Flood Risk Management (Scotland) Act 2009:

FINAL REPORT

Local Flood Risk Management Plan

Clyde and Loch Lomond Local Plan District



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Foreword

This Final Report for the Local Flood Risk Management Plan shows the progress made in delivering the actions to avoid and reduce the risk of flooding, to allow us to prepare and protect ourselves and our communities across the breadth of the local plan district. The report also marks the completion of Cycle 1 as we now transition into Cycle 2.

"The impacts of flooding experienced by individuals, communities and businesses can be devastating and long lasting. It is vital that we continue to reduce the risk of any such future events and improve Scotland's ability to manage and recover from any events which do occur."
(CaLL Local Flood Risk Management Plan (LFRMP), June 2016)

The publication of this Final Report shows that the co-ordinated and collaborative efforts of public bodies can be brought together to deliver sustainable outcomes.

The Final Report is published by Glasgow City Council, as Lead Local Authority for the Clyde and Loch Lomond (CaLL) Local Plan District (LPD) - a partnership comprising 10 local authorities - Argyll and Bute Council, East Dunbartonshire Council, East Renfrewshire Council, Glasgow City Council, Inverclyde Council, North Lanarkshire Council, Renfrewshire Council, South Lanarkshire Council, Stirling Council and West Dunbartonshire Council as well as SEPA and a number of responsible authorities - Scottish Water; Forestry Commission Scotland; and Loch Lomond and the Trossachs National Park Authority. Input has also been received from Transport Scotland.

Individuals are the first line of defence against flooding and have responsibilities to protect themselves from flooding. Through self-help and property level protection, awareness raising and signing up to Floodline (www.floodlinescotland.org.uk), individuals, businesses and communities can and have made key contributions to the delivery of the actions in the LFRMP (the 'Plan').

Since the publication of the Plan in June 2016, public sector finances in Scotland have continued to be under considerable pressure. This placed an even greater responsibility on SEPA, local authorities, Scottish Water and other responsible authorities to deliver their flood risk management responsibilities in an effective and sustainable way. During Cycle 1 we have also had to respond to the challenges of the COVID-19 pandemic.

SEPA, local authorities, Scottish Water, and other responsible authorities will continue to work collaboratively to implement the actions set out in the 2nd planning cycle to June 2028.



Bailie Paul McCabe
Convener of the Clyde and Loch Lomond Local Plan District Joint Committee

1 Background

The Final Report is a statutory requirement of the Flood Risk Management (Scotland) Act 2009 (Section 38). The Final Report presents:

- an assessment of the progress made towards implementing the CaLL LFRMP (the 'Plan');
- a summary of the planned actions which were not implemented, with reasons for their non-implementation; and
- a description of any other actions implemented since the plan was finalised which the lead authority considers have contributed to the achievement of the objectives.

Further details on flood risk management responsibilities in Scotland and the legal requirement for the publication of this Interim Report can be found in Annex 2.

A copy of the CaLL Plan can be found at the following link: www.glasgow.gov.uk/clydeandlochlomond

2 Review of the plan

This section presents the review of the Plan including progress highlights, a statement on the planned actions not implemented, the significant challenges faced and the next steps to be taken forward during the 2nd planning cycle.

Progress Highlights

A selection of progress highlights since publication of the Plan in June 2016 are noted below to give a flavour of the work being undertaken across the Clyde and Loch Lomond Local Plan District to reduce flood risk. A summary of progress against every action in the Plan is presented in Sections 4 and 5.

- The Gruggies Burn Flood Prevention Scheme in Dumbarton has progressed to detailed design stage.
- SEPA has developed a new flood warning service for Loch Lomond.
- The operational response to flooding at Fintry and Strathblane has been improved with new river level monitoring equipment and cameras installed and a new Flood Pod provided to the Fintry community.
- Surface Water Management Plans (SWMPs) for Bearsden, Bishopbriggs and Milngavie completed to feasibility stage.
- The Dunoon SWMP has been completed to feasibility stage.
- Scottish Water has completed multiple sewer flood assessments including modelling.
- The Coves Burn Flood Protection Scheme in Gourock has been completed.

- Network Rail and Transport Scotland have progressed multiple actions to reduce the risk of flooding to key transport infrastructure.
- The final phase of White Cart Water Flood Prevention Scheme works has been completed.
- Phase 1 and 2 construction works for the SE Glasgow SWMP have been completed.
- The Tidal and Fluvial models for the River Clyde have been completed.
- The Kilmacolm Natural Flood Management Study has been completed.

Significant Challenges

Based on a review of the assessment of the progress of actions detailed in this Interim Report, the following key challenges and issues have been identified, some of which have had an impact on the delivery of actions to manage flood risk. Where these challenges have had an impact on the delivery of specific actions, this impact is detailed in Sections 4 and 5.

Significant weather events

Whilst occasional flooding has occurred within the CaLL LPD over recent years, the area has generally not experienced the exceptional flooding witnessed in other parts of Scotland e.g. Ballater and the Scottish Borders. Storms over the 2015/16 winter period, including Storm Frank, brought some flooding to the area, but the heaviest rainfall associated with these storm systems fell to the north and south of Clyde and Loch Lomond Local Plan District. More recently, intense summer rainfall across the north of Glasgow in June 2018 and August 2021 brought localised flooding to a number of areas, including Bearsden, Bishopbriggs and Drumchapel. When flooding does occur, resources are directed away from strategic planning to respond to the incident.

COVID-19 Pandemic

The COVID pandemic has impacted the delivery of Cycle 1 actions including a requirement to suspend flood risk management construction works as part of the national effort to minimise the spread of the virus during the first national lockdown. The pandemic also disrupted flood risk management studies due to the transition to home working and the challenges of effectively consulting flood vulnerable communities. These impacts have resulted in higher implementation costs and programme delays.

Resources

Whilst the majority of actions have either been progressed in line or have advanced further than set

out in the Plan, the primary reason for actions not progressing as far as intended was a challenging resource environment. A range of resources were required to progress the actions set out in the Plan to reduce flood risk. These include the authorities responsible for progressing individual actions being able to allocate sufficient funding for that purpose.

The available human resource, with the necessary skills to manage and develop solutions to reduce flood risk, has also constrained progress. Much of this human resource pressure has arisen from the increased level of investment in flood risk management across Scotland and the wider UK, leading to challenging recruitment. This pressure is compounded by flood risk management demanding particular technical skills. This human resource pressure has been observed within the authorities responsible for progressing individual actions and the engineering consultants that these authorities seek to engage to support the development of solutions.

Technical Complexity

Developing an understanding of how flooding occurs and the most appropriate combination of solutions to reduce flood risk is technically challenging, including the need to build complex computer models to understand how storm events, tides, watercourse geometry, topography, land use and climate change all interact to cause flooding. This challenge has impacted progress on a number of actions which has delayed progress on subsequent actions. More appropriate technical solutions have also been identified for a number of actions, compared to the way forward envisaged when the Plan was prepared but these enhanced solutions, particularly in relation to strategic mapping and modelling, have taken longer to implement.

Significant Deviations from the Plan

The status of the planned actions is summarised in Section 3 and detailed in Sections 4 and 5. No significant deviations from the Plan are considered to have occurred.

The Next Planning Cycle

This report marks the completion of Cycle 1 and we are now transitioning into Cycle 2. The Flood Risk Management Plan for Cycle 2 can be accessed via the following link:

https://www.glasgow.gov.uk/clydeandlochlomond

The Cycle 2 Local Flood Risk Management Plan was scheduled published in December 2022.

Many of the Cycle 1 actions were to undertake studies that have led to the identification of further actions to be implemented in Cycle 2 and beyond. For example, a flood protection study may recommend that a community flood action group is set up to increase resilience to flooding, or that a flood defences are constructed.

Conclusion

Overall, through partnership working, by delivering the actions set out in the CaLL LFRMP we have reduced flood risk and helped to inform future actions that will be progressed during Cycle 2 and subsequent cycles to further reduce flood risk. Whilst the majority of actions have either been progressed in line or have advanced further than set out in the Plan, a number of actions have not progressed as far as intended, primarily due to a lack of resources. Where resources have been constrained, actions have been progressed where the risk of flooding was greatest. Other actions have been delayed where they have been dependent on the results from earlier studies. Some actions have also been superseded by a change in approach that will deliver better outputs but at a later date.

3 Assessment of Progress

This section sets out an assessment of the progress towards implementing the actions set out in the Plan. There are actions that apply across the whole of the CaLL LPD and actions that are specific to each of the 21 Potentially Vulnerable Areas (as defined under Section 13 of the Act) in the CaLL LPD, which are shown below in Figure 1.

