protection of individual schemes. To reflect the importance of residual risk within the National Flood Risk Assessment, all catchment units which contain a formal flood defence scheme (there are currently 113 schemes recorded within the Scottish Flood Defence Asset Database) have a minimum catchment rating of 'Medium' risk.

Disruption to utility infrastructure (for example, power stations, telephone exchanges, oil refineries) can cause significant impacts to widespread areas during floods. This may affect people and businesses who are not located within the floodplain and therefore do not consider themselves to be at risk from flooding. SEPA has identified utility infrastructure within the floodplain and will contact the owners/operators of the infrastructure directly to assess whether or not they are vulnerable to flooding. Where utility infrastructure is deemed to be vulnerable to flooding impacts, the relevant catchment unit will have a minimum classification of 'Medium'.

Taking account of past floods within the National Flood Risk Assessment

It is important to recognise that predictive models of flood risk aren't always right. It is also important to ensure that areas previously affected by significant flooding are considered within the National Flood Risk Assessment. For these reasons, SEPA has gathered information on past flood events from local authorities, Scottish Water and Network Rail, as well as our own internal records. An exercise has also been carried out to collect historical flood event data from archive sources. This data has been collated and reviewed and, as part of the review process, the significance of the flood recorded has been determined. Significant flood events have been identified using a scoring method that considers the impact, source and reliability of the recorded event.

Where we have reliable information that a significant past flood has occurred within a catchment unit, the risk class for that catchment unit has been set at a minimum of 'Medium'.

Summary of approach

Table 3 provides an indication of how the risk classification for catchment units is made up, based on the approach outlined above.

Table 3: Indicative impacts associated with each risk class

Risk class	Indicative impacts
Very High	Very large number of residential or business properties (greater than 1,000 homes or 500 retail premises) or two or more hospitals within the floodplain.
High	Large number of residential properties (on average 200) or a large number of business properties (around 90 factories) would be required within the floodplain. Also one airport or a significant section of motorway within the floodplain.
Medium	More than 50 homes or 25 retail premises within the floodplain. The record of a significant past flood or presence of a flood protection scheme.
Low	On average, 10 homes or two business properties located in the floodplain. 20 km^2 of arable land or two UNESCO World Heritage Sites.
Very Low	One or two residential or business properties affected by flooding.

4.4 The results

Figure 3 shows the output of the National Flood Risk Assessment for Scotland. Each catchment unit is classified according to its overall flood risk. Summary information for each risk class is provided in Table 4.

Table 4: Summary information for each risk class

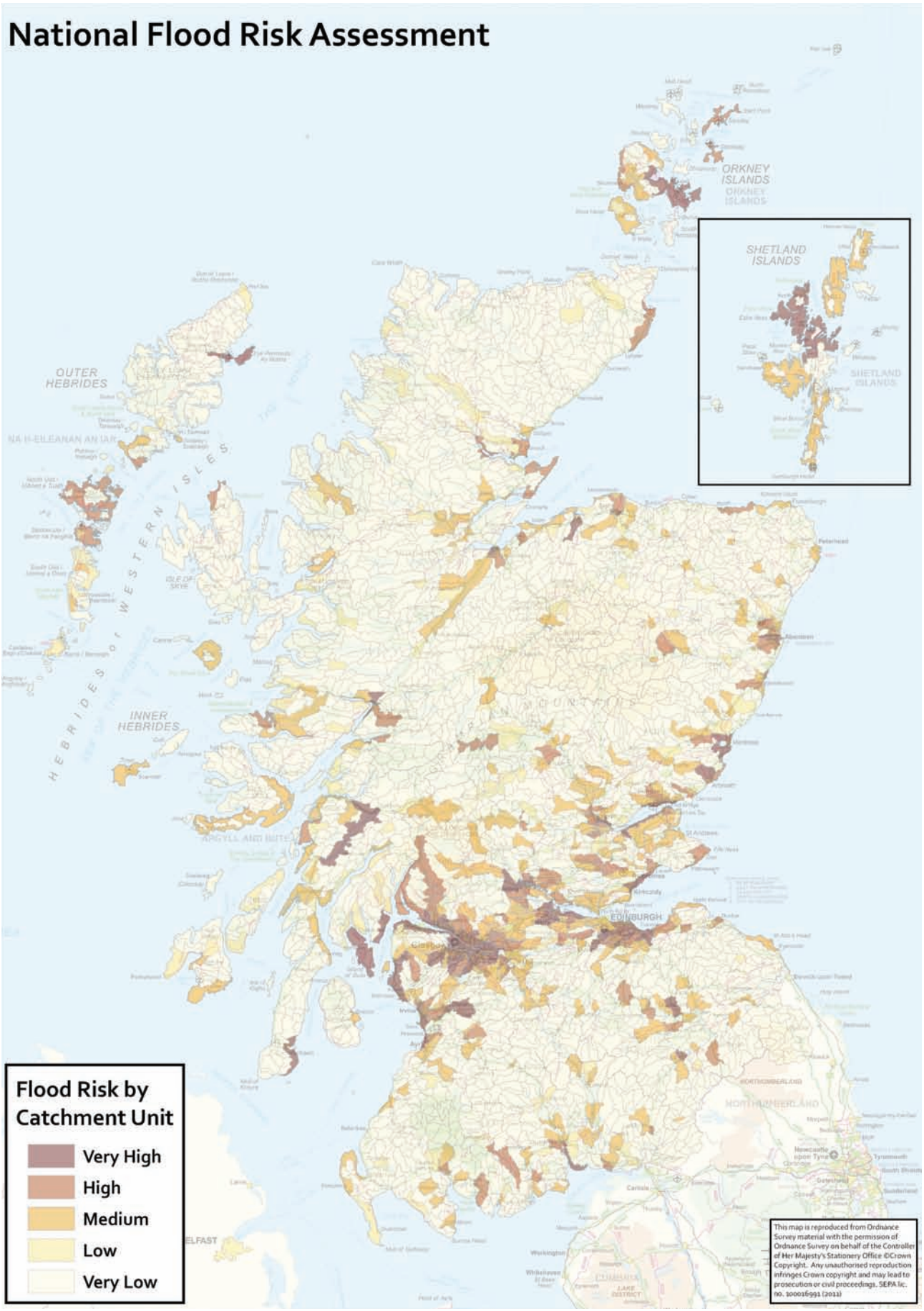
Risk class	Number of catchment units	Number of residential properties at risk	Number of non-residential properties at risk	Weighted Annual Average Damages* (£million)
Very High	73	68,070	6,040	£538m
High	108	25,038	3,036	£177.1m
Medium	262	16,625	2,243	£148.8m
Low	128	1,414	276	£15.8m
Very Low	3,086	6,500	1,516	£85.8m
Totals	**3,657**	**117,647**	**13,111**	**£965.2m**

*WAAD figures are based on the method set out in the Flood Hazard Research Centre's Multi Coloured handbook. The figures are an indicative estimate of direct costs to residential properties, non-residential properties and agriculture. These figures have been derived using nationally held datasets. They will be subject to change following this consultation and as a result of subsequent more detailed assessments. A revised set of indicative figures will be published as part of the National Flood Risk Assessment in December 2011. They will be further updated and refined as part of SEPA's Flood Risk Management Strategies in 2013.

It is important to note that not all properties within very high risk catchment units will be affected by flooding. Likewise, there will be homes and businesses within the low and very low categories that are at risk of flooding. This catchment level information should not be used as a substitute for site specific flood risk assessment.

For information on individual flood risk, please refer to: www.sepa.org.uk/flooding

Figure 3: The results of the National Flood Risk Assessment for Scotland



4.5 Taking account of local information

The National Flood Risk Assessment provides a strategic assessment of flood risk within Scotland. The assessment has been carried out using national datasets that are available or readily derivable. The National Flood Risk Assessment provides a good indication of the large-scale flooding issues faced within Scotland. However, we recognise it may miss some of the local issues which have a significant impact.

Additional information is therefore sought on local issues which may not have been included within the National Flood Risk Assessment. This data includes:

- The presence of restrictive structures;
- Further records of significant flooding;
- Sewerage system flooding – identification of poor sewage capacity;
- Details of any planned flood protection schemes;
- Planned future developments within or close to the floodplain.

To enable any new information submitted to be incorporated within the National Flood Risk Assessment, SEPA has provided guidance and criteria on the format we require. Generally, this takes the form of ESRI GIS files and/or Excel spreadsheets with the information attributes indicated in the guidance. The guidance for submitting local information can be found here: www.sepa.org.uk/flooding/flood_risk/consultations.aspx

5 Potentially Vulnerable Areas

5.1 Introduction

The purpose of this section of the consultation is to outline the approach used to identify those areas in Scotland where a significant flood risk exists now or is likely to occur in the future. These areas will be designated by Scottish ministers as Potentially Vulnerable Areas under the Flood Act.

The identification of a Potentially Vulnerable Area triggers a number of important statutory requirements which underpin the new approach to flood risk management in Scotland. For each Potentially Vulnerable Area, there is a requirement for:

- SEPA to produce flood hazard and risk maps;
- SEPA in consultation, to set objectives and appraise measures to address identified risks;
- Identification of areas for the production of Local Flood Risk Management Plans by lead local authorities;
- Scottish Water to undertake an assessment of the risk of flooding from sewerage systems.

It is SEPA's role to provide advice to Scottish ministers on how significant flood risk is defined. This will be based on the National Flood Risk Assessment described in Section 4.

5.2 Defining significant risk

Significant flood risk will mean different things to different people, depending on their experience and personal perspective. The Flood Act intends for the designation of significance to help identify areas of priority that require co-ordinated and planned action. Clearly, any flooding of an individual's home or business is significant to them and their family. However, it would not be practical for all flooding impacts, albeit individually significant, to be included within the definition of significance under the Flood Act. This would result in a disproportionate response by public bodies and an inefficient use of resources. Our approach therefore is to define significance based on where there is benefit from public bodies carrying out more detailed assessments, appraisals and action in light of the overall potential impact from floods in a given area.

This does not mean that people at risk of flooding outside of the Potentially Vulnerable Areas are forgotten. The approach has been designed so that the Local Plan Districts cover all of Scotland, which means that all areas are drawn into the planning process. The National Flood Risk Assessment, together with important duties on public bodies to raise awareness, provide flood warnings where appropriate, carry out maintenance, provide advice to planning authorities, still apply in all areas. This will provide a framework in which members of the public can take responsibility for protecting themselves and their property from flooding assisted by relevant public bodies.

SEPA is proposing to use the classification of catchment units under the National Flood Risk Assessment to set a significant risk threshold, and therefore to identify Potentially Vulnerable Areas. The National Flood Risk Assessment classified catchment units according to flood risk from Very Low to Very High. Table 5 provides information on these categories and the number of catchment units in each class.

Table 5: Summary information on catchment units

Risk class	Number of catchment units	Weighted Annual Average Damages (£million)	Total number of properties at risk
Very High	73	£538m	74,110
High	108	£177.1m	28,074
Medium	262	£148.8m	18,868
Low	128	£15.8m	1,690
Very Low	3,086	£85.8m	8,016
Totals:	**3,657**	**£965.2m**	**130,758**

Based on this assessment, SEPA will recommend to Scottish ministers that all catchment units at 'Medium' risk and above should be designated as Potentially Vulnerable Areas.

If we recommended a significance threshold to include only 'Very High' and 'High' categories, then areas with large numbers of properties within the floodplain (i.e. over 50 homes) would be excluded and the resulting geographical spread of Potentially Vulnerable Areas would be significantly reduced. This would also mean a large proportion of flood risk management activity, such as the provision of flood warnings or maintenance activity, would also be excluded from the steps associated with defining a Potentially Vulnerable Area. The setting of a significance threshold at 'Medium', will capture 90% of predicted flooding damages in Scotland, and ensure 93% of properties at risk of flooding are included within Potentially Vulnerable Areas.

Question 1

Do you support the setting of a significance threshold that will capture the majority of flood impacts and subsequent action in a comprehensive planning system (i.e. based around the 'Medium' risk level)?

5.3 Identifying Potentially Vulnerable Areas

The reporting of the National Flood Risk Assessment using catchment units was done to support a catchment-based approach to flood risk management. We are proposing to identify Potentially Vulnerable Areas based on these catchment units. Neighbouring catchment units will be merged to form larger Potentially Vulnerable Areas where appropriate, for the purposes of preparing Flood Risk Management Plans.

SEPA established a set of rules to identify those catchment units which may be combined to form a Potentially Vulnerable Area. These rules are described below and placed in order of priority.

- A Potentially Vulnerable Area should not cross a catchment boundary because our intention is for identified actions to be planned and be coherent within individual catchments;
- Smaller areas should only be combined to form larger ones where they share the same source of flooding i.e. a catchment unit with only fluvial flooding should not be combined with an area with only coastal flooding, because the management activities will be distinct from each other;
- Urban areas will be merged based on Scottish Water's sewer network catchment areas, because the management response is best planned across whole networks.

A map of the resulting Potentially Vulnerable Areas is shown in Figure 4. A datasheet for each Potentially Vulnerable Area is provided in a series of appendices to this consultation. The datasheet provides information on why the area has been designated as at significant risk, details of the sources of flooding within it, and impacts predicted. The Potentially Vulnerable Area datasheets are organised by Local Plan District (see Section 6 for details of Local Plan Districts), with a separate appendix for each Local Plan District.

Where a Potentially Vulnerable Area has been formed from two or more catchment units, a datasheet for each catchment unit is also provided. This is to allow the reader sufficient information to judge whether the overall boundary of the Potentially Vulnerable Area is appropriate.

Question 2

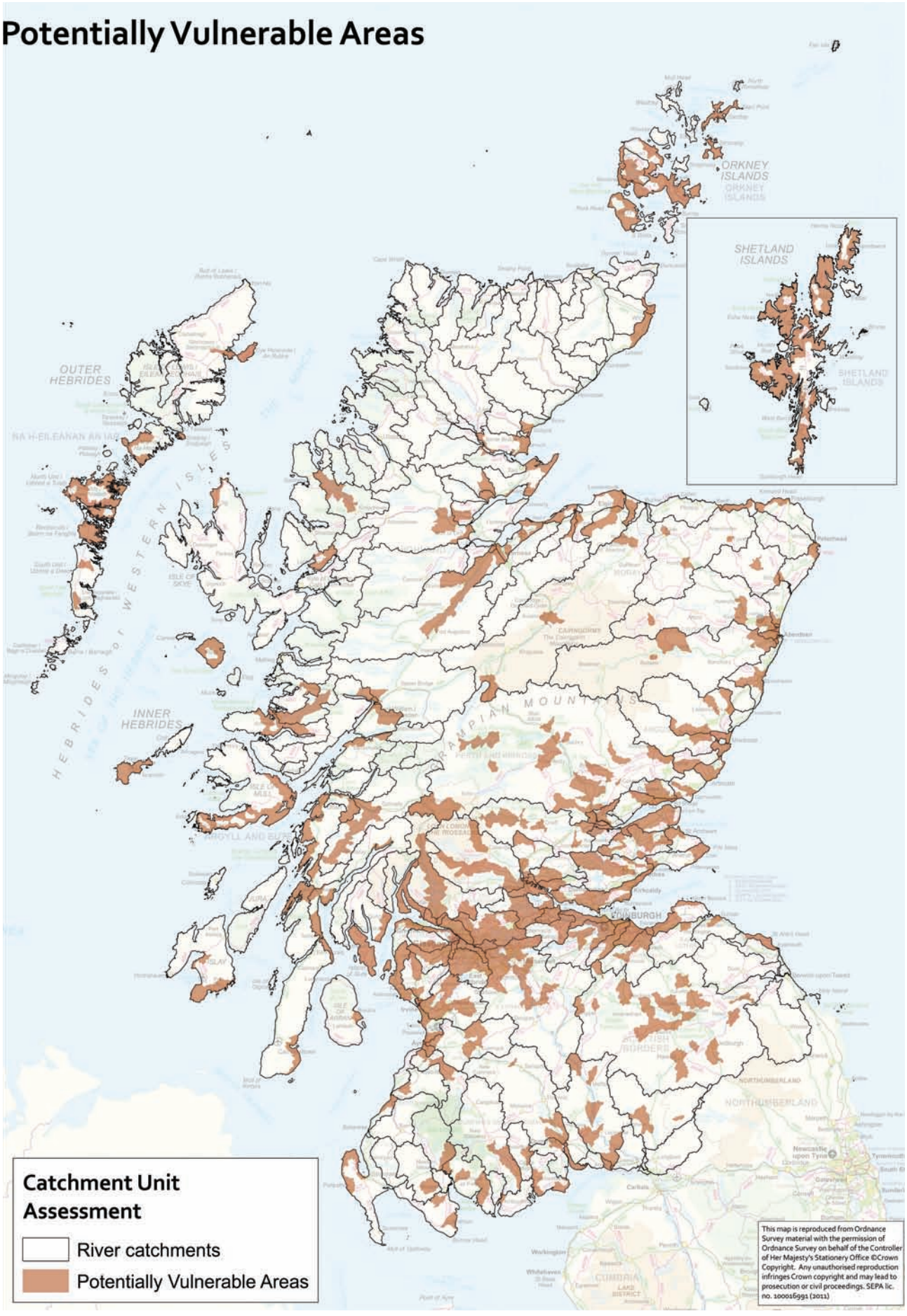
Are there areas identified as Potentially Vulnerable Areas following this assessment that you believe should not be designated as at significant risk of flooding?

Question 3

Are there areas NOT identified as Potentially Vulnerable Areas following this assessment that you believe should be designated as at significant risk of flooding?

If you answer YES to either question 2 or 3, please provide a justification for your responses using the criteria described on SEPA's website at: www.sepa.org.uk/flooding/flood_risk/consultations.aspx

Figure 4: Map of Potentially Vulnerable Areas



6 Local Plan Districts

6.1 Introduction

Local Plan Districts are the geographical areas for managing flood risk. They are to be designated by Scottish ministers on the recommendation of SEPA. A Flood Risk Management Strategy and Local Flood Risk Management Plan will be produced for each Local Plan District. A lead local authority will be identified in each Local Plan District to co-ordinate and support the production of the Local Flood Risk Management Plan. Details of the roles and responsibilities of lead local authorities, along with other stakeholders, is provided below.

2010 Consultation on Local Plan Districts

In August 2010, SEPA launched the consultation '*Planning for floods, planning for the future*'. The consultation outlined proposals for 20 Local Plan Districts that covered all of Scotland. National coverage of Local Plan Districts ensures the introduction of a consistent approach to flood risk management in Scotland, and allows SEPA and local authorities to provide an overview of flood risk across each river catchment. This approach enables all of Scotland, including the public, to assess and understand their current and future flood risk, providing the context for how urban and rural land is developed and for how we use and manage the land to meet our needs without compromising the ability of future generations to meet their own needs.

The majority of respondents to the 2010 consultation stated there should be fewer Local Plan Districts. A summary of the consultation responses was published on the SEPA website in December 2010 (see www.sepa.org.uk/flooding/flood_risk_management/consultations.aspx). In view of the consultation responses, and in further discussion with Responsible Authorities, SEPA has now revised the Local Plan Districts. We have reduced the total number to 14 whilst still retaining national coverage. We are now confident that the proposed Local Plan Districts will enable an efficient use of resources and create areas within which to focus the appropriate management of flood risk.

6.2 Proposed Local Plan Districts

SEPA will continue to liaise with local authorities throughout the current consultation period to ensure the final Local Plan Districts recommended to ministers are the most appropriate geographical boundaries for the production of Flood Risk Management Plans.

Current proposals

A set of principles for defining Local Plan Districts were established in partnership with the Scottish Advisory and Implementation Forum for Flooding and outlined SEPA's 2010 consultation document. These are shown in Table 6.

Table 6: Principles for establishing Local Plan Districts

Principle	Explanation
1	Local Plan Districts must follow catchment boundaries.
2	Local Plan Districts need to operate at a scale that allows agreements to be reached on funding, including taking forward flood protection schemes through Local Flood Risk Management Plans.
3	It must be possible to identify a lead local authority for each Local Plan District.
4	Local authorities, Scottish Water and SEPA must retain their accountability for making decisions and taking actions to help communities at risk of flooding.
5	A Local Plan District should not cross units for surface water management for large cities (i.e. where possible, all catchments draining large cities should be included within one Local Plan District).

Ninety percent of respondents to the 2010 consultation agreed that these principles provide a reasonable approach to defining Local Plan Districts. As such they have been retained when revising the Local Plan District boundaries in line with calls to reduce the overall number of districts. A number of additional factors have been considered by SEPA in refining the boundaries. These include:

- **Local authority boundaries.** Local authority boundaries must be considered so that each authority is required to contribute to a minimal number of Local Plan Districts;
- **Area Advisory Group (AAG) boundaries.** Area Advisory Group boundaries are used for the Water Framework Directive. Local Plan District boundaries that align as closely as possible with these boundaries offer a sensible means to facilitate joint working in delivering the Floods Directive and Water Framework Directive, and particularly for stakeholder engagement and co-ordinating objectives and measures;
- **Hydrometric areas.** Floods happen in catchments and their management is best considered at that scale. Hydrometric areas are either integral river catchments, or may include several contiguous river catchments having topographical similarity. Hydrometric areas can usefully group catchments together to form Local Plan Districts;
- **Estuaries and coastal cells.** Where possible, estuaries and coastal cells have not been divided between Local Plan Districts.

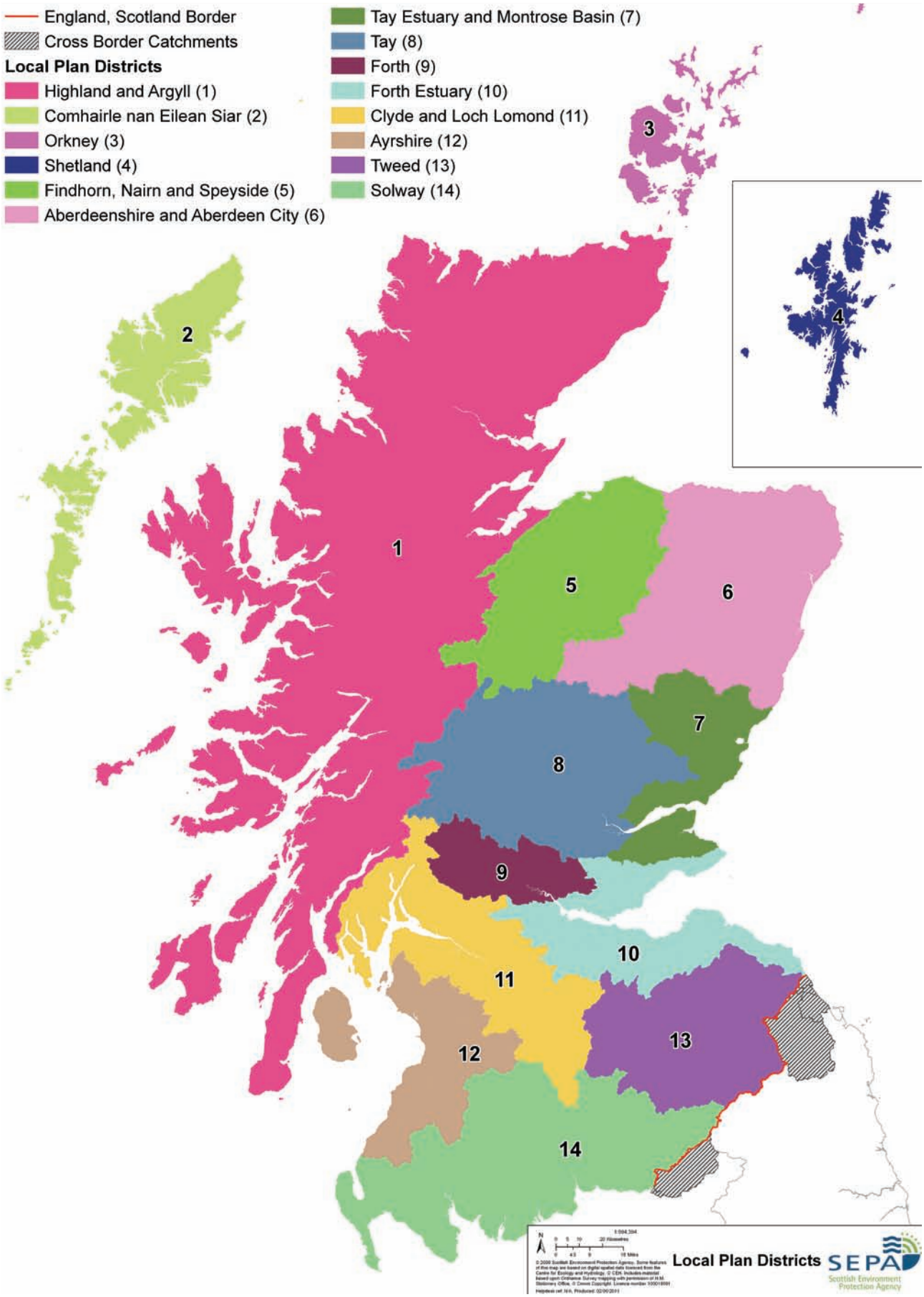
A map of the 14 proposed Local Plan Districts is provided in Figure 5.

Further detail on each Local Plan District is provided in the relevant appendix to this consultation.

Question 4

Do you agree that the amendments made to the boundaries of the Local Plan Districts are an appropriate response to the consultation exercise held in 2010? If not, what changes would you suggest and why?

Figure 5: Map of 14 proposed Local Plan Districts



6.3 Roles and responsibilities of local authorities within Local Plan Districts

Local authorities

Under the Flood Act local authorities have been given new powers and duties for flood risk management. Duties for local authorities now require them to:

- Reduce overall flood risk when exercising their flood risk related functions;
- Achieve objectives set out in Flood Risk Management Strategies;
- Map, assess and maintain watercourses, and;
- Co-ordinate flood-related work with other local authorities.

Local authorities also have powers to undertake work and acquire land.

Lead local authorities

In addition to these responsibilities, the Flood Act requires a lead local authority to be identified for each Local Plan District. A lead local authority is required to take on additional responsibilities over and above the duties and powers outlined above.

A lead local authority must co-ordinate the production, consultation, publication and review of the Local Flood Risk Management Plan. The lead local authority must also ensure the early establishment of a local partnership for Responsible Authorities and SEPA.

Scottish Government guidance *Delivering Sustainable Flood Management* recommends an approach founded on collaboration and co-ownership between Responsible Authorities and SEPA. All these organisations will have an interest in the local partnership and will be expected to lead areas of work and facilitate momentum. Partnership models will vary between Local Plan Districts depending on the complexity of the flooding involved, with some expected to rely on informal working relationships and some to be bound by contractual agreements. A Local Flood Risk Management Plan cannot be completed until all local authorities within a Local Plan District agree to its contents, a fact which emphasises the importance of developing an effective partnership between Responsible Authorities. Where local authorities cannot agree on the content of the Local Flood Risk Management Plan, it will be determined by Scottish ministers.

Lead local authorities are expected to take the lead for setting up and running local partnerships with support from SEPA as needed. Their main purpose will be the production and review of Local Flood Risk Management Plans.

Identifying the lead local authority

It is the responsibility of the local authorities within a Local Plan District to agree the lead local authority. If agreement cannot be reached, the lead local authority will be determined by Scottish ministers. SEPA will help facilitate discussions to agree a lead local authority based on the distribution of flood risk within the Local Plan District, if local authorities want this additional support. SEPA is keen to have local partnerships established early in 2012 to discuss the production of the Flood Risk Management Strategies, and would therefore like to see the lead local authorities identified by the end of 2011.

6.4 Advisory Groups

Local Advisory Groups

In addition to a local partnership of Responsible Authorities and SEPA, each Local Plan District, or combination of Local Plan Districts, will also have a local advisory group established (as specified under the Flood Act). SEPA has responsibility for establishing the remit, membership and procedure of these advisory groups, and SEPA and the lead local authority must have regard to any advice that they provide.

The local advisory groups will have representation from:

- Local authorities and Scottish Water;
- Category 1 responders;
- Scottish Natural Heritage, relevant National Parks, and;
- Other local stakeholders with an interest in flood management identified by SEPA as needed to address particular issues.

The remit of the groups will be to advise SEPA and the lead local authority. More specifically, within the context of associated Local Plan Districts, the remit of the groups will be to advise on the key deliverables outlined in the Flood Act including:

- The production and review of the Local Flood Risk Management Plans, Flood Risk Management Strategies, maps and assessments;
- The identification of objectives and sustainable actions to reduce flood risk.

The groups will also be required to provide advice on the co-ordination and integration with other strategic plans and policies, as well as to generally encourage partnership working and participation of stakeholders in the flood risk management planning process.

The operation of the advisory groups is expected to vary according to local requirements and priorities. However, it is proposed that:

- SEPA will chair and provide secretariat support for each group;
- The number of meetings required will depend on the key deliverables of the Flood Act, but will be in the order of two meetings each year. Meetings will be called at the discretion of SEPA when advice from the group is required. Requests for additional meetings can be made to SEPA.

Question 5

Do you agree with the broad remit, membership and procedure of the local advisory groups?

National Flood Management Advisory Group

Following the 2010 consultation on flood risk management planning, SEPA established the National Flood Management Advisory Group. The remit of the group is to provide advice and support to SEPA on the key deliverables outlined in the Flood Act. In addition, the National Flood Management Advisory Group will:

- Advise on the co-ordination and integration with other strategic plans and policies;
- Encourage partnership working and participation of stakeholders in the flood risk management planning process by providing support and advice on the provision of guidance to local advisory groups to ensure a consistent approach;
- Seek to resolve significant conflicts identified by local advisory groups, and;
- Promote general awareness raising by cascading outcomes from the group to individuals and organisations that members deem appropriate.

Co-ordination with River Basin Management Planning

SEPA, following feedback from its consultation in 2010, is currently using the Area Advisory Groups which were established under the Water Framework Directive to fulfil the function of local advisory groups under the Flood Act.

The Water Framework Directive and the Floods Directive are very closely linked. Flood risk management planning will not only reduce the impact of flooding, it also provides an opportunity to improve the quality of the water environment by restoring rivers and floodplains and helping to achieve objectives of the river basin management plan. However, flood risk management also has the potential to adversely impact the quality of the water environment, for example when the building of flood walls and embankments affect Water Framework Directive objectives.

It therefore remains important that links are maintained between the two planning processes to ensure multiple benefits can be achieved and that any conflicting objectives can be managed.

The Area Advisory Groups have provided a forum for local stakeholders to comment on the implementation of the new approach to flood risk management in Scotland. These temporary arrangements will remain in place until spring 2012. In 2012, we are proposing to set up permanent arrangements for local advisory groups using the boundaries set up for Area Advisory Groups under the Water Framework Directive. The remit and membership of the groups will need to reflect the role specified in the Flood Act (as described at the beginning of this section).

Proposals in this consultation for Local Plan Districts align well with boundaries set under the Water Framework Directive, although the overlap is not complete. SEPA is the competent authority for both planning processes and through its commitment to integrated catchment management will ensure consistency and co-ordination between flood risk management planning and river basin management.

Question 6

Do you support the use of the Area Advisory Group boundaries established under the Water Framework Directive as the basis for establishing local advisory groups as required in section 50 of the Flood Act? If not, what alternative arrangements would you suggest and why?

7 Glossary

Area Advisory Group	Stakeholder forum established to provide input to River Basin Management Plans. There are 10 Area Advisory Groups in Scotland. During 2011, they are fulfilling the requirements for a local advisory group set out in Section 50 of the Flood Act.
Flood hazard map	Shows information that describes the nature of a flood in terms of the extent, water level, depth and velocity of water.
Flood risk	A measure of the likelihood of flooding occurring combined with impacts on people, the economy and the environment.
Flood Risk Management Plans	Plans through which decision makers and stakeholders within an area identify and agree polices and actions to reduce the impacts of flooding. Under the Floods Act, these will comprise of Flood Risk Management Strategies prepared by SEPA, and Local Flood Risk Management Plans prepared by local authorities.
Flood Risk Management Strategy	Sets out a long-term vision for the overall reduction of flood risk. They will contain a summary of flood risk in each Local Plan District, together with information on catchment characteristics and a summary of objectives and measures for Potentially Vulnerable Areas. Taken together, the Strategies will satisfy the requirement for National Flood Risk Management Plans, set out in Section 27 of the Flood Act.
Flood risk map	Supplement flood hazard maps and provide detail on the impacts of flooding on people, the economy and the environment.
Local Flood Risk Management Plans	They will contain details on the funding, timing and responsibility for actions to reduce flood risk. They will set out how the Flood Risk Management Strategies will be implemented in each Local Plan District and any other locally relevant information. They satisfy the requirements set out in Section 34 of the Flood Act.
Lead local authority	A local authority responsible for leading the production, consultation, publication and review of a Local Flood Risk Management Plan.
Local Plan District	Geographical areas for which Local Flood Risk Management Plans will be produced
National Flood Risk Assessment	A national assessment of the impacts of flooding on people, the economy and the environment. Taking into account catchment characteristics, climate change and long-term developments.
Natural flood management	A set of flood management techniques that aim to work with natural processes (or nature) to manage flood risk.
One in 200 year flood	A flood that has a probability of being exceeded once every 200 years. Also expressed as a flood, which has a 0.5% probability of being exceeded in the space of one year.
Potentially Vulnerable Areas	Catchment units in which the National Flood Risk Assessment has identified significant impacts from flooding either now, or in the future as a result of climate change. They will be used as the basis for producing Flood Risk Management Strategies.
Responsible Authorities	Designated in the Flood Act as local authorities and Scottish Water. Responsible Authorities, along with SEPA and Scottish ministers have specific duties under the Flood Act in relation to their flood risk related functions. Scottish ministers can designate additional public bodies as Responsible Authorities.
Scottish Advisory and Implementation Forum for Flooding	A stakeholder forum set up by the Scottish Government to provide a platform for developing guidance and informing policy on implementation of the Flood Act.

SEPA
Scottish Environment Protection Agency

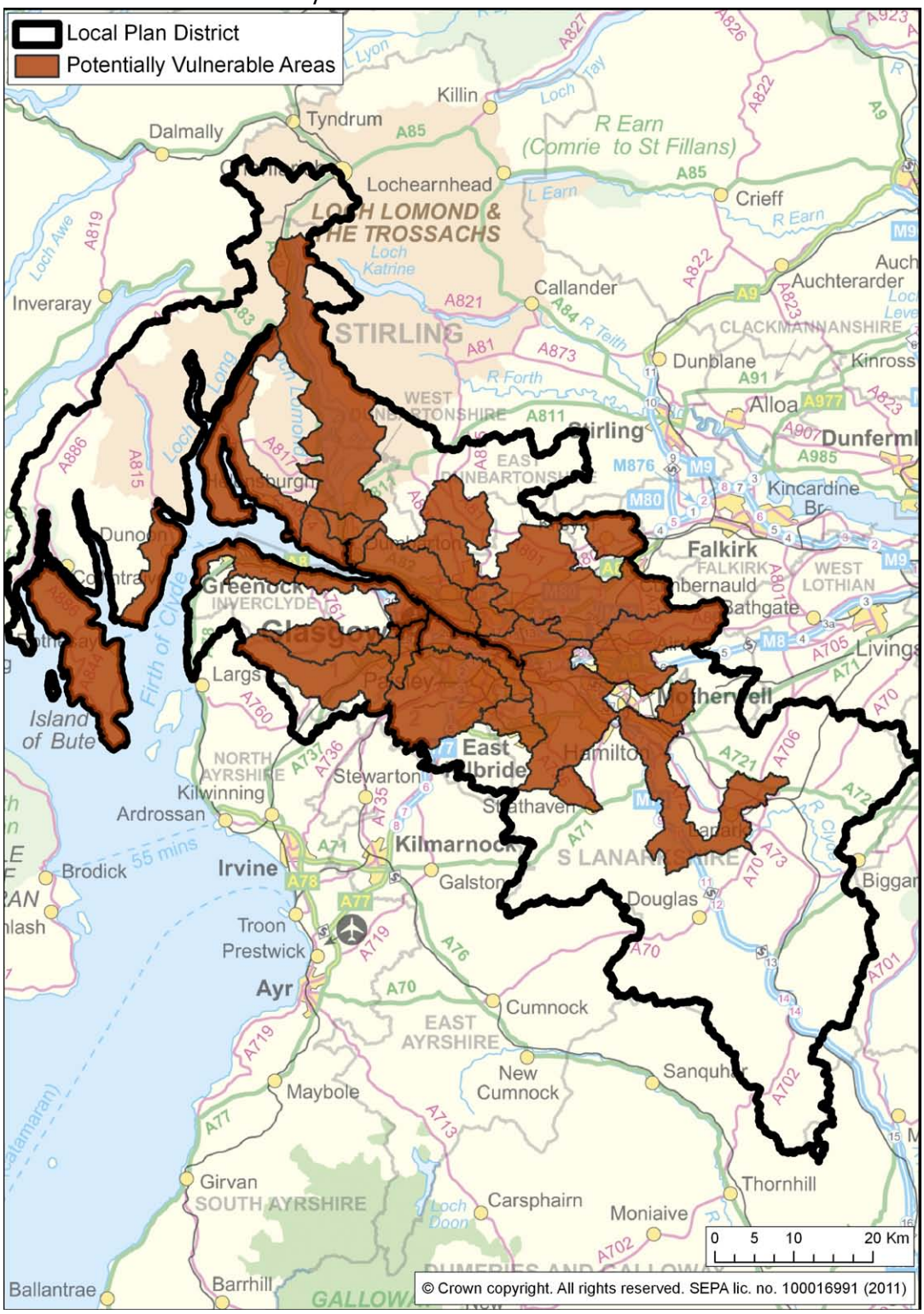
Flood Risk Management (Scotland) Act 2009
Flooding in Scotland: A consultation on Potentially Vulnerable Areas and Local Plan Districts

Appendix 11:
Clyde and Loch Lomond

Local Plan District Summary Sheet

Purpose – This Local Plan District summary sheet provides information on the main sources of flooding and associated impacts identified through the National Flood Risk Assessment. It also provides a summary of Potentially Vulnerable Areas within the Local Plan District and how they are spread between local authorities. More detailed information on the sources and impacts of floods, including past events and catchment characteristics will be developed as part of the Flood Risk Management Strategies for each Local Plan District.

Local Plan District 11: Clyde and Loch Lomond



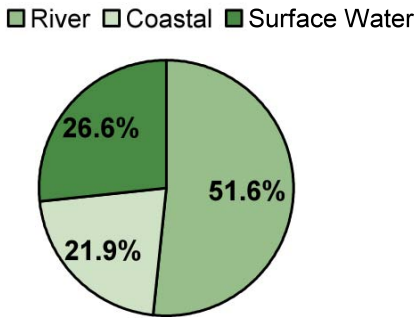
Summary of Impacts

The Clyde and Loch Lomond Local Plan District extends from Loch Lomond in the north to Leadhills in the south, and includes part of the Loch Lomond and the Trossachs National Park. It has a total area of approximately 4,840km^2. The National Flood Risk Assessment identified approximately 37,090 residential properties and 2,560 non-residential properties as at risk of flooding in this Local Plan District. This equates to approximately 1 in 23 of all residential properties and 1 in 19 of all non-residential properties located within this Local Plan District. The Weighted Annual Average Damages for properties and agricultural land at risk of flooding in this Local Plan District is estimated at £278million.

Sources of Flood Risk

The largest potential source of flood risk in this Local Plan District is from rivers, which accounts for just over half of all potential flood risk. There are also significant flood risks associated with surface water run-off and coastal areas.

The Potentially Vulnerable Area and Catchment Unit datasheets have further information on the source and characteristics of flooding within your area (reference numbers beginning with 11/).



Potentially Vulnerable Areas

Based on the National Flood Risk Assessment, 25 Potentially Vulnerable Areas have been identified, comprising of 64 catchment units, with a total area of approximately 1,830km^2. Located within these 25 Potentially Vulnerable Areas are approximately 98% of all properties identified as at risk of flooding in this Local Plan District. The Weighted Annual Average Damages within these Potentially Vulnerable Areas also account for approximately 98% of the estimated cost to the Local Plan District.

There are 10 local authorities with Potentially Vulnerable Areas located within this Local Plan District. The reference number of Potentially Vulnerable Areas by local authority area can be viewed in the table below. Potentially Vulnerable Areas can cross local authority boundaries as they follow catchment boundaries. Therefore, a Potentially Vulnerable Area can be listed under more than one local authority in the table below.

Local authority	Number of PVAs	PVA Reference Number (insert 11/)
Argyll and Bute	6	19, 21 to 25
East Dunbartonshire	4	06, 16, 17, 21
East Renfrewshire	3	09 to 11
Falkirk	1	15
Glasgow City	8	03, 04, 06, 10 to 12, 16, 17,
Inverclyde	4	01, 05, 07, 09
North Ayrshire	1	09
North Lanarkshire	5	03, 12, 14, 15,17,
Renfrewshire	7	02, 04, 05, 07 to 10
South Lanarkshire	4	04, 11 to 13
Stirling	3	17, 21, 22
West Dunbartonshire	6	06, 17 to 20, 22
West Lothian	1	15

Changes to Local Plan District

To take into consideration the comments received in the *Planning for Floods – Planning for the Future* consultation, the proposed number of Local Plan Districts for Scotland has been reduced. In this area, all of Inverclyde and parts of Argyll and Bute have been included in the Clyde and Loch Lomond LPD to allow better assessment and consideration of flood risk in the Firth of Clyde.

Potentially Vulnerable Area and Catchment Unit Datasheets:

Explanatory text

The information contained within the datasheets is draft and will be subject to change. The National Flood Risk Assessment will be updated following this consultation and published in December 2011.

The datasheets provide a summary of the different elements that have been used within the National Flood Risk Assessment to identify Potentially Vulnerable Areas. A datasheet is provided for each Potentially Vulnerable Area. Where a Potentially Vulnerable Area has been formed from two or more catchment units, a datasheet for each catchment unit is also provided. The datasheets are provided to give the reader sufficient information to judge whether the overall boundary of the Potentially Vulnerable Area is appropriate. The terms used in the datasheets are defined below.

Please refer to our data re-use statement for conditions of use. This statement is available on the SEPA website[1]. Alternatively, please contact SEPA for a written copy of this statement.

Catchment Unit No. – Identifier number applied to catchment units in the format: LPD/PVA/Catchment Unit e.g. 03/05/01

PVA No. – As above; identifier for the Potentially Vulnerable Area, with the format LPD/ PVA e.g. 03/05

Local Plan District – Local Plan District identifier with a name and number. The unique Local Plan District number is used to identify Potentially Vulnerable Areas and catchment units.

Main River Catchment – Name of the main river catchment.

Local authority – The name of any local authority which falls within each Potentially Vulnerable Area or catchment unit. An individual Potentially Vulnerable Area or catchment unit can cross multiple local authority boundaries.

Summary of main impacts – A broad statement providing an indication of what is impacted by flooding within an area. The statements give an indication of the impact on the four main groups of receptors (Human Health, Economic Activity, Environment and Cultural Heritage). The order of statements identify which has the largest contributing factor to the National Flood Risk Assessment output.

Category (*catchment unit sheets only*) – The final flood risk category (Very High, High or Medium) for the catchment unit following the National Flood Risk Assessment. This includes assessment of infrastructure, historic flooding, groundwater, climate change and flood defences.

1 www.sepa.org.uk/flooding/flood_risk_management/consultations.aspx

Weighted Annual Average Damages – A strategic level estimate of flood risk damages has been calculated using the Multi-Coloured Handbook[2]. The Weighted Annual Average Damages figure gives an indicative estimate of direct costs to residential properties, non-residential properties and agriculture. It includes the benefit offered to residential and non-residential properties by flood protection schemes which protect to a 1 in 200 year flood event. The figure does not include the benefit from Flood Warning Areas. These figures are indicative and have been derived using nationally held datasets. Care should be taken when applying these figures locally. They will be subject to change following this consultation and as a result of subsequent more detailed assessments. A revised set of indicative figures will be published as part of the National Flood Risk Assessment in December 2011. They will be further updated and refined as part of SEPA's Flood Risk Management Strategies in 2013.

Known Source of Flooding – A pie chart showing the percentage of the overall influence of flood sources in the National Flood Risk Assessment (the influence of groundwater, climate change or flood defences have not been included within this assessment).

Groundwater Flooding - Identifies areas where groundwater flooding may be a contributing factor to flood risk either by causing the flooding or by exacerbating flooding from another source, for example, prolonging or increasing the extent of a river flood.

Impact of Climate Change – A statement which provides a broad summary of catchment sensitivity to climate change impacts. Where a catchment is shown to be sensitive it might exhibit a run-off response greater than the predicted increase in rainfall. Conversely catchments which are less sensitive would exhibit a run-off response less than the predicted increase in rainfall. A large proportion of Scotland has neutral catchments where the predicted increase in run-off would be similar to the increase in rainfall.

The impact of changing sea-levels has not been incorporated into the assessment. Information on this factor, when available, will be incorporated into the future versions of the National Flood Risk Assessment.

Proportion of Property Type in PVA/Catchment Unit – Properties within the flood extent. The number of residential and non-residential properties within a Potentially Vulnerable Area or catchment unit which have been identified as being *at risk of flooding.*

Percentage of properties - The percentage of residential and non-residential properties within the Potentially Vulnerable Area or catchment unit which have been identified as being *at risk of flooding.*

Towns and Villages with Properties at Risk – Each town and village where 50 or more residential properties are shown to be at risk of flooding.

Characteristics
Total Area – The area in square kilometres for the Potentially Vulnerable Area or catchment unit.

Land Cover – Land use statistics based on CORINE[3] data is provided for Urban, Agriculture and Forestry as percentage of the total area. This will be less than 100% with the remainder made up of other land use type. More information on the CORINE data set and land cover classes is available at:
http://www.ceh.ac.uk/sci_programmes/BioGeoChem/CORINELandCoverMap.html

2 The Multi-Coloured Handbook is produced on behalf of the Environment Agency and Defra by the Flood Hazard Research Centre at Middlesex University. The use of the handbook is recommended for benefit assessment as part of flood and coastal erosion risk management appraisal. Further information on the handbook is available at: http://www.mdx.ac.uk/research/areas/geography/flood-hazard/

3 The CORINE Land Cover map is produced jointly by the European Commission and the member states. It records 44 land cover and land use classes which represent the major surface types across Europe. The Centre for Ecology & Hydrology has been responsible for producing the UK contribution to these pan-European maps.

Includes Flood Defence(s) – States if formal flood defences have been identified within the Potentially Vulnerable Area or catchment unit. 113 flood protection schemes have been incorporated from the Scottish Flood Defence Asset Database. Additional details are available at:
http://www.scottishflooddefences.gov.uk/Site/SE_Splash.asp

Included Flood Warning Area(s) – Identifies if a Flood Warning Area is within the Potentially Vulnerable Area or catchment unit. Further information on Flood Warning Areas is available at:
http://floodline.sepa.org.uk/floodupdates/quickdialcodes

Catchment Hydrology – A broad statement which provides a summary of catchment hydrology characteristics which could affect flood risk. Available and readily derivable information was used to identify important controlling or influencing factors on flood hydrology (e.g relative floodplain storage, overall catchment storage potential, catchment responsiveness etc.), which would aid the identification of areas that may be more susceptible to flooding.

Catchment Morphology – A broad statement which provides a summary of the catchment morphology characteristics which could affect flood risk. Available information was used to categorise how the potential impact of channel engineering could affect flood risk. This considers the potential for structures such as bridge piers and pipelines, culverts, weirs, flow deflectors, channel realignment, embankments etc. to increase flood risk upstream or downstream.

Potentially Vulnerable Area Datasheet

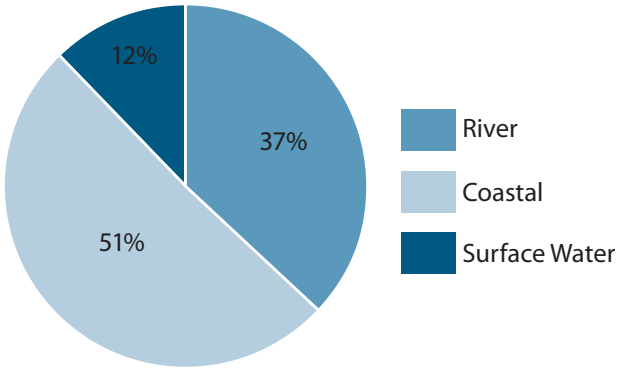
PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/01	11 – Clyde and Loch Lomond	Inverclyde Coastal	Inverclyde

Summary of Main Impacts

Assessment of future flood risk and past events show multiple rivers/burns present a potential impact to some residential properties and higher category community facilities including Emergency services and Education facility within the floodplain; potential impact to some commercial properties, transport links and agricultural land; potential impact to some scheduled monuments. Existing defences on Gourock Burn offers partial protection to some of these impacts.

Estimated Weighted Annual Average Damages	£8,890,000

Known Source of Flooding



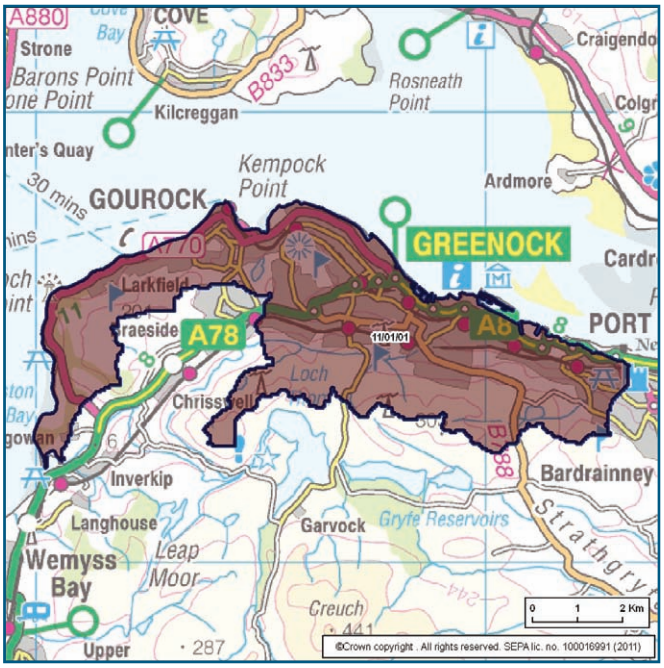
Groundwater Flooding	Potential very low to low contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in PVA

Type	Number	Proportion of All Properties in PVA
Residential	1017	3.8%
Non-residential	137	9.8%

Towns and Villages with Properties at Risk

50+	Ardgowan, Gourock, Greenock, Greenock West, Kempock Point, Port Glasgow



PVA Characteristics

Total Area		14 km²
Land cover within the PVA	**Urban**	45%
	Agriculture	18%
	Forestry	37%
Includes Flood Defence(s)		Yes
Includes Flood Warning Area(s)		Yes
Catchment Hydrology		• Moderate peak flood flow response times; • Moderate catchment flood storage and attenuation capacity; • Potential for moderate underestimation of design flood magnitude; • Moderate erosion hazard potential of flood flows.
Catchment Morphology		• Predominance of bedrock/plane-bed channel types or lochs; • Predominance of realigned channels and/or protected floodplains; • Very low density of hydraulic structures; • Very low potential for increased flood risk due to upstream morphological pressure

June 2011. Information contained in these datasheets is DRAFT. It will be updated based on this consultation and published as part of the National Flood Risk Assessment in December 2011.

Potentially Vulnerable Area Datasheet

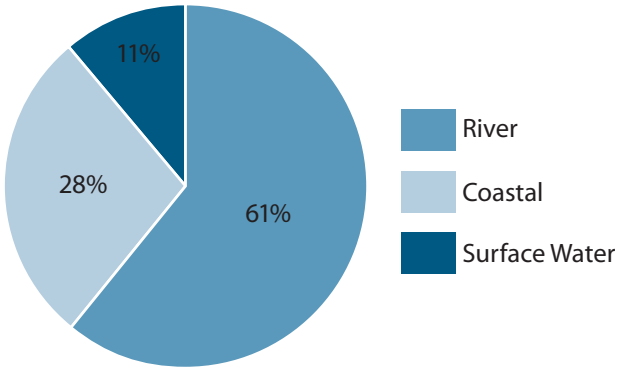
PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/02	11 – Clyde and Loch Lomond	Glasgow Coastal	Renfrewshire

Summary of Main Impacts

Assessment of flood risk and past events show the White Cart Water and Black Cart Water present a potential impact to large number of residential properties and higher category community facilities including Emergency Services Station and Education Facility within the floodplain; potential impact to large number of commercial properties or main transport links and high value arable land and potential impact to world heritage sites or number of scheduled monuments.

Estimated Weighted Annual Average Damages	£20,590,000

Known Source of Flooding



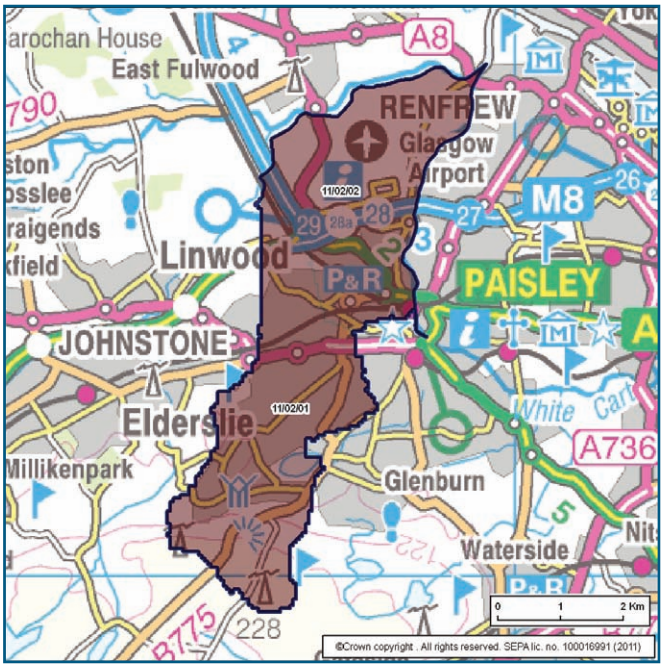
Groundwater Flooding	Potential very low to low contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in PVA

Type	Number	Proportion of All Properties in PVA
Residential	2932	20.5%
Non-residential	151	19.8%

Towns and Villages with Properties at Risk

50+	Castlehead, Ferguslie Park, Paisley, Shortroods



PVA Characteristics

Total Area		51 km²
Land cover within the PVA	**Urban**	70%
	Agriculture	22%
	Forestry	8%
Includes Flood Defence(s)		No
Includes Flood Warning Area(s)		No
Catchment Hydrology		• Moderate to long peak flood flow response times; • High catchment flood storage and attenuation capacity; • Potential for low to moderate underestimation of design flood magnitude; • Low erosion hazard potential of flood flows.
Catchment Morphology		• High proportion of bedrock/plane-bed channel types or lochs; • High proportion of realigned channels and/or protected floodplains; • Low density of hydraulic structures; • Low potential for increased flood risk due to upstream morphological pressures.

June 2011. Information contained in these datasheets is DRAFT. It will be updated based on this consultation and published as part of the National Flood Risk Assessment in December 2011.

Catchment Unit Datasheet

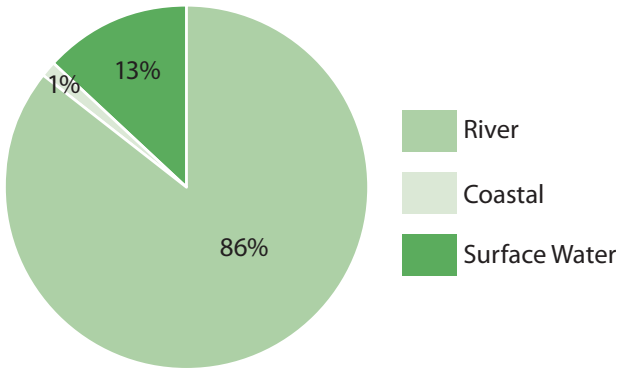
Catchment Unit Number:	PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/02/01	11/02	11 – Clyde and Loch Lomond	Glasgow Coastal	Renfrewshire

Summary of Main Impacts

Assessment of future flood risk and past events show the Black Cart Water and Candren Burn presents a potential impact to large number of residential properties and higher category community facilities including Emergency services station and Education facility within the floodplain; potential impact to large number of commercial properties and main transport links and high value arable land.

Overall nFRA Category	Very High
Estimated Weighted Annual Average Damages	£13,730,000

Known Source of Flooding



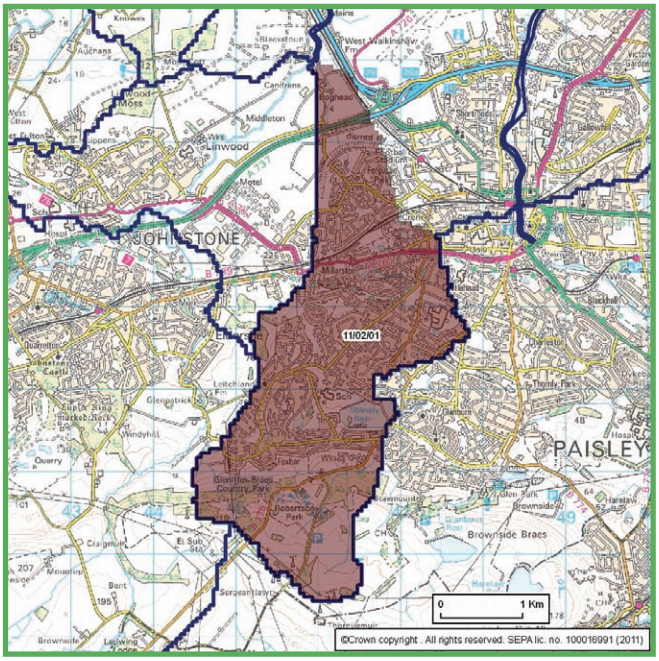
Groundwater Flooding	Potential very low to low contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in Catchment Area

Type	Number	Proportion of All Properties
Residential	2026	19.6%
Non-residential	75	30%

Towns and Villages with Properties at Risk

50+	Castlehead, Ferguslie Park, Paisley



Catchment Unit Characteristics

Total Area		9 km²
Land cover within the catchment Unit	**Urban**	65%
	Agriculture	21%
	Forestry	14%
Includes Flood Defence(s)		No
Includes Flood Warning Area(s)		No
Catchment Hydrology		• Moderate peak flood flow response times; • Moderate catchment flood storage and attenuation capacity; • Potential for moderate underestimation of design flood magnitude; • Moderate erosion hazard potential of flood flows.
Catchment Morphology		• High proportion of bedrock/plane-bed channel types or lochs; • High proportion of realigned channels and/or protected floodplains; • Low density of hydraulic structures; • Low potential for increased flood risk due to upstream morphological pressures.

June 2011. Information contained in these datasheets is DRAFT. It will be updated based on this consultation and published as part of the National Flood Risk Assessment in December 2011.

Catchment Unit Datasheet

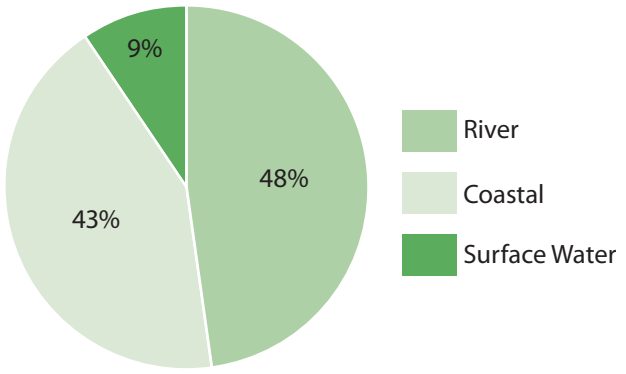
Catchment Unit Number:	PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/02/02	11/02	11 – Clyde and Loch Lomond	Glasgow Coastal	Renfrewshire

Summary of Main Impacts

Assessment of future flood risk and past events show the Black Cart Water and the White Cart Water present a potential impact to large number of commercial properties or main transport links and high value arable land; potential impact to large number of residential properties and higher category community facilities including Education facility within the floodplain; potential impact to some scheduled monuments.

Overall nFRA Category	Very High
Estimated Weighted Annual Average Damages	£6,860,000

Known Source of Flooding



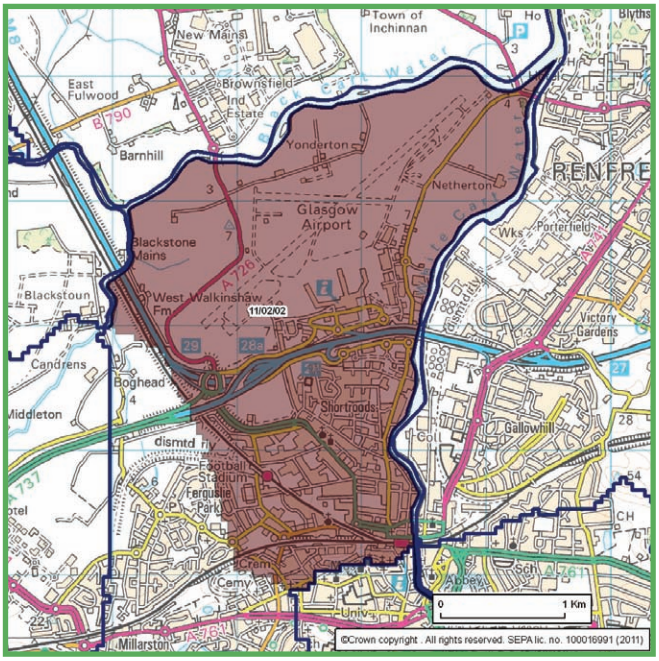
Groundwater Flooding	Potential very low to low contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in Catchment Area

Type	Number	Proportion of All Properties
Residential	906	22.9%
Non-residential	76	14.8%

Towns and Villages with Properties at Risk

50+	Paisley, Shortroods



Catchment Unit Characteristics

Total Area	8 km²	
Land cover within the catchment Unit	**Urban**	76%
	Agriculture	24%
	Forestry	0%
Includes Flood Defence(s)		No
Includes Flood Warning Area(s)		No
Catchment Hydrology	Insufficient information available for categorisation. See explanatory sheet for data used.	
Catchment Morphology	Insufficient information available for categorisation.	

June 2011. Information contained in these datasheets is DRAFT. It will be updated based on this consultation and published as part of the National Flood Risk Assessment in December 2011.

Potentially Vulnerable Area Datasheet

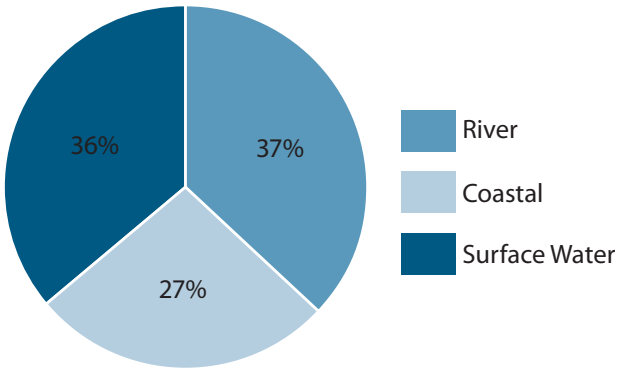
PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/03	11 – Clyde and Loch Lomond	Glasgow Coastal	Glasgow City North Lanarkshire

Summary of Main Impacts

Assessment of flood risk and past events show multiple rivers/burns present a potential impact to a large number of residential properties and higher category community facilities; potential impact to large number of commercial properties or main transport links and high value arable land; potential impact to a number of world heritage sites or number of scheduled monuments.

Estimated Weighted Annual Average Damages	£6,650,000

Known Source of Flooding



Groundwater Flooding	Potential low to moderate contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in PVA

Type	Number	Proportion of All Properties in PVA
Residential	869	1.4%
Non-residential	62	1%

Towns and Villages with Properties at Risk

50+	Glasgow, Shettleston

PVA Characteristics

Total Area	322 km^2	
Land cover within the PVA	**Urban**	95%
	Agriculture	4%
	Forestry	0%
Includes Flood Defence(s)		Yes
Includes Flood Warning Area(s)		Yes
Catchment Hydrology	• Moderate to long peak flood flow response times; • High catchment flood storage and attenuation capacity; • Potential for low to moderate underestimation of design flood magnitude; • Low erosion hazard potential of flood flows.	
Catchment Morphology	• Mixture of meandering/braided channel types and bedrock/plane-bed channel types or lochs; • Mixture of natural/realigned channels and protected/unprotected floodplains; • Moderate density of hydraulic structures; • Moderate potential for increased flood risk due to upstream morphological pressures.	

June 2011. Information contained in these datasheets is DRAFT. It will be updated based on this consultation and published as part of the National Flood Risk Assessment in December 2011.

Catchment Unit Datasheet

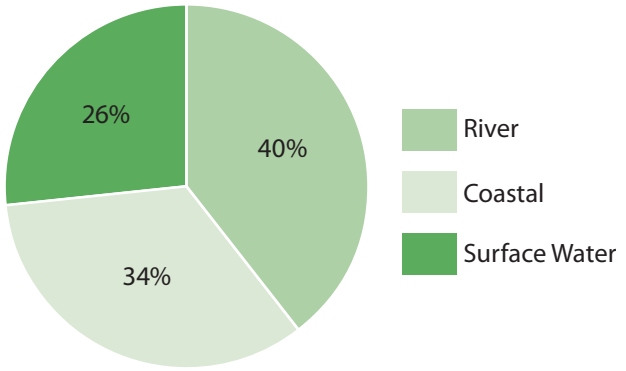
Catchment Unit Number:	PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/03/01	11/03	11 – Clyde and Loch Lomond	Glasgow Coastal	Glasgow City

Summary of Main Impacts

Assessment of future flood risk and past events show the River Clyde and River Kelvin present a potential impact to large number of residential properties and higher category community facilities; potential impact to some commercial properties, transport links and agricultural land with potential impact to world heritage sites or number of scheduled monuments.

Overall nFRA Category	Very High
Estimated Weighted Annual Average Damages	£3,960,000

Known Source of Flooding



Groundwater Flooding	Potential low to moderate contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in Catchment Area

Type	Number	Proportion of All Properties
Residential	584	5.2%
Non-residential	14	0.4%

Towns and Villages with Properties at Risk

50+	Glasgow

Catchment Unit Characteristics

Total Area		4 km²
Land cover within the catchment Unit	**Urban**	98%
	Agriculture	0%
	Forestry	0%
Includes Flood Defence(s)		No
Includes Flood Warning Area(s)		Yes
Catchment Hydrology		Insufficient information available for categorisation. See explanatory sheet for data used.
Catchment Morphology		Insufficient information available for categorisation.

June 2011. Information contained in these datasheets is DRAFT. It will be updated based on this consultation and published as part of the National Flood Risk Assessment in December 2011.

Catchment Unit Datasheet

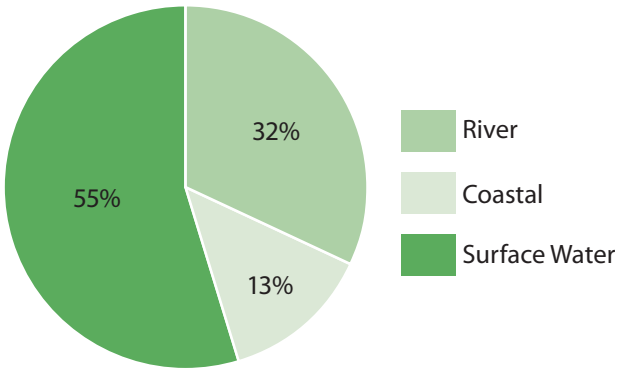
Catchment Unit Number:	PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/03/02	11/03	11 – Clyde and Loch Lomond	Glasgow Coastal	Glasgow City North Lanarkshire

Summary of Main Impacts

Assessment of future flood risk and past events show multiple rivers/burns present a potential impact to large number residential properties or high category community facilities; potential impact to some commercial properties, transport links and agricultural land.

Overall nFRA Category	Very High
Estimated Weighted Annual Average Damages	£2,690,000

Known Source of Flooding



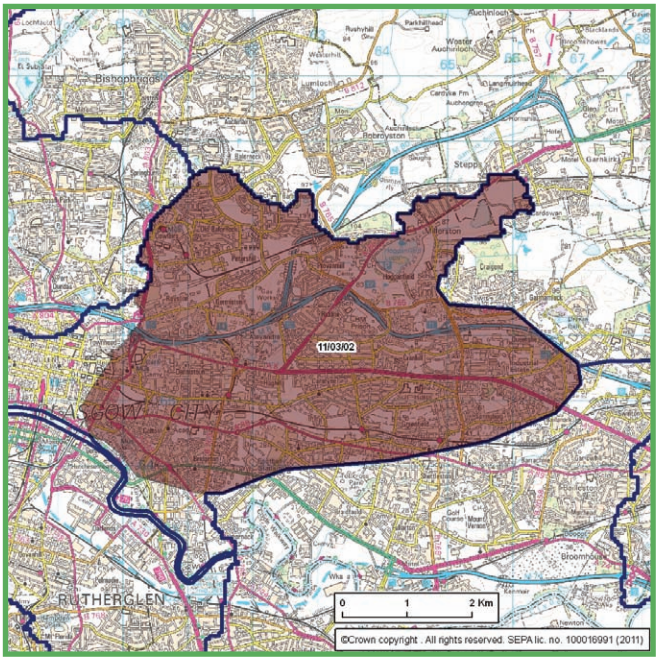
Groundwater Flooding	Potential low to moderate contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in Catchment Area

Type	Number	Proportion of All Properties
Residential	285	0.6%
Non-residential	48	1.9%

Towns and Villages with Properties at Risk

50+	Shettleston



Catchment Unit Characteristics

Total Area		25 km²
Land cover within the catchment Unit	**Urban**	95%
	Agriculture	5%
	Forestry	0%
Includes Flood Defence(s)		No
Includes Flood Warning Area(s)		No
Catchment Hydrology		Insufficient information available for categorisation. See explanatory sheet for data used.
Catchment Morphology		• High proportion of bedrock/plane-bed channel types or lochs; • High proportion of realigned channels and/or protected floodplains; • Low density of hydraulic structures; • Low potential for increased flood risk due to upstream morphological pressures.

June 2011. Information contained in these datasheets is DRAFT. It will be updated based on this consultation and published as part of the National Flood Risk Assessment in December 2011.

Potentially Vulnerable Area Datasheet

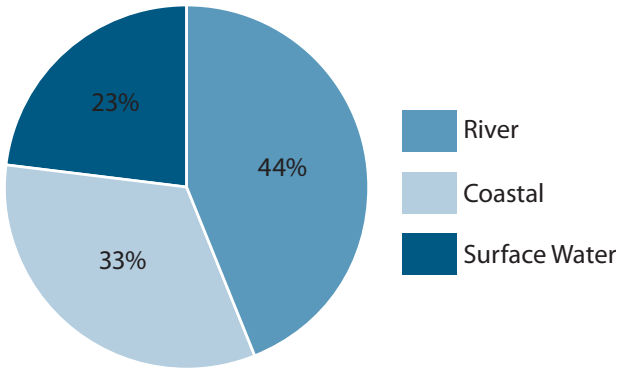
PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/04	11 – Clyde and Loch Lomond	Glasgow Coastal	Glasgow City Renfrewshire South Lanarkshire

Summary of Main Impacts

Assessment of flood risk and past events show the River Clyde and it's tributaries present a potential impact to large number of residential properties and higher category community facilities including Education Facility within the floodplain; potential impact to large number of commercial properties or main transport links and high value arable land; potential impact to an extensive area of world heritage sites.

Estimated Weighted Annual Average Damages	£28,890,000

Known Source of Flooding



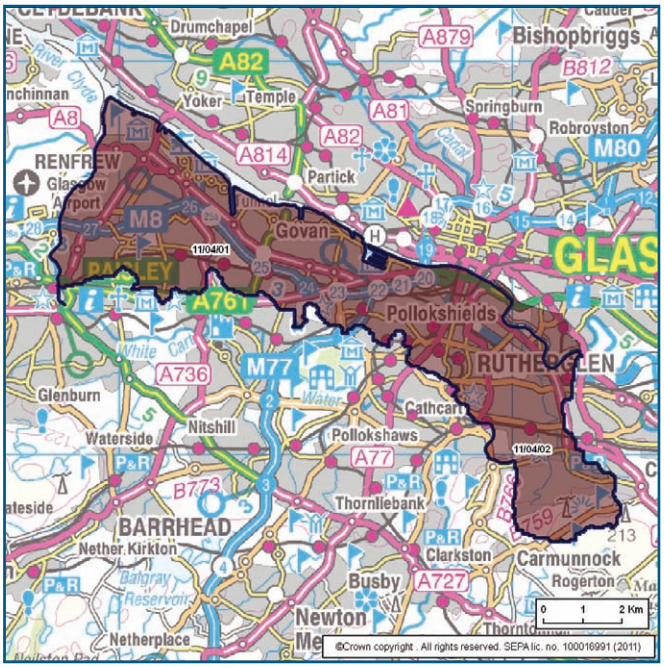
Groundwater Flooding	Potential low to moderate contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in PVA

Type	Number	Proportion of All Properties in PVA
Residential	3838	4.9%
Non-residential	170	3.7%

Towns and Villages with Properties at Risk

50+	Blythswood, Glasgow, Govan, Hutchestown, Renfrew, Rutherglen



PVA Characteristics

Total Area		43 km²
Land cover within the PVA	**Urban**	95%
	Agriculture	4%
	Forestry	0%
Includes Flood Defence(s)		No
Includes Flood Warning Area(s)		No
Catchment Hydrology		• Short to moderate peak flood flow response times; • Low catchment flood storage and attenuation capacity; • Potential for high underestimation of design flood magnitudes; • High erosion hazard potential of flood flows.
Catchment Morphology		• Predominance of bedrock/plane-bed channel types or lochs; • Predominance of realigned channels and/or protected floodplains; • Very low density of hydraulic structures; • Very low potential for increased flood risk due to upstream morphological pressure

June 2011. Information contained in these datasheets is DRAFT. It will be updated based on this consultation and published as part of the National Flood Risk Assessment in December 2011.

Catchment Unit Datasheet

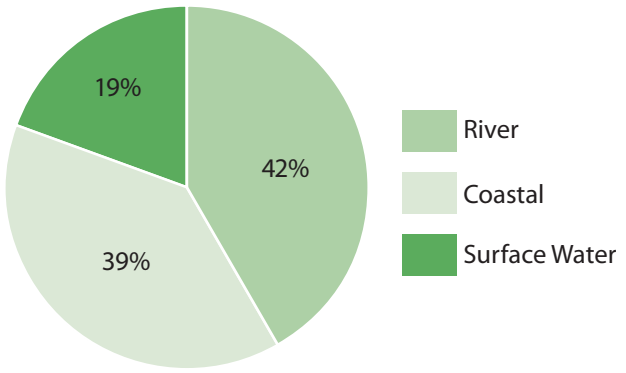
Catchment Unit Number:	PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/04/01	11/04	11 – Clyde and Loch Lomond	Glasgow Coastal	Glasgow City Renfrewshire South Lanarkshire

Summary of Main Impacts

Assessment of future flood risk and past events show River Clyde and White Cart Water presents a potential impact to large number of residential properties and higher category community facilities; potential impact to large number of commercial properties or main transport links and high value arable land; potential impact to a number of world heritage sites or number of scheduled monuments. Existing defences on River Clyde offers partial protection to some of these impacts.

Overall nFRA Category	Very High
Estimated Weighted Annual Average Damages	£25,290,000

Known Source of Flooding



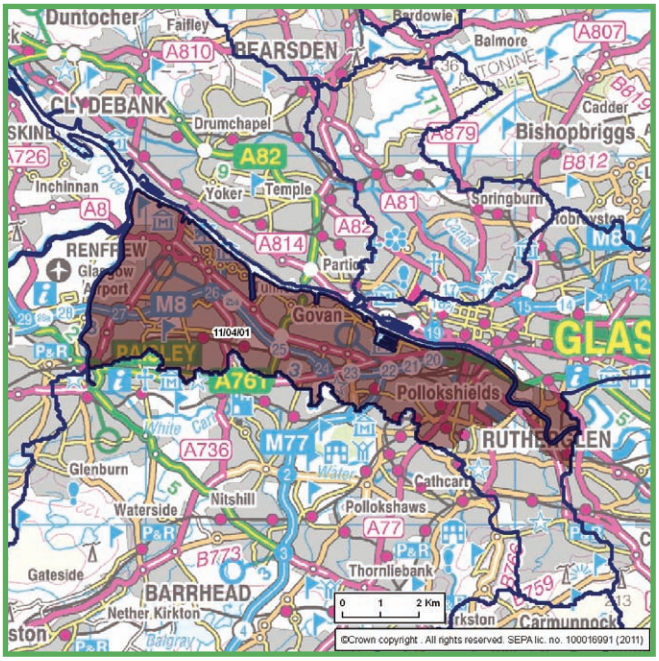
Groundwater Flooding	Potential low to moderate contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in Catchment Area

Type	Number	Proportion of All Properties
Residential	3320	5.9%
Non-residential	148	3.8%

Towns and Villages with Properties at Risk

50+	Blythswood, Glasgow, Govan, Hutchestown, Renfrew, Rutherglen



Catchment Unit Characteristics

Total Area	34 km²	
Land cover within the catchment Unit	**Urban**	96%
	Agriculture	3%
	Forestry	0%
Includes Flood Defence(s)		Yes
Includes Flood Warning Area(s)		Yes
Catchment Hydrology	Insufficient information available for categorisation. See explanatory sheet for data used.	
Catchment Morphology	Insufficient information available for categorisation.	

June 2011. Information contained in these datasheets is DRAFT. It will be updated based on this consultation and published as part of the National Flood Risk Assessment in December 2011.

Catchment Unit Datasheet

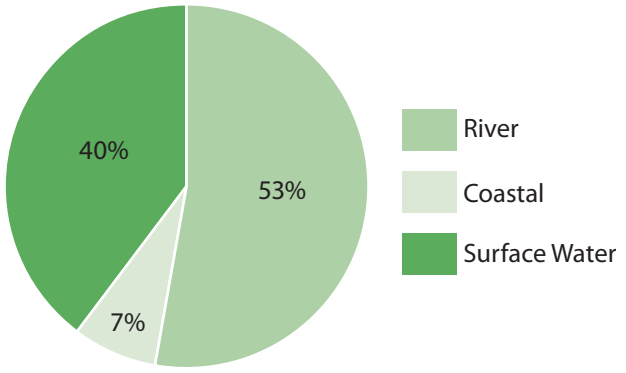
Catchment Unit Number:	PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/04/02	11/04	11 – Clyde and Loch Lomond	Glasgow Coastal	Glasgow City South Lanarkshire

Summary of Main Impacts

Assessment of future and past floods show multiple rivers/burns present a potential impact to large number of residential properties and higher category community facilities including Education facility within the floodplain; potential impact to large number of commercial properties and main transport links. Existing defences on Cityford Burn offers partial protection to some of these impacts.

Overall nFRA Category	Very High
Estimated Weighted Annual Average Damages	£3,600,000

Known Source of Flooding



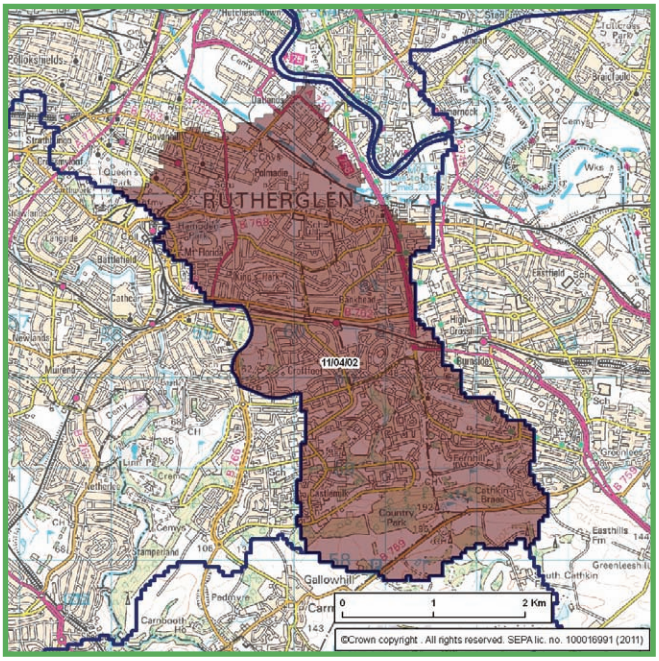
Groundwater Flooding	Potential low to moderate contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in Catchment Area

Type	Number	Proportion of All Properties
Residential	518	2.4%
Non-residential	22	3%

Towns and Villages with Properties at Risk

50+	Rutherglen



Catchment Unit Characteristics

Total Area		12 km²
Land cover within the catchment Unit	**Urban**	92%
	Agriculture	8%
	Forestry	0%
Includes Flood Defence(s)		Yes
Includes Flood Warning Area(s)		No
Catchment Hydrology		Insufficient information available for categorisation. See explanatory sheet for data used.
Catchment Morphology		Insufficient information available for categorisation.