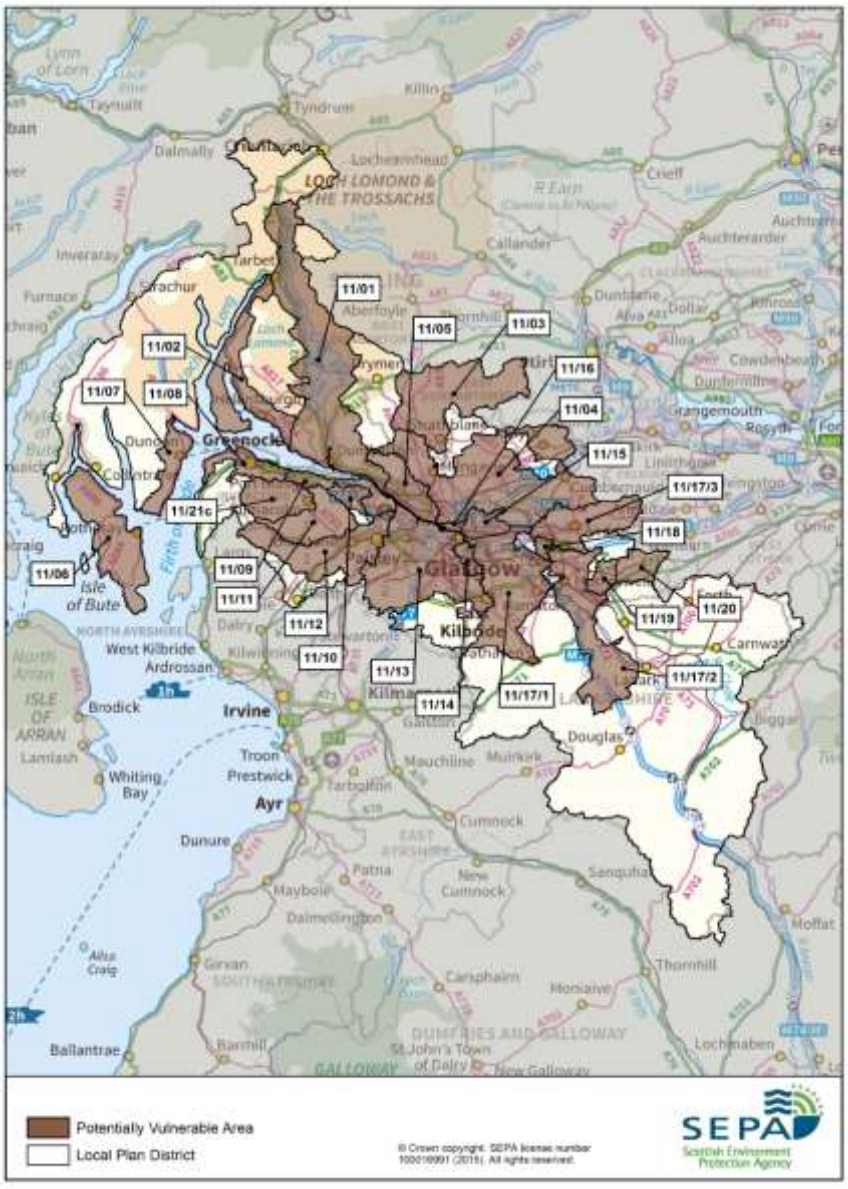


Figure 1: The Clyde and Loch Lomond Local Plan District & Potentially Vulnerable Areas

Reproduced from Clyde and Loch Lomond Local Plan District Flood Risk Management Strategy, SEPA (December 2015)

A progress summary of the actions set out in the Plan is shown overleaf in Figure 2. Progress is shown using a traffic light system based on data collected during February 2022, where each item is marked as Red, Amber or Green (RAG) to describe the status of the action as follows:

Green – Action has been completed.

Amber – Action has commenced but has not progressed as far as envisaged in the Plan.

Red – Action has not commenced.

The distribution of actions by Potentially Vulnerable Area is shown in Table 4. Further detail on specific actions can be found in the relevant Potentially Vulnerable Area section within Chapter 5.

PVA	Flood Protection scheme / works	Natural flood management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan / study	Strategic mapping and modelling	Maintain flood protection	Maintain flood warning*	Flood forecasting	Property level protection study	Community flood action groups	Self help	Awareness Raising	Maintenance	Site protection plans	Emergency plans / response	Planning policies
11/01	✓	✓	✓	✓			✓	✓	✓	✓			✓	✓	✓		✓	✓
11/02				✓		✓		N/A	✓	✓			✓	✓	✓		✓	✓
11/03								N/A	N/A	✓			✓	✓	✓		✓	✓
11/04	✓						✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓
11/05				✓	✓		✓	✓	✓	✓			✓	✓	✓		✓	✓
11/06							✓	✓	✓	✓			✓	✓	✓		✓	✓
11/07						✓	✓	✓	✓	✓			✓	✓	✓		✓	✓
11/08							✓	✓	✓	✓	✓		✓	✓	✓		✓	✓
11/09	✓						✓	N/A	N/A	✓			✓	✓	✓		✓	✓
11/10						✓	✓	N/A	N/A	✓			✓	✓	✓		✓	✓
11/11	✓						✓	N/A	N/A	✓			✓	✓	✓		✓	✓
11/12	✓				✓		✓	✓	N/A	✓			✓	✓	✓		✓	✓
11/13	✓				✓		✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓
11/14				✓		✓	✓	✓	N/A	✓		✓	✓	✓	✓		✓	✓
11/15						✓	✓	N/A	N/A	✓			✓	✓	✓		✓	✓
11/16						✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓
11/17/1	✓							✓	✓	✓		✓	✓	✓	✓		✓	✓
11/17/2	✓					✓	✓	N/A	N/A	✓			✓	✓	✓	✓	✓	✓
11/17/3						✓	✓	N/A	N/A	✓			✓	✓	✓		✓	✓
11/18							✓	N/A	N/A	✓			✓	✓	✓		✓	✓
11/19						✓		N/A	N/A	✓			✓	✓	✓		✓	✓
11/20								N/A	N/A	✓			✓	✓	✓		✓	✓
11/21c	✓				✓		✓	N/A	N/A	✓			✓	✓	✓		✓	✓

*Note: N/A is used where there is no formal Flood Protection Scheme or flood warning scheme present.

Table 4: Progress Summary of Cycle 1 Actions by Potentially Vulnerable Area.

4 Progress with LPD-wide Actions

4.1 Actions applicable across the Local Plan District

Some flood risk management objectives and actions apply to all areas, whether designated as a Potentially Vulnerable Area or not. For example, flood risk can be managed through national planning policy or as part of ongoing statutory duties discharged by local authorities.

The Local Plan District-wide objectives and the corresponding actions are set out in the following tables by lead authority. No additional LPD wide actions have been implemented.

List of councils and authorities:

ABC – Argyll and Bute Council

EDC – East Dunbartonshire Council

ERC – East Renfrewshire Council

GCC – Glasgow City Council

GCVGN – Glasgow Clyde Valley Green Network

IC – Inverclyde Council

LLTTNP – Loch Lomond and The Trossachs National Park Authority

NLC – North Lanarkshire Council

NR – Network Rail

RC – Renfrewshire Council

SC – Stirling Council

SEPA – Scottish Environment Protection Agency

SLC – South Lanarkshire Council

SW – Scottish Water

TS – Transport Scotland

WDC – West Dunbartonshire Council

4.2 Progress of LDP-wide actions by Council

4.2.1 Argyll and Bute Council actions

Summary of progress of PVA-wide actions to manage flood risk for Argyll and Bute Council						
Action	**Status**	**PVA**	**Description**	**Start**	**End**	**Progress**
Awareness raising	**Green**	11/01 11/02 11/06 11/07	SEPA and responsible authorities have a duty to raise public awareness of flood risk. Improved awareness of flood risk and actions that prepare individuals, homes and businesses for flooding can reduce the overall impact. From 2016 SEPA will engage with the community and promote Floodline. Local authorities will be undertaking additional awareness raising activities linked to Potentially Vulnerable Area specific Actions. Scottish Water will keep responsible authorities informed of its awareness raising activities through the Local Plan District partnerships.	2015	2022	Argyll and Bute Council have promoted flood advice for property owners and landowners on our website including relevant guidance from Scottish Water, SEPA, The Scottish Government, and the Scottish Flood Forum. Specific public consultation events for particular flood studies have been held. We have worked with the Scottish Flood Forum during consultation events to raise awareness of options available to property owners https://www.argyll-bute.gov.uk/transport-and-streets/flood-advice
Emergency plans / response	**Green**	11/01 11/02 11/06 11/07	Providing an emergency response to flooding is the responsibility of many organisations, including local authorities, the emergency services and SEPA. Effective management of an emergency response relies on emergency plans that are prepared under the Civil Contingencies Act 2004 by Category 1 and 2 Responders. The emergency response by these organisations is co-ordinated through regional and local resilience partnerships. This response may be supported by the work of voluntary organisations.	2015	2022	Section 8 Argyll and Bute Emergency Response Plan details ABCs response to emergencies in particular Section 8 of the document relates to flooding. Further information from Preparing for civil emergencies in Argyll and Bute (argyll-bute.gov.uk)
Self help	**Green**	11/01 11/02 11/06 11/07	**Everyone is responsible for protecting themselves and their property from flooding.** Property and business owners can take simple steps to reduce damage and disruption to their homes and businesses should flooding happen. This includes preparing a flood plan and flood kit, installing property level protection, signing up to Floodline and Resilient Communities initiatives, and ensuring that properties and businesses are insured against flood damage.	2015	2022	Argyll & Bute Council work with Scottish Flood Forum to recommend areas which might benefit from independent Property Level Protection surveys and recommendations. Scottish Flood Forum promotes self-help within communities through Property Level Protection (PLP) exhibitions, and advice regarding the selection, surveys and appropriate and relevant information to enable clients to make the right decisions. Ongoing community PLP training, Flood Warden and resilience group promotion.