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Potentially Vulnerable Area Datasheet

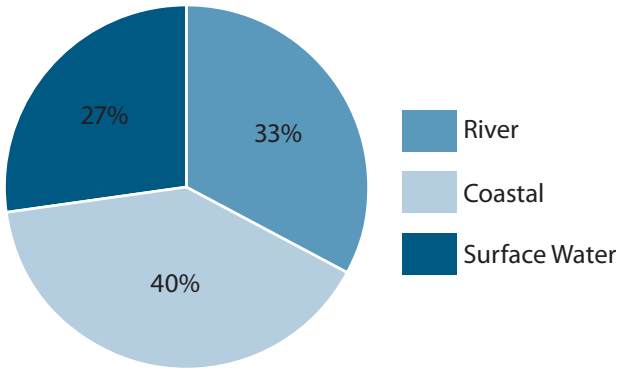
PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/05	11 – Clyde and Loch Lomond	Glasgow Coastal	Inverclyde Renfrewshire

Summary of Main Impacts

Assessment of future flood risk and past events show the River Clyde and River Gryfe presents a potential impact to large number of commercial properties and main transport links and high value arable land; potential impact to a number of world heritage sites or number of scheduled monuments; limited impact to small number of residential properties or lower category community facilities.

Estimated Weighted Annual Average Damages	£730,000

Known Source of Flooding



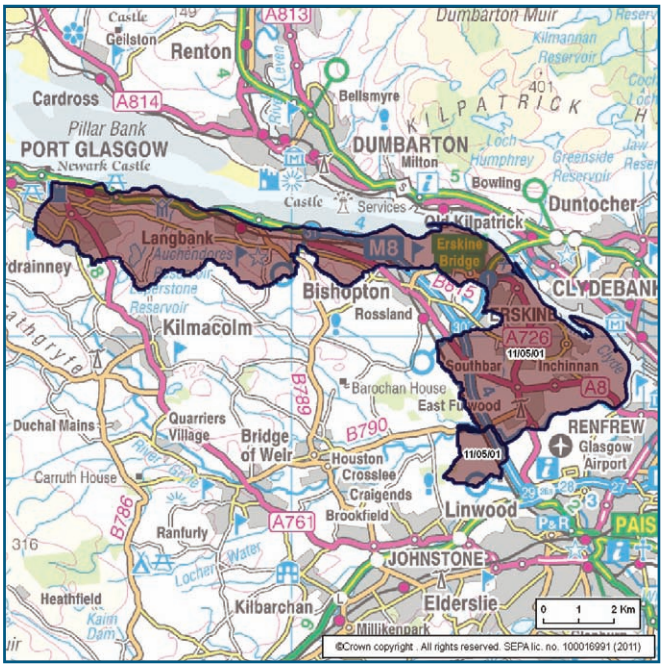
Groundwater Flooding	Potential very low to low contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in PVA

Type	Number	Proportion of All Properties in PVA
Residential	56	0.5%
Non-residential	13	3.3%

Towns and Villages with Properties at Risk

50+	



PVA Characteristics

Total Area		53 km²
Land cover within the PVA	**Urban**	28%
	Agriculture	62%
	Forestry	9%
Includes Flood Defence(s)		No
Includes Flood Warning Area(s)		No
Catchment Hydrology		• Short to moderate peak flood flow response times; • Low catchment flood storage and attenuation capacity; • Potential for high underestimation of design flood magnitudes; • High erosion hazard potential of flood flows.
Catchment Morphology		• Predominance of bedrock/plane-bed channel types or lochs; • Predominance of realigned channels and/or protected floodplains; • Very low density of hydraulic structures; • Very low potential for increased flood risk due to upstream morphological pressure

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Potentially Vulnerable Area Datasheet

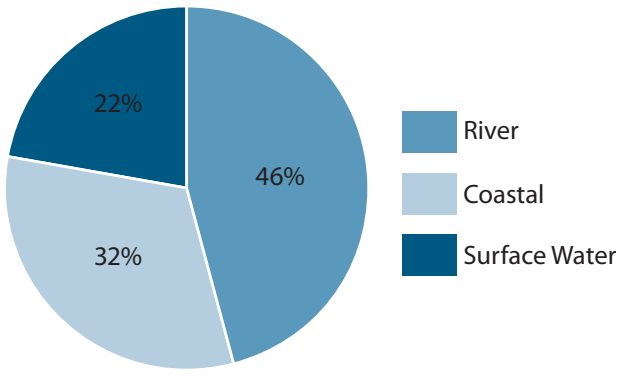
PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/06	11 – Clyde and Loch Lomond	Glasgow Coastal	East Dunbartonshire Glasgow City West Dunbartonshire

Summary of Main Impacts

Assessment of flood risk and past events show the River Clyde and it's tributaries present a potential impact to large number of residential properties and higher category community facilities including Education Facility within the floodplain; potential impact to large number of commercial properties or main transport links and high value arable land; potential impact to an extensive area of world heritage sites. Existing defences on the Yoker Burn offers partial protecion to some of these impacts.

Estimated Weighted Annual Average Damages	£31,100,000

Known Source of Flooding



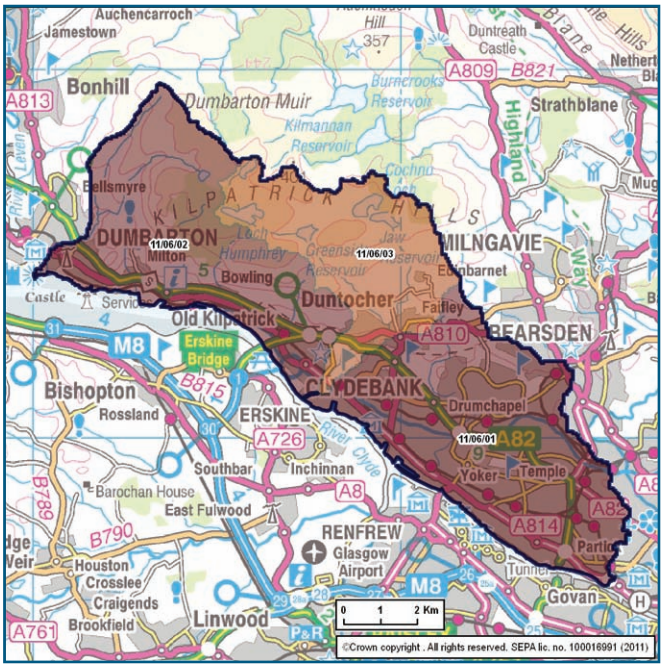
Groundwater Flooding	Potential very low to low contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in PVA

Type	Number	Proportion of All Properties in PVA
Residential	4548	6.1%
Non-residential	120	3.9%

Towns and Villages with Properties at Risk

50+	Clydebank, Dumbarton, Duntocher, Drumchapel, Partick, Yoker



PVA Characteristics

Total Area		76 km^2
Land cover within the PVA	**Urban**	45%
	Agriculture	23%
	Forestry	30%
Includes Flood Defence(s)		No
Includes Flood Warning Area(s)		Yes
Catchment Hydrology		• Short peak flood flow response times; • Very low catchment flood storage and attenuation capacity; • Potential for significant underestimation of design flood magnitudes; • Very high erosion hazard potential of flood flows.
Catchment Morphology		• High proportion of bedrock/plane-bed channel types or lochs; • High proportion of realigned channels and/or protected floodplains; • Low density of hydraulic structures; • Low potential for increased flood risk due to upstream morphological pressures.

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Catchment Unit Datasheet

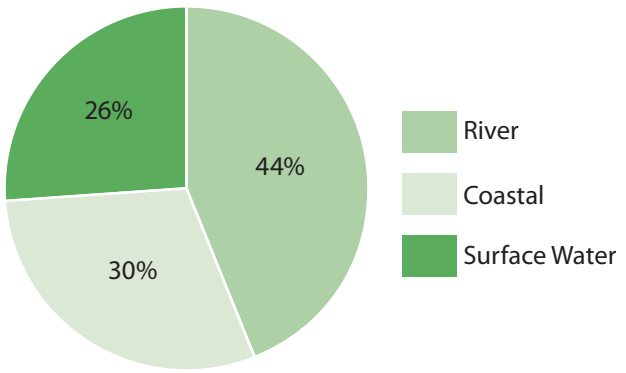
Catchment Unit Number:	PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/06/01	11/06	11 – Clyde and Loch Lomond	Glasgow Coastal	East Dunbartonshire Glasgow City West Dunbartonshire

Summary of Main Impacts

Assessment of future flood risk and past events show multiple rivers/burns presents a potential impact to large number of residential properties and higher category community facilities including Education facility within the floodplain; potential impact to a number of world heritage sites or number of scheduled monuments; potential impact to large number of commercial properties and main transport links and high value arable land. Existing defences on the Yoker Burn offers partial protection to some of these impacts.

Overall nFRA Category	Very High
Estimated Weighted Annual Average Damages	£22,570,000

Known Source of Flooding



Groundwater Flooding	Potential very low to low contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in Catchment Area

Type	Number	Proportion of All Properties
Residential	3383	5.3%
Non-residential	70	2.7%

Towns and Villages with Properties at Risk

50+	Clydebank, Drumchapel, Partick, Yoker

Catchment Unit Characteristics

Total Area	33 km²	
Land cover within the catchment Unit	**Urban**	87%
	Agriculture	12%
	Forestry	0%
Includes Flood Defence(s)		No
Includes Flood Warning Area(s)		Yes
Catchment Hydrology	Insufficient information available for categorisation. See explanatory sheet for data used.	
Catchment Morphology	Insufficient information available for categorisation.	

June 2011. Information contained in these datasheets is DRAFT. It will be updated based on this consultation and published as part of the National Flood Risk Assessment in December 2011.

Catchment Unit Datasheet

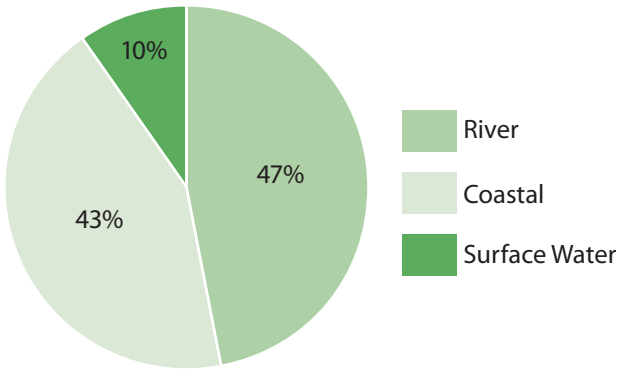
Catchment Unit Number:	PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/06/02	11/06	11 – Clyde and Loch Lomond	Glasgow Coastal	West Dunbartonshire

Summary of Main Impacts

Assessment of future flood risk and past events show River Clyde and the Knowle Burn present a potential impact to large number of residential properties and higher category community facilities; potential impact to some commercial properties, transport links and agricultural land with potential impact to world heritage sites or number of scheduled monuments. Existing defences on the Knowle Burn offers partial protection to some of these impacts.

Overall nFRA Category	Very High
Estimated Weighted Annual Average Damages	£6,260,000

Known Source of Flooding



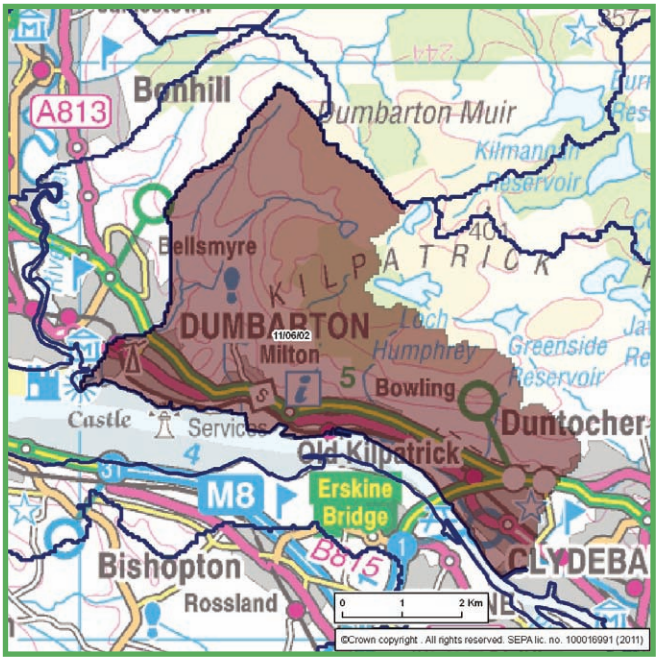
Groundwater Flooding	Potential very low to low contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in Catchment Area

Type	Number	Proportion of All Properties
Residential	821	13.5%
Non-residential	36	14.9%

Towns and Villages with Properties at Risk

50+	Dumbarton



Catchment Unit Characteristics

Total Area		28 km²
Land cover within the catchment Unit	**Urban**	17%
	Agriculture	31%
	Forestry	51%
Includes Flood Defence(s)		Yes
Includes Flood Warning Area(s)		Yes
Catchment Hydrology		Insufficient information available for categorisation. See explanatory sheet for data used.
Catchment Morphology		Insufficient information available for categorisation.

June 2011. Information contained in these datasheets is DRAFT. It will be updated based on this consultation and published as part of the National Flood Risk Assessment in December 2011.

Catchment Unit Datasheet

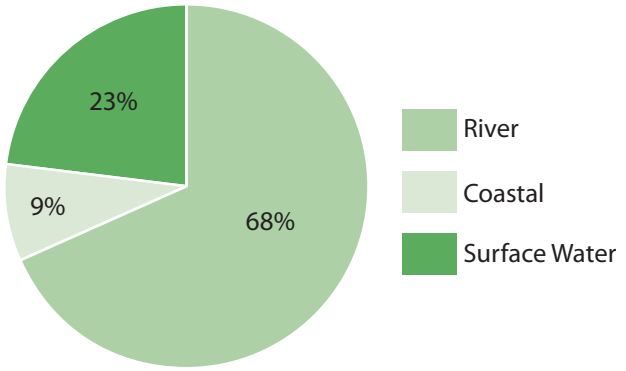
Catchment Unit Number:	PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/06/03	11/06	11 – Clyde and Loch Lomond	Glasgow Coastal	East Dunbartonshire West Dunbartonshire

Summary of Main Impacts

Assesment of past and future flooding events show Cochno Burn and Loch Humphrey Burn present: potential impact to large number of residential properties or lower category community facilities; potential impact to some scheduled monuments. Existing defences on the Cochno Burn offers partial protection to some of these impacts.

Overall nFRA Category	High
Estimated Weighted Annual Average Damages	£2,270,000

Known Source of Flooding



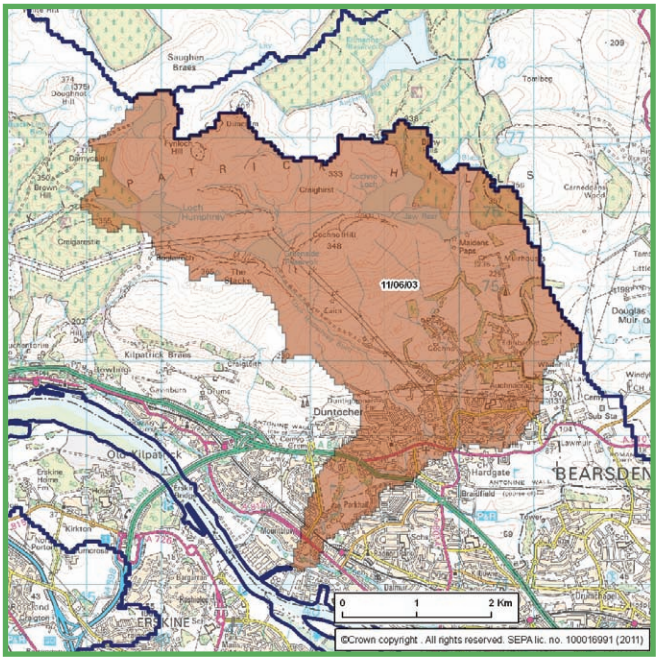
Groundwater Flooding	Potential very low to low contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in Catchment Area

Type	Number	Proportion of All Properties
Residential	344	6.4%
Non-residential	14	8.6%

Towns and Villages with Properties at Risk

50+	Clydebank, Duntocher



Catchment Unit Characteristics

Total Area		19 km^2
Land cover within the catchment Unit	**Urban**	15%
	Agriculture	31%
	Forestry	50%
Includes Flood Defence(s)		Yes
Includes Flood Warning Area(s)		No
Catchment Hydrology		• Short to moderate peak flood flow response times; • Low catchment flood storage and attenuation capacity; • Potential for high underestimation of design flood magnitudes; • High erosion hazard potential of flood flows.
Catchment Morphology		• High proportion of bedrock/plane-bed channel types or lochs; • High proportion of realigned channels and/or protected floodplains; • Low density of hydraulic structures; • Low potential for increased flood risk due to upstream morphological pressures.

June 2011. Information contained in these datasheets is DRAFT. It will be updated based on this consultation and published as part of the National Flood Risk Assessment in December 2011.

Potentially Vulnerable Area Datasheet

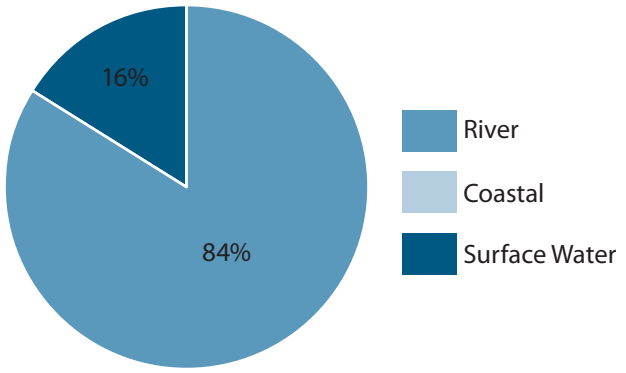
PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/07	11 – Clyde and Loch Lomond	River Gryfe	Inverclyde Renfrewshire

Summary of Main Impacts

Assessment of flood risk and past events show the River Gryfe presents a Potential impact to large number of residential properties and higher category community facilities; potential impact to some commercial properties, transport links and agricultural land. Existing defences on the River Gryfe offers partial protection to some of these impacts.

Estimated Weighted Annual Average Damages	£2,210,000

Known Source of Flooding



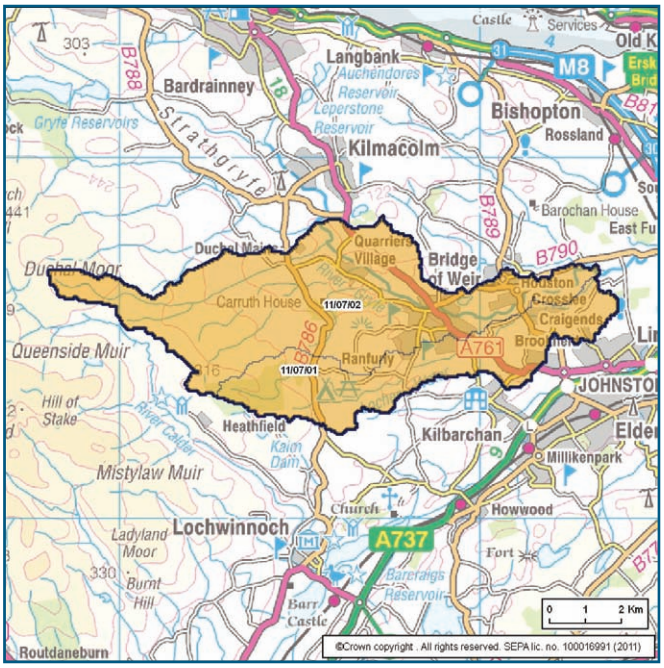
Groundwater Flooding	Potential low to moderate contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in PVA

Type	Number	Proportion of All Properties in PVA
Residential	307	5.8%
Non-residential	19	7.7%

Towns and Villages with Properties at Risk

50+	Crosslee, Quarrier's Village



PVA Characteristics

Total Area		114 km^2
Land cover within the PVA	**Urban**	9%
	Agriculture	64%
	Forestry	24%
Includes Flood Defence(s)		No
Includes Flood Warning Area(s)		No
Catchment Hydrology		• Short to moderate peak flood flow response times; • Low catchment flood storage and attenuation capacity; • Potential for high underestimation of design flood magnitudes; • High erosion hazard potential of flood flows.
Catchment Morphology		Insufficient information available for categorisation.

June 2011. Information contained in these datasheets is DRAFT. It will be updated based on this consultation and published as part of the National Flood Risk Assessment in December 2011.

Catchment Unit Datasheet

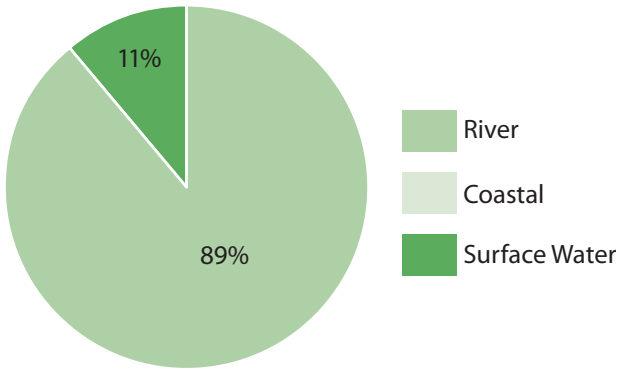
Catchment Unit Number:	PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/07/01	11/07	11 – Clyde and Loch Lomond	River Gryfe	Inverclyde Renfrewshire

Summary of Main Impacts

Assessment of past and future flooding events show Locher Water presents a potential impact to a small number of residential properties or lower category community facilities.

Overall nFRA Category	Medium
Estimated Weighted Annual Average Damages	£350,000

Known Source of Flooding



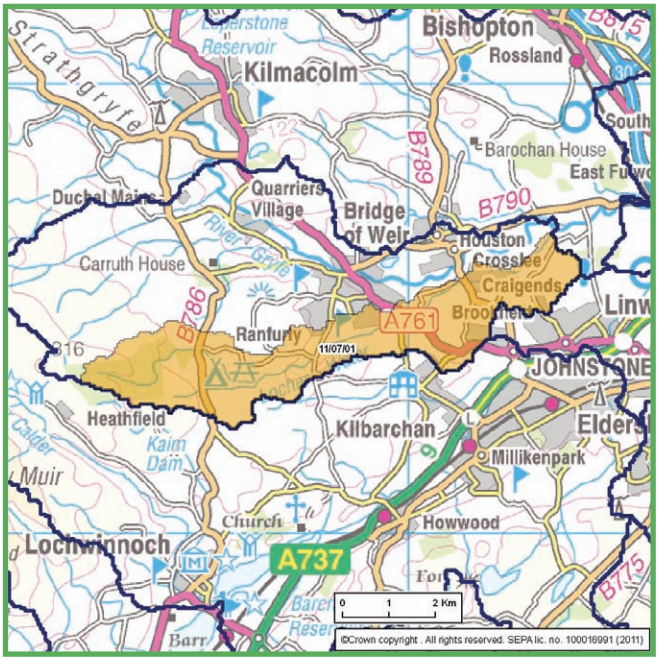
Groundwater Flooding	Potential low to moderate contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in Catchment Area

Type	Number	Proportion of All Properties
Residential	32	1.9%
Non-residential	6	12.8%

Towns and Villages with Properties at Risk

50+	



Catchment Unit Characteristics

Total Area		15 km²
Land cover within the catchment Unit	**Urban**	4%
	Agriculture	73%
	Forestry	23%
Includes Flood Defence(s)		No
Includes Flood Warning Area(s)		No
Catchment Hydrology		• Moderate peak flood flow response times; • Moderate catchment flood storage and attenuation capacity; • Potential for moderate underestimation of design flood magnitude; • Moderate erosion hazard potential of flood flows.
Catchment Morphology		• High proportion of bedrock/plane-bed channel types or lochs; • High proportion of realigned channels and/or protected floodplains; • Low density of hydraulic structures; • Low potential for increased flood risk due to upstream morphological pressures.

June 2011. Information contained in these datasheets is DRAFT. It will be updated based on this consultation and published as part of the National Flood Risk Assessment in December 2011.

Catchment Unit Datasheet

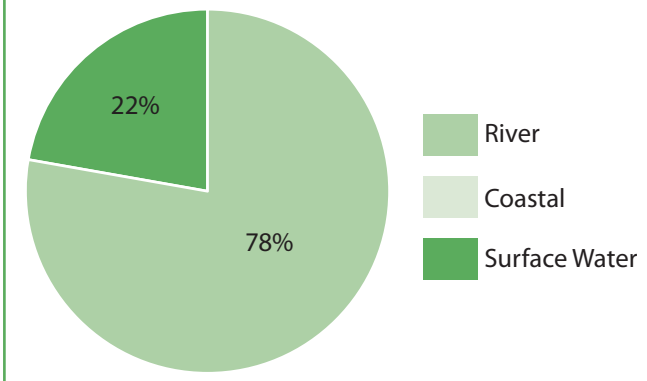
Catchment Unit Number:	PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/07/02	11/07	11 – Clyde and Loch Lomond	River Gryfe	Inverclyde Renfrewshire

Summary of Main Impacts

Assessment of future flood risk and past events show River Gryfe presents a potential impact to a large number of residential properties or lower category community facilities. Existing defences on the River Gryfe offers partial protection to some of these impacts.

Overall nFRA Category	Medium
Estimated Weighted Annual Average Damages	£1,860,000

Known Source of Flooding



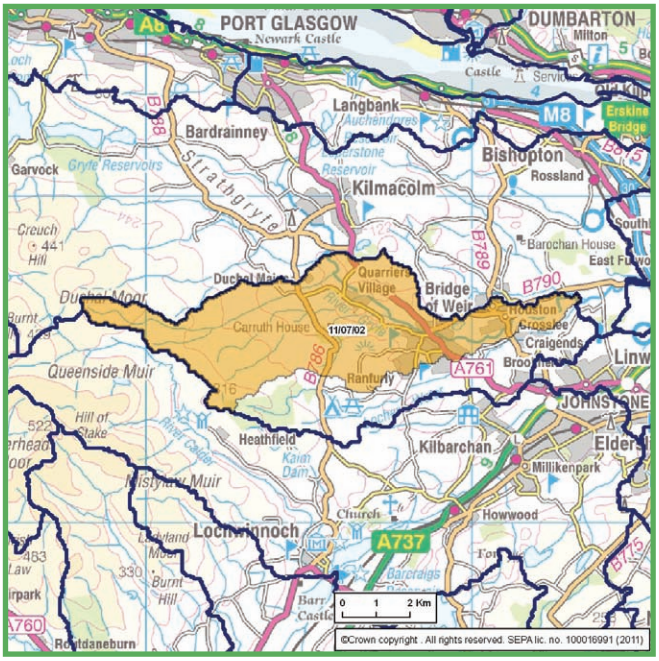
Groundwater Flooding	Potential low to moderate contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in Catchment Area

Type	Number	Proportion of All Properties
Residential	275	7.6%
Non-residential	13	6.5%

Towns and Villages with Properties at Risk

50+	Crosslee, Quarrier's Village



Catchment Unit Characteristics

Total Area		32 km²
Land cover within the catchment Unit	**Urban**	12%
	Agriculture	60%
	Forestry	25%
Includes Flood Defence(s)		Yes
Includes Flood Warning Area(s)		No
Catchment Hydrology		• Moderate to long peak flood flow response times; • High catchment flood storage and attenuation capacity; • Potential for low to moderate underestimation of design flood magnitude; • Low erosion hazard potential of flood flows.
Catchment Morphology		• Mixture of meandering/braided channel types and bedrock/plane-bed channel types or lochs; • Mixture of natural/realigned channels and protected/unprotected floodplains; • Moderate density of hydraulic structures; • Moderate potential for increased flood risk due to upstream morphological pressures.

June 2011. Information contained in these datasheets is DRAFT. It will be updated based on this consultation and published as part of the National Flood Risk Assessment in December 2011.

Potentially Vulnerable Area Datasheet

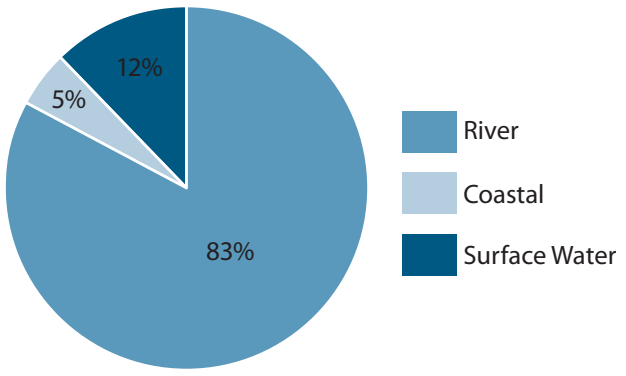
PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/08	11 – Clyde and Loch Lomond	Black Cart Water	Renfrewshire

Summary of Main Impacts

Assessment of future flood risk and past events show the Black Cart Water presents a potential impact to some residential properties or lower category community facilities; potential impact to some commercial properties, transport links and agricultural land.

Estimated Weighted Annual Average Damages	£5,170,000

Known Source of Flooding



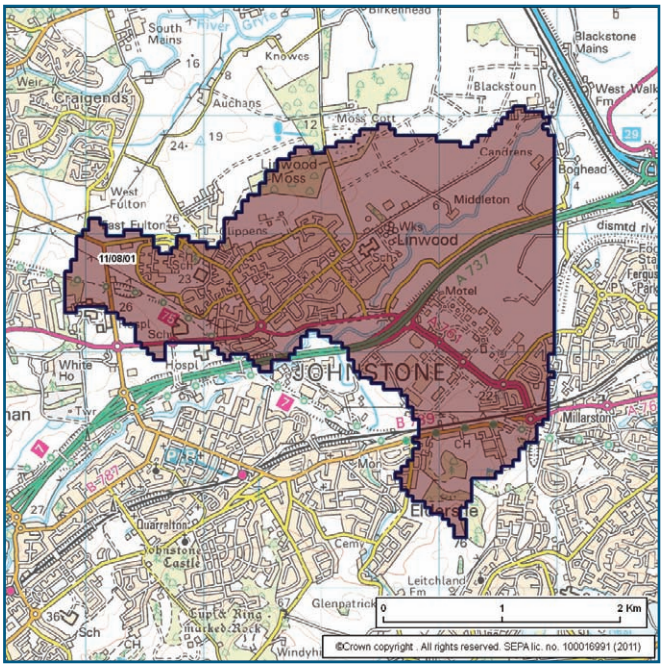
Groundwater Flooding	Potential very low to low contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in PVA

Type	Number	Proportion of All Properties in PVA
Residential	680	15.4%
Non-residential	55	23.9%

Towns and Villages with Properties at Risk

50+	Johnstone



PVA Characteristics

Total Area		76 km²
Land cover within the PVA	**Urban**	48%
	Agriculture	51%
	Forestry	1%
Includes Flood Defence(s)		No
Includes Flood Warning Area(s)		No
Catchment Hydrology		• Moderate to long peak flood flow response times; • High catchment flood storage and attenuation capacity; • Potential for low to moderate underestimation of design flood magnitude; • Low erosion hazard potential of flood flows.
Catchment Morphology		• Predominance of bedrock/plane-bed channel types or lochs; • Predominance of realigned channels and/or protected floodplains; • Very low density of hydraulic structures; • Very low potential for increased flood risk due to upstream morphological pressure

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Potentially Vulnerable Area Datasheet

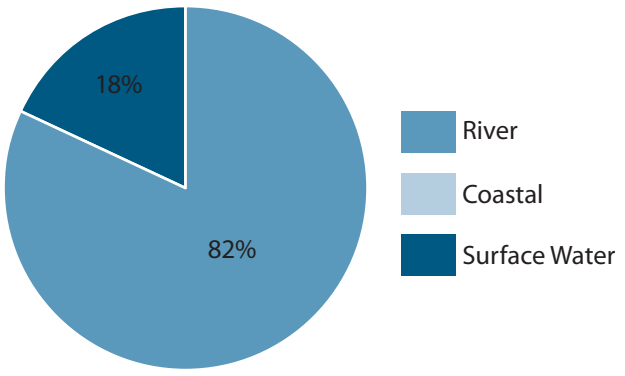
PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/09	11 – Clyde and Loch Lomond	Black Cart Water	East Renfrewshire Inverclyde North Ayrshire Renfrewshire

Summary of Main Impacts

Assesment of flood risk and past events show multiple rivers/burns present a potential impact to large number of residential properties and higher category community facilities; potential impact to large number of commercial properties and main transport links and high value arable land; potential impact to world heritage sites or number of scheduled monuments; potential impact to sensitive designated areas. Existing defences on the Black Cart Water offers partial protection to some of these impacts.

Estimated Weighted Annual Average Damages	£4,340,000

Known Source of Flooding



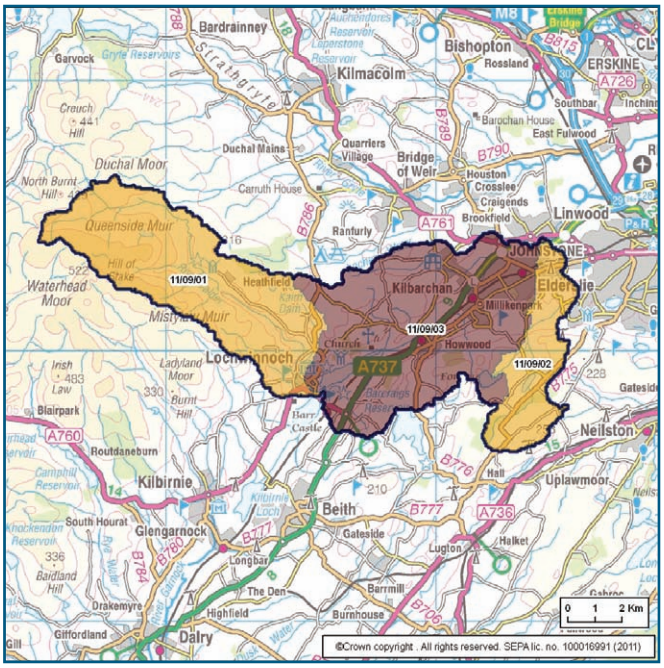
Groundwater Flooding	Potential low to moderate contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in PVA

Type	Number	Proportion of All Properties in PVA
Residential	484	3.4%
Non-residential	61	8.9%

Towns and Villages with Properties at Risk

50+	Johnstone, Lochwinnoch



PVA Characteristics

Total Area		71 km²
Land cover within the PVA	**Urban**	11%
	Agriculture	51%
	Forestry	30%
Includes Flood Defence(s)		No
Includes Flood Warning Area(s)		No
Catchment Hydrology		Insufficient information available for categorisation. See explanatory sheet for data used.
Catchment Morphology		• Mixture of meandering/braided channel types and bedrock/plane-bed channel types or lochs; • Mixture of natural/realigned channels and protected/unprotected floodplains; • Moderate density of hydraulic structures; • Moderate potential for increased flood risk due to upstream morphological pressures.

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Catchment Unit Datasheet

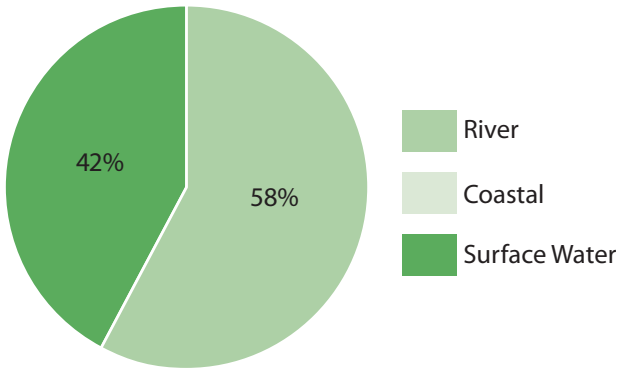
Catchment Unit Number:	PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/09/01	11/09	11 – Clyde and Loch Lomond	Black Cart Water	Inverclyde North Ayrshire Renfrewshire

Summary of Main Impacts

Assessment of future flood risk and past events show the River Calder presents: limited impact to a small number of residential properties; potential impact to less resilient designated areas.

Overall nFRA Category	Medium
Estimated Weighted Annual Average Damages	£850,000

Known Source of Flooding



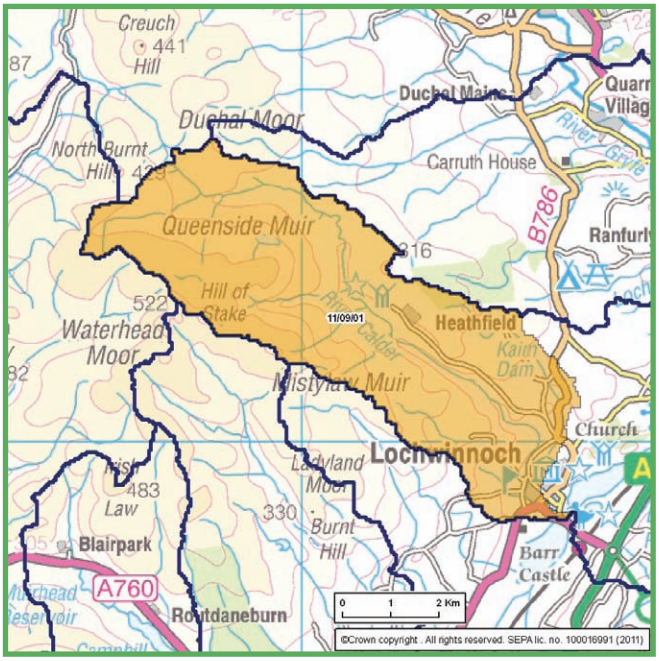
Groundwater Flooding	Potential low to moderate contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in Catchment Area

Type	Number	Proportion of All Properties
Residential	125	22.8%
Non-residential	5	13.9%

Towns and Villages with Properties at Risk

50+	Lochwinnoch



Catchment Unit Characteristics

Total Area		35 km^2
Land cover within the catchment Unit	**Urban**	2%
	Agriculture	20%
	Forestry	59%
Includes Flood Defence(s)		No
Includes Flood Warning Area(s)		No
Catchment Hydrology		• Moderate peak flood flow response times; • Moderate catchment flood storage and attenuation capacity; • Potential for moderate underestimation of design flood magnitude; • Moderate erosion hazard potential of flood flows.
Catchment Morphology		• Predominance of bedrock/plane-bed channel types or lochs; • Predominance of realigned channels and/or protected floodplains; • Very low density of hydraulic structures; • Very low potential for increased flood risk due to upstream morphological pressures.

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Catchment Unit Datasheet

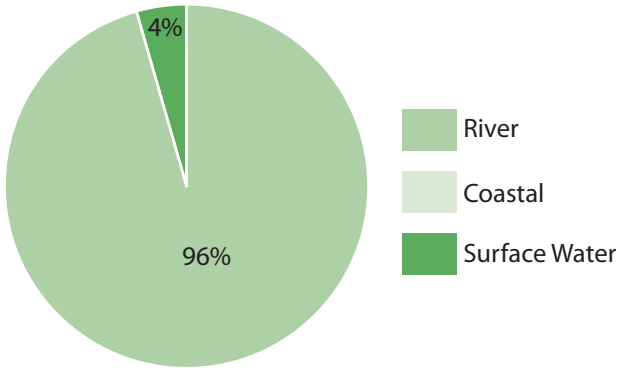
Catchment Unit Number:	PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/09/02	11/09	11 – Clyde and Loch Lomond	Black Cart Water	East Renfrewshire Renfrewshire

Summary of Main Impacts

Assessment of future flood risk and past events show Old Partick Water and the Black Cart Water presents a limited impact to a small number of residential properties or lower category community facilities; limited impact to a small number of commercial properties, minor transport links or agricultural land.

Overall nFRA Category	Medium
Estimated Weighted Annual Average Damages	£690,000

Known Source of Flooding



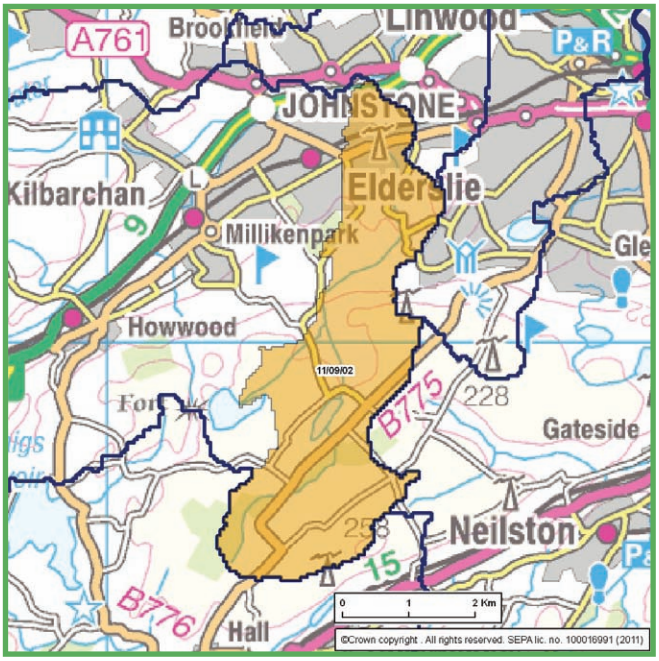
Groundwater Flooding	Potential very low to low contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in Catchment Area

Type	Number	Proportion of All Properties
Residential	52	2.3%
Non-residential	13	17.8%

Towns and Villages with Properties at Risk

50+	



Catchment Unit Characteristics

Total Area	13 km²	
Land cover within the catchment Unit	**Urban**	15%
	Agriculture	68%
	Forestry	17%
Includes Flood Defence(s)		No
Includes Flood Warning Area(s)		No
Catchment Hydrology	• Moderate peak flood flow response times; • Moderate catchment flood storage and attenuation capacity; • Potential for moderate underestimation of design flood magnitude; • Moderate erosion hazard potential of flood flows.	
Catchment Morphology	• High proportion of bedrock/plane-bed channel types or lochs; • High proportion of realigned channels and/or protected floodplains; • Low density of hydraulic structures; • Low potential for increased flood risk due to upstream morphological pressures.	

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Catchment Unit Datasheet

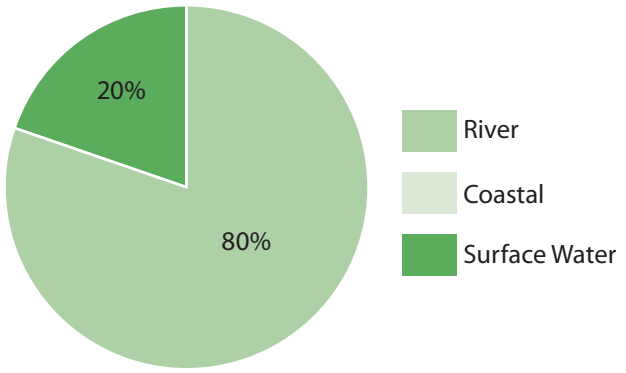
Catchment Unit Number:	PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/09/03	11/09	11 – Clyde and Loch Lomond	Black Cart Water	Renfrewshire

Summary of Main Impacts

Assessment of future flood risk and past events show the Black Cart Water, River Calder and Loch Semple presents a potential impact to a large number of residential properties or medium category community facilities along with potential impact to some commercial properties, transport links and agricultural land; potential impact to some scheduled monuments. Existing defences on the Black Cart Water offers partial protection to some of these impacts.

Overall nFRA Category	Very High
Estimated Weighted Annual Average Damages	£2,800,000

Known Source of Flooding



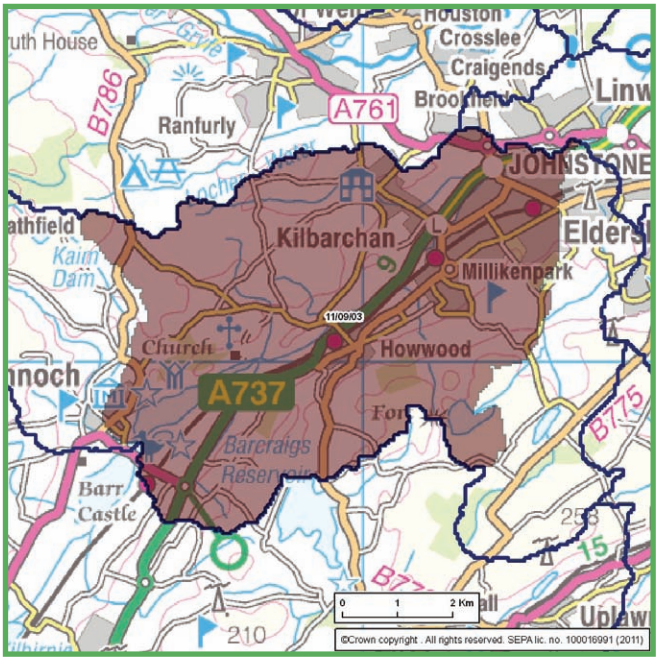
Groundwater Flooding	Potential low to moderate contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in Catchment Area

Type	Number	Proportion of All Properties
Residential	307	2.7%
Non-residential	43	7.5%

Towns and Villages with Properties at Risk

50+	Johnstone, Lochwinnoch



Catchment Unit Characteristics

Total Area		45 km²
Land cover within the catchment Unit	**Urban**	16%
	Agriculture	70%
	Forestry	12%
Includes Flood Defence(s)		Yes
Includes Flood Warning Area(s)		No
Catchment Hydrology		• Moderate to long peak flood flow response times; • High catchment flood storage and attenuation capacity; • Potential for low to moderate underestimation of design flood magnitude; • Low erosion hazard potential of flood flows.
Catchment Morphology		• High proportion of meandering/braided channel types; • High proportion of natural channels and/or unprotected floodplains; • High density of hydraulic structures; • High potential for increased flood risk due to upstream morphological pressures.

June 2011. Information contained in these datasheets is DRAFT. It will be updated based on this consultation and published as part of the National Flood Risk Assessment in December 2011.

Potentially Vulnerable Area Datasheet

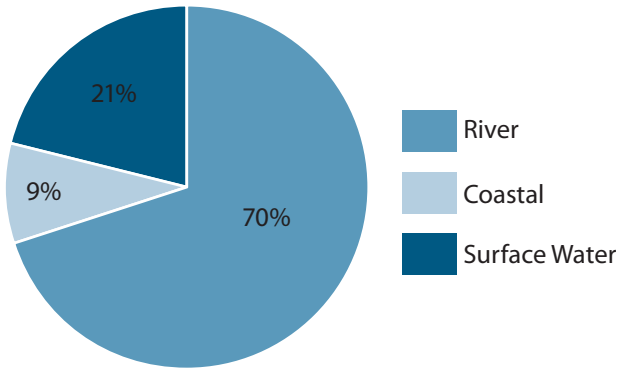
PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/10	11 – Clyde and Loch Lomond	White Cart Water	East Renfrewshire Glasgow City Renfrewshire

Summary of Main Impacts

Assessment of flood risk and past events show multiple rivers/burns present a potential impact to large number of residential properties and higher category community facilities including Emergency Services Station, Education Facility and Residential Home within the floodplain; potential impact to large number of commercial properties or main transport links and high value arable land; potential impact to an extensive area of world heritage sites. Existing defences on the White Cart Water, Brock Burn, Levern Water, Auldhouse Burn, Bagabout Burn and Espedair Burn offers partial protection to some of these impacts.

Estimated Weighted Annual Average Damages	£81,220,000

Known Source of Flooding



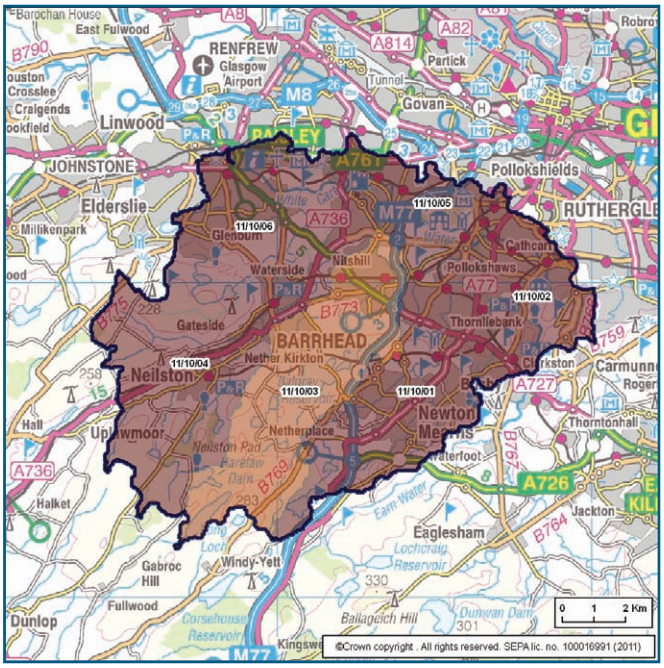
Groundwater Flooding	Potential low to moderate contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in PVA

Type	Number	Proportion of All Properties in PVA
Residential	12083	11.3%
Non-residential	619	13.6%

Towns and Villages with Properties at Risk

50+	Barcapel, Blackhall, Cathcart, Clarkston, Crookston, Kennishead, Newton Mearns, Nitshil, Paisley, Pollok, Priesthill, Pollokshaws, Rutherglen



PVA Characteristics

Total Area		56 km^2
Land cover within the PVA	**Urban**	49%
	Agriculture	42%
	Forestry	7%
Includes Flood Defence(s)		Yes
Includes Flood Warning Area(s)		Yes
Catchment Hydrology		• Long peak flood flow response times; • Very high catchment flood storage and attenuation capacity; • Very low potential for underestimation of design flood magnitude: • Very low erosion hazard potential of flood flows.
Catchment Morphology		• Mixture of meandering/braided channel types and bedrock/plane-bed channel types or lochs; • Mixture of natural/realigned channels and protected/unprotected floodplains; • Moderate density of hydraulic structures; • Moderate potential for increased flood risk due to upstream morphological pressures.

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Catchment Unit Datasheet

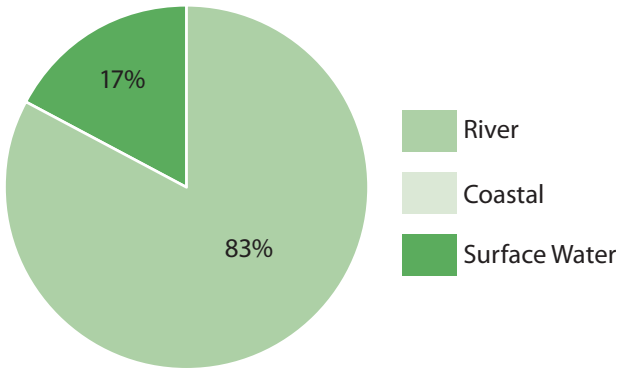
Catchment Unit Number:	PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/10/01	11/10	11 – Clyde and Loch Lomond	White Cart Water	East Renfrewshire Glasgow City

Summary of Main Impacts

Assessment of future flood risk and past events show Whitecart Water, Auldhouse and Bagabout Burns presents a potential impact to large number residential properties or high category community facilities including Emergency services station, Education facility and Residential Home within the floodplain; potential impact to some commercial properties, transport links and agricultural land. Existing defences on the White Cart Water, Auldhouse and Bagabout Burns

Overall nFRA Category	Very High
Estimated Weighted Annual Average Damages	£11,940,000

Known Source of Flooding



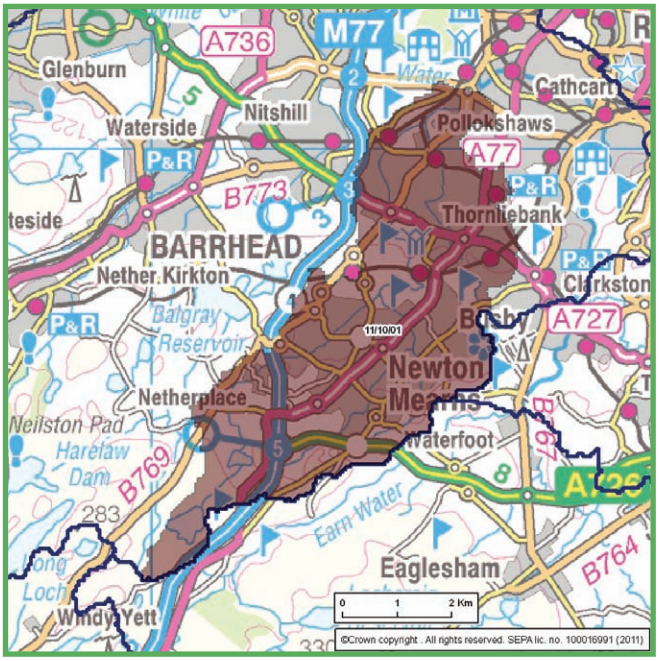
Groundwater Flooding	Potential low to moderate contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in Catchment Area

Type	Number	Proportion of All Properties
Residential	1645	7.5%
Non-residential	98	11.6%

Towns and Villages with Properties at Risk

50+	Barcapel, Kennishead, Newton Mearns, Pollokshaws, Rutherglen



Catchment Unit Characteristics

Total Area		26 km²
Land cover within the catchment Unit	**Urban**	65%
	Agriculture	27%
	Forestry	7%
Includes Flood Defence(s)		Yes
Includes Flood Warning Area(s)		Yes
Catchment Hydrology		• Moderate peak flood flow response times; • Moderate catchment flood storage and attenuation capacity; • Potential for moderate underestimation of design flood magnitude; • Moderate erosion hazard potential of flood flows.
Catchment Morphology		• High proportion of bedrock/plane-bed channel types or lochs; • High proportion of realigned channels and/or protected floodplains; • Low density of hydraulic structures; • Low potential for increased flood risk due to upstream morphological pressures.

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Catchment Unit Datasheet

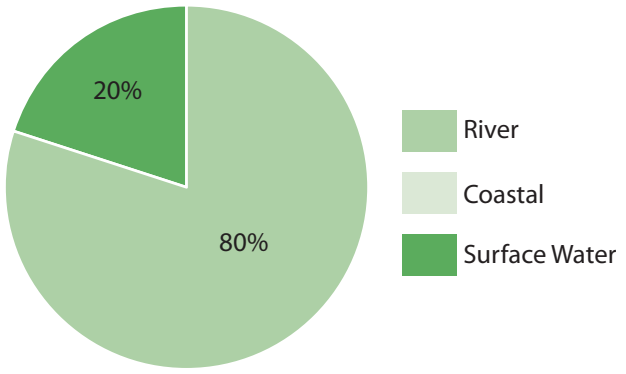
Catchment Unit Number:	PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/10/02	11/10	11 – Clyde and Loch Lomond	White Cart Water	East Renfrewshire Glasgow City

Summary of Main Impacts

Assessment of past and future flooding events show the White Cart Water presents a potential impact to large number of residential properties and higher category community facilities; potential impact to large number of commercial properties and main transport links and high value arable land with potential impact to some scheduled monuments. Existing defences on the White Cart Water offers partial protection to some of these impacts

Overall nFRA Category	Very High
Estimated Weighted Annual Average Damages	£40,760,000

Known Source of Flooding



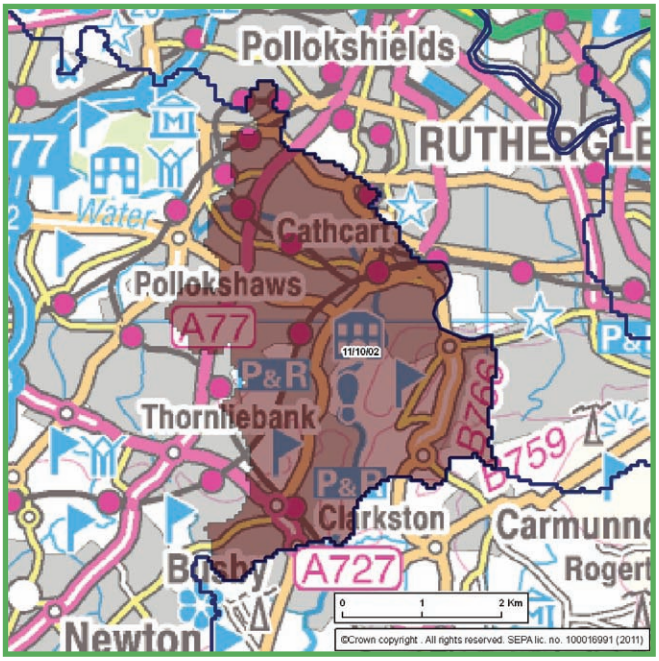
Groundwater Flooding	Potential low to moderate contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in Catchment Area

Type	Number	Proportion of All Properties
Residential	6161	19.8%
Non-residential	209	15.7%

Towns and Villages with Properties at Risk

50+	Cathcart, Clarkston, Rutherglen



Catchment Unit Characteristics

Total Area		14 km²
Land cover within the catchment Unit	**Urban**	83%
	Agriculture	7%
	Forestry	10%
Includes Flood Defence(s)		Yes
Includes Flood Warning Area(s)		Yes
Catchment Hydrology		• Moderate peak flood flow response times; • Moderate catchment flood storage and attenuation capacity; • Potential for moderate underestimation of design flood magnitude; • Moderate erosion hazard potential of flood flows.
Catchment Morphology		• High proportion of bedrock/plane-bed channel types or lochs; • High proportion of realigned channels and/or protected floodplains; • Low density of hydraulic structures; • Low potential for increased flood risk due to upstream morphological pressures.

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Catchment Unit Datasheet

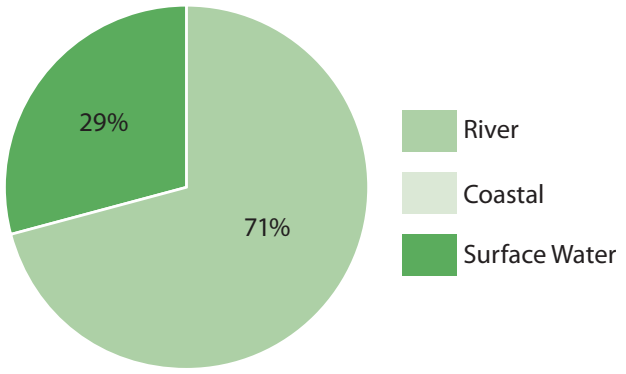
Catchment Unit Number:	PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/10/03	11/10	11 – Clyde and Loch Lomond	White Cart Water	East Ayrshire East Renfrewshire Glasgow City

Summary of Main Impacts

Assessment of future flood risk and past events show the Brock Burn presents a potential impact to large number residential properties or high category community facilities including Residential Home within the floodplain; limited impact to a small number of commercial properties, minor transport links or agricultural land. Existing defences on the Brock Burn offers partial protection to some of these impacts

Overall nFRA Category	High
Estimated Weighted Annual Average Damages	£3,190,000

Known Source of Flooding



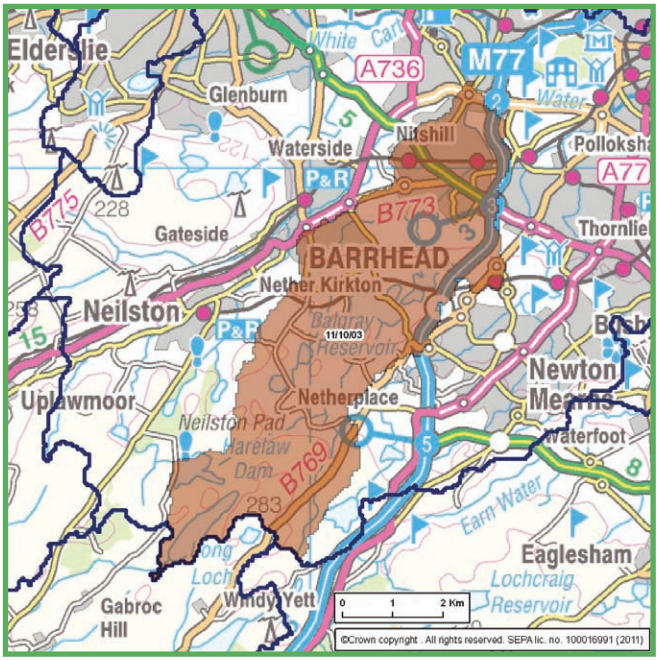
Groundwater Flooding	Potential very low to low contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in Catchment Area

Type	Number	Proportion of All Properties
Residential	789	8%
Non-residential	24	7.3%

Towns and Villages with Properties at Risk

50+	Nitshil, Pollok, Priesthill



Catchment Unit Characteristics

Total Area		27 km²
Land cover within the catchment Unit	**Urban**	22%
	Agriculture	57%
	Forestry	14%
Includes Flood Defence(s)		No
Includes Flood Warning Area(s)		No
Catchment Hydrology		• Long peak flood flow response times; • Very high catchment flood storage and attenuation capacity; • Very low potential for underestimation of design flood magnitude: • Very low erosion hazard potential of flood flows.
Catchment Morphology		• Predominance of bedrock/plane-bed channel types or lochs; • Predominance of realigned channels and/or protected floodplains; • Very low density of hydraulic structures; • Very low potential for increased flood risk due to upstream morphological pressures.

June 2011. Information contained in these datasheets is DRAFT. It will be updated based on this consultation and published as part of the National Flood Risk Assessment in December 2011.

Catchment Unit Datasheet

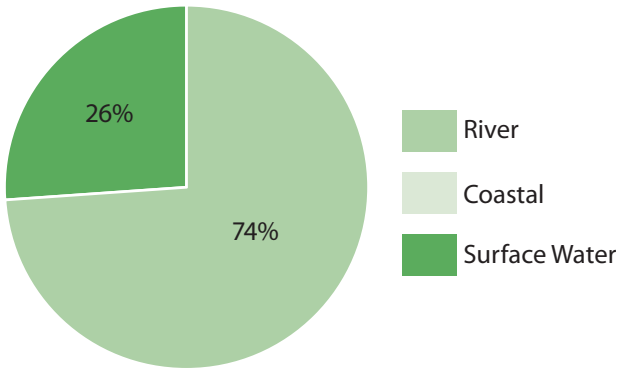
Catchment Unit Number:	PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/10/04	11/10	11 – Clyde and Loch Lomond	White Cart Water	East Ayrshire East Renfrewshire Glasgow City Renfrewshire

Summary of Main Impacts

Assessment of future flood risk and past events show the Levern Water presents a potential impact to large number residential properties or high category community facilities including Residential Home within the floodplain; limited impact to a small number of commercial properties, minor transport links or agricultural land. Existing defences on the Levern Water offers partial protection to some of these impacts

Overall nFRA Category	Very High
Estimated Weighted Annual Average Damages	£5,050,000

Known Source of Flooding



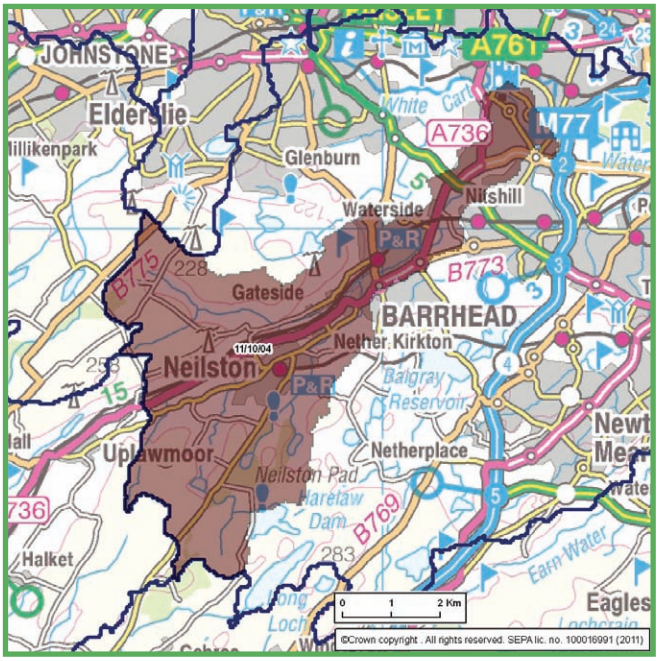
Groundwater Flooding	Potential very low to low contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in Catchment Area

Type	Number	Proportion of All Properties
Residential	862	7.6%
Non-residential	42	8.4%

Towns and Villages with Properties at Risk

50+	Barrhead, Pollok, Priesthill



Catchment Unit Characteristics

Total Area	32 km²	
Land cover within the catchment Unit	**Urban**	23%
	Agriculture	73%
	Forestry	4%
Includes Flood Defence(s)		Yes
Includes Flood Warning Area(s)		Yes
Catchment Hydrology		• Moderate to long peak flood flow response times; • High catchment flood storage and attenuation capacity; • Potential for low to moderate underestimation of design flood magnitude; • Low erosion hazard potential of flood flows.
Catchment Morphology		• High proportion of bedrock/plane-bed channel types or lochs; • High proportion of realigned channels and/or protected floodplains; • Low density of hydraulic structures; • Low potential for increased flood risk due to upstream morphological pressures.

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Catchment Unit Datasheet

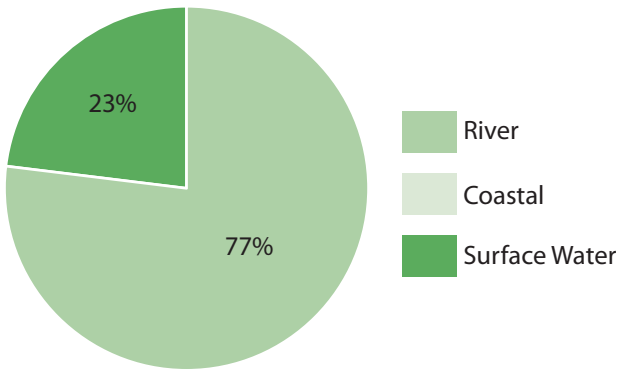
Catchment Unit Number:	PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/10/05	11/10	11 – Clyde and Loch Lomond	White Cart Water	Glasgow City Renfrewshire

Summary of Main Impacts

Assessment of future flood risk and past events show the White Cart Water presents a potential impact to large number of residential properties and higher category community facilities including Education facility and Residential Home within the floodplain; potential impact to large number of commercial properties and main transport links and high value arable land; potential impact to some scheduled monuments. Existing defences on the White Cart Water offers partial protection to some of these impacts

Overall nFRA Category	Very High
Estimated Weighted Annual Average Damages	£11,920,000

Known Source of Flooding



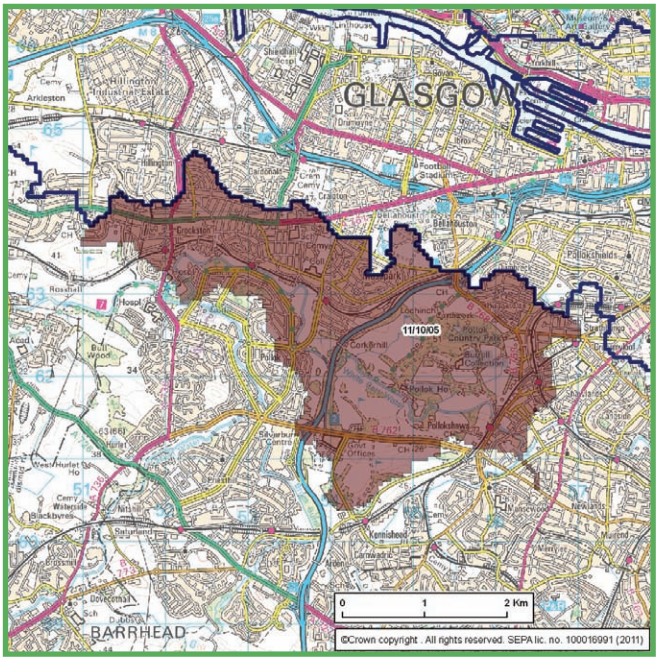
Groundwater Flooding	Potential low to moderate contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in Catchment Area

Type	Number	Proportion of All Properties
Residential	1693	14.6%
Non-residential	92	21.4%

Towns and Villages with Properties at Risk

50+	Crookston, Pollok, Pollokshaws, Rutherglen



Catchment Unit Characteristics

Total Area		10 km^2
Land cover within the catchment Unit	**Urban**	100%
	Agriculture	0%
	Forestry	0%
Includes Flood Defence(s)		Yes
Includes Flood Warning Area(s)		Yes
Catchment Hydrology		• Moderate to long peak flood flow response times; • High catchment flood storage and attenuation capacity; • Potential for low to moderate underestimation of design flood magnitude; • Low erosion hazard potential of flood flows.
Catchment Morphology		• Mixture of meandering/braided channel types and bedrock/plane-bed channel types or lochs; • Mixture of natural/realigned channels and protected/unprotected floodplains; • Moderate density of hydraulic structures; • Moderate potential for increased flood risk due to upstream morphological pressures.

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Catchment Unit Datasheet

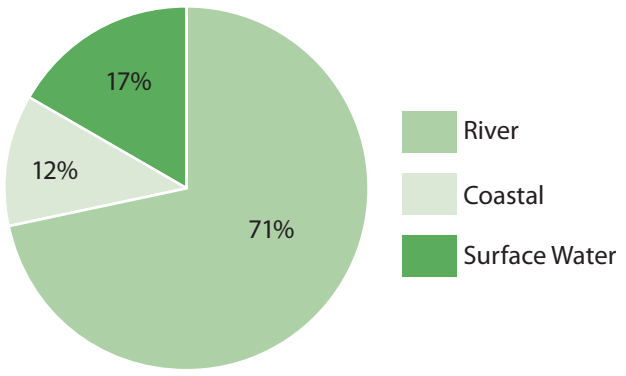
Catchment Unit Number:	PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/10/06	11/10	11 – Clyde and Loch Lomond	White Cart Water	East Renfrewshire Glasgow City Renfrewshire

Summary of Main Impacts

Assessment of future flood risk and past events show the White Cart Water and Espedair Burn present a potential impact to large number of residential properties and higher category community facilities including Residential Home within the floodplain; potential impact to large number of commercial properties and main transport links and high value arable land; potential impact to some scheduled monuments. Existing defences on the White Cart Water and Espedair Burn offers partial protection to some of these impacts

Overall nFRA Category	Very High
Estimated Weighted Annual Average Damages	£8,360,000

Known Source of Flooding



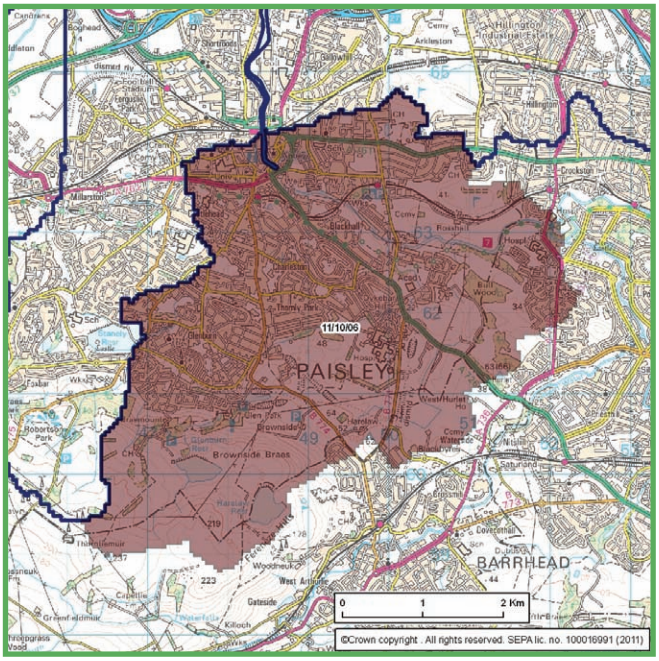
Groundwater Flooding	Potential very low to low contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in Catchment Area

Type	Number	Proportion of All Properties
Residential	933	4.5%
Non-residential	154	13.6%

Towns and Villages with Properties at Risk

50+	Blackhall,Paisley



Catchment Unit Characteristics

Total Area		21 km^2
Land cover within the catchment Unit	**Urban**	56%
	Agriculture	38%
	Forestry	6%
Includes Flood Defence(s)		Yes
Includes Flood Warning Area(s)		Yes
Catchment Hydrology		• Moderate to long peak flood flow response times; • High catchment flood storage and attenuation capacity; • Potential for low to moderate underestimation of design flood magnitude; • Low erosion hazard potential of flood flows.
Catchment Morphology		• High proportion of meandering/braided channel types; • High proportion of natural channels and/or unprotected floodplains; • High density of hydraulic structures; • High potential for increased flood risk due to upstream morphological pressures.

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Potentially Vulnerable Area Datasheet

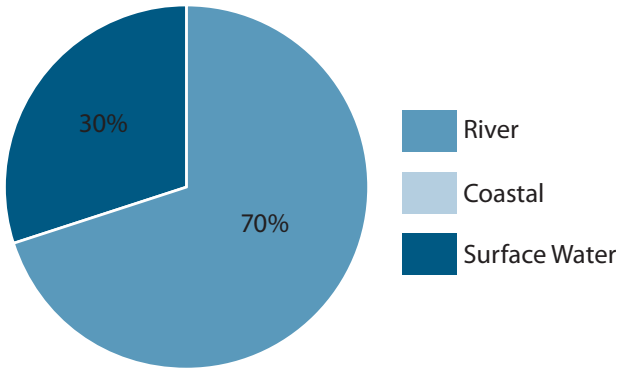
PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/11	11 – Clyde and Loch Lomond	White Cart Water	East Renfrewshire Glasgow City South Lanarkshire

Summary of Main Impacts

Assessment of flood risk and past events show multiple rivers/burns present a potential impact to large number of residential properties and higher category community facilities; limited impact to a small number of commercial properties, minor transport links or agricultural land. Existing defences on White Cart Water, Earn Water and Kittoch Water offers partial protection to some of these impacts.

Estimated Weighted Annual Average Damages	£4,050,000

Known Source of Flooding



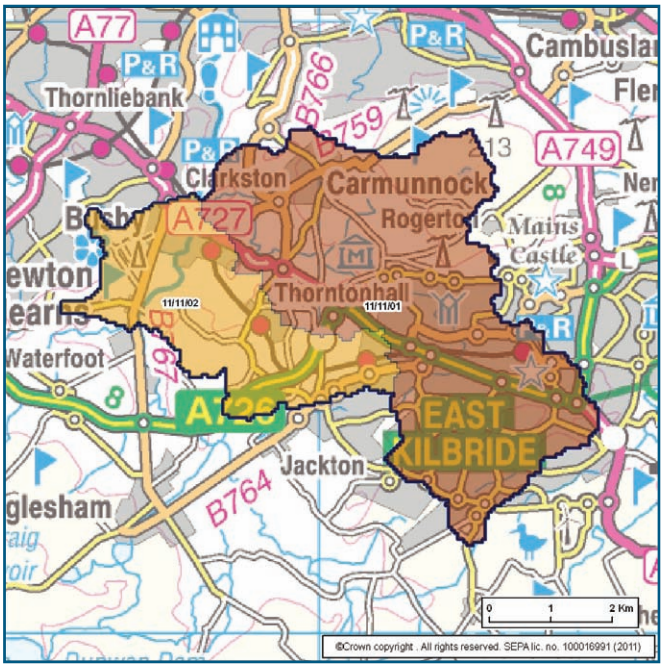
Groundwater Flooding	Potential very low to low contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in PVA

Type	Number	Proportion of All Properties in PVA
Residential	601	3.1%
Non-residential	22	2.1%

Towns and Villages with Properties at Risk

50+	East Kilbride, West Mains



PVA Characteristics

Total Area		51 km²
Land cover within the PVA	**Urban**	42%
	Agriculture	54%
	Forestry	3%
Includes Flood Defence(s)		No
Includes Flood Warning Area(s)		No
Catchment Hydrology		• Moderate to long peak flood flow response times; • High catchment flood storage and attenuation capacity; • Potential for low to moderate underestimation of design flood magnitude; • Low erosion hazard potential of flood flows.
Catchment Morphology		• Mixture of meandering/braided channel types and bedrock/plane-bed channel types or lochs; • Mixture of natural/realigned channels and protected/unprotected floodplains; • Moderate density of hydraulic structures; • Moderate potential for increased flood risk due to upstream morphological pressures.

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Catchment Unit Datasheet

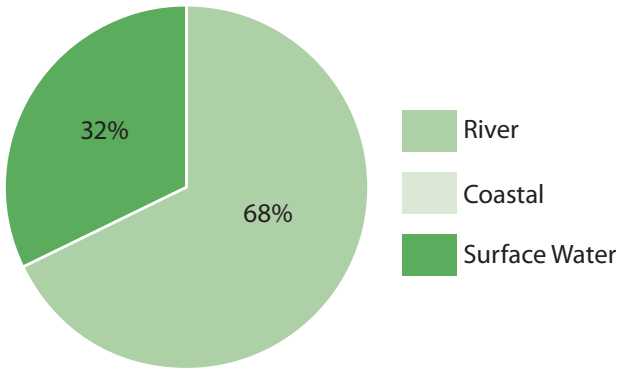
Catchment Unit Number:	PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/11/01	11/11	11 – Clyde and Loch Lomond	White Cart Water	East Renfrewshire Glasgow City South Lanarkshire

Summary of Main Impacts

Assessment of future flood risk and past events show the Kittoch water presents a potential impact to large number residential properties or high category community facilities.

Overall nFRA Category	High
Estimated Weighted Annual Average Damages	£3,380,000

Known Source of Flooding



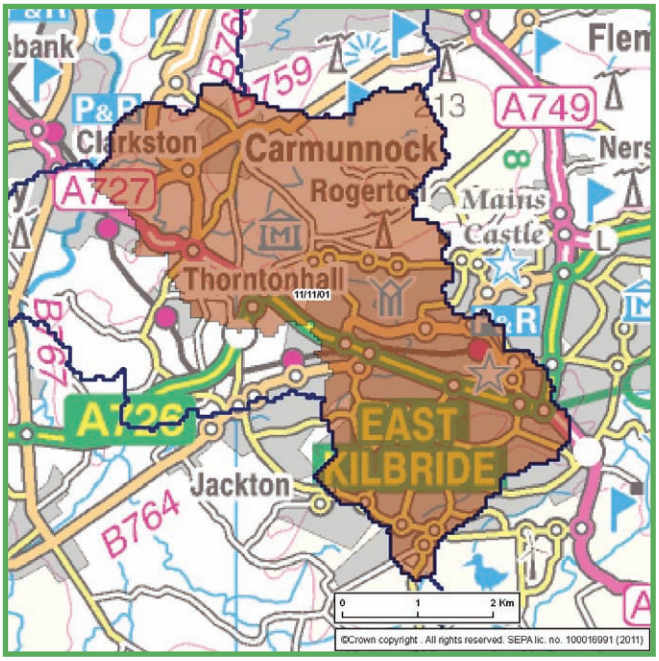
Groundwater Flooding	Potential very low to low contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in Catchment Area

Type	Number	Proportion of All Properties
Residential	551	3.4%
Non-residential	3	0.4%

Towns and Villages with Properties at Risk

50+	East Kilbride, West Mains



Catchment Unit Characteristics

Total Area		21 km²
Land cover within the catchment Unit	**Urban**	51%
	Agriculture	46%
	Forestry	3%
Includes Flood Defence(s)		No
Includes Flood Warning Area(s)		No
Catchment Hydrology		• Short to moderate peak flood flow response times; • Low catchment flood storage and attenuation capacity; • Potential for high underestimation of design flood magnitudes; • High erosion hazard potential of flood flows.
Catchment Morphology		• High proportion of bedrock/plane-bed channel types or lochs; • High proportion of realigned channels and/or protected floodplains; • Low density of hydraulic structures; • Low potential for increased flood risk due to upstream morphological pressures.