Summary of progress of PVA-wide actions to manage flood risk for Argyll and Bute Council						
Action	**Status**	**PVA**	**Description**	**Start**	**End**	**Progress**
Maintenance	**Green**	11/01 11/02 11/06 11/07	Local authorities have a duty to assess watercourses and carry out clearance and repair works where such works would substantially reduce flood risk. Local authority schedules of clearance and repair work are available for public inspection – see Annex 4. Scottish Water undertakes risk-based inspection, maintenance and repair on the public sewer network. Asset owners and riparian landowners are responsible for the maintenance and management of their own assets including those which help to reduce flood risk.	2015	2022	Argyll and Bute Council are developing a strategy for prioritising the assessment and clearing of watercourses that is appropriate to the geography, vulnerability/risk and resources available, focussing on the most vulnerable and potentially affected areas.
Planning policies	**Green**	11/01 11/02 11/03 11/07	Scottish Planning Policy and accompanying Planning Advice Notes set out Scottish Ministers' priorities for the operation of the planning system and for the development and use of land. In terms of flood risk management, the policy supports a catchment-scale approach to sustainable flood risk management and aims to build the resilience of our cities and towns, encourage sustainable land management in our rural areas, and to address the long-term vulnerability of parts of our coasts and islands. Under this approach, new development in areas with medium to high likelihood of flooding should be avoided. For further information on the application of national planning policies see Annex 2 and Annex 5.	2015	2022	Flood risk to development managed by Argyll and Bute Local Development Plan – Supplementary Guidance Addressing Climate Change: Policy SG LDP SERV 7 - Flooding and Land Erosion – The Risk Framework for Development.

4.2.2 East Dunbartonshire Council actions

Summary of progress of PVA-wide actions to manage flood risk for East Dunbartonshire Council						
Action	**Status**	**PVA**	**Description**	**Start**	**End**	**Progress**
Awareness raising	**Green**	11/03 11/04 11/05	SEPA and responsible authorities have a duty to raise public awareness of flood risk. Improved awareness of flood risk and actions that prepare individuals, homes and businesses for flooding can reduce the overall impact. From 2016 SEPA will engage with the community and promote Floodline. Local authorities will be undertaking additional awareness raising activities linked to Potentially Vulnerable Area specific Actions. Scottish Water will keep responsible authorities informed of its awareness raising activities through the Local Plan District partnerships.	2015	2022	EDC continues to raise awareness via our Flooding webpage and at public consultation events related to flooding. Links to SEPA's & Scottish Flood Forum's website page provides useful support and advice on these matters. EDC works closely with internal teams to ensure flooding is included in any major developments, works the Council is doing. Local schools have also been visited to raise awareness of flooding. EDC is currently undertaking surface water management plans to minimise pluvial flood risk. The Council with other stakeholders raises awareness of flooding via internal processes and our online website and COMMS.
Emergency plans / response	**Green**	11/03 11/04 11/05	Providing an emergency response to flooding is the responsibility of many organisations, including local authorities, the emergency services and SEPA. Effective management of an emergency response relies on emergency plans that are prepared under the Civil Contingencies Act 2004 by Category 1 and 2 Responders. The emergency response by these organisations is co-ordinated through regional and local resilience partnerships. This response may be supported by the work of voluntary organisations.	2015	2022	EDC continues to provide emergency response and prepares plan under the Civil Contingencies Act 2004. Involving other emergency responders and voluntary organisations to support and minimise flood risk. This is ongoing working with Category 1 and 2 responders. This is a continual process and communicated via the appropriate channels via our civil contingencies officer.
Self help	**Green**	11/03 11/04 11/05	**Everyone is responsible for protecting themselves and their property from flooding.** Property and business owners can take simple steps to reduce damage and disruption to their homes and businesses should flooding happen. This includes preparing a flood plan and flood kit, installing property level protection, signing up to Floodline and Resilient Communities initiatives, and ensuring that properties and businesses are insured against flood damage.	2015	2022	EDC continues to raise awareness of property level protection via our Flooding webpage. Links to The Scottish Flood Forum's website page provides useful support and advice on these matters. EDC has also visited local Schools to raise awareness of flooding. EDC is currently undertaking surface water management plans to minimise pluvial flood risk. EDC have information on our website informing self help and what resilience measures can be adopted to minimise flood risk. Links to external organisation for support is provided.

Summary of progress of PVA-wide actions to manage flood risk for East Dunbartonshire Council						
Action	**Status**	**PVA**	**Description**	**Start**	**End**	**Progress**
Maintenance	**Green**	11/03 11/04 11/05	Local authorities have a duty to assess watercourses and carry out clearance and repair works where such works would substantially reduce flood risk. Local authority schedules of clearance and repair work are available for public inspection – see Annex 4. Scottish Water undertakes risk-based inspection, maintenance and repair on the public sewer network. Asset owners and riparian landowners are responsible for the maintenance and management of their own assets including those which help to reduce flood risk.	2015	2022	EDC continues to assess watercourses via our Roads Maintenance Management System (RMMS). Ensuring inspections, clearance and any repair works reported, planned or required are recorded to reduce the likelihood of flood risk. This is currently captured by our Roads Maintenance Management System (RMMS) and any reports of such works required. Appropriate action is taken depending on situation. Information of any works is available via our RMMS.
Planning policies	**Green**	11/03 11/04 11/05	Scottish Planning Policy and accompanying Planning Advice Notes set out Scottish Ministers' priorities for the operation of the planning system and for the development and use of land. In terms of flood risk management, the policy supports a catchment-scale approach to sustainable flood risk management and aims to build the resilience of our cities and towns, encourage sustainable land management in our rural areas, and to address the long-term vulnerability of parts of our coasts and islands. Under this approach, new development in areas with medium to high likelihood of flooding should be avoided. For further information on the application of national planning policies see Annex 2 and Annex 5.	2015	2022	EDC continues to advise on Flood related matters and works closely internally to guide and support the Planning Authority to ensure there is no increased flood risk. Our Flooding & Drainage Policy requires any developer / designer to ensure flood risk is not increased elsewhere. EDC ensures where possible betterment is provided to the existing drainage network or watercourse catchment. This is undertaken via our planning department. Flood Risk is a consultee to Planning and any application ids assess on potential for flood risk and providing betterment to the existing situation. SUDs measures are encourage and areas of functional floodplain safeguarded as per SPP.

4.2.3 East Renfrewshire Council actions

Summary of progress of PVA-wide actions to manage flood risk for East Renfrewshire Council						
Action	**Status**	**PVA**	**Description**	**Start**	**End**	**Progress**
Awareness raising	**Green**	11/12 11/13	SEPA and responsible authorities have a duty to raise public awareness of flood risk. Improved awareness of flood risk and actions that prepare individuals, homes and businesses for flooding can reduce the overall impact. From 2016 SEPA will engage with the community and promote Floodline. Local authorities will be undertaking additional awareness raising activities linked to Potentially Vulnerable Area specific Actions. Scottish Water will keep responsible authorities informed of its awareness raising activities through the Local Plan District partnerships.	2015	2022	ERC will engage with local communities via public engagement and localised events. Advertisements and notifications of works and will be in local press and on ERC Website.
Emergency plans / response	**Green**	11/12 11/13	Providing an emergency response to flooding is the responsibility of many organisations, including local authorities, the emergency services and SEPA. Effective management of an emergency response relies on emergency plans that are prepared under the Civil Contingencies Act 2004 by Category 1 and 2 Responders. The emergency response by these organisations is co-ordinated through regional and local resilience partnerships. This response may be supported by the work of voluntary organisations.	2015	2022	ERC are part of a joint Civil Contingencies response scheme.
Self help	**Green**	11/12 11/13	**Everyone is responsible for protecting themselves and their property from flooding.** Property and business owners can take simple steps to reduce damage and disruption to their homes and businesses should flooding happen. This includes preparing a flood plan and flood kit, installing property level protection, signing up to Floodline and Resilient Communities initiatives, and ensuring that properties and businesses are insured against flood damage.	2015	2022	ERC are about to engage a new Digital Platform primarily for external users to access ERC IT and website. The SWMP section of the website will be updated accordingly. This will include sections on self help and links to Floodline.
Maintenance	**Green**	11/12 11/13	Local authorities have a duty to assess watercourses and carry out clearance and repair works where such works would substantially reduce flood risk. Local authority schedules of clearance and repair work are available for public inspection – see Annex 4. Scottish Water undertakes risk-based inspection, maintenance and repair on the public sewer network. Asset owners and riparian landowners are responsible for the maintenance and management of their own assets including those which help to reduce flood risk.	2015	2022	ERC currently inspect and report the condition of watercourses within the council boundary. A programme of clearance works is then produced and implemented as budgetary constraints allow.

Summary of progress of PVA-wide actions to manage flood risk for East Renfrewshire Council						
Action	**Status**	**PVA**	**Description**	**Start**	**End**	**Progress**
Planning policies	**Green**	11/12 11/13	Scottish Planning Policy and accompanying Planning Advice Notes set out Scottish Ministers' priorities for the operation of the planning system and for the development and use of land. In terms of flood risk management, the policy supports a catchment-scale approach to sustainable flood risk management and aims to build the resilience of our cities and towns, encourage sustainable land management in our rural areas, and to address the long-term vulnerability of parts of our coasts and islands. Under this approach, new development in areas with medium to high likelihood of flooding should be avoided. For further information on the application of national planning policies see Annex 2 and Annex 5.	2015	2022	Sept. 2018: ERC are about to engage a new Digital Platform primarily for external users to access ERC IT and website. The SWMP section of the website will be updated accordingly.

4.2.4 Glasgow City Council actions

Summary of progress of PVA-wide actions to manage flood risk for Glasgow City Council						
Action	**Status**	**PVA**	**Description**	**Start**	**End**	**Progress**
Awareness raising	**Green**	11/04 11/05 11/13 11/14 11/15 11/16 11/17/1	SEPA and responsible authorities have a duty to raise public awareness of flood risk. Improved awareness of flood risk and actions that prepare individuals, homes and businesses for flooding can reduce the overall impact. From 2016 SEPA will engage with the community and promote Floodline. Local authorities will be undertaking additional awareness raising activities linked to Potentially Vulnerable Area specific Actions. Scottish Water will keep responsible authorities informed of its awareness raising activities through the Local Plan District partnerships.	2015	2022	GCC undertook an awareness raising campaign in each of the PVAs to consult on the LFRMP. We have also consulted on project related actions further raising awareness in communities. GCC supports Scottish Water and SEPA in their efforts to raise public awareness of flood risk. GCC through the MGSDP website and newsletter also raise awareness. GCC spent some time in local schools prior to the works commencing at the White Cart.
Emergency plans / response	**Green**	11/04 11/05 11/13 11/14 11/15 11/16 11/17/1	Providing an emergency response to flooding is the responsibility of many organisations, including local authorities, the emergency services and SEPA. Effective management of an emergency response relies on emergency plans that are prepared under the Civil Contingencies Act 2004 by Category 1 and 2 Responders. The emergency response by these organisations is co-ordinated through regional and local resilience partnerships. This response may be supported by the work of voluntary organisations.	2015	2022	GCC has an Emergency Response Team who have been briefed on the progress made under the FRM(S) Act. Procedures are in place for any emergency eventuality.
Self help	**Green**	11/04 11/05 11/13 11/14 11/15 11/16 11/17/1	**Everyone is responsible for protecting themselves and their property from flooding.** Property and business owners can take simple steps to reduce damage and disruption to their homes and businesses should flooding happen. This includes preparing a flood plan and flood kit, installing property level protection, signing up to Floodline and Resilient Communities initiatives, and ensuring that properties and businesses are insured against flood damage.	2015	2022	GCC are supportive of self help and aspire to install water butts / raingardens in SWMP areas. This is in its early stages.
Maintenance	**Green**	11/04 11/05 11/13 11/14 11/15 11/16 11/17/1	Local authorities have a duty to assess watercourses and carry out clearance and repair works where such works would substantially reduce flood risk. Local authority schedules of clearance and repair work are available for public inspection – see Annex 4. Scottish Water undertakes risk-based inspection, maintenance and repair on the public sewer network. Asset owners and riparian landowners are responsible for the maintenance and management of their own assets including those which help to reduce flood risk.	2015	2022	GCC regularly carry out maintenance on our watercourses. We also have cleaning and emergency procedures which are adopted on receipt of flood warnings. GCC are undertaking an "At Risk Culvert Strategy" this looks to assess certain culverts known to be in a state of disrepair either in terms of structural condition or siltation.

Summary of progress of PVA-wide actions to manage flood risk for Glasgow City Council						
Action	**Status**	**PVA**	**Description**	**Start**	**End**	**Progress**
Planning policies	**Green**	11/04 11/05 11/13 11/14 11/15 11/16 11/17/1	Scottish Planning Policy and accompanying Planning Advice Notes set out Scottish Ministers' priorities for the operation of the planning system and for the development and use of land. In terms of flood risk management, the policy supports a catchment-scale approach to sustainable flood risk management and aims to build the resilience of our cities and towns, encourage sustainable land management in our rural areas, and to address the long-term vulnerability of parts of our coasts and islands. Under this approach, new development in areas with medium to high likelihood of flooding should be avoided. For further information on the application of national planning policies see Annex 2 and Annex 5.	2015	2022	The GCC FRM Team are consulted with respect to planning matters for residential sites over 5 properties and industrial / commercial sites. Flood Risk Assessments (or statements) are mandatory for all new planning applications. Any discharges into a watercourse require to be accompanied by a drainage impact assessment. These assessments require to be self-certified, independently checked and Professional Indemnity Insurance provided.

4.2.5 Inverclyde Council actions

Summary of progress of PVA-wide actions to manage flood risk for Inverclyde Council						
Action	**Status**	**PVA**	**Description**	**Start**	**End**	**Progress**
Awareness raising	**Green**	11/08 11/09 11/11 11/21C	SEPA and responsible authorities have a duty to raise public awareness of flood risk. Improved awareness of flood risk and actions that prepare individuals, homes and businesses for flooding can reduce the overall impact. From 2016 SEPA will engage with the community and promote Floodline. Local authorities will be undertaking additional awareness raising activities linked to Potentially Vulnerable Area specific Actions. Scottish Water will keep responsible authorities informed of its awareness raising activities through the Local Plan District partnerships.	2015	2022	Continue to raise awareness
Emergency plans / response	**Green**	11/08 11/09 11/11 11/21C	Providing an emergency response to flooding is the responsibility of many organisations, including local authorities, the emergency services and SEPA. Effective management of an emergency response relies on emergency plans that are prepared under the Civil Contingencies Act 2004 by Category 1 and 2 Responders. The emergency response by these organisations is co-ordinated through regional and local resilience partnerships. This response may be supported by the work of voluntary organisations.	2015	2022	Ongoing
Self help	**Green**	11/081 11/09 11/11 11/21C	**Everyone is responsible for protecting themselves and their property from flooding.** Property and business owners can take simple steps to reduce damage and disruption to their homes and businesses should flooding happen. This includes preparing a flood plan and flood kit, installing property level protection, signing up to Floodline and Resilient Communities initiatives, and ensuring that properties and businesses are insured against flood damage.	2015	2022	Inverclyde Council have supplied to local businesses in a flood risk area flood gates to protect their businesses
Maintenance	**Green**	11/08 11/09 11/11 11/21C	Local authorities have a duty to assess watercourses and carry out clearance and repair works where such works would substantially reduce flood risk. Local authority schedules of clearance and repair work are available for public inspection – see Annex 4. Scottish Water undertakes risk-based inspection, maintenance and repair on the public sewer network. Asset owners and riparian landowners are responsible for the maintenance and management of their own assets including those which help to reduce flood risk.	2015	2022	Undertaking a walk over of all the watercourses in Inverclyde. Grilles are inspected and cleared once a month and prior to flooding events. Automatic trash screens have been installed at 5 locations to prevent blockages

Summary of progress of PVA-wide actions to manage flood risk for Inverclyde Council						
Action	**Status**	**PVA**	**Description**	**Start**	**End**	**Progress**
Planning policies	**Green**	11/08 11/09 11/11 11/21C	Scottish Planning Policy and accompanying Planning Advice Notes set out Scottish Ministers' priorities for the operation of the planning system and for the development and use of land. In terms of flood risk management, the policy supports a catchment-scale approach to sustainable flood risk management and aims to build the resilience of our cities and towns, encourage sustainable land management in our rural areas, and to address the long-term vulnerability of parts of our coasts and islands. Under this approach, new development in areas with medium to high likelihood of flooding should be avoided. For further information on the application of national planning policies see Annex 2 and Annex 5.	2015	2022	December 2015: Inverclyde Council approved a Planning Guidance Document to assist developers to produce FRA's and Drainage Impact Assessments to reduce the amount of flooding which affects new developments.

4.2.6 North Lanarkshire Council actions

Summary of progress of PVA-wide actions to manage flood risk for North Lanarkshire Council						
Action	**Status**	**PVA**	**Description**	**Start**	**End**	**Progress**
Awareness raising	**Green**	11/04 11/15 11/17/1 11/17/2 11/17/3 11/18 11/19 11/20	SEPA and responsible authorities have a duty to raise public awareness of flood risk. Improved awareness of flood risk and actions that prepare individuals, homes and businesses for flooding can reduce the overall impact. From 2016 SEPA will engage with the community and promote Floodline. Local authorities will be undertaking additional awareness raising activities linked to Potentially Vulnerable Area specific Actions. Scottish Water will keep responsible authorities informed of its awareness raising activities through the Local Plan District partnerships.	2015	2022	NLC website Flooding page provides links to a number of agency guidance information including the Scottish Flood Forum, Scottish Water, Scottish Environmental Protection Agency and the Scottish Government.
Emergency plans / response	**Green**	11/04 11/15 11/17/1 11/17/2 11/17/3 11/18 11/19 11/20	Providing an emergency response to flooding is the responsibility of many organisations, including local authorities, the emergency services and SEPA. Effective management of an emergency response relies on emergency plans that are prepared under the Civil Contingencies Act 2004 by Category 1 and 2 Responders. The emergency response by these organisations is co-ordinated through regional and local resilience partnerships. This response may be supported by the work of voluntary organisations.	2015	2022	The NLC Contingency Planning Unit plans and exercises with other organisations under the principles of Integrated Emergency Management to deal with the effects of an emergency, irrespective of the cause.
Self help	**Green**	11/04 11/15 11/17/1 11/17/2 11/17/3 11/18 11/19 11/20	**Everyone is responsible for protecting themselves and their property from flooding.** Property and business owners can take simple steps to reduce damage and disruption to their homes and businesses should flooding happen. This includes preparing a flood plan and flood kit, installing property level protection, signing up to Floodline and Resilient Communities initiatives, and ensuring that properties and businesses are insured against flood damage.	2015	2022	NLC website Flooding page provides links to a number of agency guidance information including the Scottish Flood Forum, Scottish Water, Scottish Environmental Protection Agency and the Scottish Government.
Maintenance	**Green**	11/04 11/15 11/17/1 11/17/2 11/17/3 11/18 11/19 11/20	Local authorities have a duty to assess watercourses and carry out clearance and repair works where such works would substantially reduce flood risk. Local authority schedules of clearance and repair work are available for public inspection – see Annex 4. Scottish Water undertakes risk-based inspection, maintenance and repair on the public sewer network. Asset owners and riparian landowners are responsible for the maintenance and management of their own assets including those which help to reduce flood risk.	2015	2022	Schedule of clearance and repair in place. Annual summer and winter maintenance contracts issued Programme to install improved access routes to culvert sites.