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Catchment Unit Datasheet

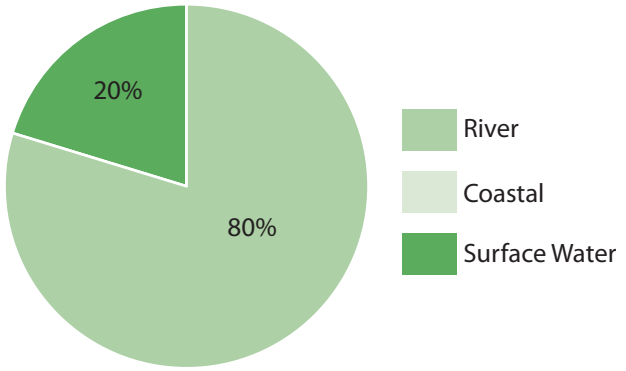
Catchment Unit Number:	PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/11/02	11/11	11 – Clyde and Loch Lomond	White Cart Water	East Renfrewshire South Lanarkshire

Summary of Main Impacts

Assessment of past and future flooding events show the White Cart Water presents potential flooding impact. Area included due to potential economic impact to residential properties, non residential properties or agriculture. Existing defences upstream of catchment on the White Cart Water offers partial protection to some of these impacts

Overall nFRA Category	Medium
Estimated Weighted Annual Average Damages	£670,000

Known Source of Flooding



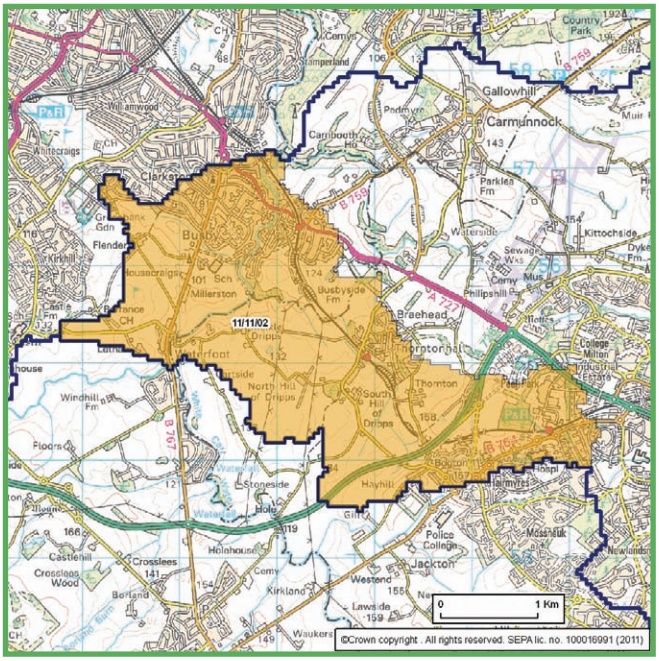
Groundwater Flooding	Potential very low to low contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in Catchment Area

Type	Number	Proportion of All Properties
Residential	50	1.6%
Non-residential	19	10.2%

Towns and Villages with Properties at Risk

50+	



Catchment Unit Characteristics

Total Area		9 km²
Land cover within the catchment Unit	**Urban**	22%
	Agriculture	74%
	Forestry	4%
Includes Flood Defence(s)		No
Includes Flood Warning Area(s)		No
Catchment Hydrology		• Short to moderate peak flood flow response times; • Low catchment flood storage and attenuation capacity; • Potential for high underestimation of design flood magnitudes; • High erosion hazard potential of flood flows.
Catchment Morphology		• High proportion of bedrock/plane-bed channel types or lochs; • High proportion of realigned channels and/or protected floodplains; • Low density of hydraulic structures; • Low potential for increased flood risk due to upstream morphological pressures.

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Potentially Vulnerable Area Datasheet

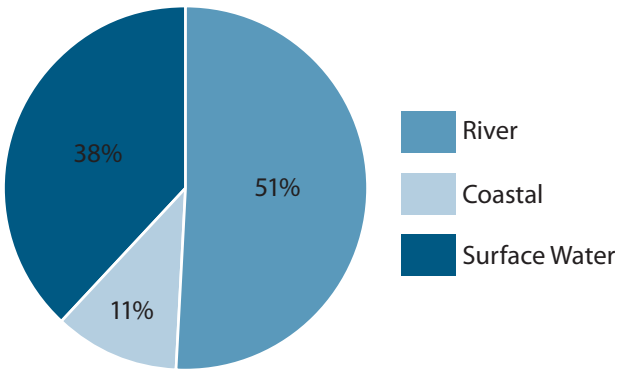
PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/12	11 – Clyde and Loch Lomond	River Clyde	Glasgow City North Lanarkshire South Lanarkshire

Summary of Main Impacts

Assessment of flood risk and past events show multiple rivers/burns present a potential impact to a large number of residential properties and higher category community facilities; potential impact to large number of commercial properties or main transport links and high value arable land; potential impact to an extensive area of world heritage sites; potential impact to less resilient designated areas. Existing defences on the River Clyde and Wellshaw Burn offer partial protection to some of these impacts.

Estimated Weighted Annual Average Damages	£17,370,000

Known Source of Flooding



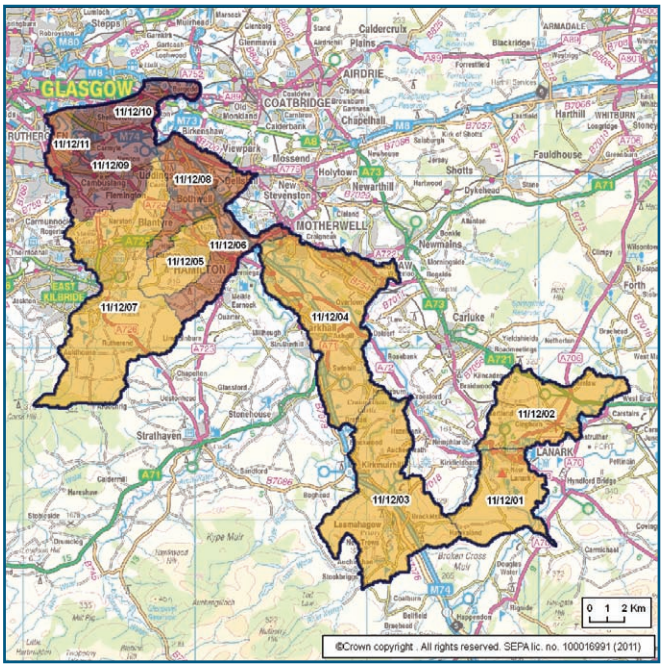
Groundwater Flooding	Potential low to moderate contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in PVA

Type	Number	Proportion of All Properties in PVA
Residential	2079	1.7%
Non-residential	160	2.5%

Towns and Villages with Properties at Risk

50+	Birkenshaw, Braidfauld, Carmyle, Hamilton, Kirkfieldbank, Newton, Shettleston



PVA Characteristics

Total Area		83 km^2
Land cover within the PVA	**Urban**	31%
	Agriculture	60%
	Forestry	8%
Includes Flood Defence(s)		Yes
Includes Flood Warning Area(s)		Yes
Catchment Hydrology		• Moderate to long peak flood flow response times; • High catchment flood storage and attenuation capacity; • Potential for low to moderate underestimation of design flood magnitude; • Low erosion hazard potential of flood flows.
Catchment Morphology		• High proportion of bedrock/plane-bed channel types or lochs; • High proportion of realigned channels and/or protected floodplains; • Low density of hydraulic structures; • Low potential for increased flood risk due to upstream morphological pressures.

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Catchment Unit Datasheet

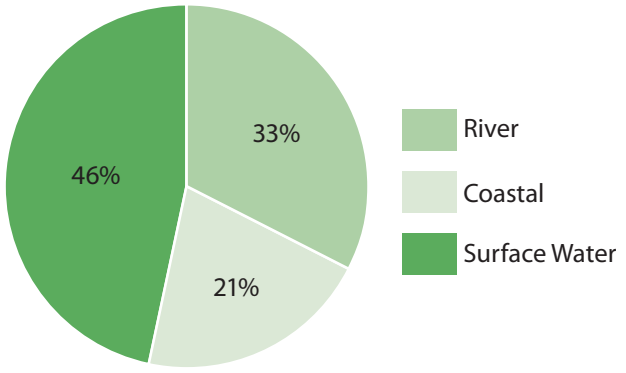
Catchment Unit Number:	PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/12/01	11/12	11 – Clyde and Loch Lomond	River Clyde	South Lanarkshire

Summary of Main Impacts

Assessment of future flood risk and past events show the River Clyde presents a potential impact to a number of world heritage sites or number of scheduled monuments.

Overall nFRA Category	Medium
Estimated Weighted Annual Average Damages	£430,000

Known Source of Flooding



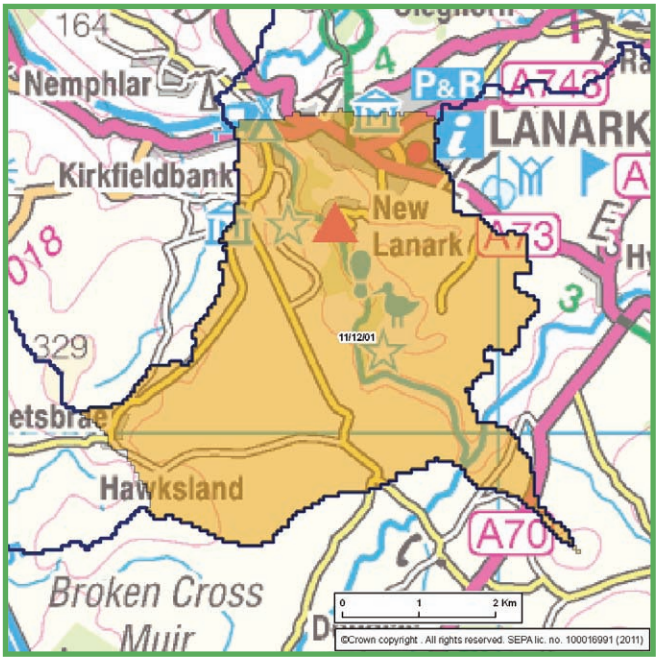
Groundwater Flooding	Potential very low to low contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in Catchment Area

Type	Number	Proportion of All Properties
Residential	43	1.3%
Non-residential	3	0.9%

Towns and Villages with Properties at Risk

50+	



Catchment Unit Characteristics

Total Area		20 km²
Land cover within the catchment Unit	**Urban**	11%
	Agriculture	81%
	Forestry	8%
Includes Flood Defence(s)		No
Includes Flood Warning Area(s)		No
Catchment Hydrology		• Moderate to long peak flood flow response times; • High catchment flood storage and attenuation capacity; • Potential for low to moderate underestimation of design flood magnitude; • Low erosion hazard potential of flood flows.
Catchment Morphology		• High proportion of meandering/braided channel types; • High proportion of natural channels and/or unprotected floodplains; • High density of hydraulic structures; • High potential for increased flood risk due to upstream morphological pressures.

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Catchment Unit Datasheet

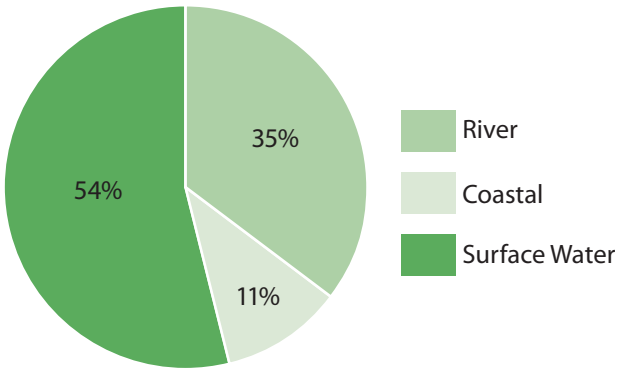
Catchment Unit Number:	PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/12/02	11/12	11 – Clyde and Loch Lomond	River Clyde	South Lanarkshire

Summary of Main Impacts

Assessment of future flood risk and past events show the Mouse Water and River Clyde present a limited impact to a small number of residential properties. Potential impact to some scheduled monuments.

Overall nFRA Category	Medium
Estimated Weighted Annual Average Damages	£470,000

Known Source of Flooding



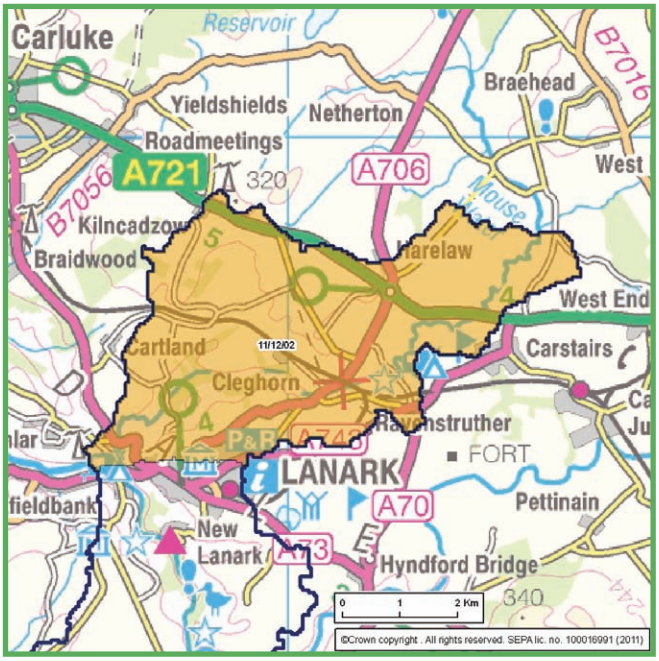
Groundwater Flooding	Potential low to moderate contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in Catchment Area

Type	Number	Proportion of All Properties
Residential	67	4.9%
Non-residential	3	5.7%

Towns and Villages with Properties at Risk

50+	Kirkfieldbank



Catchment Unit Characteristics

Total Area		25 km²
Land cover within the catchment Unit	**Urban**	3%
	Agriculture	79%
	Forestry	13%
Includes Flood Defence(s)		No
Includes Flood Warning Area(s)		No
Catchment Hydrology		• Moderate to long peak flood flow response times; • High catchment flood storage and attenuation capacity; • Potential for low to moderate underestimation of design flood magnitude; • Low erosion hazard potential of flood flows.
Catchment Morphology		• Mixture of meandering/braided channel types and bedrock/plane-bed channel types or lochs; • Mixture of natural/realigned channels and protected/unprotected floodplains; • Moderate density of hydraulic structures; • Moderate potential for increased flood risk due to upstream morphological pressures.

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Catchment Unit Datasheet

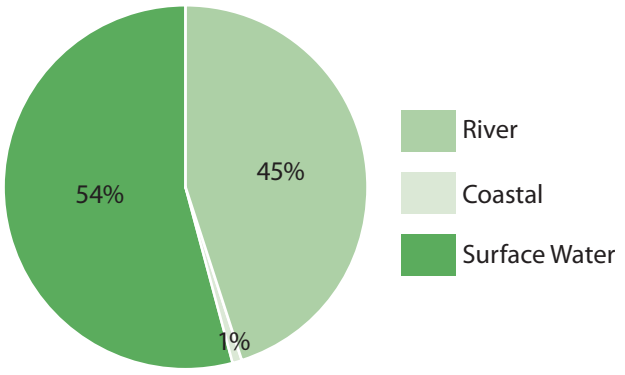
Catchment Unit Number:	PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/12/03	11/12	11 – Clyde and Loch Lomond	River Clyde	South Lanarkshire

Summary of Main Impacts

Assessment of future flood risk and past events show the Nethan Water presents a limited impact to a small number of commercial properties, minor transport links or agricultural land; potential impact to some scheduled monuments.

Overall nFRA Category	Medium
Estimated Weighted Annual Average Damages	£420,000

Known Source of Flooding



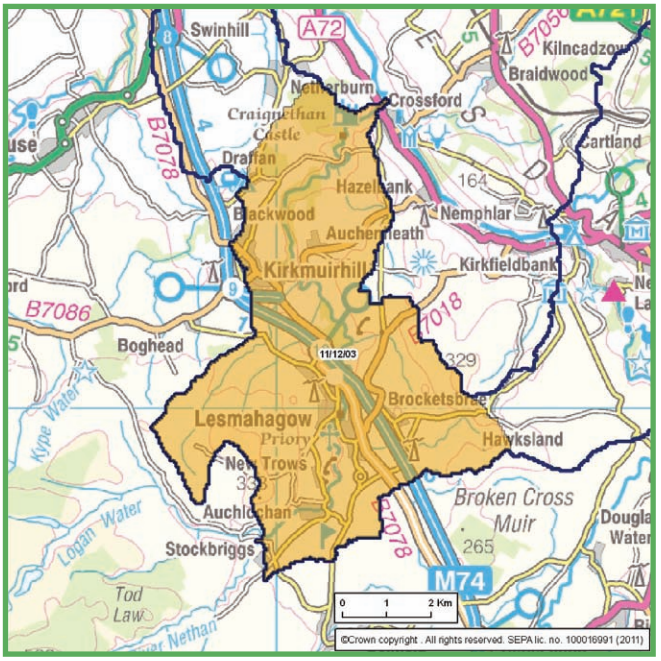
Groundwater Flooding	Potential low to moderate contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in Catchment Area

Type	Number	Proportion of All Properties
Residential	32	0.9%
Non-residential	6	3.2%

Towns and Villages with Properties at Risk

50+	



Catchment Unit Characteristics

Total Area		44 km²
Land cover within the catchment Unit	**Urban**	6%
	Agriculture	83%
	Forestry	11%
Includes Flood Defence(s)		No
Includes Flood Warning Area(s)		Yes
Catchment Hydrology		• Moderate peak flood flow response times; • Moderate catchment flood storage and attenuation capacity; • Potential for moderate underestimation of design flood magnitude; • Moderate erosion hazard potential of flood flows.
Catchment Morphology		• High proportion of bedrock/plane-bed channel types or lochs; • High proportion of realigned channels and/or protected floodplains; • Low density of hydraulic structures; • Low potential for increased flood risk due to upstream morphological pressures.

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Catchment Unit Datasheet

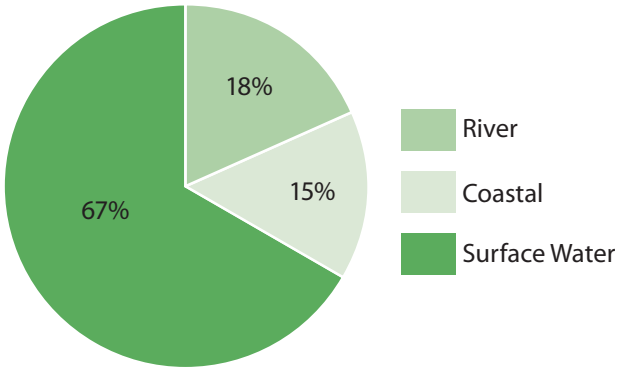
Catchment Unit Number:	PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/12/04	11/12	11 – Clyde and Loch Lomond	River Clyde	North Lanarkshire South Lanarkshire

Summary of Main Impacts

Assessment of future flood risk and past events show the River Clyde presents a limited impact to a small number of residential properties; potential impact to some commercial properties, transport links and agricultural land. Existing defences on the Skelly Gill offers partial protection to some of these impacts

Overall nFRA Category	Medium
Estimated Weighted Annual Average Damages	£630,000

Known Source of Flooding



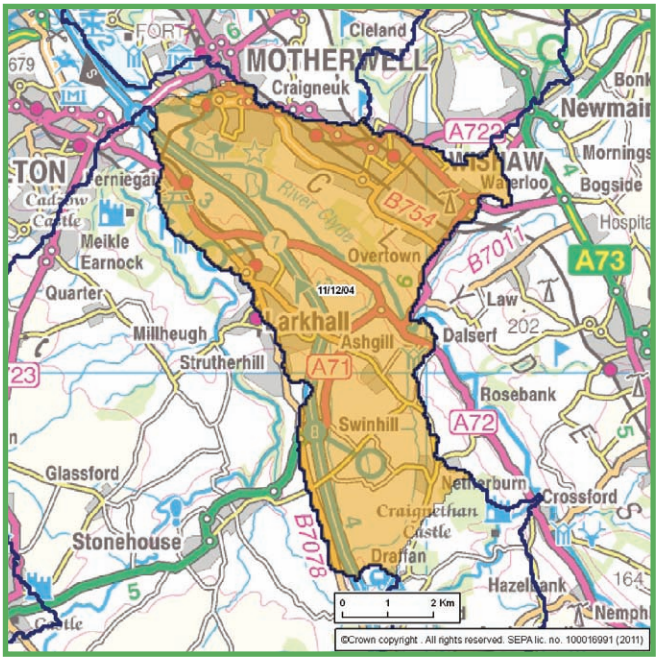
Groundwater Flooding	Potential low to moderate contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in Catchment Area

Type	Number	Proportion of All Properties
Residential	75	0.4%
Non-residential	5	0.5%

Towns and Villages with Properties at Risk

50+



Catchment Unit Characteristics

Total Area		44 km²
Land cover within the catchment Unit	**Urban**	26%
	Agriculture	66%
	Forestry	8%
Includes Flood Defence(s)		Yes
Includes Flood Warning Area(s)		Yes
Catchment Hydrology		• Long peak flood flow response times; • Very high catchment flood storage and attenuation capacity; • Very low potential for underestimation of design flood magnitude: • Very low erosion hazard potential of flood flows.
Catchment Morphology		• Mixture of meandering/braided channel types and bedrock/plane-bed channel types or lochs; • Mixture of natural/realigned channels and protected/unprotected floodplains; • Moderate density of hydraulic structures; • Moderate potential for increased flood risk due to upstream morphological pressures.

June 2011. Information contained in these datasheets is DRAFT. It will be updated based on this consultation and published as part of the National Flood Risk Assessment in December 2011.

Catchment Unit Datasheet

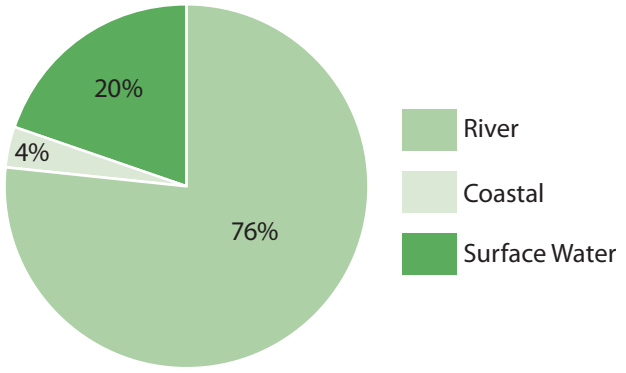
Catchment Unit Number:	PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/12/05	11/12	11 – Clyde and Loch Lomond	River Clyde	South Lanarkshire

Summary of Main Impacts

Assessment of future flood risk and past events show Wellshaw Burm and the Park burn present a potential impact to some residential properties or lower category community facilities; limited impact to a small number of commercial properties, minor transport links or agricultural land. Existing defences on the Wellshaw Burn offers partial protection to some of these impacts.

Overall nFRA Category	Medium
Estimated Weighted Annual Average Damages	£1,270,000

Known Source of Flooding



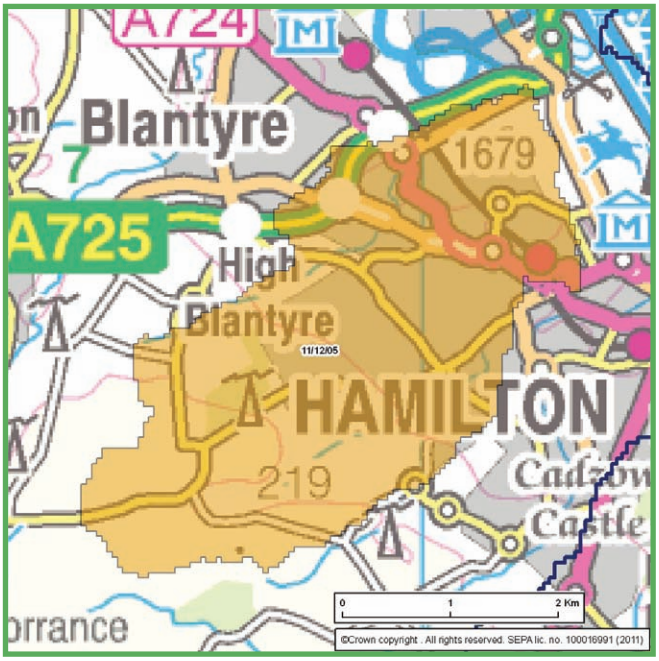
Groundwater Flooding	Potential low to moderate contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in Catchment Area

Type	Number	Proportion of All Properties
Residential	127	1%
Non-residential	16	3.1%

Towns and Villages with Properties at Risk

50+	



Catchment Unit Characteristics

Total Area		12 km²
Land cover within the catchment Unit	**Urban**	52%
	Agriculture	42%
	Forestry	5%
Includes Flood Defence(s)		Yes
Includes Flood Warning Area(s)		No
Catchment Hydrology		• Short to moderate peak flood flow response times; • Low catchment flood storage and attenuation capacity; • Potential for high underestimation of design flood magnitudes; • High erosion hazard potential of flood flows.
Catchment Morphology		• Predominance of bedrock/plane-bed channel types or lochs; • Predominance of realigned channels and/or protected floodplains; • Very low density of hydraulic structures; • Very low potential for increased flood risk due to upstream morphological pressures.

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Catchment Unit Datasheet

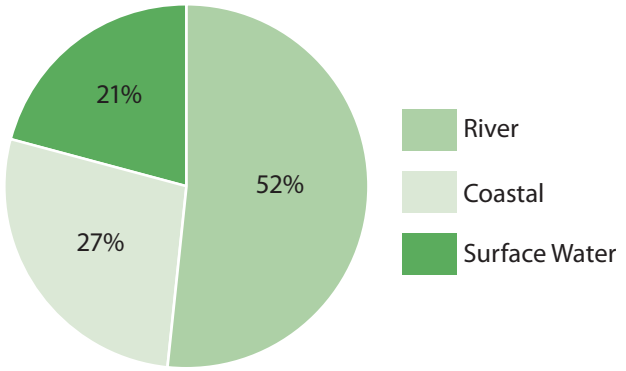
Catchment Unit Number:	PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/12/06	11/12	11 – Clyde and Loch Lomond	River Clyde	North Lanarkshire South Lanarkshire

Summary of Main Impacts

Assessment of future flood risk and past events show the Cadzow Burn and the River Clyde presents a potential impact to some commercial properties, transport links and agricultural land along with potential impact to some scheduled monuments; potential impact to some residential properties or lower category community facilities.

Overall nFRA Category	High
Estimated Weighted Annual Average Damages	£2,680,000

Known Source of Flooding



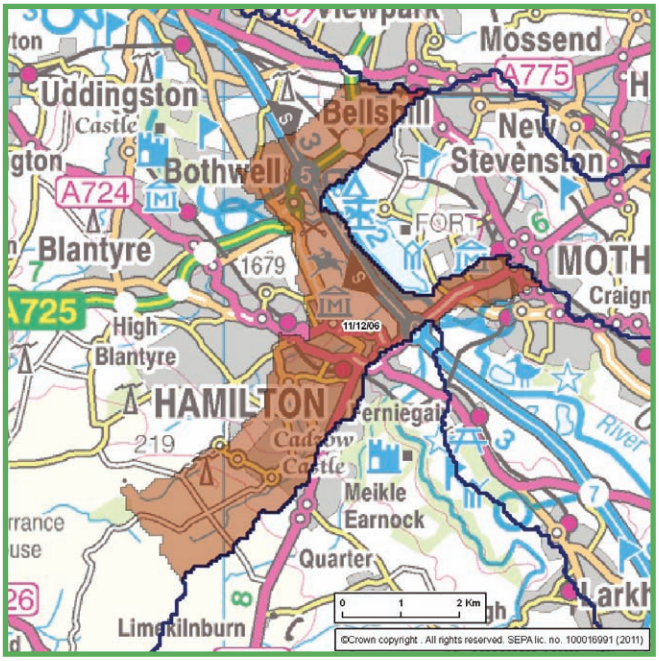
Groundwater Flooding	Potential low to moderate contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in Catchment Area

Type	Number	Proportion of All Properties
Residential	151	1.1%
Non-residential	60	5.5%

Towns and Villages with Properties at Risk

50+	Hamilton



Catchment Unit Characteristics

Total Area		16 km²
Land cover within the catchment Unit	**Urban**	64%
	Agriculture	32%
	Forestry	4%
Includes Flood Defence(s)		No
Includes Flood Warning Area(s)		Yes
Catchment Hydrology		• Long peak flood flow response times; • Very high catchment flood storage and attenuation capacity; • Very low potential for underestimation of design flood magnitude: • Very low erosion hazard potential of flood flows.
Catchment Morphology		• Mixture of meandering/braided channel types and bedrock/plane-bed channel types or lochs; • Mixture of natural/realigned channels and protected/unprotected floodplains; • Moderate density of hydraulic structures; • Moderate potential for increased flood risk due to upstream morphological pressures.

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Catchment Unit Datasheet

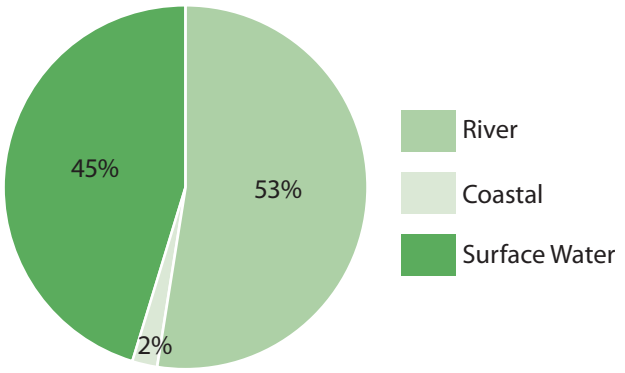
Catchment Unit Number:	PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/12/07	11/12	11 – Clyde and Loch Lomond	River Clyde	South Lanarkshire

Summary of Main Impacts

Assessment of future flood risk and past events show the Rotten Calder presents a limited impact to a small number of residential properties or lower category community facilities; limited impact to a small number of commercial properties, minor transport links or agricultural land.

Overall nFRA Category	Medium
Estimated Weighted Annual Average Damages	£750,000

Known Source of Flooding



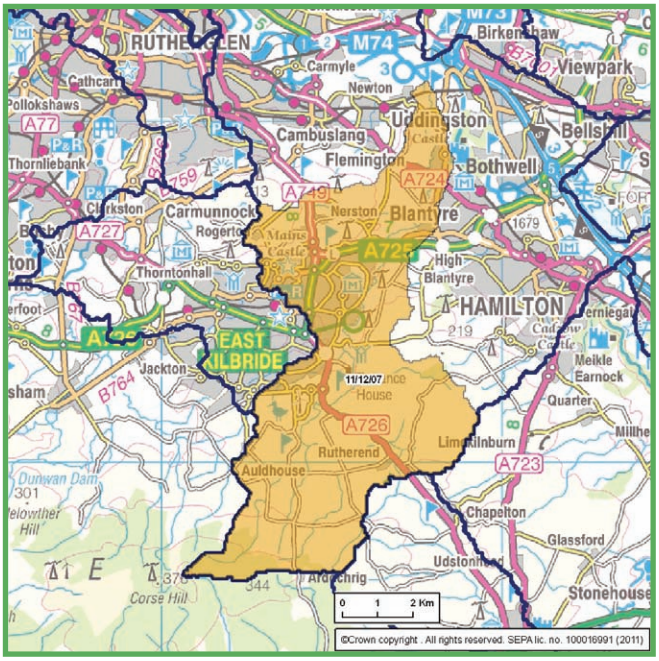
Groundwater Flooding	Potential low to moderate contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in Catchment Area

Type	Number	Proportion of All Properties
Residential	81	0.5%
Non-residential	10	1.4%

Towns and Villages with Properties at Risk

50+	



Catchment Unit Characteristics

Total Area	56 km²	
Land cover within the catchment Unit	**Urban**	22%
	Agriculture	63%
	Forestry	12%
Includes Flood Defence(s)		No
Includes Flood Warning Area(s)		No
Catchment Hydrology	• Moderate peak flood flow response times; • Moderate catchment flood storage and attenuation capacity; • Potential for moderate underestimation of design flood magnitude; • Moderate erosion hazard potential of flood flows.	
Catchment Morphology	• High proportion of bedrock/plane-bed channel types or lochs; • High proportion of realigned channels and/or protected floodplains; • Low density of hydraulic structures; • Low potential for increased flood risk due to upstream morphological pressures	

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Catchment Unit Datasheet

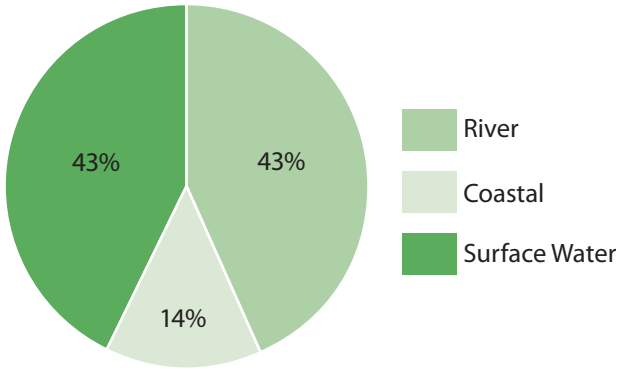
Catchment Unit Number:	PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/12/08	11/12	11 – Clyde and Loch Lomond	River Clyde	Glasgow City North Lanarkshire South Lanarkshire

Summary of Main Impacts

Assessment of future flood risk and past events show the River Clyde and Pow Burn presents a limited impact to a small number of residential properties, limited impact to a small number of commercial properties, minor transport links or agricultural land; potential impact to some scheduled monuments. Existing defences on the River Clyde offers partial protection to some of these impacts

Overall nFRA Category	High
Estimated Weighted Annual Average Damages	£1,160,000

Known Source of Flooding



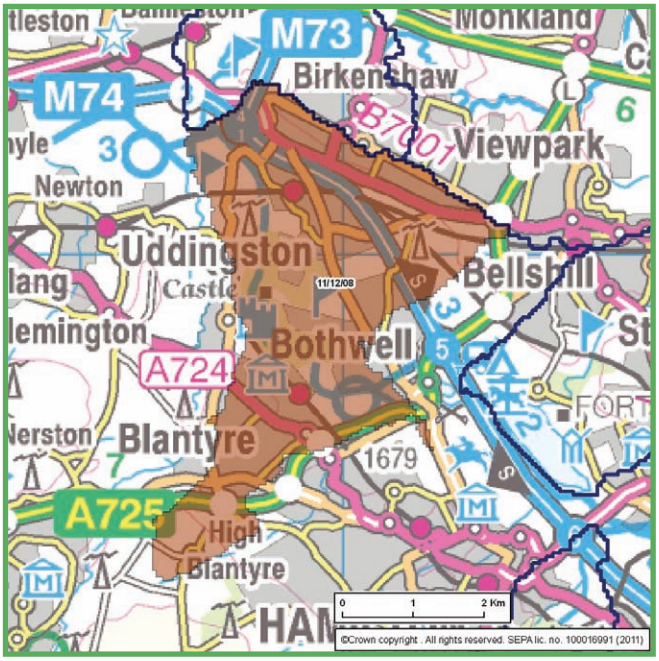
Groundwater Flooding	Potential low to moderate contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in Catchment Area

Type	Number	Proportion of All Properties
Residential	125	1%
Non-residential	13	2%

Towns and Villages with Properties at Risk

50+	Birkenshaw



Catchment Unit Characteristics

Total Area		16 km²
Land cover within the catchment Unit	**Urban**	67%
	Agriculture	23%
	Forestry	10%
Includes Flood Defence(s)		Yes
Includes Flood Warning Area(s)		No
Catchment Hydrology		• Long peak flood flow response times; • Very high catchment flood storage and attenuation capacity; • Very low potential for underestimation of design flood magnitude: • Very low erosion hazard potential of flood flows.
Catchment Morphology		• Mixture of meandering/braided channel types and bedrock/plane-bed channel types or lochs; • Mixture of natural/realigned channels and protected/unprotected floodplains; • Moderate density of hydraulic structures; • Moderate potential for increased flood risk due to upstream morphological pressures.

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Catchment Unit Datasheet

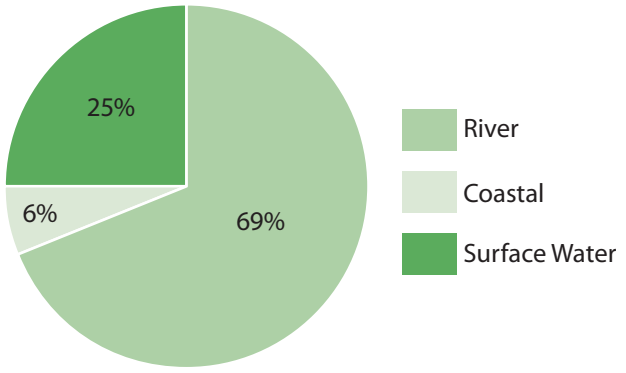
Catchment Unit Number:	PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/12/09	11/12	11 – Clyde and Loch Lomond	River Clyde	Glasgow City South Lanarkshire

Summary of Main Impacts

Assessment of future flood risk and past events show the River Clyde and it's tributarties present a potential impact to large number residential properties or high category community facilities; limited impact to a small number of commercial properties, minor transport links or agricultural land. Existing defences on the Kirk Burn and the River Clyde offers partial protection to some of these impacts.

Overall nFRA Category	Very High
Estimated Weighted Annual Average Damages	£2,550,000

Known Source of Flooding



Groundwater Flooding	Potential low to moderate contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in Catchment Area

Type	Number	Proportion of All Properties
Residential	322	1.4%
Non-residential	22	2.3%

Towns and Villages with Properties at Risk

50+	Carmyle, Newton

Catchment Unit Characteristics

Total Area		26 km²
Land cover within the catchment Unit	**Urban**	61%
	Agriculture	38%
	Forestry	1%
Includes Flood Defence(s)		Yes
Includes Flood Warning Area(s)		Yes
Catchment Hydrology		• Long peak flood flow response times; • Very high catchment flood storage and attenuation capacity; • Very low potential for underestimation of design flood magnitude: • Very low erosion hazard potential of flood flows.
Catchment Morphology		• Mixture of meandering/braided channel types and bedrock/plane-bed channel types or lochs; • Mixture of natural/realigned channels and protected/unprotected floodplains; • Moderate density of hydraulic structures; • Moderate potential for increased flood risk due to upstream morphological pressures.

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Catchment Unit Datasheet

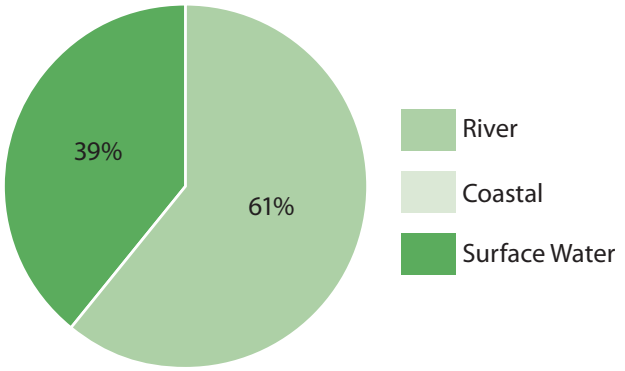
Catchment Unit Number:	PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/12/10	11/12	11 – Clyde and Loch Lomond	River Clyde	Glasgow City North Lanarkshire

Summary of Main Impacts

Assessment of future flood risk and past events show the Tollcross Burn and River Clyde presents a potential impact to large number of residential properties or high category community facilities; limited impact to a small number of commercial properties, minor transport links or agricultural land.

Overall nFRA Category	Very High
Estimated Weighted Annual Average Damages	£6,570,000

Known Source of Flooding



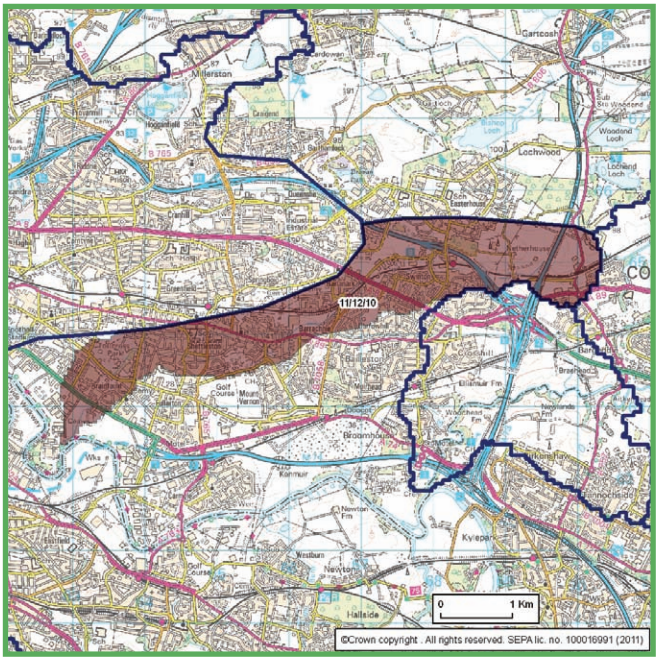
Groundwater Flooding	Potential very low to low contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in Catchment Area

Type	Number	Proportion of All Properties
Residential	1042	9.7%
Non-residential	12	4%

Towns and Villages with Properties at Risk

50+	Braidfauld, Shettleston



Catchment Unit Characteristics

Total Area	7 km^2	
Land cover within the catchment Unit	**Urban**	77%
	Agriculture	23%
	Forestry	0%
Includes Flood Defence(s)		No
Includes Flood Warning Area(s)		Yes
Catchment Hydrology	• Short to moderate peak flood flow response times; • Low catchment flood storage and attenuation capacity; • Potential for high underestimation of design flood magnitudes; • High erosion hazard potential of flood flows.	
Catchment Morphology	• High proportion of bedrock/plane-bed channel types or lochs; • High proportion of realigned channels and/or protected floodplains; • Low density of hydraulic structures; • Low potential for increased flood risk due to upstream morphological pressures	

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Catchment Unit Datasheet

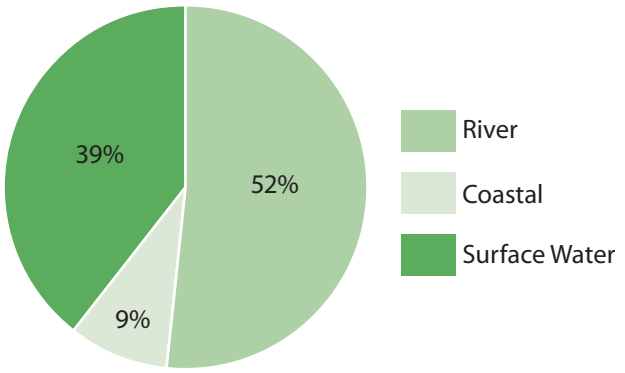
Catchment Unit Number:	PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/12/11	11/12	11 – Clyde and Loch Lomond	River Clyde	Glasgow City South Lanarkshire

Summary of Main Impacts

Assessment of future flood risk and past events show the River Clyde and the Eastfield Burn present a potential impact to lower category community facilities; limited impact to a small number of commercial properties, minor transport links or agricultural land.