Summary of progress of PVA-wide actions to manage flood risk for North Lanarkshire Council						
Action	**Status**	**PVA**	**Description**	**Start**	**End**	**Progress**
Planning policies	**Green**	11/04 11/15 11/17/1 11/17/2 11/17/3 11/18 11/19 11/20	Scottish Planning Policy and accompanying Planning Advice Notes set out Scottish Ministers' priorities for the operation of the planning system and for the development and use of land. In terms of flood risk management, the policy supports a catchment-scale approach to sustainable flood risk management and aims to build the resilience of our cities and towns, encourage sustainable land management in our rural areas, and to address the long-term vulnerability of parts of our coasts and islands. Under this approach, new development in areas with medium to high likelihood of flooding should be avoided. For further information on the application of national planning policies see Annex 2 and Annex 5.	2015	2022	NLC are in the final stages of preparing the first North Lanarkshire Local Development Plan (The Plan). Once Adopted it will replace the North Lanarkshire Local Plan. It will guide the outcome of every Planning Application following its Adoption. The Plan lays out in detail what we can change and what we can't to our spaces and places. It provides guidance about where we should locate new homes, places of work, transport, community facilities etc.

4.2.7 Renfrewshire Council actions

Summary of progress of PVA-wide actions to manage flood risk for Renfrewshire Council						
Action	**Status**	**PVA**	**Description**	**Start**	**End**	**Progress**
Awareness raising	**Green**	11/09 11/10 11/11 11/12 11/13 11/21C	SEPA and responsible authorities have a duty to raise public awareness of flood risk. Improved awareness of flood risk and actions that prepare individuals, homes and businesses for flooding can reduce the overall impact. From 2016 SEPA will engage with the community and promote Floodline. Local authorities will be undertaking additional awareness raising activities linked to Potentially Vulnerable Area specific Actions. Scottish Water will keep responsible authorities informed of its awareness raising activities through the Local Plan District partnerships.	2015	2022	Council web site raises awareness of flood risk and management
Emergency plans / response	**Green**	11/09 11/10 11/11 11/12 11/13 11/21C	Providing an emergency response to flooding is the responsibility of many organisations, including local authorities, the emergency services and SEPA. Effective management of an emergency response relies on emergency plans that are prepared under the Civil Contingencies Act 2004 by Category 1 and 2 Responders. The emergency response by these organisations is co-ordinated through regional and local resilience partnerships. This response may be supported by the work of voluntary organisations.	2015	2022	Flood Response Plan in place
Self help	**Green**	11/09 11/10 11/11 11/12 11/13 11/21C	**Everyone is responsible for protecting themselves and their property from flooding.** Property and business owners can take simple steps to reduce damage and disruption to their homes and businesses should flooding happen. This includes preparing a flood plan and flood kit, installing property level protection, signing up to Floodline and Resilient Communities initiatives, and ensuring that properties and businesses are insured against flood damage.	2015	2022	Council web site and all relevant correspondence refers to the need for self help
Maintenance	**Green**	11/09 11/10 11/11 11/12 11/13 11/21C	Local authorities have a duty to assess watercourses and carry out clearance and repair works where such works would substantially reduce flood risk. Local authority schedules of clearance and repair work are available for public inspection – see Annex 4. Scottish Water undertakes risk-based inspection, maintenance and repair on the public sewer network. Asset owners and riparian landowners are responsible for the maintenance and management of their own assets including those which help to reduce flood risk.	2015	2022	Ongoing compliance

Summary of progress of PVA-wide actions to manage flood risk for Renfrewshire Council						
Action	**Status**	**PVA**	**Description**	**Start**	**End**	**Progress**
Planning policies	**Green**	11/09 11/10 11/11 11/12 11/13 11/21C	Scottish Planning Policy and accompanying Planning Advice Notes set out Scottish Ministers' priorities for the operation of the planning system and for the development and use of land. In terms of flood risk management, the policy supports a catchment-scale approach to sustainable flood risk management and aims to build the resilience of our cities and towns, encourage sustainable land management in our rural areas, and to address the long-term vulnerability of parts of our coasts and islands. Under this approach, new development in areas with medium to high likelihood of flooding should be avoided. For further information on the application of national planning policies see Annex 2 and Annex 5.	2015	2022	Strategic Flood Risk Assessment undertaken to support approved local development plan. Supplementary Planning Guidance for flood risk management and drainage in place for development management. MGSDP principles integral to all planning application flood management planning application decision notices.

4.2.8 South Lanarkshire Council actions

Summary of progress of PVA-wide actions to manage flood risk for South Lanarkshire Council						
Action	**Status**	**PVA**	**Description**	**Start**	**End**	**Progress**
Awareness raising	**Green**	11/13 11/14 11/17/1 11/17/2	SEPA and responsible authorities have a duty to raise public awareness of flood risk. Improved awareness of flood risk and actions that prepare individuals, homes and businesses for flooding can reduce the overall impact. From 2016 SEPA will engage with the community and promote Floodline. Local authorities will be undertaking additional awareness raising activities linked to Potentially Vulnerable Area specific Actions. Scottish Water will keep responsible authorities informed of its awareness raising activities through the Local Plan District partnerships.	2015	2022	SLC continue to work alongside Scottish Water and SEPA to raise public awareness of flood risk. SLC's annual Winter Awareness Campaign includes information on flooding and is cascaded to staff and the public via the Council's social media accounts.
Emergency plans / response	**Green**	11/13 11/14 11/17/1 11/17/2	Providing an emergency response to flooding is the responsibility of many organisations, including local authorities, the emergency services and SEPA. Effective management of an emergency response relies on emergency plans that are prepared under the Civil Contingencies Act 2004 by Category 1 and 2 Responders. The emergency response by these organisations is co-ordinated through regional and local resilience partnerships. This response may be supported by the work of voluntary organisations.	2015	2022	SLC is a Category 1 responder who works on a day-to-day basis with emergency services including Police, Fire and the NHS to ensure the safety and wellbeing of our communities during emergencies. The Council's Flood Risk Management Team are represented on the Council's Emergency Management Team, led by the Contingency Planning Officer.
Self help	**Green**	11/13 11/14 11/17/1 11/17/2	**Everyone is responsible for protecting themselves and their property from flooding.** Property and business owners can take simple steps to reduce damage and disruption to their homes and businesses should flooding happen. This includes preparing a flood plan and flood kit, installing property level protection, signing up to Floodline and Resilient Communities initiatives, and ensuring that properties and businesses are insured against flood damage.	2015	2022	SLC provide advice to those affected by flooding with regards to available property level flood protection products, techniques and potential funding opportunities to reduce flood risk. SLC has continued to offer advice and will work with Scottish Flood Forum in relation to Self Help requests from those affected by flooding.
Maintenance	**Green**	11/13 11/14 11/17/1 11/17/2	Local authorities have a duty to assess watercourses and carry out clearance and repair works where such works would substantially reduce flood risk. Local authority schedules of clearance and repair work are available for public inspection – see Annex 4. Scottish Water undertakes risk-based inspection, maintenance and repair on the public sewer network. Asset owners and riparian landowners are responsible for the maintenance and management of their own assets including those which help to reduce flood risk.	2015	2022	SLC undertake regular assessment and clearance of watercourses in our area. To monitor the water levels and debris accumulations at our most at-risk flood locations, a network of watercourse telemetry equipment is maintained to provide real-time flood warnings.

Summary of progress of PVA-wide actions to manage flood risk for South Lanarkshire Council						
Action	**Status**	**PVA**	**Description**	**Start**	**End**	**Progress**
Planning policies	**Green**	11/13 11/14 11/17/1 11/17/2	Scottish Planning Policy and accompanying Planning Advice Notes set out Scottish Ministers' priorities for the operation of the planning system and for the development and use of land. In terms of flood risk management, the policy supports a catchment-scale approach to sustainable flood risk management and aims to build the resilience of our cities and towns, encourage sustainable land management in our rural areas, and to address the long-term vulnerability of parts of our coasts and islands. Under this approach, new development in areas with medium to high likelihood of flooding should be avoided. For further information on the application of national planning policies see Annex 2 and Annex 5.	2015	2022	The Council's Flood Risk Management team are consulted regularly to review planning applications in relation to flood risk. The Council's Local Development Plan also outlines the Council's flood risk requirements for proposed developments.

4.2.9 Stirling Council actions

Summary of progress of PVA-wide actions to manage flood risk for Stirling Council						
Action	**Status**	**PVA**	**Description**	**Start**	**End**	**Progress**
Awareness raising	**Green**	11/01 11/03 11/04	SEPA and responsible authorities have a duty to raise public awareness of flood risk. Improved awareness of flood risk and actions that prepare individuals, homes and businesses for flooding can reduce the overall impact. From 2016 SEPA will engage with the community and promote Floodline. Local authorities will be undertaking additional awareness raising activities linked to Potentially Vulnerable Area specific Actions. Scottish Water will keep responsible authorities informed of its awareness raising activities through the Local Plan District partnerships.	2015	2022	Stirling Council use SEPA's flood alerts to deliver targeted flood awareness information. The Council are developing an annual programme of attending local events to deliver awareness raising objectives. Stirling Council also works with the Scottish Fire and Rescue Service to deliver joint flooding messages at annual fire station open days.
Emergency plans / response	**Green**	11/01 11/03 11/04	Providing an emergency response to flooding is the responsibility of many organisations, including local authorities, the emergency services and SEPA. Effective management of an emergency response relies on emergency plans that are prepared under the Civil Contingencies Act 2004 by Category 1 and 2 Responders. The emergency response by these organisations is co-ordinated through regional and local resilience partnerships. This response may be supported by the work of voluntary organisations.	2015	2022	Stirling Council have been working with the Scottish Fire and Rescue service, SEPA and Clackmannanshire council to develop joint flood response proposals both preventative and once civil contingencies are enacted.
Self help	**Green**	11/01 11/03 11/04	**Everyone is responsible for protecting themselves and their property from flooding.** Property and business owners can take simple steps to reduce damage and disruption to their homes and businesses should flooding happen. This includes preparing a flood plan and flood kit, installing property level protection, signing up to Floodline and Resilient Communities initiatives, and ensuring that properties and businesses are insured against flood damage.	2015	2022	Stirling Council's Resilience team are able to work with communities to develop community resilience plans. If a resilience group exists Stirling Council have committed to providing a flood pod as part of flood prevention, where materials can be stored and distributed. Stirling Council's flood team, in conjunction with the resilience team, host annual online information sessions on resilience groups.

Summary of progress of PVA-wide actions to manage flood risk for Stirling Council						
Action	**Status**	**PVA**	**Description**	**Start**	**End**	**Progress**
Maintenance	**Green**	11/01 11/03 11/04	Local authorities have a duty to assess watercourses and carry out clearance and repair works where such works would substantially reduce flood risk. Local authority schedules of clearance and repair work are available for public inspection – see Annex 4. Scottish Water undertakes risk-based inspection, maintenance and repair on the public sewer network. Asset owners and riparian landowners are responsible for the maintenance and management of their own assets including those which help to reduce flood risk.	2015	2022	Stirling Council has a successful watercourse inspection regime in place which uses a risk based approach. Where the problems reside in private property, Stirling Council notifies landowners of their riparian responsibilities. Landowners will be sent a letter and informed of the need to undertake works, grading and risk assessments of identified obstructions within a watercourse. If the flood risk will affect any roads, an enforcement letter can be issued under the Roads Scotland Act 1984. Stirling Council also has a regular maintenance regime in place where key hot spot locations of assets such as grilles or inlets have been identified, and are inspected on a regular frequency. This work is carried out by contractors and managed by Stirling Council's flood team. Any additional works identified are added to a schedule of works and prioritised based on risk and the available budget.
Planning policies	**Green**	11/01 11/03 11/04	Scottish Planning Policy and accompanying Planning Advice Notes set out Scottish Ministers' priorities for the operation of the planning system and for the development and use of land. In terms of flood risk management, the policy supports a catchment-scale approach to sustainable flood risk management and aims to build the resilience of our cities and towns, encourage sustainable land management in our rural areas, and to address the long-term vulnerability of parts of our coasts and islands. Under this approach, new development in areas with medium to high likelihood of flooding should be avoided. For further information on the application of national planning policies see Annex 2 and Annex 5.	2015	2022	Within Stirling Council, flood risk information, including the local flood risk management plan, feed into the local development plan. Planning authorities are kept informed of new developments internally through flooding teams and through attendance of local advisory group meetings. Stirling Council and Loch Lomond & Trossachs National Park have a number of flooding policies in their local development plans which are used by development management during the assessment of planning applications. Their usage is being monitored as part of the monitoring of the Local Development Plans.

4.2.10 West Dunbartonshire Council actions

Summary of progress of PVA-wide actions to manage flood risk for West Dunbartonshire Council						
Action	**Status**	**PVA**	**Description**	**Start**	**End**	**Progress**
Awareness raising	**Green**	11/01 11/04 11/05	SEPA and responsible authorities have a duty to raise public awareness of flood risk. Improved awareness of flood risk and actions that prepare individuals, homes and businesses for flooding can reduce the overall impact. From 2016 SEPA will engage with the community and promote Floodline. Local authorities will be undertaking additional awareness raising activities linked to Potentially Vulnerable Area specific Actions. Scottish Water will keep responsible authorities informed of its awareness raising activities through the Local Plan District partnerships.	2015	2022	High Risk properties notified of risk in 2012. Flood Awareness sessions for residents of Dumbarton Central, East and other areas identified as being high risk.
Emergency plans / response	**Green**	11/01 11/04 11/05	Providing an emergency response to flooding is the responsibility of many organisations, including local authorities, the emergency services and SEPA. Effective management of an emergency response relies on emergency plans that are prepared under the Civil Contingencies Act 2004 by Category 1 and 2 Responders. The emergency response by these organisations is co-ordinated through regional and local resilience partnerships. This response may be supported by the work of voluntary organisations.	2015	2022	West Dunbartonshire Council in collaboration with Inverclyde, Renfrewshire & East Renfrewshire Councils have a shared Civil Contingencies Service to provide a Civil Contingencies response for all 4 local authority areas.
Self help	**Green**	11/01 11/04 11/05	**Everyone is responsible for protecting themselves and their property from flooding.** Property and business owners can take simple steps to reduce damage and disruption to their homes and businesses should flooding happen. This includes preparing a flood plan and flood kit, installing property level protection, signing up to Floodline and Resilient Communities initiatives, and ensuring that properties and businesses are insured against flood damage.	2015	2022	West Dunbartonshire Council offer a Flood Subsidy Scheme to assist Residents and Businesses at risk in Property Level Protection.
Maintenance	**Green**	11/01 11/04 11/05	Local authorities have a duty to assess watercourses and carry out clearance and repair works where such works would substantially reduce flood risk. Local authority schedules of clearance and repair work are available for public inspection – see Annex 4. Scottish Water undertakes risk-based inspection, maintenance and repair on the public sewer network. Asset owners and riparian landowners are responsible for the maintenance and management of their own assets including those which help to reduce flood risk.	2015	2022	Annual inspections of urban watercourses ongoing. Cyclical inspection of rural watercourses.

Summary of progress of PVA-wide actions to manage flood risk for West Dunbartonshire Council						
Action	**Status**	**PVA**	**Description**	**Start**	**End**	**Progress**
Planning policies	**Green**	11/01 11/04 11/05	Scottish Planning Policy and accompanying Planning Advice Notes set out Scottish Ministers' priorities for the operation of the planning system and for the development and use of land. In terms of flood risk management, the policy supports a catchment-scale approach to sustainable flood risk management and aims to build the resilience of our cities and towns, encourage sustainable land management in our rural areas, and to address the long-term vulnerability of parts of our coasts and islands. Under this approach, new development in areas with medium to high likelihood of flooding should be avoided. For further information on the application of national planning policies see Annex 2 and Annex 5.	2015	2022	Current Local Development Plan has a flooding policy compliant with Scottish Planning Policy.

4.2.11 SEPA actions

Summary of progress of PVA-wide actions to manage flood risk for SEPA						
Action	**Status**	**PVA**	**Description**	**Start**	**End**	**Progress**
Awareness raising	**Green**	All	SEPA and the responsible authorities have a duty to raise public awareness of flood risk. Improved awareness of flood risk and actions that prepare individuals, homes and businesses for flooding can reduce the overall impact. Local authorities will be undertaking additional awareness raising activities, further details will be set out in the Local FRM Plans.	2015	2022	SEPA continued to raise awareness of flood risk through campaigning, developing education and engagement tools, creating new partnerships and improving the flood warning and forecasting service. Many of SEPA's awareness raising activities will continue. The focus will be on promoting flood warning and forecasting service, innovation, education and engagement with partners, customers and the public.
Flood forecasting	**Green**	All	The Scottish Flood Forecasting Service is a joint initiative between SEPA and the Met Office that produces daily, national flood guidance statements which are issued to Category 1 and 2 Responders. The service also provides information which allows SEPA to issue flood warnings, giving people a better chance of reducing the impact of flooding on their home or business. For more information please visit SEPA's website.	2015	2022	SEPA continues to improve the Scottish Flood Forecasting Service with the Met Office, with daily Flood Guidance Statements and regional Flood Alerts issued as required to enable communities and responders to reduce the impacts of flooding. SEPA in partnership with the Met Office has developed a public version of the daily Flood Guidance Statement, the Scottish Flood Forecast, to provide better and earlier information to the public. A beta version of this product was launched in May 2022. It will be refined in the wake of user feedback. A more focussed version of the product, producing guidance at a local level, is planned for the next flood risk management cycle. Options for developing forecasts of surface water flooding have been published in 2022 to help urban areas and the transport network improve their resilience to and preparedness for flooding. The development and wider roll-out of this service is being considered alongside the technical, resource and communication challenges associated with providing surface water flooding guidance.