Overall nFRA Category	High
Estimated Weighted Annual Average Damages	£440,000

Known Source of Flooding



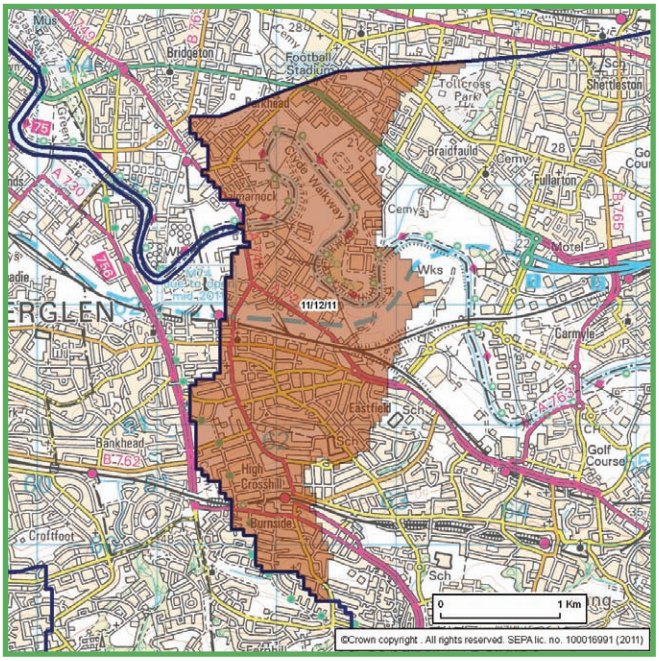
Groundwater Flooding	Potential low to moderate contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in Catchment Area

Type	Number	Proportion of All Properties
Residential	14	0.2%
Non-residential	10	2.1%

Towns and Villages with Properties at Risk

50+	



Catchment Unit Characteristics

Total Area		5 km²
Land cover within the catchment Unit	**Urban**	100%
	Agriculture	0%
	Forestry	0%
Includes Flood Defence(s)		No
Includes Flood Warning Area(s)		Yes
Catchment Hydrology		• Long peak flood flow response times; • Very high catchment flood storage and attenuation capacity; • Very low potential for underestimation of design flood magnitude: • Very low erosion hazard potential of flood flows.
Catchment Morphology		• Mixture of meandering/braided channel types and bedrock/plane-bed channel types or lochs; • Mixture of natural/realigned channels and protected/unprotected floodplains; • Moderate density of hydraulic structures; • Moderate potential for increased flood risk due to upstream morphological pressures.

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Potentially Vulnerable Area Datasheet

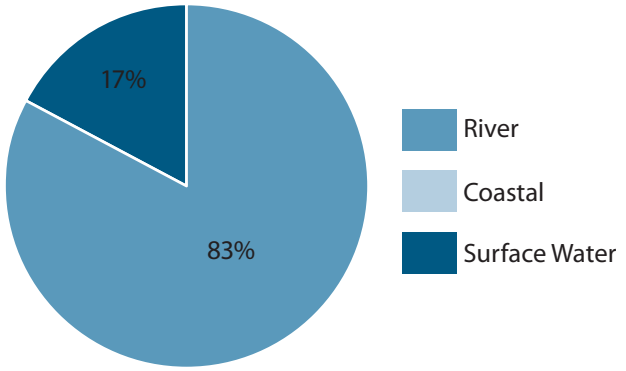
PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/13	11 – Clyde and Loch Lomond	River Clyde	South Lanarkshire

Summary of Main Impacts

Assessment of future flood risk and past events show multiple burns/rivers presents potential flooding impact. Area included due to potential economic impact to residential properties, non residential properties or agriculture.

Estimated Weighted Annual Average Damages	£410,000

Known Source of Flooding



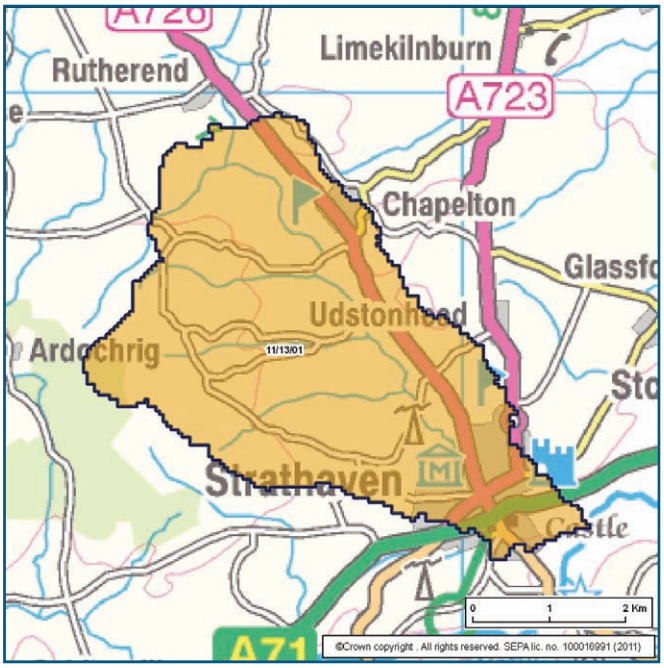
Groundwater Flooding	Potential very low to low contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in PVA

Type	Number	Proportion of All Properties in PVA
Residential	22	0.7%
Non-residential	16	8.3%

Towns and Villages with Properties at Risk

50+	



PVA Characteristics

Total Area	41 km^2	
Land cover within the PVA	**Urban**	12%
	Agriculture	82%
	Forestry	2%
Includes Flood Defence(s)		Yes
Includes Flood Warning Area(s)		Yes
Catchment Hydrology	• Short to moderate peak flood flow response times; • Low catchment flood storage and attenuation capacity; • Potential for high underestimation of design flood magnitudes; • High erosion hazard potential of flood flows.	
Catchment Morphology	• Mixture of meandering/braided channel types and bedrock/plane-bed channel types or lochs; • Mixture of natural/realigned channels and protected/unprotected floodplains; • Moderate density of hydraulic structures; • Moderate potential for increased flood risk due to upstream morphological pressures.	

June 2011. Information contained in these datasheets is DRAFT. It will be updated based on this consultation and published as part of the National Flood Risk Assessment in December 2011.

Potentially Vulnerable Area Datasheet

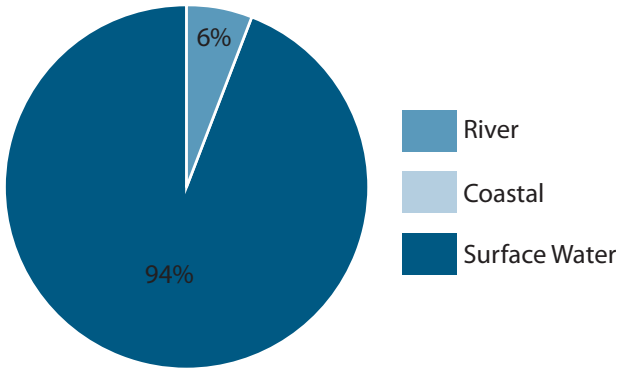
PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/14	11 – Clyde and Loch Lomond	River Clyde	North Lanarkshire

Summary of Main Impacts

Assessment of future flood risk and past events show South Calder Water and Tillian Burn presents a limited impact to a small number of residental properties.

Estimated Weighted Annual Average Damages	£350,000

Known Source of Flooding



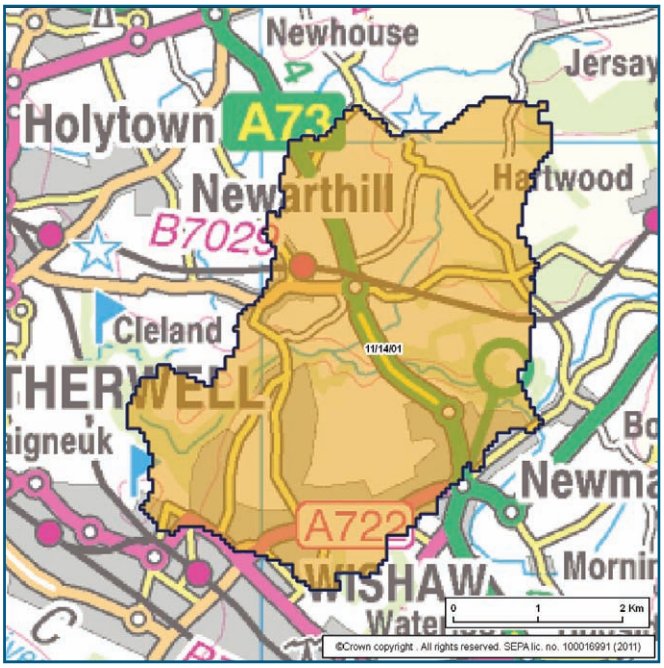
Groundwater Flooding	Potential very low to low contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in PVA

Type	Number	Proportion of All Properties in PVA
Residential	57	0.7%
Non-residential	0	0%

Towns and Villages with Properties at Risk

50+	



PVA Characteristics

Total Area	39 km²	
Land cover within the PVA	**Urban**	31%
	Agriculture	52%
	Forestry	17%
Includes Flood Defence(s)		No
Includes Flood Warning Area(s)		Yes
Catchment Hydrology	Insufficient information available for categorisation. See explanatory sheet for data used.	
Catchment Morphology	Insufficient information available for categorisation.	

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Potentially Vulnerable Area Datasheet

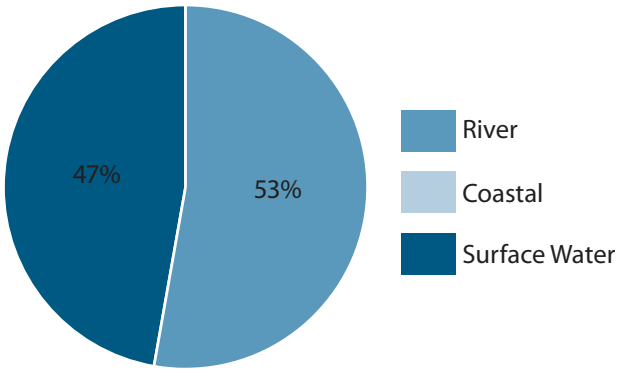
PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/15	11 – Clyde and Loch Lomond	River Clyde	Falkirk North Lanarkshire West Lothian

Summary of Main Impacts

Assessment of flood risk and past events show multiple burns/rivers present a potential impact to large number of residential properties and higher category community facilities; potential impact to large number of commercial properties and main transport links and high value arable land; potential impact to a number of world heritage sites or number of scheduled monuments.

Estimated Weighted Annual Average Damages	£6,560,000

Known Source of Flooding



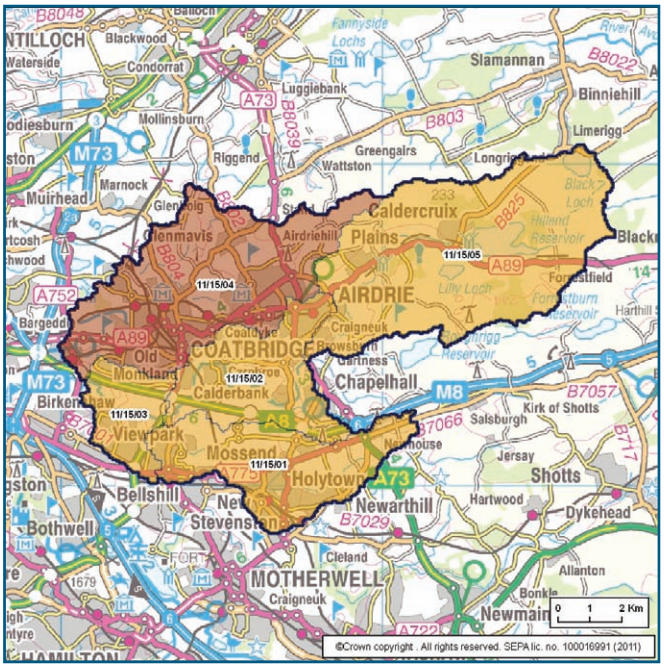
Groundwater Flooding	Potential very low to low contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in PVA

Type	Number	Proportion of All Properties in PVA
Residential	909	1.7%
Non-residential	42	1.5%

Towns and Villages with Properties at Risk

50+	Airdriehill, Coatbridge, Holytown



PVA Characteristics

Total Area		15 km²
Land cover within the PVA	**Urban**	37%
	Agriculture	45%
	Forestry	11%
Includes Flood Defence(s)		Yes
Includes Flood Warning Area(s)		No
Catchment Hydrology		• Moderate to long peak flood flow response times; • High catchment flood storage and attenuation capacity; • Potential for low to moderate underestimation of design flood magnitude; • Low erosion hazard potential of flood flows.
Catchment Morphology		• High proportion of bedrock/plane-bed channel types or lochs; • High proportion of realigned channels and/or protected floodplains; • Low density of hydraulic structures; • Low potential for increased flood risk due to upstream morphological pressures.

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Catchment Unit Datasheet

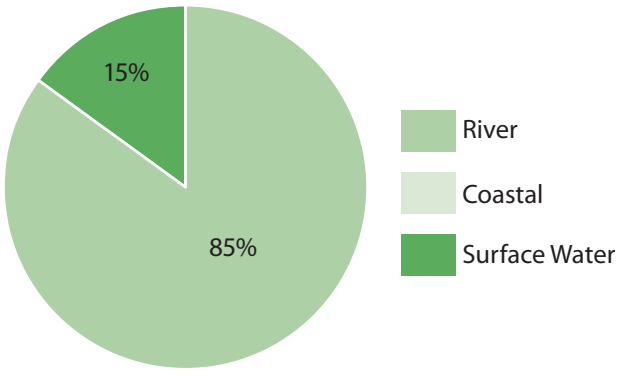
Catchment Unit Number:	PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/15/01	11/15	11 – Clyde and Loch Lomond	River Clyde	North Lanarkshire

Summary of Main Impacts

Assessment of future flood risk and past events show Legbranock Burn presents a potential impact to some residential properties or lower category community facilities.

Overall nFRA Category	Medium
Estimated Weighted Annual Average Damages	£1,560,000

Known Source of Flooding



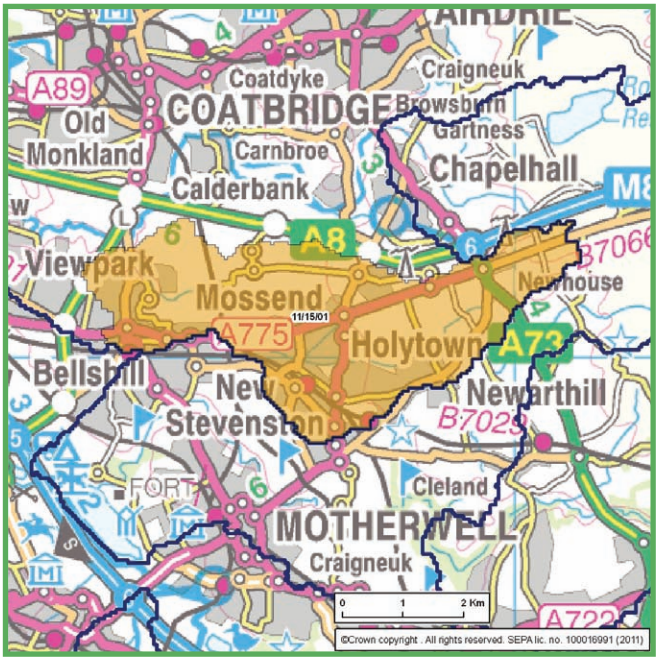
Groundwater Flooding	Potential very low to low contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in Catchment Area

Type	Number	Proportion of All Properties
Residential	246	2.4%
Non-residential	4	0.8%

Towns and Villages with Properties at Risk

50+	Holytown



Catchment Unit Characteristics

Total Area		17 km²
Land cover within the catchment Unit	**Urban**	48%
	Agriculture	52%
	Forestry	0%
Includes Flood Defence(s)		No
Includes Flood Warning Area(s)		No
Catchment Hydrology		• Short to moderate peak flood flow response times; • Low catchment flood storage and attenuation capacity; • Potential for high underestimation of design flood magnitudes; • High erosion hazard potential of flood flows.
Catchment Morphology		• Mixture of meandering/braided channel types and bedrock/plane-bed channel types or lochs; • Mixture of natural/realigned channels and protected/unprotected floodplains; • Moderate density of hydraulic structures; • Moderate potential for increased flood risk due to upstream morphological pressures.

June 2011. Information contained in these datasheets is DRAFT. It will be updated based on this consultation and published as part of the National Flood Risk Assessment in December 2011.

Catchment Unit Datasheet

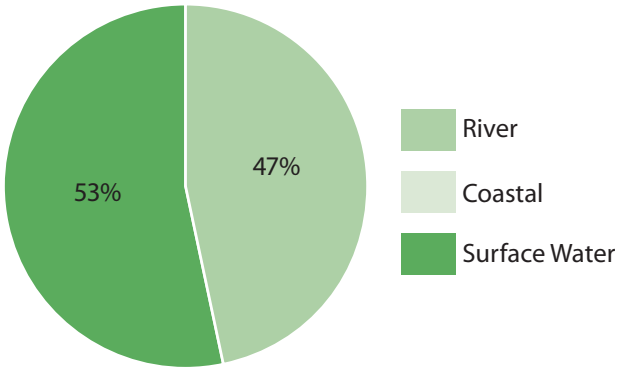
Catchment Unit Number:	PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/15/02	11/15	11 – Clyde and Loch Lomond	River Clyde	North Lanarkshire

Summary of Main Impacts

Assessment of future flood risk and past events show the North Calder Water presents a potential impact to some scheduled monuments.

Overall nFRA Category	Medium
Estimated Weighted Annual Average Damages	£380,000

Known Source of Flooding



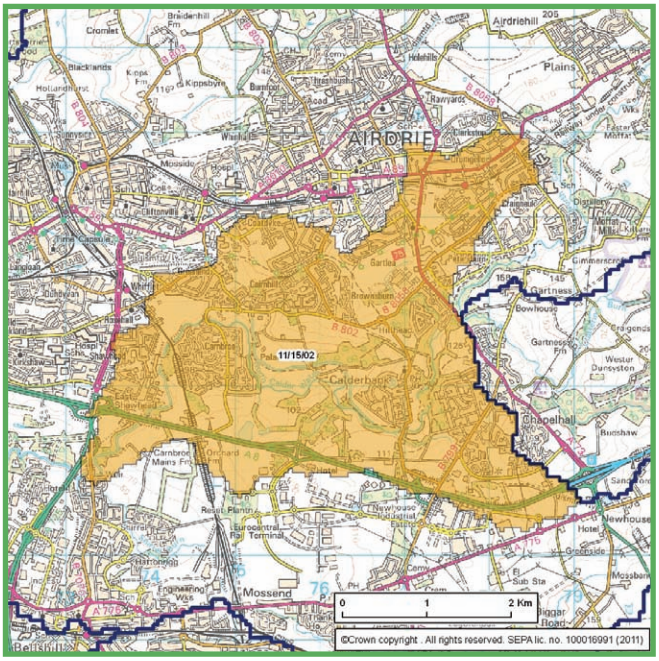
Groundwater Flooding	Potential very low to low contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in Catchment Area

Type	Number	Proportion of All Properties
Residential	49	0.4%
Non-residential	4	1.1%

Towns and Villages with Properties at Risk

50+	



Catchment Unit Characteristics

Total Area	14 km²	
Land cover within the catchment Unit	**Urban**	48%
	Agriculture	46%
	Forestry	6%
Includes Flood Defence(s)		No
Includes Flood Warning Area(s)		No
Catchment Hydrology	• Moderate peak flood flow response times; • Moderate catchment flood storage and attenuation capacity; • Potential for moderate underestimation of design flood magnitude; • Moderate erosion hazard potential of flood flows.	
Catchment Morphology	• Mixture of meandering/braided channel types and bedrock/plane-bed channel types or lochs; • Mixture of natural/realigned channels and protected/unprotected floodplains; • Moderate density of hydraulic structures; • Moderate potential for increased flood risk due to upstream morphological pressures.	

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Catchment Unit Datasheet

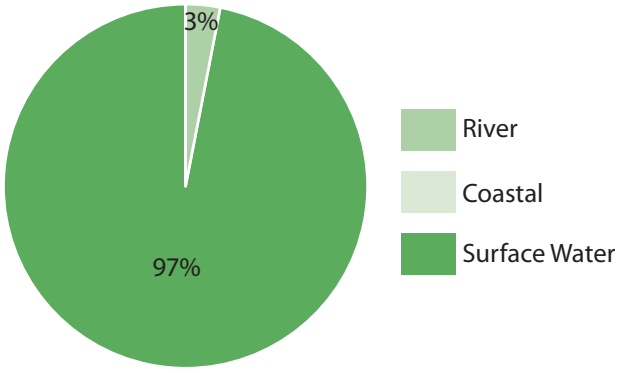
Catchment Unit Number:	PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/15/03	11/15	11 – Clyde and Loch Lomond	River Clyde	North Lanarkshire

Summary of Main Impacts

Assessment of future flood risk and past events show the North Calder Water and the Red Burn presents a limited impact to a small number of residential properties.

Overall nFRA Category	Medium
Estimated Weighted Annual Average Damages	£310,000

Known Source of Flooding



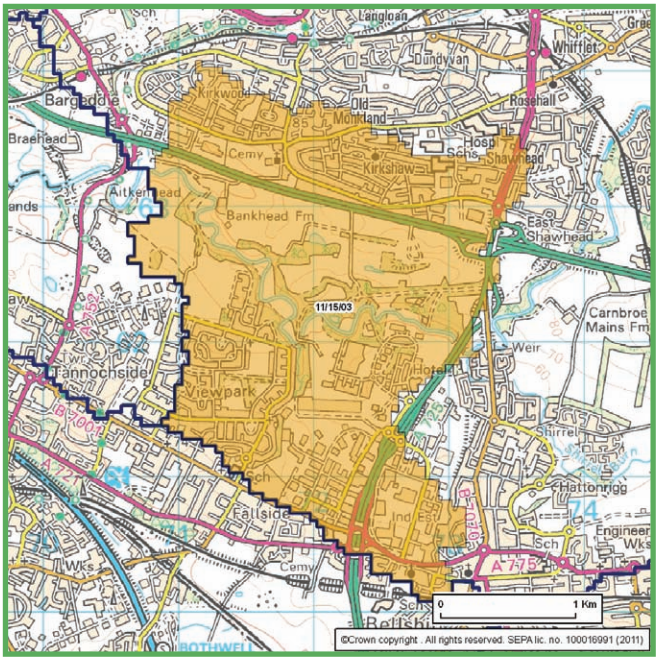
Groundwater Flooding	Potential very low to low contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in Catchment Area

Type	Number	Proportion of All Properties
Residential	52	1%
Non-residential	0	0%

Towns and Villages with Properties at Risk

50+	



Catchment Unit Characteristics

Total Area		7 km^2
Land cover within the catchment Unit	**Urban**	58%
	Agriculture	27%
	Forestry	15%
Includes Flood Defence(s)		No
Includes Flood Warning Area(s)		No
Catchment Hydrology		• Moderate to long peak flood flow response times; • High catchment flood storage and attenuation capacity; • Potential for low to moderate underestimation of design flood magnitude; • Low erosion hazard potential of flood flows.
Catchment Morphology		• Mixture of meandering/braided channel types and bedrock/plane-bed channel types or lochs; • Mixture of natural/realigned channels and protected/unprotected floodplains; • Moderate density of hydraulic structures; • Moderate potential for increased flood risk due to upstream morphological pressures.

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Catchment Unit Datasheet

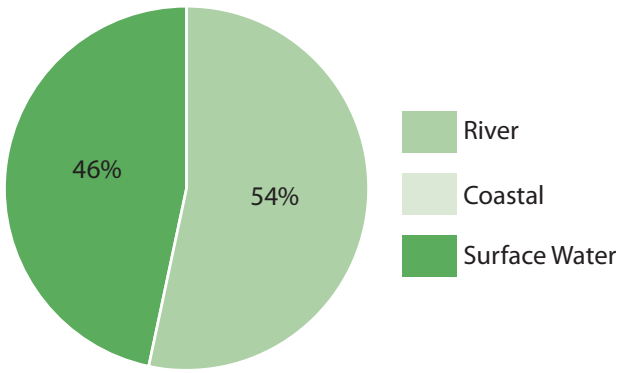
Catchment Unit Number:	PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/15/04	11/15	11 – Clyde and Loch Lomond	River Clyde	Glasgow City North Lanarkshire

Summary of Main Impacts

Assesment of future flood risk and past events show the multiple rivers/burns presents a potential impact to large number of residential properties and lower category community facilities; limited impact to a small number of commercial properties, minor transport links or agricultural land; potential impact to some scheduled monuments.

Overall nFRA Category	High
Estimated Weighted Annual Average Damages	£3,790,000

Known Source of Flooding



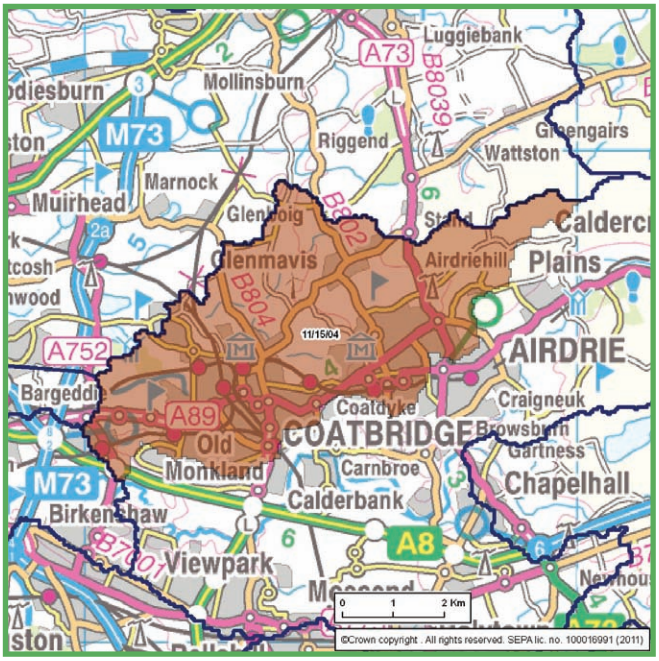
Groundwater Flooding	Potential very low to low contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in Catchment Area

Type	Number	Proportion of All Properties
Residential	487	2.1%
Non-residential	32	2.2%

Towns and Villages with Properties at Risk

50+	Airdriehill, Coatbridge



Catchment Unit Characteristics

Total Area	29 km²	
Land cover within the catchment Unit	**Urban**	58%
	Agriculture	38%
	Forestry	3%
Includes Flood Defence(s)		No
Includes Flood Warning Area(s)		No
Catchment Hydrology	• Short to moderate peak flood flow response times; • Low catchment flood storage and attenuation capacity; • Potential for high underestimation of design flood magnitudes; • High erosion hazard potential of flood flows.	
Catchment Morphology	• High proportion of bedrock/plane-bed channel types or lochs; • High proportion of realigned channels and/or protected floodplains; • Low density of hydraulic structures; • Low potential for increased flood risk due to upstream morphological pressures.	

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Catchment Unit Datasheet

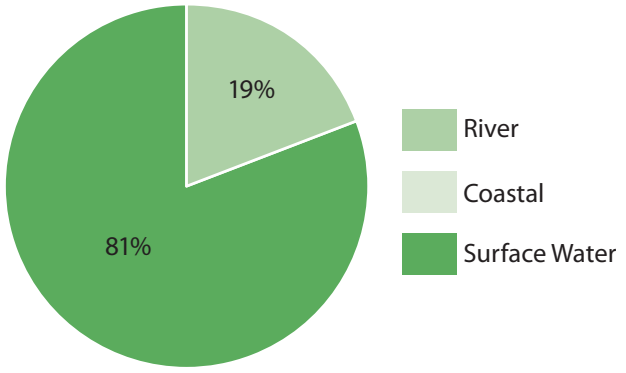
Catchment Unit Number:	PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/15/05	11/15	11 – Clyde and Loch Lomond	River Clyde	Falkirk North Lanarkshire West Lothian

Summary of Main Impacts

Assessment of future flood risk and past events show the North Calder Water presents a limited impact to a small number of residential properties.

Overall nFRA Category	Medium
Estimated Weighted Annual Average Damages	£520,000

Known Source of Flooding



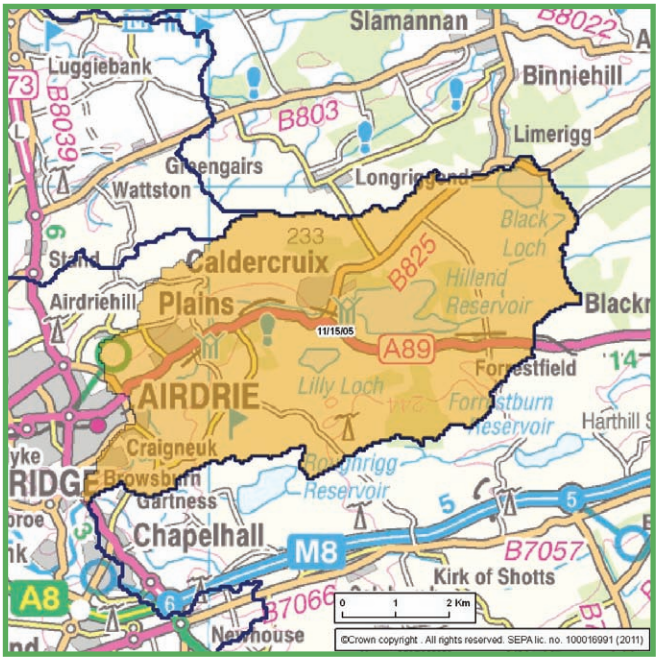
Groundwater Flooding	Potential very low to low contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in Catchment Area

Type	Number	Proportion of All Properties
Residential	75	1.8%
Non-residential	2	1.2%

Towns and Villages with Properties at Risk

50+	



Catchment Unit Characteristics

Total Area	39 km²	
Land cover within the catchment Unit	**Urban**	8%
	Agriculture	50%
	Forestry	22%
Includes Flood Defence(s)		No
Includes Flood Warning Area(s)		No
Catchment Hydrology	• Moderate to long peak flood flow response times; • High catchment flood storage and attenuation capacity; • Potential for low to moderate underestimation of design flood magnitude; • Low erosion hazard potential of flood flows.	
Catchment Morphology	• High proportion of bedrock/plane-bed channel types or lochs; • High proportion of realigned channels and/or protected floodplains; • Low density of hydraulic structures; • Low potential for increased flood risk due to upstream morphological pressures.	

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Potentially Vulnerable Area Datasheet

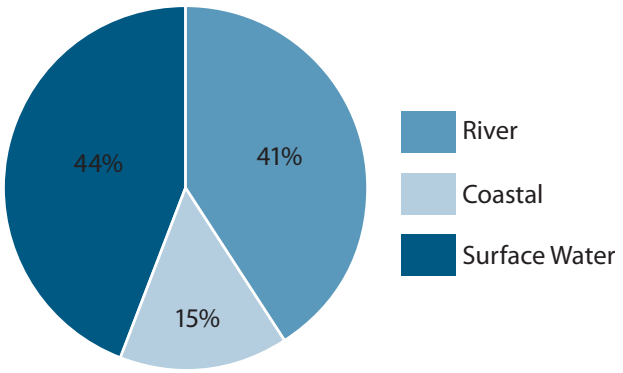
PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/16	11 – Clyde and Loch Lomond	River Kelvin	East Dunbartonshire Glasgow City

Summary of Main Impacts

Assessment of future flood risk and past events show multiple rivers/burns presents a potential impact to large number of residential properties and higher category community facilities including Education facility and Residential Home within the floodplain; potential impact to a number of world heritage sites or number of scheduled monuments; potential impact to some commercial properties, transport links and agricultural land.

Estimated Weighted Annual Average Damages	£7,140,000

Known Source of Flooding



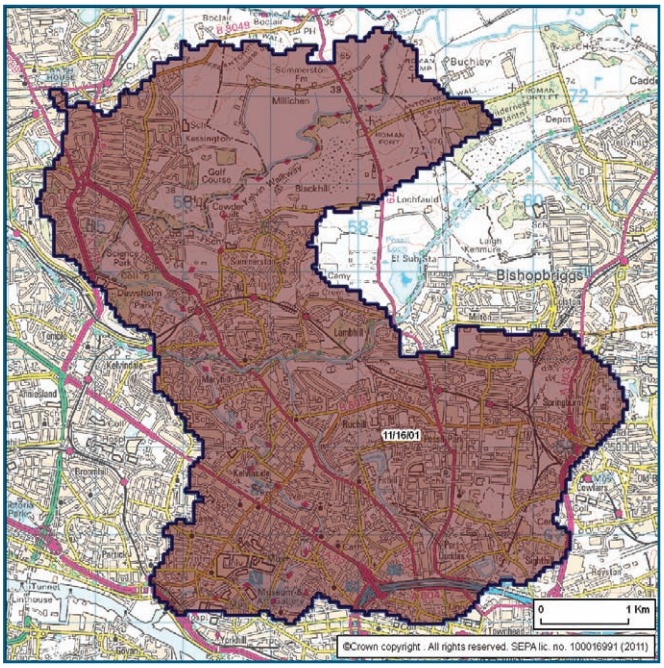
Groundwater Flooding	Potential low to moderate contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in PVA

Type	Number	Proportion of All Properties in PVA
Residential	1081	2.2%
Non-residential	36	1.4%

Towns and Villages with Properties at Risk

50+	Glasgow, Maryhill, Partick, Springburn, Summerston



PVA Characteristics

Total Area		60 km^2
Land cover within the PVA	**Urban**	80%
	Agriculture	19%
	Forestry	1%
Includes Flood Defence(s)		Yes
Includes Flood Warning Area(s)		Yes
Catchment Hydrology		• Moderate to long peak flood flow response times; • High catchment flood storage and attenuation capacity; • Potential for low to moderate underestimation of design flood magnitude; • Low erosion hazard potential of flood flows.
Catchment Morphology		• Mixture of meandering/braided channel types and bedrock/plane-bed channel types or lochs; • Mixture of natural/realigned channels and protected/unprotected floodplains; • Moderate density of hydraulic structures; • Moderate potential for increased flood risk due to upstream morphological pressures.

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Potentially Vulnerable Area Datasheet

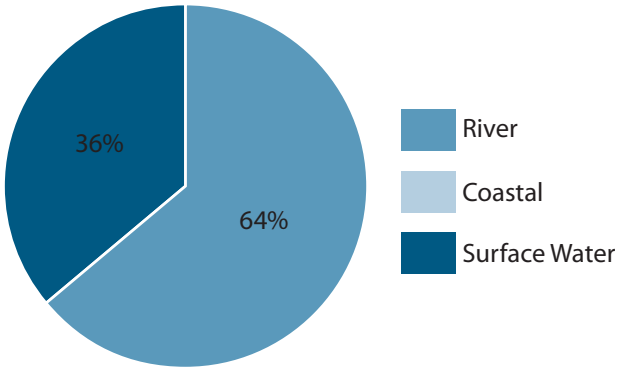
PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/17	11 – Clyde and Loch Lomond	River Kelvin	East Dunbartonshire Glasgow City North Lanarkshire Stirling West Dunbartonshire

Summary of Main Impacts

Assessment of flood risk and past events show River Kelvin and it's tributaries present a potential impact to large number of residential properties and higher category community facilities including Education Facility within the floodplain; potential impact to large number of commercial properties or main transport links and high value arable land; potential impact to an extensive area of world heritage sites. Existing defences on the River Kelvin, Luggie Water, Glazart Water and Rannie Water offers partial protection to some of these impacts.

Estimated Weighted Annual Average Damages	£19,690,000

Known Source of Flooding



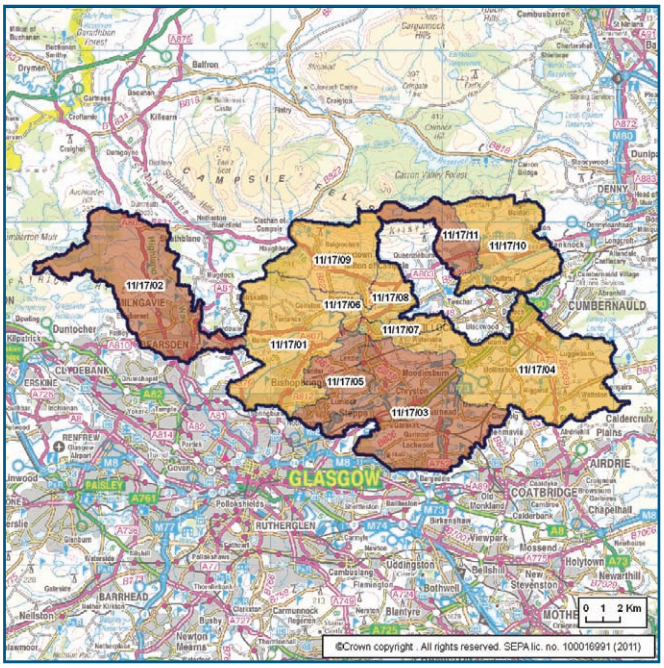
Groundwater Flooding	Potential moderate to high contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in PVA

Type	Number	Proportion of All Properties in PVA
Residential	2538	3.5%
Non-residential	378	10.3%

Towns and Villages with Properties at Risk

50+	Bishopbriggs, Bearsden, Condorrat, Gartcosh, Haughhead, Kilsyth, Kirkintilloch, Lennoxtown, Lenzie, Milngavie



PVA Characteristics

Total Area		26 km^2
Land cover within the PVA	**Urban**	21%
	Agriculture	60%
	Forestry	16%
Includes Flood Defence(s)		Yes
Includes Flood Warning Area(s)		Yes
Catchment Hydrology		• Short to moderate peak flood flow response times; • Low catchment flood storage and attenuation capacity; • Potential for high underestimation of design flood magnitudes; • High erosion hazard potential of flood flows.
Catchment Morphology		Insufficient information available for categorisation.

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Catchment Unit Datasheet

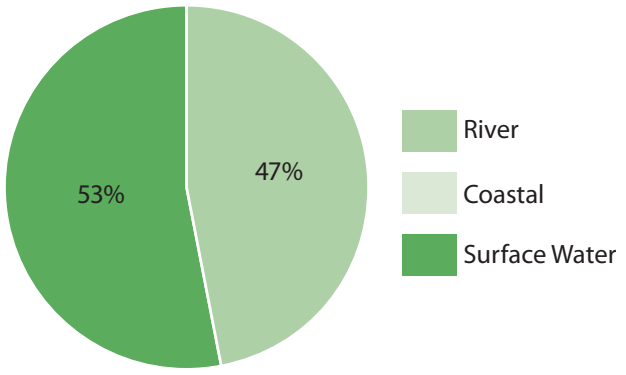
Catchment Unit Number:	PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/17/01	11/17	11 – Clyde and Loch Lomond	River Kelvin	East Dunbartonshire Glasgow City

Summary of Main Impacts

Assessment of future flood risk and past events show the Forth & Clyde Canal, River Kelvin and tributaries presents: potential impact to a number of world heritage sites or number of scheduled monuments along with potential impact to some residential properties or lower category community facilities; limited impact to a small number of commercial properties, minor transport links or agricultural land. Existing defences on the River Kelvin offers partial protection to some of these impacts.