Summary of progress of PVA-wide actions to manage flood risk for SEPA						
Action	**Status**	**PVA**	**Description**	**Start**	**End**	**Progress**
Planning Policy	**Green**	All	Scottish Planning Policy and accompanying Planning Advice Notes set out Scottish Ministers' priorities for the operation of the planning system and for the development and use of land. In terms of flood risk management, the policy supports a catchmentscale approach to sustainable flood risk management and aims to build the resilience of our cities and towns, encourage sustainable land management in our rural areas, and to address the longterm vulnerability of parts of our coasts and islands. Under this approach, new development in areas with medium to high likelihood of flooding should be avoided. For further information on the application of national planning policies see Annex 2.			SEPA continues to exercise its planning functions with a view to reducing overall flood risk. We effectively contribute to the delivery of sustainable flood risk management and we support the delivery of FRM Plans and Local FRM Plans. In line with the management actions that accord with national planning policies, we have and will continue to object to development at medium to high risk of flooding when it is contrary to the risk framework set out in Scottish Planning Policy. We have and will continue to engage from the start of the development plan process and encourage planning authorities to undertake a Strategic Flood Risk Assessment to inform their spatial strategy. We remain committed to exercising our planning functions with a view to reducing overall flood risk and are taking the same approach under the National Planning Framework 4.
Strategic mapping and modelling (surface water)	**Amber**	All	SEPA will be seeking to incorporate additional surface water hazard mapping information into the flood maps to improve understanding of flood risk. Approximately 2,100km² of improved data is currently available within this Local Plan District.		2023	SEPA's current Surface water hazard maps use design rainfall estimates based on FEH99 methodology, this has now been superseded by FEH22 methodology. The FEH22 dataset contains the latest science and understanding of rainfall across Scotland and represents a significant change in rainfall amounts compared to FEH99 dataset, as such it is no longer consider appropriate to deliver this action as originally intended. This action will not be taken forwards as described. A major national update of the surface water maps is underway which will deliver updated surface water flooding maps for Scotland representing the latest scientific understanding.

5 Progress with PVA-specific Actions

This chapter is focused on the actions being taken to manage flood risk in the Potentially Vulnerable Areas. For each Potentially Vulnerable Area, background information including a summary of flood impacts and the actions to manage flooding is presented. Additional information on flooding within each Potentially Vulnerable Area is available within the Clyde and Loch Lomond Flood Risk Management Strategy, available on the SEPA website here - http://apps.sepa.org.uk/FRMStrategies/

The background information sets the scene for the planned actions to manage flooding that have been prioritised for delivery between 2016 and 2022. The Potentially Vulnerable Area level action tables set out the flood management objective that is to be achieved, provide a description of the action, identify who will be responsible for the delivery and implementation and a timetable of when the actions will be undertaken. The Local Plan District wide actions noted in Section 4 apply to all Potentially Vulnerable Areas.

This information is provided for each of the 22 Potentially Vulnerable Areas and the one candidate Potentially Vulnerable Area within the Clyde and Loch Lomond Local Plan District. Each Potentially Vulnerable Area has a separate sub-section with each sub-section following the same format.

The flood management objectives are the shared aims for managing flooding. Actions describe where and how flood risk will be managed. Objectives and actions have been set by SEPA and agreed by the flood risk management responsible authorities following consultation.

Many organisations, such as Scottish Water and energy companies, actively maintain and manage their own assets including the risk from flooding. Where known, these actions are described here. NatureScot and Historic Environment Scotland work with site owners to manage flooding where appropriate at designated environmental and/or cultural heritage sites. These actions are not detailed further in the Local Flood Risk Management Plan.

5.1 North of the Clyde and Loch Lomond Plan District (PVA 11/01)

Local Plan District	Local authority	Main catchment
Clyde and Loch Lomond	Argyll and Bute Council, Stirling Council, West Dunbartonshire Council	Loch Lomond

Summary of Progress for Loch Lomond and Vale of Leven (PVA 11/01)



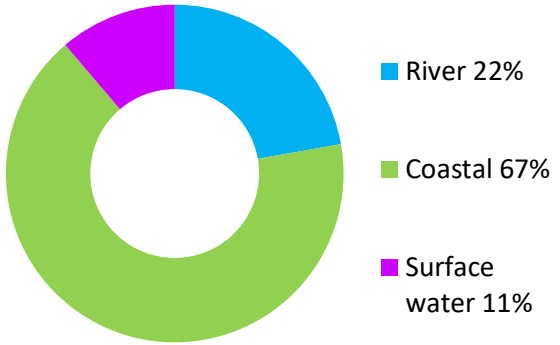
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The area has a risk of river, surface water and coastal flooding. The majority of damages are caused by coastal flooding. There are approximately 3,300 residential properties and 790 non-residential properties at risk of flooding. The Annual Average Damages are approximately £17 million. Further information can be found in the LFRMP under PVA 11/01.

Link to LFRMP PVA 11/01

Key progress:

- Gruggies Burn Flood Prevention Scheme has progressed to detailed design stage.
- A new flood warning service has been developed for Loch Lomond.



Annual Average Damages by flood source

Overview of actions to manage flooding in PVA 11/01

PVA	Flood protection scheme/works	Natural flood management works	New flood warning	Community flood action groups	Property level protection scheme	Site protection plans	Flood protection study	Natural flood management study	Maintain flood warning	Awareness raising	Surface water plan/study	Emergency plans/response	Maintain flood protection scheme	Strategic mapping and modelling	Flood forecasting	Self help	Maintenance	Planning policies
11/01	G	G	G				G	A	G	G	A	G	G	G	G	G	G	G

Summary of progress of actions to manage flood risk in PVA 11/01						
Action	**Status**	**Description**	**Lead Authority**	**Start Date**	**Finish Date**	**Progress**
Flood protection scheme/ works	**Green**	Reduce the risk of disruption along the A82 due to flooding	TS	2016	2021	Transport Scotland have completed a range of maintenance, scoping, and design works at these locations as part of our 2016 to 2021 FRMA obligations, with further works planned for 2023 as part of our Vulnerable Locations pilot adaptation programme, and our general maintenance programme.
Flood protection scheme/ works	**Green**	The Council is undertaking preparation work on the proposed flood protection scheme for Gruggies Burn. Further design work is required to refine the preferred option for the scheme, which at present is to maximise upstream flood storage and construct defences from Hunter's Burn to Castle Street, and downstream of Castlegreen Street to address coastal flooding. In addition to these actions the use of property level protection within the scheme will be investigated. SEPA will review the study outputs for possible inclusion to the Flood Maps.	WDC	2014	2019	Gruggies Flood Alleviation Scheme is currently at the detailed design stage.
Natural flood management works	**Green**	The Council plans to undertake native woodland planting in the upper Gruggies Burn catchment to slow runoff to Dumbarton. The Council also plans to investigate other locations with the potential for runoff control which have also been identified in the strategic assessment of this area.	WDC	2013	2015	Completed
New flood warning	**Green**	Continue with the development of the River Leven and Loch Lomond flood warning scheme. This will provide warnings to properties at risk between Loch Lomond and Dumbarton Common with the main centres of risk found at Balloch and Alexandria.	SEPA	2016	2017	SEPA has continued to operate the flood warning service since it was completed earlier in the FRM cycle.

Summary of progress of actions to manage flood risk in PVA 11/01						
Action	**Status**	**Description**	**Lead Authority**	**Start Date**	**Finish Date**	**Progress**
Flood protection study	**Green**	The Council plans to undertake a study to further investigate the feasibility of a flood protection scheme to reduce river and coastal risk along the River Leven. This will build on previous studies to examine the potential benefits of a new canal, sediment management including the erosion of banks, the potential to set back existing embankments and new direct defences along the River Leven. In addition to this the potential to increase flood storage within Loch Lomond, while remaining within the current operating limits of the barrage, will be investigated. The study will initially look to establish a technical grounding to any potential benefit of additional storage within Loch Lomond. If there is an identified benefit from this action, a second stage of work will be undertaken. The second stage of work will focus on engaging with interested stakeholders to establish the feasibility and restrictions to taking forward this action.	WDC	2018	2020	Study completed and submitted for Prioritisation before deadline date, Dec 2019.
Natural flood management study	**Amber**	Loch Lomond and The Trossachs National Park Authority plans to lead a natural flood management study, in partnership with West Dunbartonshire Council, Argyll and Bute Council and Stirling Council, to further investigate the potential benefit for runoff control in areas surrounding Loch Lomond. This study will focus on reducing runoff to the small burns that feed into Loch Lomond, which can impact some communities and transport routes.	LLTTNP	2019	2020	Finding funding to undertake this work has proved challenging with the identified partners unable to contribute to funding the work. Partnership discussions were held to identify the existing problems and scope the brief however during discussions it was clear that with constrained budgets it was lower down partner priorities in terms of funding. Despite several efforts to find suitable funding for the study no sources of funding were identified so the work has not been able to be completed during Cycle 1.