Overall nFRA Category	Medium
Estimated Weighted Annual Average Damages	£1,290,000

Known Source of Flooding



Groundwater Flooding	Potential moderate to high contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in Catchment Area

Type	Number	Proportion of All Properties
Residential	134	1%
Non-residential	24	3.7%

Towns and Villages with Properties at Risk

50+	Bishopbriggs

Catchment Unit Characteristics

Total Area		35 km²
Land cover within the catchment Unit	**Urban**	31%
	Agriculture	59%
	Forestry	9%
Includes Flood Defence(s)		Yes
Includes Flood Warning Area(s)		No
Catchment Hydrology		• Moderate peak flood flow response times; • Moderate catchment flood storage and attenuation capacity; • Potential for moderate underestimation of design flood magnitude; • Moderate erosion hazard potential of flood flows.
Catchment Morphology		• Predominance of meandering/braided channel types; • Predominance of natural channels and/or unprotected floodplains; • Very high density of hydraulic structures; • Very high potential for increased flood risk due to upstream morphological pressures.

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Catchment Unit Datasheet

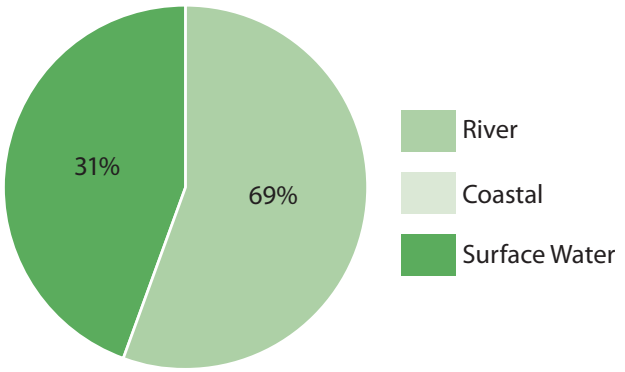
Catchment Unit Number:	PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/17/02	11/17	11 – Clyde and Loch Lomond	River Kelvin	East Dunbartonshire Glasgow City Stirling West Dunbartonshire

Summary of Main Impacts

Assessment of future flood risk and past events show Kilmannan Reservoir, Allander Water and tributaries presents: potential impact to a large number of residential properties or lower category community facilities; potential impact to world heritage sites or number of scheduled monuments; potential impact to large number of commercial properties and main transport links and high value arable land.

Overall nFRA Category	High
Estimated Weighted Annual Average Damages	£3,530,000

Known Source of Flooding



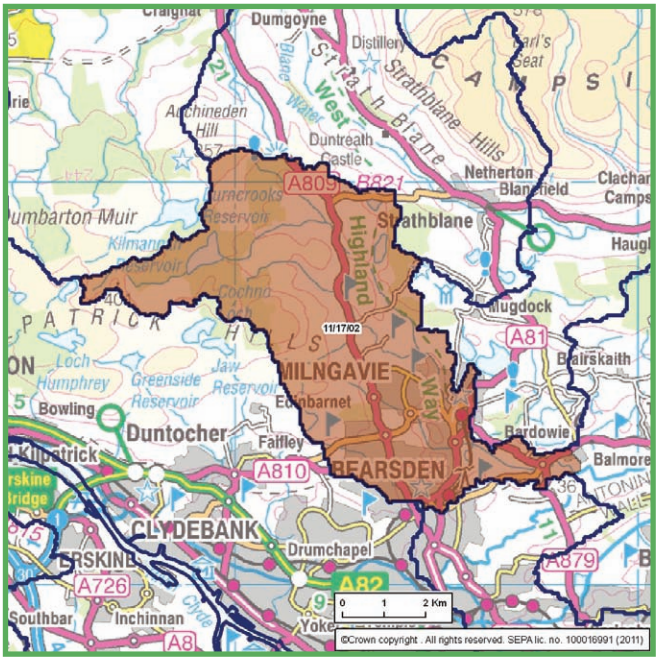
Groundwater Flooding	Potential low to moderate contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in Catchment Area

Type	Number	Proportion of All Properties
Residential	273	2.6%
Non-residential	107	17%

Towns and Villages with Properties at Risk

50+	Bearsden, Milngavie



Catchment Unit Characteristics

Total Area	42 km²	
Land cover within the catchment Unit	**Urban**	28%
	Agriculture	30%
	Forestry	41%
Includes Flood Defence(s)		No
Includes Flood Warning Area(s)		No
Catchment Hydrology	• Moderate peak flood flow response times; • Moderate catchment flood storage and attenuation capacity; • Potential for moderate underestimation of design flood magnitude; • Moderate erosion hazard potential of flood flows.	
Catchment Morphology	• High proportion of bedrock/plane-bed channel types or lochs; • High proportion of realigned channels and/or protected floodplains; • Low density of hydraulic structures; • Low potential for increased flood risk due to upstream morphological pressures.	

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Catchment Unit Datasheet

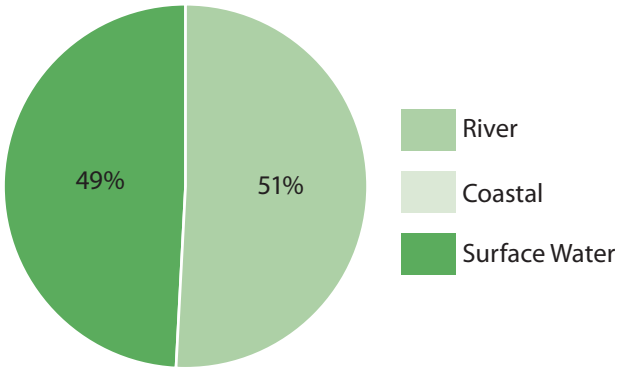
Catchment Unit Number:	PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/17/03	11/17	11 – Clyde and Loch Lomond	River Kelvin	East Dunbartonshire Glasgow City North Lanarkshire

Summary of Main Impacts

Assessment of future flood risk and past events show multiple lochs and burns presents: potential impact to some commercial properties, transport links and agricultural land along with potential impact to a large number of residential properties or lower category community facilities; potential impact to some scheduled monuments.

Overall nFRA Category	High
Estimated Weighted Annual Average Damages	£2,490,000

Known Source of Flooding



Groundwater Flooding	Potential low to moderate contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in Catchment Area

Type	Number	Proportion of All Properties
Residential	307	1.7%
Non-residential	28	4%

Towns and Villages with Properties at Risk

50+	Gartcosh, Lenzie

Catchment Unit Characteristics

Total Area	46 km²	
Land cover within the catchment Unit	**Urban**	27%
	Agriculture	67%
	Forestry	4%
Includes Flood Defence(s)		No
Includes Flood Warning Area(s)		No
Catchment Hydrology	• Moderate peak flood flow response times; • Moderate catchment flood storage and attenuation capacity; • Potential for moderate underestimation of design flood magnitude; • Moderate erosion hazard potential of flood flows.	
Catchment Morphology	• High proportion of bedrock/plane-bed channel types or lochs; • High proportion of realigned channels and/or protected floodplains; • Low density of hydraulic structures; • Low potential for increased flood risk due to upstream morphological pressures.	

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Catchment Unit Datasheet

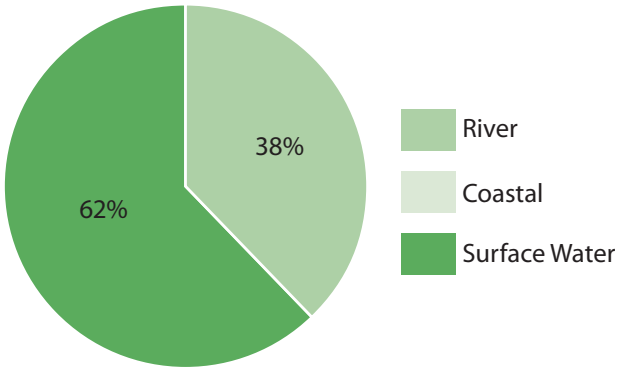
Catchment Unit Number:	PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/17/04	11/17	11 – Clyde and Loch Lomond	River Kelvin	East Dunbartonshire North Lanarkshire

Summary of Main Impacts

Assessment of future flood risk and past events show the Luggie Water and tributaries presents: limited impact to a small number of commercial properties, minor transport links or agricultural land; limited impact to a small number of residential properties or lower category community facilities.

Overall nFRA Category	Medium
Estimated Weighted Annual Average Damages	£880,000

Known Source of Flooding



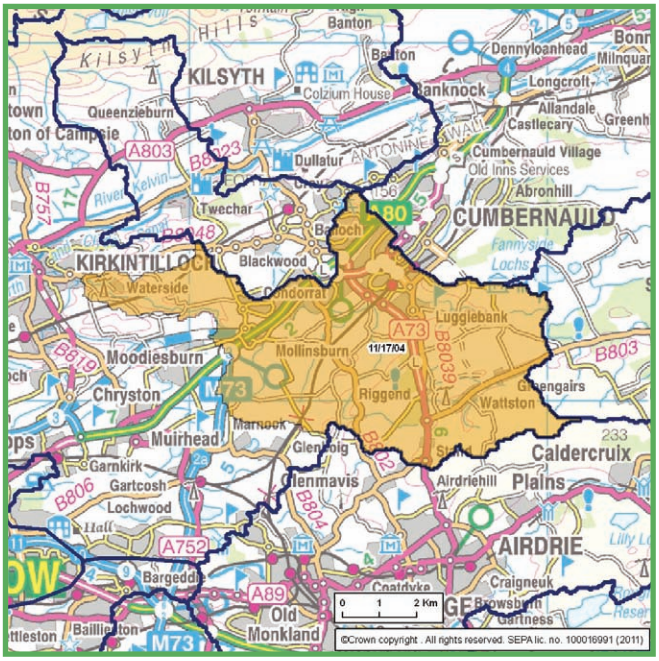
Groundwater Flooding	Potential low to moderate contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in Catchment Area

Type	Number	Proportion of All Properties
Residential	120	1.4%
Non-residential	6	1.2%

Towns and Villages with Properties at Risk

50+	Condorrat



Catchment Unit Characteristics

Total Area	48 km²	
Land cover within the catchment Unit	**Urban**	17%
	Agriculture	72%
	Forestry	5%
Includes Flood Defence(s)		No
Includes Flood Warning Area(s)		No
Catchment Hydrology	• Moderate peak flood flow response times; • Moderate catchment flood storage and attenuation capacity; • Potential for moderate underestimation of design flood magnitude; • Moderate erosion hazard potential of flood flows.	
Catchment Morphology	• High proportion of bedrock/plane-bed channel types or lochs; • High proportion of realigned channels and/or protected floodplains; • Low density of hydraulic structures; • Low potential for increased flood risk due to upstream morphological pressures.	

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Catchment Unit Datasheet

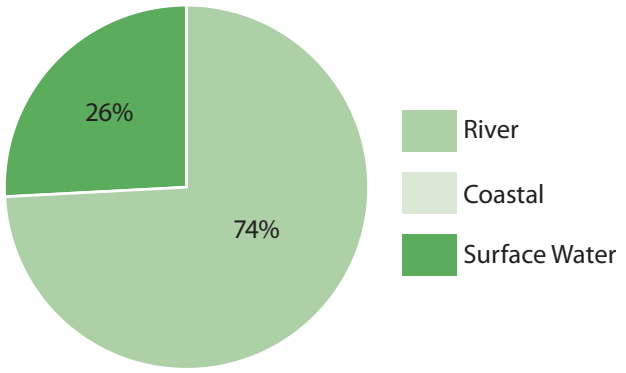
Catchment Unit Number:	PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/17/05	11/17	11 – Clyde and Loch Lomond	River Kelvin	East Dunbartonshire Glasgow City North Lanarkshire

Summary of Main Impacts

Assessment of future flood risk and past events show the Forth & Clyde Canal, Gadloch, Park Burn and tributaries presents: potential impact to a large number of residential properties or lower category community facilities; potential impact to some scheduled monuments.

Overall nFRA Category	High
Estimated Weighted Annual Average Damages	£3,690,000

Known Source of Flooding



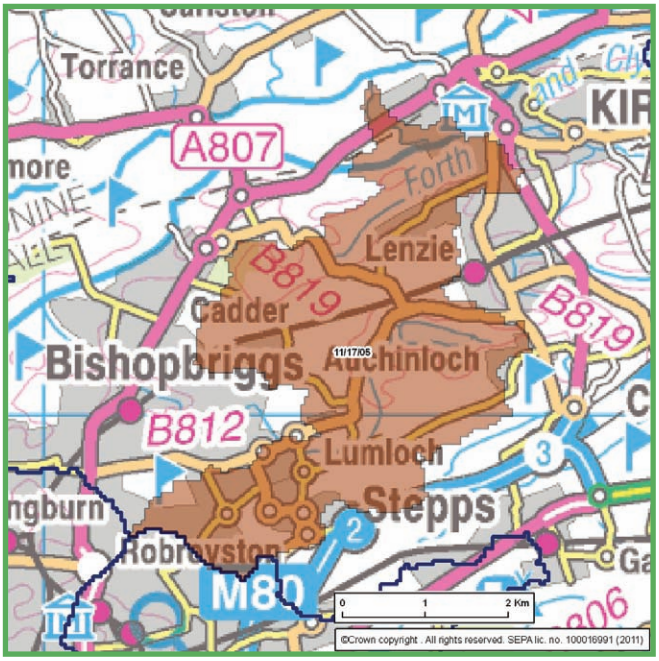
Groundwater Flooding	Potential low to moderate contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in Catchment Area

Type	Number	Proportion of All Properties
Residential	537	8.2%
Non-residential	18	8.5%

Towns and Villages with Properties at Risk

50+	Kirkintilloch, Lenzie



Catchment Unit Characteristics

Total Area		14 km²
Land cover within the catchment Unit	**Urban**	27%
	Agriculture	70%
	Forestry	3%
Includes Flood Defence(s)		No
Includes Flood Warning Area(s)		No
Catchment Hydrology		• Moderate peak flood flow response times; • Moderate catchment flood storage and attenuation capacity; • Potential for moderate underestimation of design flood magnitude; • Moderate erosion hazard potential of flood flows.
Catchment Morphology		• High proportion of bedrock/plane-bed channel types or lochs; • High proportion of realigned channels and/or protected floodplains; • Low density of hydraulic structures; • Low potential for increased flood risk due to upstream morphological pressures.

June 2011. Information contained in these datasheets is DRAFT. It will be updated based on this consultation and published as part of the National Flood Risk Assessment in December 2011.

Catchment Unit Datasheet

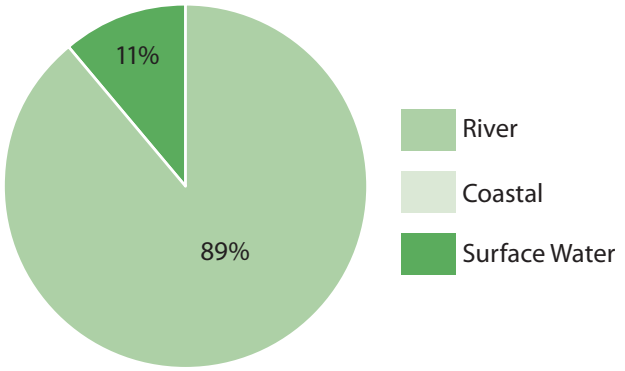
Catchment Unit Number:	PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/17/06	11/17	11 – Clyde and Loch Lomond	River Kelvin	East Dunbartonshire

Summary of Main Impacts

Assessment of future flood risk and past events show the River Kelvin and tributaries presents: limited impact to a small number of commercial properties, minor transport links or agricultural land; limited impact to a small number of residential properties or lower category community facilities. Existing defences on the River Kelvin offers partial protection to some of these impacts.

Overall nFRA Category	Medium
Estimated Weighted Annual Average Damages	£620,000

Known Source of Flooding



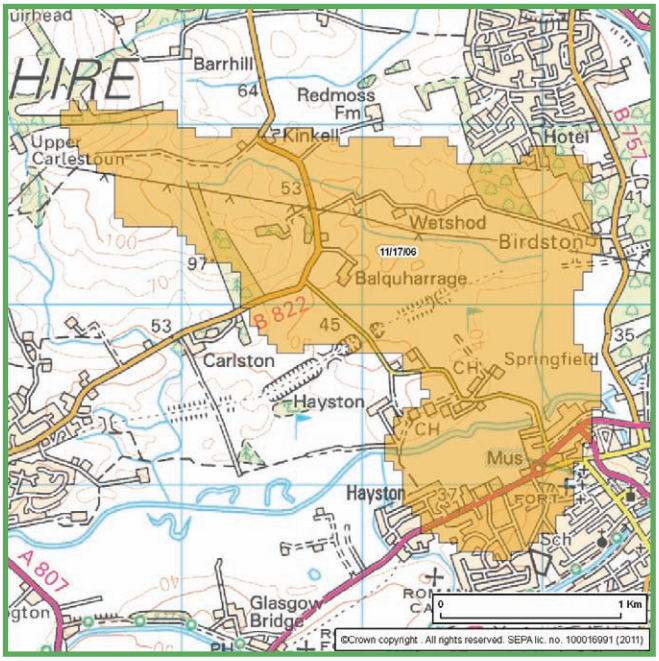
Groundwater Flooding	Potential low to moderate contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in Catchment Area

Type	Number	Proportion of All Properties
Residential	107	25.2%
Non-residential	62	76.5%

Towns and Villages with Properties at Risk

50+	Kirkintilloch



Catchment Unit Characteristics

Total Area		4 km²
Land cover within the catchment Unit	**Urban**	20%
	Agriculture	80%
	Forestry	0%
Includes Flood Defence(s)		Yes
Includes Flood Warning Area(s)		Yes
Catchment Hydrology		• Moderate to long peak flood flow response times; • High catchment flood storage and attenuation capacity; • Potential for low to moderate underestimation of design flood magnitude; • Low erosion hazard potential of flood flows.
Catchment Morphology		• Predominance of meandering/braided channel types; • Predominance of natural channels and/or unprotected floodplains; • Very high density of hydraulic structures; • Very high potential for increased flood risk due to upstream morphological pressures.

June 2011. Information contained in these datasheets is DRAFT. It will be updated based on this consultation and published as part of the National Flood Risk Assessment in December 2011.

Catchment Unit Datasheet

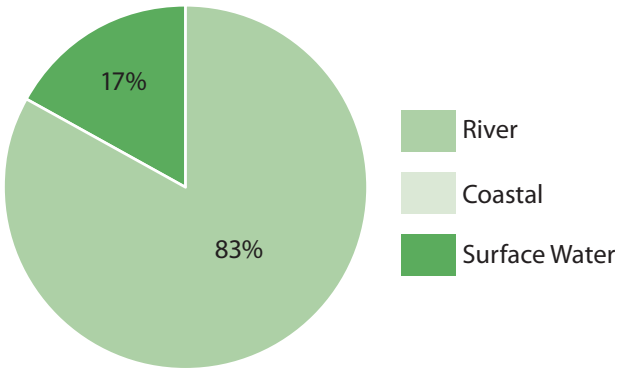
Catchment Unit Number:	PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/17/07	11/17	11 – Clyde and Loch Lomond	River Kelvin	East Dunbartonshire

Summary of Main Impacts

Assessment of future flood risk and past events show the Forth & Clyde Canal, Luggie Water and tributaries presents: potential impact to a large number of residential properties or lower category community facilities and an Education facility within the floodplain; limited impact to a small number of commercial properties, minor transport links or agricultural land. Existing defences on the River Kelvin offers partial protection to some of these impacts.

Overall nFRA Category	Medium
Estimated Weighted Annual Average Damages	£1,670,000

Known Source of Flooding



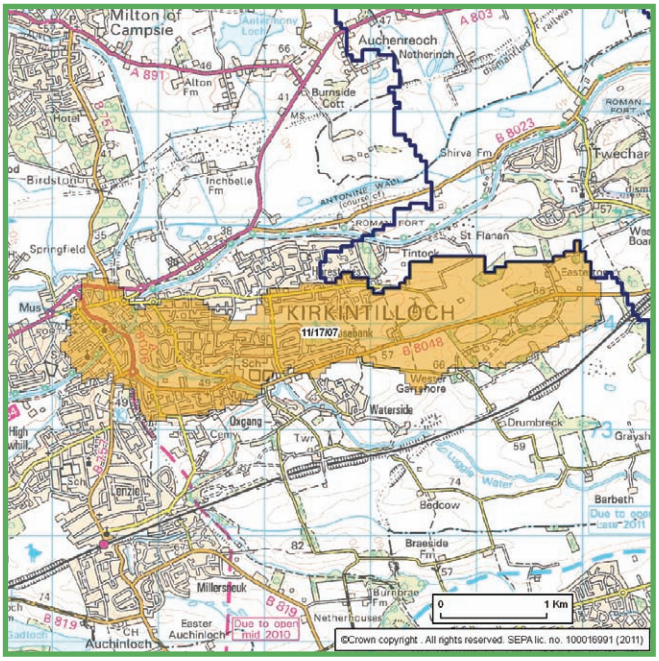
Groundwater Flooding	Potential low to moderate contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in Catchment Area

Type	Number	Proportion of All Properties
Residential	274	5.9%
Non-residential	46	13%

Towns and Villages with Properties at Risk

50+	Kirkintilloch



Catchment Unit Characteristics

Total Area		5 km²
Land cover within the catchment Unit	**Urban**	45%
	Agriculture	55%
	Forestry	0%
Includes Flood Defence(s)		Yes
Includes Flood Warning Area(s)		No
Catchment Hydrology		• Moderate to long peak flood flow response times; • High catchment flood storage and attenuation capacity; • Potential for low to moderate underestimation of design flood magnitude; • Low erosion hazard potential of flood flows.
Catchment Morphology		• Mixture of meandering/braided channel types and bedrock/plane-bed channel types or lochs; • Mixture of natural/realigned channels and protected/unprotected floodplains; • Moderate density of hydraulic structures; • Moderate potential for increased flood risk due to upstream morphological pressures.

June 2011. Information contained in these datasheets is DRAFT. It will be updated based on this consultation and published as part of the National Flood Risk Assessment in December 2011.

Catchment Unit Datasheet

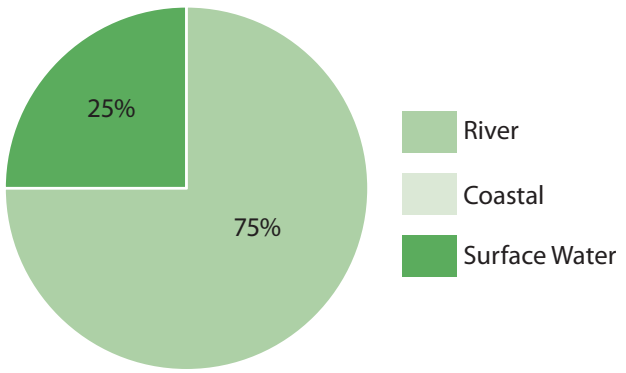
Catchment Unit Number:	PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/17/08	11/17	11 – Clyde and Loch Lomond	River Kelvin	East Dunbartonshire North Lanarkshire

Summary of Main Impacts

Assessment of future flood risk and past events show the Forth & Clyde Canal, Antermony Loch, Glazert Water, River Kelvin and tributaries presents: potential impact to world heritage sites or number of scheduled monuments along with limited impact to a small number of commercial properties, minor transport links or agricultural land; limited impact to a small number of residential properties or lower category community facilities. Existing defences on the River Kelvin offers partial protection to some of these impacts.

Overall nFRA Category	Medium
Estimated Weighted Annual Average Damages	£480,000

Known Source of Flooding



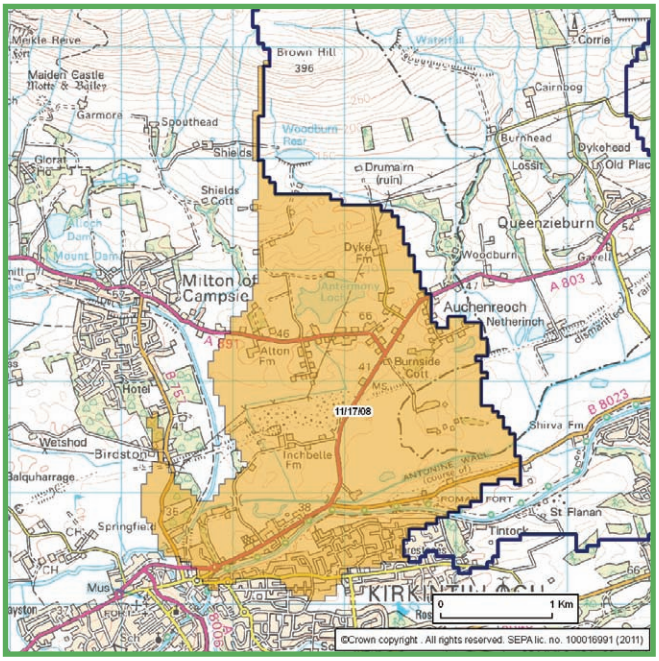
Groundwater Flooding	Potential low to moderate contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in Catchment Area

Type	Number	Proportion of All Properties
Residential	115	6%
Non-residential	37	40.2%

Towns and Villages with Properties at Risk

50+	Kirkintilloch



Catchment Unit Characteristics

Total Area		7 km²
Land cover within the catchment Unit	**Urban**	9%
	Agriculture	91%
	Forestry	0%
Includes Flood Defence(s)		Yes
Includes Flood Warning Area(s)		Yes
Catchment Hydrology		• Moderate to long peak flood flow response times; • High catchment flood storage and attenuation capacity; • Potential for low to moderate underestimation of design flood magnitude; • Low erosion hazard potential of flood flows.
Catchment Morphology		• High proportion of meandering/braided channel types; • High proportion of natural channels and/or unprotected floodplains; • High density of hydraulic structures; • High potential for increased flood risk due to upstream morphological pressures.

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Catchment Unit Datasheet

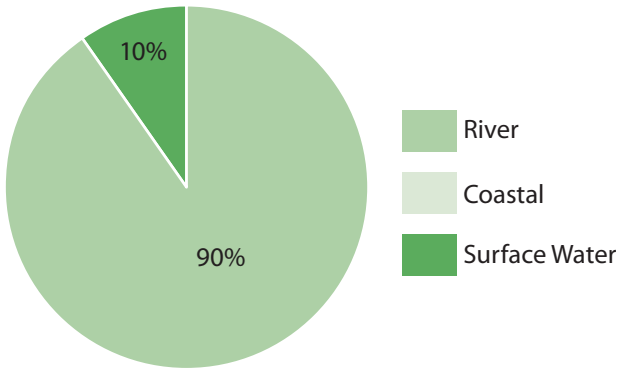
Catchment Unit Number:	PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/17/09	11/17	11 – Clyde and Loch Lomond	River Kelvin	East Dunbartonshire North Lanarkshire

Summary of Main Impacts

Assessment of future flood risk and past events show the Glazert Water and tributaries presents: potential impact to a large number of residential properties or lower category community facilities. Existing defences on the Glazert Water offers partial protection to some of these impacts.

Overall nFRA Category	Medium
Estimated Weighted Annual Average Damages	£1,840,000

Known Source of Flooding



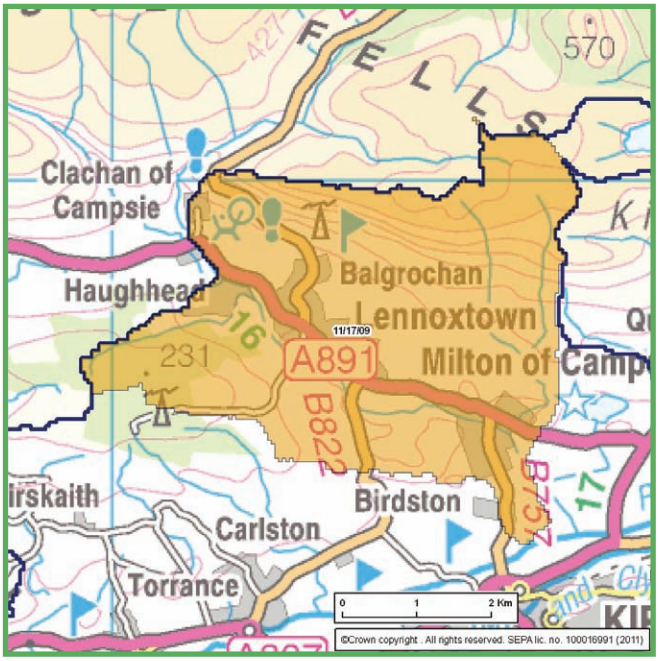
Groundwater Flooding	Potential low to moderate contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in Catchment Area

Type	Number	Proportion of All Properties
Residential	266	7.7%
Non-residential	10	7.8%

Towns and Villages with Properties at Risk

50+	Haughhead, Lennoxtown



Catchment Unit Characteristics

Total Area		22 km^2
Land cover within the catchment Unit	**Urban**	7%
	Agriculture	56%
	Forestry	37%
Includes Flood Defence(s)		Yes
Includes Flood Warning Area(s)		No
Catchment Hydrology		• Moderate peak flood flow response times; • Moderate catchment flood storage and attenuation capacity; • Potential for moderate underestimation of design flood magnitude; • Moderate erosion hazard potential of flood flows.
Catchment Morphology		• High proportion of bedrock/plane-bed channel types or lochs; • High proportion of realigned channels and/or protected floodplains; • Low density of hydraulic structures; • Low potential for increased flood risk due to upstream morphological pressures.

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Catchment Unit Datasheet

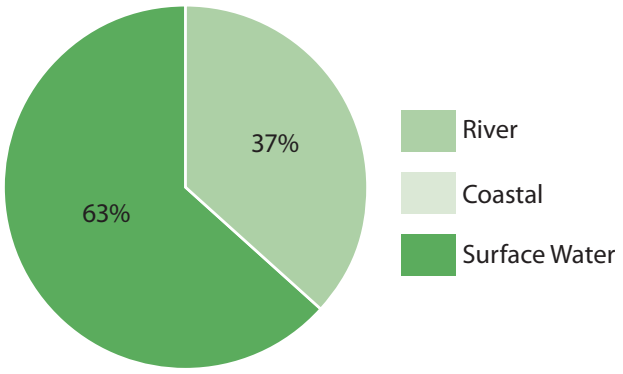
Catchment Unit Number:	PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/17/10	11/17	11 – Clyde and Loch Lomond	River Kelvin	East Dunbartonshire Falkirk North Lanarkshire

Summary of Main Impacts

Assessment of future flood risk and past events show the Forth & Clyde Canal, Glazert Water and tributaries presents: potential impact to a number of world heritage sites or number of scheduled monuments.

Overall nFRA Category	Medium
Estimated Weighted Annual Average Damages	£170,000

Known Source of Flooding



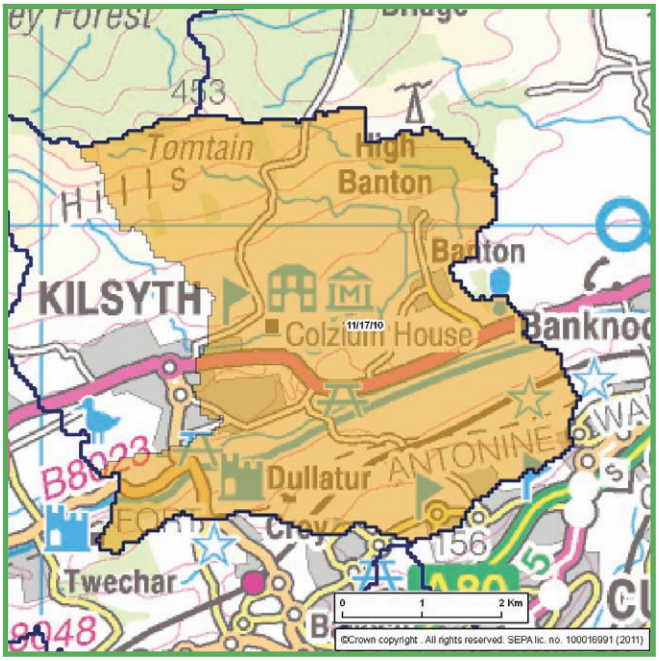
Groundwater Flooding	Potential low to moderate contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in Catchment Area

Type	Number	Proportion of All Properties
Residential	5	0.2%
Non-residential	4	3.2%

Towns and Villages with Properties at Risk

50+	



Catchment Unit Characteristics

Total Area		24 km²
Land cover within the catchment Unit	**Urban**	7%
	Agriculture	77%
	Forestry	15%
Includes Flood Defence(s)		No
Includes Flood Warning Area(s)		No
Catchment Hydrology		• Moderate peak flood flow response times; • Moderate catchment flood storage and attenuation capacity; • Potential for moderate underestimation of design flood magnitude; • Moderate erosion hazard potential of flood flows.
Catchment Morphology		• High proportion of bedrock/plane-bed channel types or lochs; • High proportion of realigned channels and/or protected floodplains; • Low density of hydraulic structures; • Low potential for increased flood risk due to upstream morphological pressures.

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Catchment Unit Datasheet

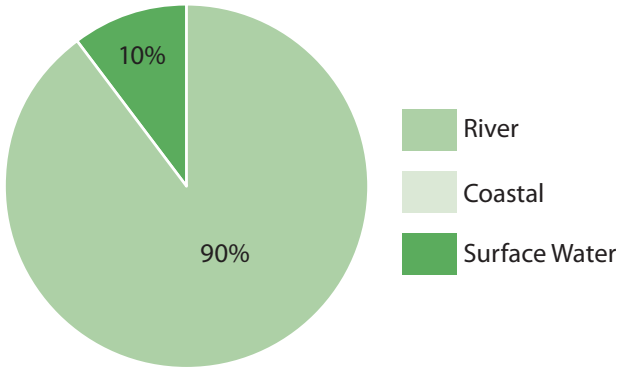
Catchment Unit Number:	PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/17/11	11/17	11 – Clyde and Loch Lomond	River Kelvin	North Lanarkshire

Summary of Main Impacts

Assessment of future flood risk and past events show Birkenburn Reservoir, the Garrel Burn and tributaries presents: potential impact to a large number of residential properties or lower category community facilities; limited impact to a small number of commercial properties, minor transport links or agricultural land.

Overall nFRA Category	High
Estimated Weighted Annual Average Damages	£3,030,000

Known Source of Flooding



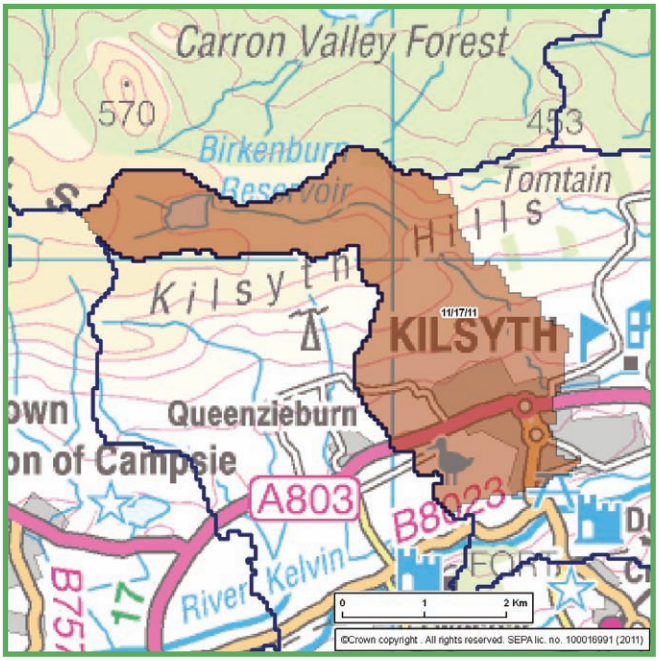
Groundwater Flooding	Potential low to moderate contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in Catchment Area

Type	Number	Proportion of All Properties
Residential	400	11.4%
Non-residential	36	18.7%

Towns and Villages with Properties at Risk

50+	Kilsyth



Catchment Unit Characteristics

Total Area		11 km^2
Land cover within the catchment Unit	**Urban**	15%
	Agriculture	34%
	Forestry	51%
Includes Flood Defence(s)		No
Includes Flood Warning Area(s)		No
Catchment Hydrology		• Moderate peak flood flow response times; • Moderate catchment flood storage and attenuation capacity; • Potential for moderate underestimation of design flood magnitude; • Moderate erosion hazard potential of flood flows.
Catchment Morphology		• Predominance of bedrock/plane-bed channel types or lochs; • Predominance of realigned channels and/or protected floodplains; • Very low density of hydraulic structures; • Very low potential for increased flood risk due to upstream morphological pressures.

June 2011. Information contained in these datasheets is DRAFT. It will be updated based on this consultation and published as part of the National Flood Risk Assessment in December 2011.

Potentially Vulnerable Area Datasheet

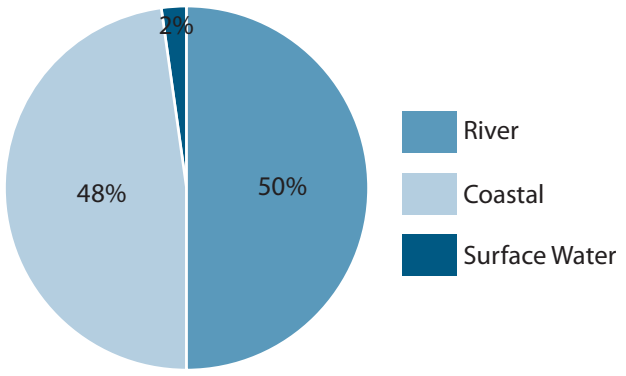
PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/18	11 – Clyde and Loch Lomond	Dumbarton Coastal	West Dunbartonshire

Summary of Main Impacts

Assessment of future flood risk and past events show Firth of Clyde, River Leven and present a potential impact to a large number of residential properties and higher category community facilities including Education facility within the floodplain; potential impact to large number of commercial properties or main transport links and high value arable land; potential impact to some scheduled monuments. Existing defences on the Knowle Burn offers partial protection to some of these impacts.

Estimated Weighted Annual Average Damages	£14,210,000

Known Source of Flooding



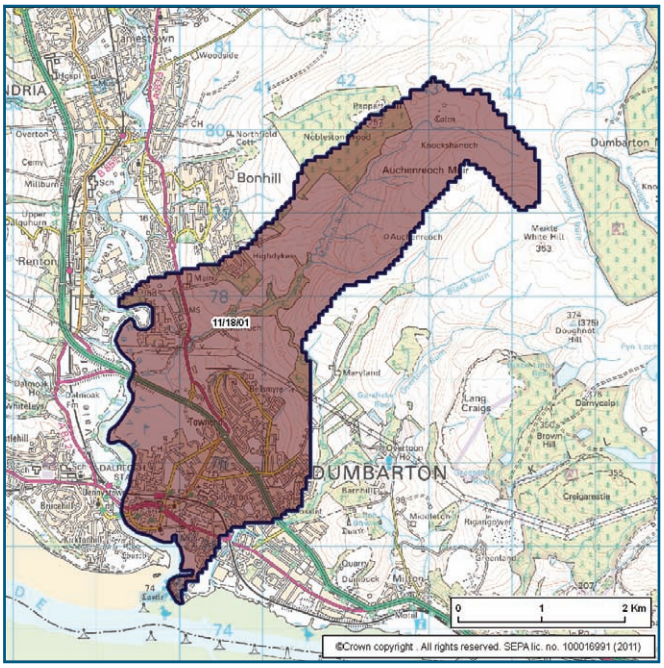
Groundwater Flooding	Potential very low to low contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in PVA

Type	Number	Proportion of All Properties in PVA
Residential	1135	20.5%
Non-residential	212	56.2%

Towns and Villages with Properties at Risk

50+	Bellsmyre, Dumbarton



PVA Characteristics

Total Area		125 km^2
Land cover within the PVA	**Urban**	35%
	Agriculture	41%
	Forestry	24%
Includes Flood Defence(s)		No
Includes Flood Warning Area(s)		Yes
Catchment Hydrology		• Moderate peak flood flow response times; • Moderate catchment flood storage and attenuation capacity; • Potential for moderate underestimation of design flood magnitude; • Moderate erosion hazard potential of flood flows.
Catchment Morphology		• High proportion of bedrock/plane-bed channel types or lochs; • High proportion of realigned channels and/or protected floodplains; • Low density of hydraulic structures; • Low potential for increased flood risk due to upstream morphological pressures.

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Potentially Vulnerable Area Datasheet

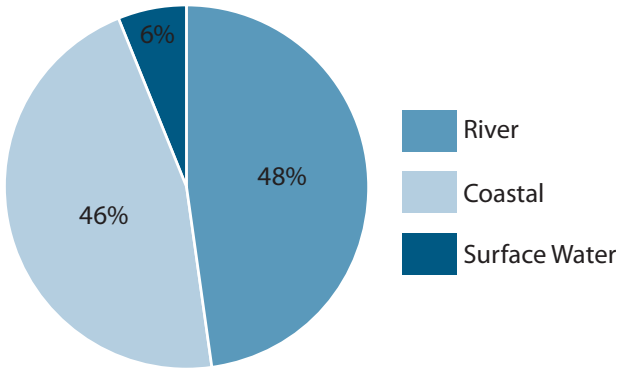
PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/19	11 – Clyde and Loch Lomond	Dumbarton Coastal	Argyll and Bute West Dunbartonshire

Summary of Main Impacts

Assessment of future flood risk and past events show the Firth of Clyde and multiple minor burns/rivers present a potential impact to large number of commercial properties and main transport links and high value arable land; limited impact to a small number of residential properties or lower category community facilities with potential impact to some scheduled monuments.

Estimated Weighted Annual Average Damages	£1,010,000

Known Source of Flooding



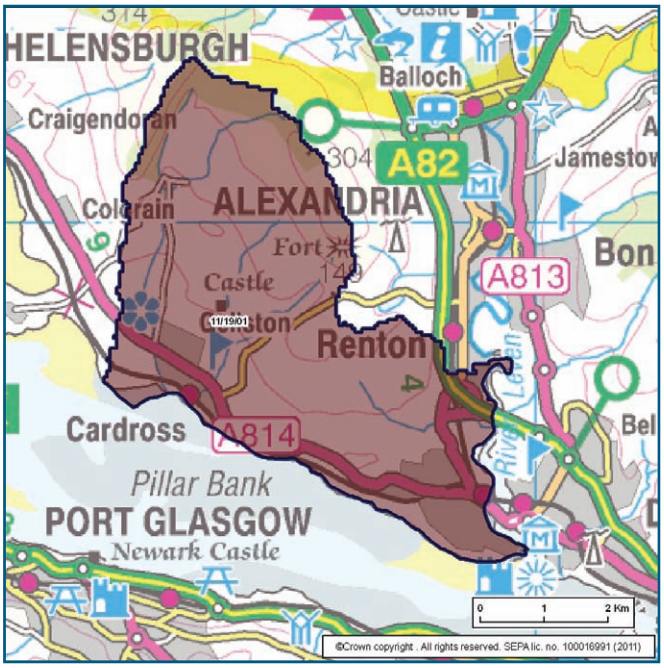
Groundwater Flooding	Potential very low to low contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in PVA

Type	Number	Proportion of All Properties in PVA
Residential	87	2.2%
Non-residential	11	6.4%

Towns and Villages with Properties at Risk

50+	Cardross, Geilston



PVA Characteristics

Total Area		74 km^2
Land cover within the PVA	**Urban**	13%
	Agriculture	64%
	Forestry	22%
Includes Flood Defence(s)		No
Includes Flood Warning Area(s)		No
Catchment Hydrology		• Short to moderate peak flood flow response times; • Low catchment flood storage and attenuation capacity; • Potential for high underestimation of design flood magnitudes; • High erosion hazard potential of flood flows.
Catchment Morphology		• High proportion of bedrock/plane-bed channel types or lochs; • High proportion of realigned channels and/or protected floodplains; • Low density of hydraulic structures; • Low potential for increased flood risk due to upstream morphological pressures.

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Potentially Vulnerable Area Datasheet

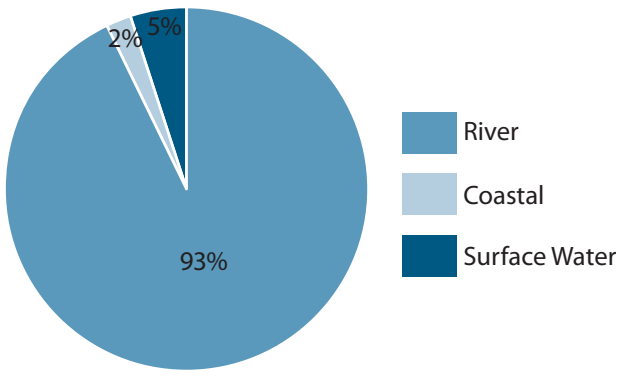
PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/20	11 – Clyde and Loch Lomond	River Leven (Loch Lomond)	Argyll and Bute West Dunbartonshire

Summary of Main Impacts

Assessment of future flood risk and past events show River Leven and it's tributaries present a potential impact to a large number of residential properties or lower category community facilities; limited impact to a small number of commercial properties, minor transport links or agricultural land.

Estimated Weighted Annual Average Damages	£2,300,000

Known Source of Flooding



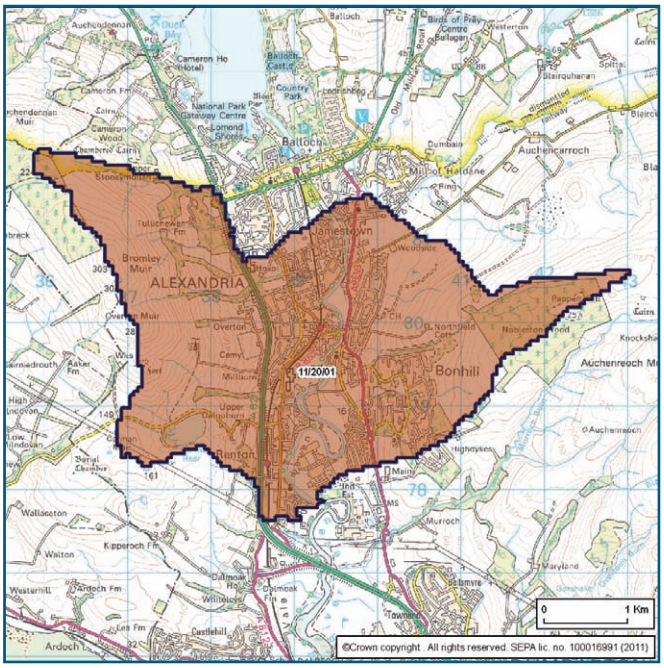
Groundwater Flooding	Potential very low to low contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in PVA

Type	Number	Proportion of All Properties in PVA
Residential	299	4.1%
Non-residential	25	6.4%

Towns and Villages with Properties at Risk

50+	Alexandria, Jamestown



PVA Characteristics

Total Area		66 km²
Land cover within the PVA	**Urban**	36%
	Agriculture	27%
	Forestry	37%
Includes Flood Defence(s)		Yes
Includes Flood Warning Area(s)		Yes
Catchment Hydrology		• Moderate to long peak flood flow response times; • High catchment flood storage and attenuation capacity; • Potential for low to moderate underestimation of design flood magnitude; • Low erosion hazard potential of flood flows.
Catchment Morphology		• Predominance of bedrock/plane-bed channel types or lochs; • Predominance of realigned channels and/or protected floodplains; • Very low density of hydraulic structures; • Very low potential for increased flood risk due to upstream morphological pressure

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Potentially Vulnerable Area Datasheet

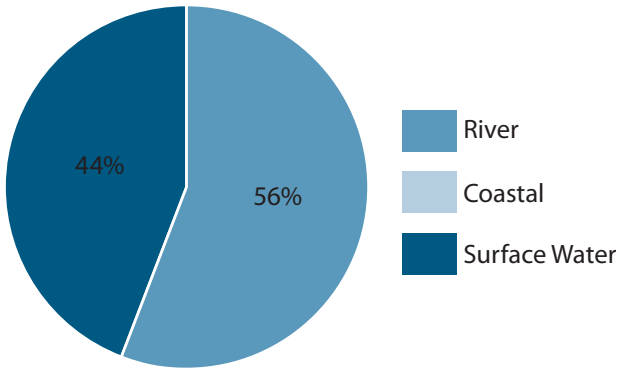
PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/21	11 – Clyde and Loch Lomond	River Leven (Loch Lomond)	East Dunbartonshire Stirling

Summary of Main Impacts

Assessment of future flood risk and past events show Blane Water presents a potential flooding impact. Area included due to evidence of previous historic flooding.

Estimated Weighted Annual Average Damages	£320,000

Known Source of Flooding



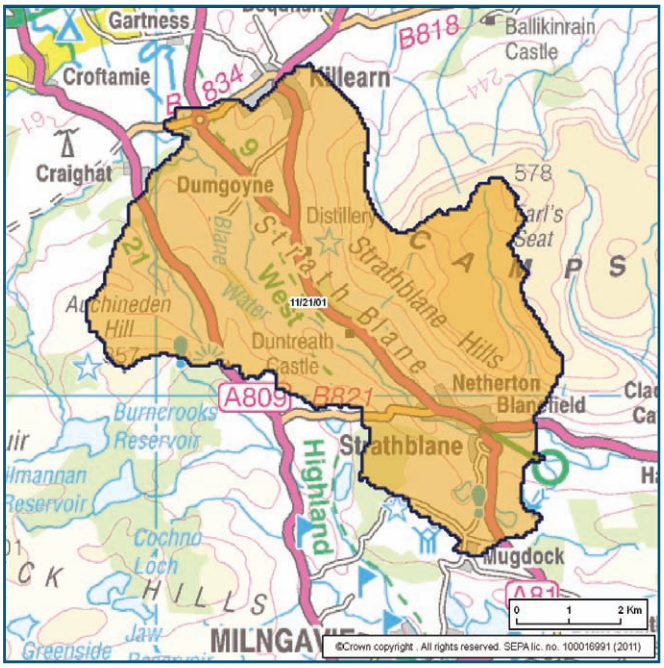
Groundwater Flooding	Potential low to moderate contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in PVA

Type	Number	Proportion of All Properties in PVA
Residential	40	2.7%
Non-residential	2	2%

Towns and Villages with Properties at Risk

50+



PVA Characteristics

Total Area		60 km²
Land cover within the PVA	**Urban**	3%
	Agriculture	37%
	Forestry	60%
Includes Flood Defence(s)		No
Includes Flood Warning Area(s)		No
Catchment Hydrology		• Moderate peak flood flow response times; • Moderate catchment flood storage and attenuation capacity; • Potential for moderate underestimation of design flood magnitude; • Moderate erosion hazard potential of flood flows.
Catchment Morphology		• High proportion of bedrock/plane-bed channel types or lochs; • High proportion of realigned channels and/or protected floodplains; • Low density of hydraulic structures; • Low potential for increased flood risk due to upstream morphological pressures.

June 2011. Information contained in these datasheets is DRAFT. It will be updated based on this consultation and published as part of the National Flood Risk Assessment in December 2011.

Potentially Vulnerable Area Datasheet

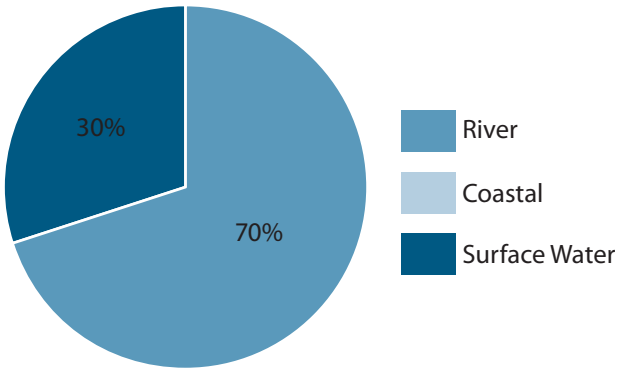
PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/22	11 – Clyde and Loch Lomond	River Leven (Loch Lomond)	Argyll and Bute Stirling West Dunbartonshire

Summary of Main Impacts

Assessment of flood risk and past events show Loch Lomond and multiple rivers/burns present a potential impact to a larger number of residential properties or lower category community facilities; potential impact to some commercial properties, transport links and agricultural land; potential impact to a number of world heritage sites or number of scheduled monuments and potential impact to sensitive designated areas.

Estimated Weighted Annual Average Damages	£2,480,000

Known Source of Flooding



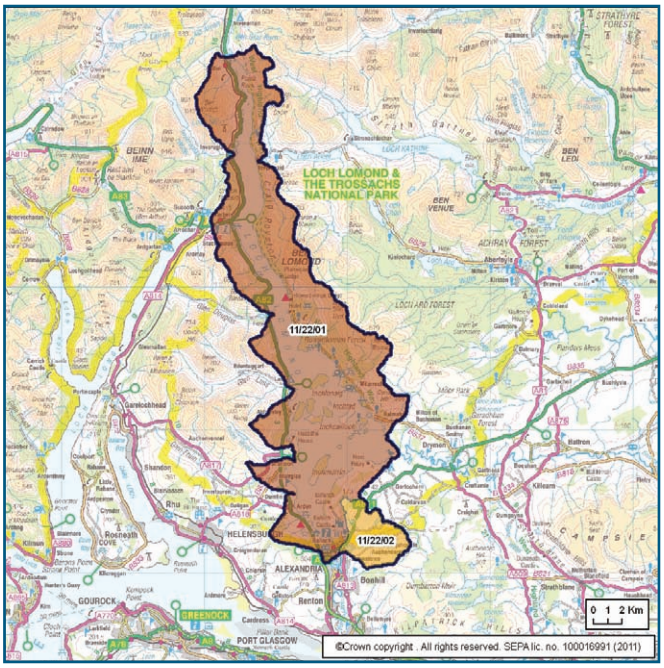
Groundwater Flooding	Potential low to moderate contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in PVA

Type	Number	Proportion of All Properties in PVA
Residential	293	6.3%
Non-residential	44	17.5%

Towns and Villages with Properties at Risk

50+	Alexandria, Balloch



PVA Characteristics

Total Area		31 km^2
Land cover within the PVA	**Urban**	2%
	Agriculture	13%
	Forestry	52%
Includes Flood Defence(s)		Yes
Includes Flood Warning Area(s)		No
Catchment Hydrology		• Moderate to long peak flood flow response times; • High catchment flood storage and attenuation capacity; • Potential for low to moderate underestimation of design flood magnitude; • Low erosion hazard potential of flood flows.
Catchment Morphology		• High proportion of bedrock/plane-bed channel types or lochs; • High proportion of realigned channels and/or protected floodplains; • Low density of hydraulic structures; • Low potential for increased flood risk due to upstream morphological pressures.

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Catchment Unit Datasheet

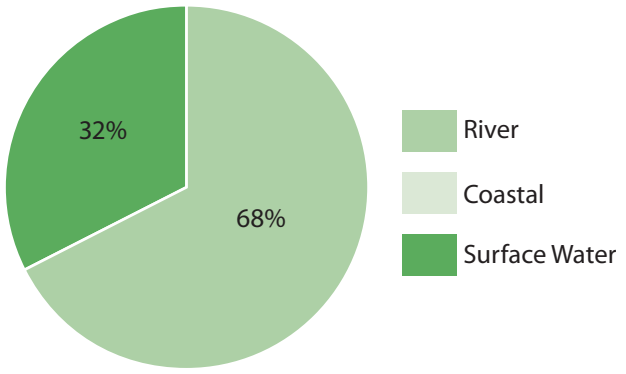
Catchment Unit Number:	PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/22/01	11/22	11 – Clyde and Loch Lomond	River Leven (Loch Lomond)	Argyll and Bute Stirling West Dunbartonshire

Summary of Main Impacts

Assessment of future flood risk and past events show Loch Lomond and tributaries presents: potential impact to some residential properties lower category community facilities; limited impact to a small number of commercial properties, minor transport links or agricultural land; potential impact to world heritage sites or number of scheduled monuments; potential impact to less resilient designated areas.

Overall nFRA Category	High
Estimated Weighted Annual Average Damages	£1,700,000

Known Source of Flooding



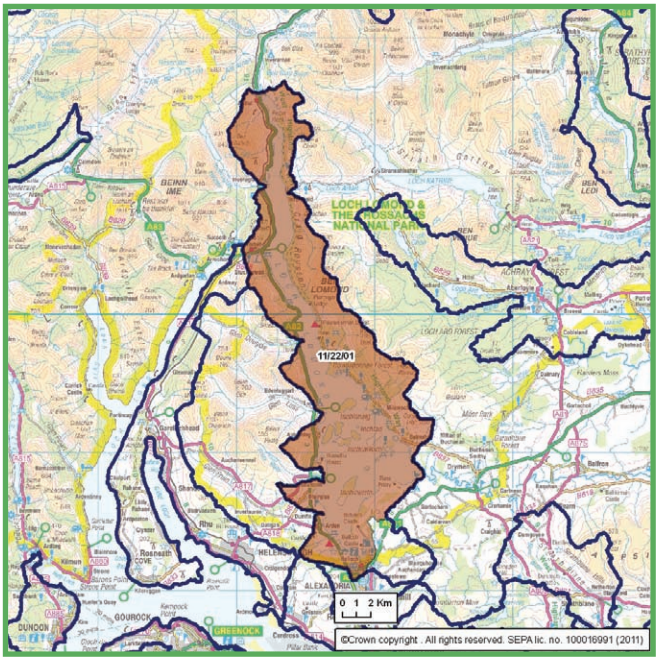
Groundwater Flooding	Potential low to moderate contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in Catchment Area

Type	Number	Proportion of All Properties
Residential	183	6%
Non-residential	40	20.3%

Towns and Villages with Properties at Risk

50+	Alexandria



Catchment Unit Characteristics

Total Area		206 km^2
Land cover within the catchment Unit	**Urban**	2%
	Agriculture	9%
	Forestry	54%
Includes Flood Defence(s)		No
Includes Flood Warning Area(s)		No
Catchment Hydrology		• Moderate to long peak flood flow response times; • High catchment flood storage and attenuation capacity; • Potential for low to moderate underestimation of design flood magnitude; • Low erosion hazard potential of flood flows.
Catchment Morphology		• Predominance of bedrock/plane-bed channel types or lochs; • Predominance of realigned channels and/or protected floodplains; • Very low density of hydraulic structures; • Very low potential for increased flood risk due to upstream morphological pressures.

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Catchment Unit Datasheet

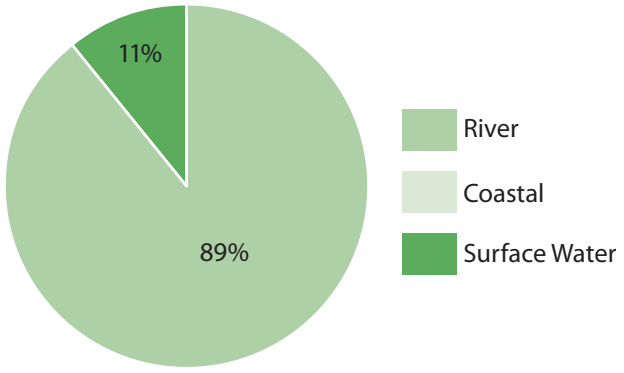
Catchment Unit Number:	PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/22/02	11/22	11 – Clyde and Loch Lomond	River Leven (Loch Lomond)	West Dunbartonshire

Summary of Main Impacts

Assessment of future flood risk and past events show Caldarvan Loch, Carrochan Burn and tributaries presents: limited impact to a small number of residential properties.

Overall nFRA Category	Medium
Estimated Weighted Annual Average Damages	£780,000

Known Source of Flooding



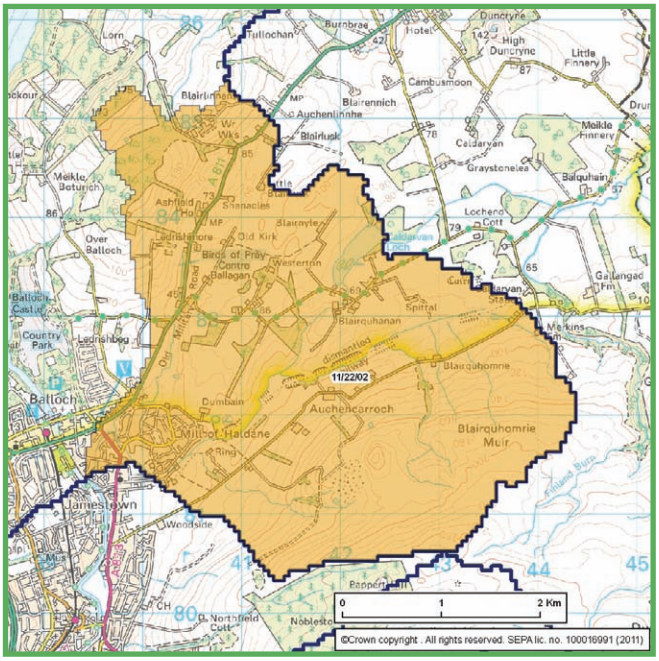
Groundwater Flooding	Potential very low to low contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in Catchment Area

Type	Number	Proportion of All Properties
Residential	110	7%
Non-residential	4	7.4%

Towns and Villages with Properties at Risk

50+	Balloch



Catchment Unit Characteristics

Total Area		15 km²
Land cover within the catchment Unit	**Urban**	4%
	Agriculture	69%
	Forestry	24%
Includes Flood Defence(s)		No
Includes Flood Warning Area(s)		No
Catchment Hydrology		• Moderate peak flood flow response times; • Moderate catchment flood storage and attenuation capacity; • Potential for moderate underestimation of design flood magnitude; • Moderate erosion hazard potential of flood flows.
Catchment Morphology		• High proportion of bedrock/plane-bed channel types or lochs; • High proportion of realigned channels and/or protected floodplains; • Low density of hydraulic structures; • Low potential for increased flood risk due to upstream morphological pressures.

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Potentially Vulnerable Area Datasheet

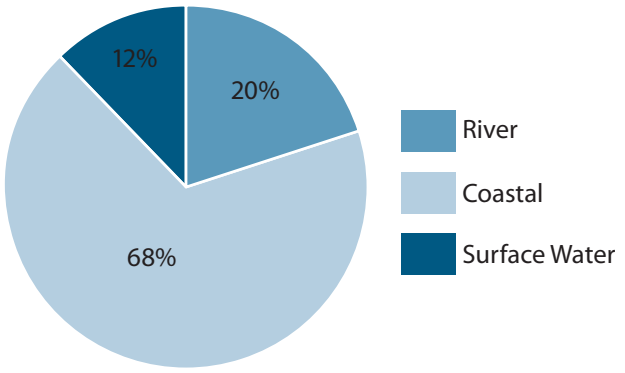
PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/23	11 – Clyde and Loch Lomond	Cowal / Clyde Sealochs Coastal	Argyll and Bute

Summary of Main Impacts

Assessment of future flood risk and past events show the Firth of Clyde and multiple rivers/burns present a potential impact to some commercial properties, transport links and agricultural land; potential impact to some residential properties or medium category community facilities along with Emergency services and Education facility within the floodplain. Existing defences within Dunoon offers partial protection to some of these impacts.

Estimated Weighted Annual Average Damages	£1,310,000

Known Source of Flooding



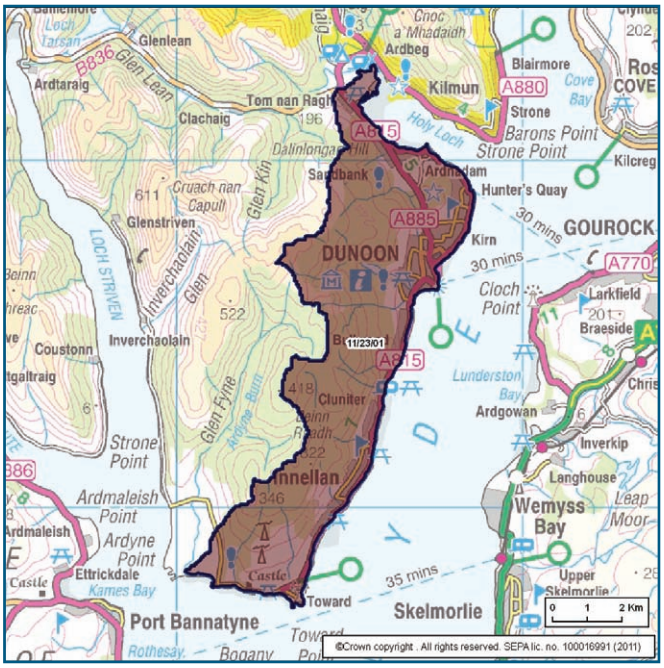
Groundwater Flooding	Potential very low to low contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in PVA

Type	Number	Proportion of All Properties in PVA
Residential	161	2.7%
Non-residential	20	4.8%

Towns and Villages with Properties at Risk

50+	Dunoon



PVA Characteristics

Total Area	43 km²	
Land cover within the PVA	**Urban**	10%
	Agriculture	10%
	Forestry	79%
Includes Flood Defence(s)		No
Includes Flood Warning Area(s)		No
Catchment Hydrology	• Moderate to long peak flood flow response times; • High catchment flood storage and attenuation capacity; • Potential for low to moderate underestimation of design flood magnitude; • Low erosion hazard potential of flood flows.	
Catchment Morphology	• High proportion of meandering/braided channel types; • High proportion of natural channels and/or unprotected floodplains; • High density of hydraulic structures; • High potential for increased flood risk due to upstream morphological pressures.	

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Potentially Vulnerable Area Datasheet

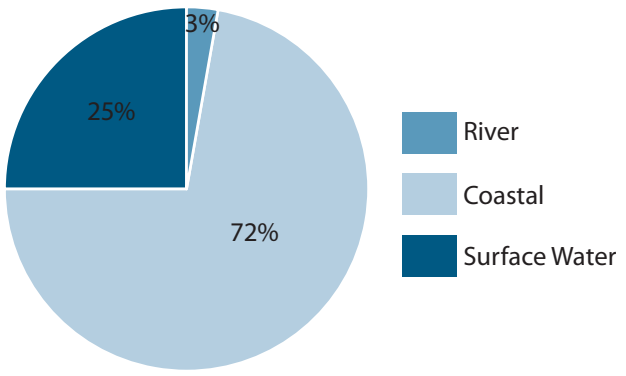
PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/24	11 – Clyde and Loch Lomond	Cowal / Clyde Sealochs Coastal	Argyll and Bute

Summary of Main Impacts

Assessment of future flood risk and past events show the Firth of Clyde and multiple rivers/burns present a potential impact to some commercial properties, transport links and agricultural land; potential impact to some residential properties or medium category community facilities along with Emergency services within the floodplain.

Estimated Weighted Annual Average Damages	£1,990,000

Known Source of Flooding



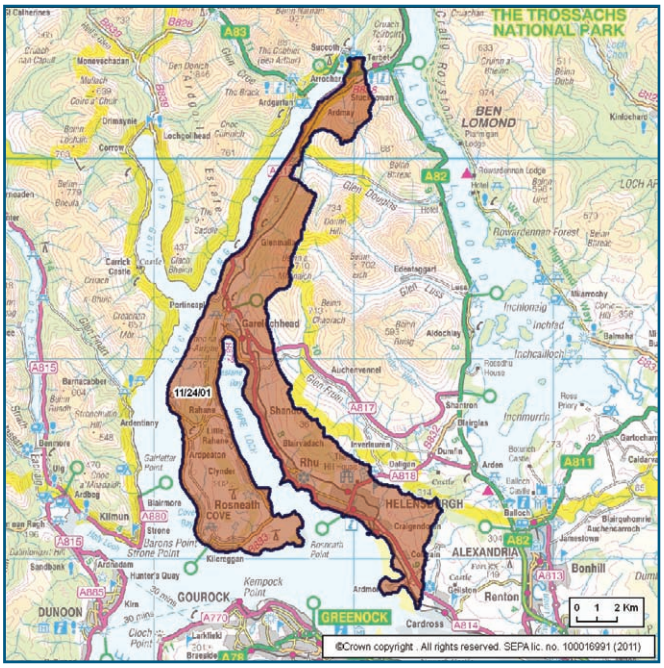
Groundwater Flooding	Potential very low to low contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in PVA

Type	Number	Proportion of All Properties in PVA
Residential	216	2.1%
Non-residential	36	4.8%

Towns and Villages with Properties at Risk

50+	Craigendoran, Helensburgh



PVA Characteristics

Total Area		36 km²
Land cover within the PVA	**Urban**	9%
	Agriculture	18%
	Forestry	71%
Includes Flood Defence(s)		No
Includes Flood Warning Area(s)		No
Catchment Hydrology		• Moderate to long peak flood flow response times; • High catchment flood storage and attenuation capacity; • Potential for low to moderate underestimation of design flood magnitude; • Low erosion hazard potential of flood flows.
Catchment Morphology		• Mixture of meandering/braided channel types and bedrock/plane-bed channel types or lochs; • Mixture of natural/realigned channels and protected/unprotected floodplains; • Moderate density of hydraulic structures; • Moderate potential for increased flood risk due to upstream morphological pressures.

June 2011. Information contained in these datasheets is DRAFT. It will be updated based on this consultation and published as part of the National Flood Risk Assessment in December 2011.

Potentially Vulnerable Area Datasheet

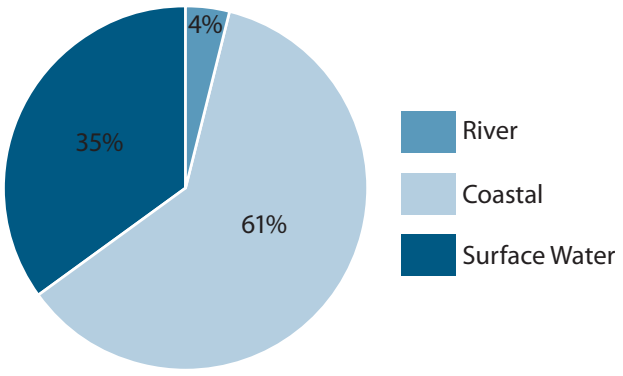
PVA:	Local Plan District:	Main River Catchment:	Local Authority:
11/25	11 – Clyde and Loch Lomond	Island of Bute Coastal	Argyll and Bute

Summary of Main Impacts

Assessment of future flood risk and past events show the Firth of Clyde and the Mill Lade present a potential impact to large number of commercial properties or main transport links and high value arable land; potential impact to some residential properties or lower category community facilities; potential impact to world heritage sites or number of scheduled monuments. Existing defences along the coast and the Mill Lade in Rothesay offers partial protection to some of these impacts.

Estimated Weighted Annual Average Damages	£2,100,000

Known Source of Flooding



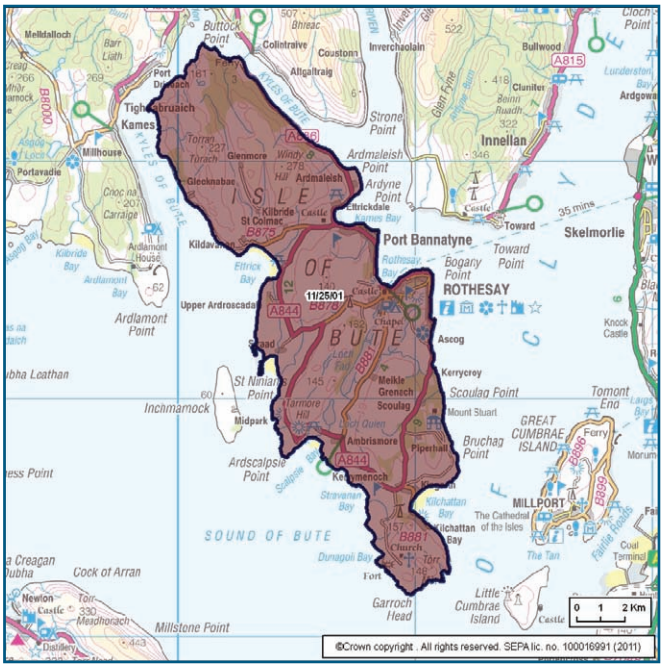
Groundwater Flooding	Potential very low to low contribution within part of the catchment
Impact of Climate Change	Moderate predicted increase in rainfall with proportionate increase in flooding

Proportion of Property Type in PVA

Type	Number	Proportion of All Properties in PVA
Residential	209	4.9%
Non-residential	51	12.3%

Towns and Villages with Properties at Risk

50+	Rothesay



PVA Characteristics

Total Area		140 km²
Land cover within the PVA	**Urban**	2%
	Agriculture	48%
	Forestry	48%
Includes Flood Defence(s)		No
Includes Flood Warning Area(s)		No
Catchment Hydrology		• Moderate to long peak flood flow response times; • High catchment flood storage and attenuation capacity; • Potential for low to moderate underestimation of design flood magnitude; • Low erosion hazard potential of flood flows.
Catchment Morphology		• High proportion of bedrock/plane-bed channel types or lochs; • High proportion of realigned channels and/or protected floodplains; • Low density of hydraulic structures; • Low potential for increased flood risk due to upstream morphological pressures.

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nFRA Grid Output (Inverclyde)

26th April 2011

Incorporates impacts of groundwater

OS 250K background

220000

230000

680000

670000

660000

GOUROCK

GREENOCK

PORT GLASGOW

ALEXANDRIA

HELENSBURGH

Hunter's Quay

Kirn

Cloch Point

Larkfield

Braeside

Chrisswell

Lunderston Bay

Ardgowan

Inverkip

Langhouse

Wemyss Bay

Garvock

Bardrainney

Duchal Mains

Carruth House

Duchal Moor

Creuch Hill

Gryfe Reservoirs

Strathgryfe

Leap Moor

Kempock Point

Daligan

Craigendoran

Colgrain

Cardross

Pillar Bank

Newark Castle

Geilston

Arden

Dumfin

Ardmore

Kilcreggan

30 mins

30 mins

A78

A8

A770

A814

A737

A760

B788

B786

Legend

- Inverclyde
- River Catchments
- Inter Confluence Catchments

Potential Flood Risk:

- Low (0.00)
- High (513)

N

0 0.3 0.6 1.2 Kilometres

0 0.3 0.6 1.2 Miles

1:52,088

Helpdesk ref: N/A. Produced: 4/11/2009

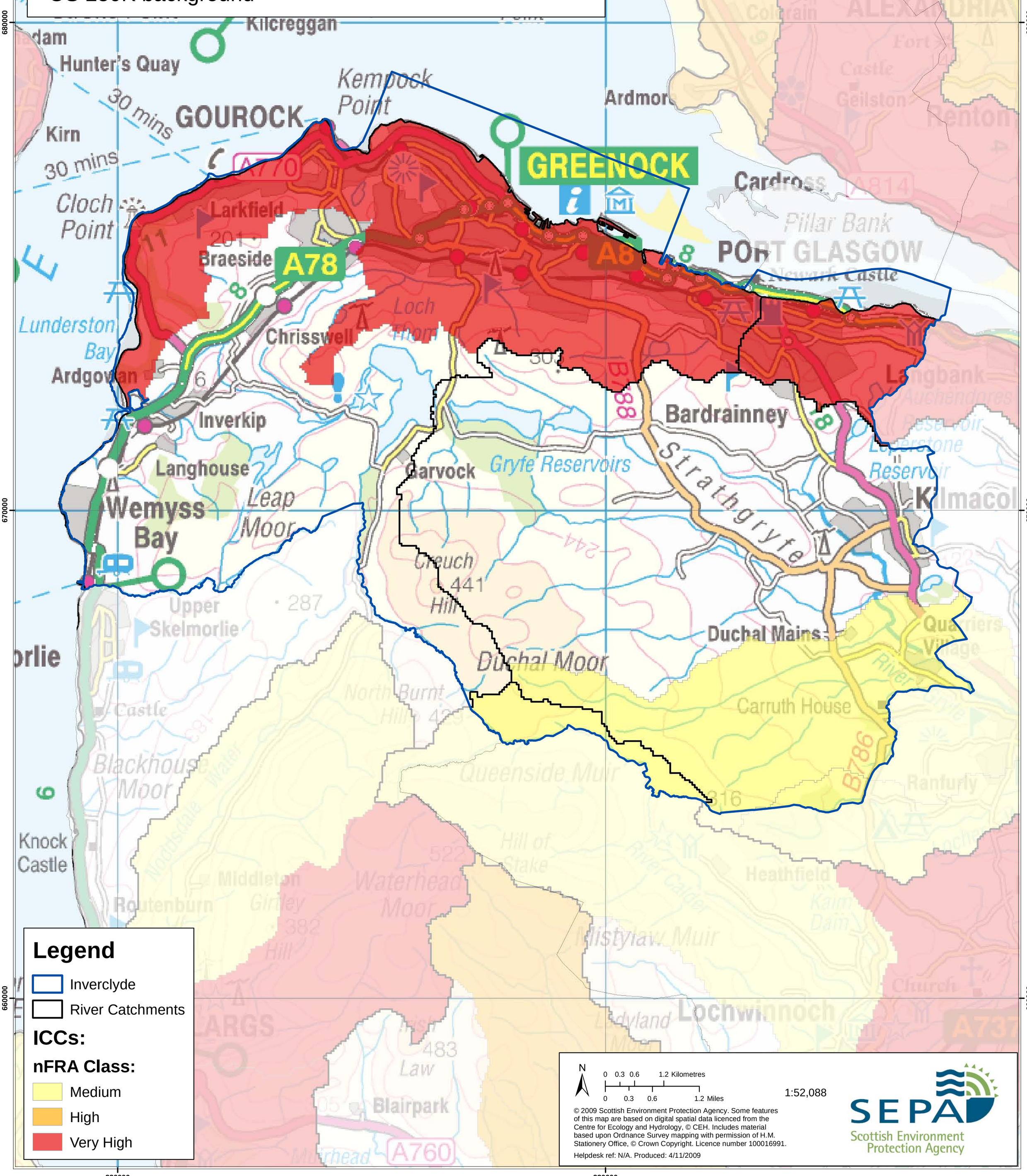
SEPA Scottish Environment Protection Agency

nFRA ICC Output (Inverclyde)

26th April 2011

Incorporates impacts of groundwater

OS 250K background



Legend

- Inverclyde
- River Catchments

ICCs:

nFRA Class:

- Medium
- High
- Very High

N

0 0.3 0.6 1.2 Kilometres

0 0.3 0.6 1.2 Miles

1:52,088

Helpdesk ref: N/A. Produced: 4/11/2009

SEPA Scottish Environment Protection Agency

Response Consultation to Questions

1. Do you support the setting of a significance threshold that will capture the majority of flood impacts and subsequent action in a comprehensive planning system (i.e. based around the 'Medium risk level')?

Inverclyde Council supports the setting of the significance threshold at medium as this captures 90% of the properties affected in Scotland. The council endorses the approach where members of the public take responsibility for protecting themselves and their property from flooding. This council has some concern that as a small council any funding will be directed away from Inverclyde towards the more densely populated areas.

2. Are there areas identified as Potentially Vulnerable Areas following this assessment that you believe should not be designated as at significant risk of flooding?

Inverclyde Council believes that the areas identified as Potentially Vulnerable Areas are correct. The main areas at risk in Inverclyde are centred around more densely populated areas and commercial activities. However it should also be added to the Potentially Vulnerable Area Datasheet that there is a greater impact from pluvial and fluvial flooding than from coastal in Inverclyde. The numerous watercourses that run through Inverclyde, cause flood events more frequently than coastal flooding.

3. Are there areas NOT identified as Potentially Vulnerable Areas following the assessment that you believe should be designated as at significant risk of flooding.

As per question 2 the areas are correct.

4. Do you agree that the amendments made to the boundaries of the Local Plan Districts are an appropriate response to the consultation exercise held in 2010? If not, what changes would you suggest and why?

As stated in the previous consultation in 2010 Inverclyde has it own unique catchment and should have a plan solely for Inverclyde. The last consultation had Inverclyde paired with Ayrshire however with the new boundaries Inverclyde is now in the Clyde Valley that includes numerous councils. Again Inverclyde Council have concerns that the larger Councils within this group will dominate proceedings which may be to the financial detriment to Inverclyde.

5. Do you agree with the broad remit, membership and procedure of the local advisory groups?

Inverclyde Council agrees in principle with the proposals in the consultation. However problems might occur when agreeing on local requirements and priorities given the size of Local Plan District and the number of different Local Authorities that will each have their own requirements and priorities.

6. Do you support the use of the Area Advisory Group boundaries established under the Water Framework Directive as the basis for establishing local advisory groups as required in section 50 of the Flood Act? If not, what alternative arrangements would you suggest and why?

Inverclyde Council supports the proposals. However better communication of outcomes of this group should be advised and distributed to all responsible authorities.