Summary of progress of actions to manage flood risk in PVA 11/01						
Action	**Status**	**Description**	**Lead Authority**	**Start Date**	**Finish Date**	**Progress**
Maintain flood warning	**Green**	Continue to maintain the Dumbarton Central, Dumbarton Common and Dumbarton East End flood warning areas which are part of the Firth of Clyde coastal flood warning scheme. When flood events occur in an area with a flood warning service, SEPA will seek to verify and validate the warning service. SEPA will use feedback and post-event data to ensure that the flood warning service is timely and accurate.	SEPA	2015	2022	SEPA has continued to operate the flood warning service.
Surface water plan/study	**Amber**	The Council plans to undertake a surface water management plan or plans that set objectives for the management of surface water flood risk and identify the most sustainable actions to achieve the objectives.	WDC	2016	2021	We are at Step 2 for Dumbarton SWMP. This is linked to Gruggies & Leven Study.
Maintain flood protection scheme	**Green**	Continue to maintain the existing flood defences along the Knowle Burn.	WDC	2015	2022	Ongoing
Strategic mapping and modelling	**Green**	Scottish Water will undertake further investigation and modelling in the Ardoch sewer catchment to improve knowledge and understanding of flood risk in this area as required under Section 16 of the Flood Risk Management (Scotland) Act 2009.	SW	2016	2020	The Scottish Water assessment of flood risk within the sewer catchment has been completed. The assessment helps to improve knowledge and understanding of surface water flood risk.

Summary of progress of actions to manage flood risk in PVA 11/01						
Action	**Status**	**Description**	**Lead Authority**	**Start Date**	**Finish Date**	**Progress**
Planning policies	**Green**	Scottish Planning Policy and accompanying Planning Advice Notes set out Scottish Ministers' priorities for the operation of the planning system and for the development and use of land. In terms of flood risk management, the policy supports a catchment-scale approach to sustainable flood risk management and aims to build the resilience of our cities and towns, encourage sustainable land management in our rural areas, and to address the long-term vulnerability of parts of our coasts and islands. Under this approach, new development in areas with medium to high likelihood of flooding should be avoided. For further information on the application of national planning policies see Annex 2 and Annex 5.	LLTTNP	2015	2022	We have a number of flooding policies in our local development plan which are used by development management during the assessment of planning applications and we are monitoring their usage as part of the monitoring of the Local Development Plan. We also have highlighted flooding constraints in our recently approved planning guidance for our development sites in Callander south

5.2 North of the Firth of Clyde (PVA 11/02)

Local Plan District	Local authority	Main catchment
Clyde and Loch Lomond	Argyll and Bute Council	Loch Long and Gare Loch

Summary of Progress for Helensburgh to Loch Long (PVA 11/02)



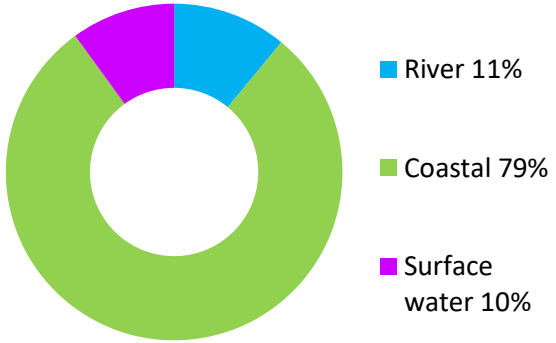
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The area has a risk of river, surface water and coastal flooding. The majority of damages are caused by coastal flooding. There are approximately 70 residential properties and 90 non-residential properties at risk of flooding. The Annual Average Damages are approximately £390,000. Further information can be found in the LFRMP under PVA 11/02.

Link to LFRMP PVA 11/02

Key progress:

- Flood study works have commenced for Helensburgh (coastal) and Kilcreggan on the Rosneath peninsula



Annual Average Damages by flood source

Overview of actions to manage flooding in PVA 11/02

PVA	Flood protection scheme/works		Natural flood management works	New flood warning	Community flood action groups	Property level protection scheme	Site protection plans	Flood protection study	Natural flood management study	Maintain flood warning	Awareness raising	Surface water plan/study	Emergency plans/response	Maintain flood protection scheme	Strategic mapping and modelling		Flood forecasting	Self help	Maintenance	Planning policies
11/02	A	G						G		G	G	G	G		A	G	G	G	G	G

Summary of progress of actions to manage flood risk in PVA 11/02						
Action	**Status**	**Description**	**Lead Authority**	**Start Date**	**Finish Date**	**Progress**
Flood protection scheme/ works	**Amber**	Argyll and Bute Council has completed a study of surface water flooding in Kilcreggan, which identified frequent surface water flooding due to runoff from the surrounding area. The Council plans to undertake further refinement of mitigation options to produce an economic appraisal of benefits from flood protection works. The preparation work will also examine the use of property level protection as a single action and in combination with other actions and the potential benefits of natural flood management for runoff control. This work is linked to the surface water management plan. The work has not been prioritised as further investigation is required to develop the work that will be carried out and to establish the benefits of the work.	ABC	2019	Ongoing	Property Flood resilience ruled out in options appraisal. Surface water drainage scheme currently at detail design stage.
Flood protection scheme/ works	**Green**	Network Rail will carry out civil engineering work which will reduce flood risk to identified sections of the rail network within this PVA, including work to Craigendoran Coastal Defence.	NR	2019	2024	Various works carried out and planned. Extensive works carried out at Shandon/ Stuckenduff (2020/21) Works carried out at Garelochead (2020/2021) Works planned at Helensburgh Central area (2024/25) Works planned High Balernock (2024/25)

Summary of progress of actions to manage flood risk in PVA 11/02						
Action	**Status**	**Description**	**Lead Authority**	**Start Date**	**Finish Date**	**Progress**
Flood protection study	**Green**	The Council plans to undertake a study to further investigate the feasibility of new and or enhanced sections of defences along the seafront of Helensburgh. This study will look to complement and enhance the proposed development along the seafront including a new swimming pool and raised car park in Helensburgh. The study will also consider the potential for natural flood management actions to help reduce coastal flooding and the maintenance of defences. Other actions may also be considered to select the most sustainable combination of actions.	ABC	2016	2022	The Helensburgh Coastal Flood Study identified various options to address coastal flooding. Short-listed options were conceptually designed enabling economic appraisal. Final options include property flood resilience and traditional flood defences with an adaptive approach to implementation. Property flood resilience is recommended in the first instance. The study was submitted to SEPA for inclusion in the national prioritisation process for flood alleviation schemes. Progression of the options will depend on ranking in the prioritisation process and subsequent funding from Scottish Government.
Maintain flood warning	**Green**	Continue to maintain the Helensburgh A814 flood warning area which is part of the Firth of Clyde coastal flood warning scheme. When flood events occur in an area with a flood warning service, SEPA will seek to verify and validate the warning service. SEPA will use feedback and post-event data to ensure that the flood warning service is timely and accurate.	SEPA	2015	2022	SEPA has continued to operate the flood warning service.
Awareness raising	**Green**	See page 32 for the LPD-wide action description.	SEPA	2015	2022	SEPA continues to work with others to raise awareness of flood risk and its flood warning service. It has participated in local activities including school / education and community resilience activities when able. Some planned activities notably in person joint events have been limited or delayed due to Covid 19.

Summary of progress of actions to manage flood risk in PVA 11/02						
Action	**Status**	**Description**	**Lead Authority**	**Start Date**	**Finish Date**	**Progress**
Surface water plan / study	**Green**	The Council plans to undertake a surface water management plan or plans that set objectives for the management of surface water flood risk and identify the most sustainable actions to achieve the objectives.	ABC	2015	2019	Three 'hotspots' in Kilcreggan considered as part of SWMP. Tigh Dearg Rd identified as potential scheme with an options appraisal identifying a surface water drain solution. SWMP submitted to SEPA in December 2019 with initial feedback that the scheme would be unlikely to figure highly in the final national prioritization list. Scheme taken forward for detail design and funded directly by ABC
Strategic mapping and modelling	**Amber**	SEPA will seek to incorporate additional surface water data into the flood maps to improve understanding of flood risk. Approximately 2,200km² of improved surface water data is currently available within this Local Plan District. The inclusion of additional surface water hazard data resulting from the completion of local authority surface water management plans and Scottish Water integrated catchment studies will be considered as these projects are completed.	SEPA	2016	2023	The national surface water flooding modelling project will be completed in 2023. The outputs from this will be used to update SEPA maps early in cycle 2 and will inform SEPA's flood risk assessments for the next flood risk management cycle.
Strategic mapping and modelling	**Green**	Scottish Water will undertake further investigation and modelling in the Helensburgh, Garelochhead, Cove & Killcreggan sewer catchments to improve knowledge and understanding of flood risk in this area as required under Section 16 of the Flood Risk Management (Scotland) Act 2009.	SW	2016	2020	Action complete. Final options include property flood resilience and traditional flood defences with an adaptive approach to implementation. Property flood resilience is recommended in the first instance.

Summary of progress of actions to manage flood risk in PVA 11/02						
Action	**Status**	**Description**	**Lead Authority**	**Start Date**	**Finish Date**	**Progress**
Planning policies	**Green**	Scottish Planning Policy and accompanying Planning Advice Notes set out Scottish Ministers' priorities for the operation of the planning system and for the development and use of land. In terms of flood risk management, the policy supports a catchment-scale approach to sustainable flood risk management and aims to build the resilience of our cities and towns, encourage sustainable land management in our rural areas, and to address the long-term vulnerability of parts of our coasts and islands. Under this approach, new development in areas with medium to high likelihood of flooding should be avoided. For further information on the application of national planning policies see Annex 2 and Annex 5.	LLTTNP	2015	2022	We have a number of flooding policies in our local development plan which are used by development management during the assessment of planning applications and we are monitoring their usage as part of the monitoring of the Local Development Plan. We also have highlighted flooding constraints in our recently approved planning guidance for our development sites in Callander south

5.3 North of Campsie Fells (PVA 11/03)

Local Plan District	Local authority	Main catchment
Clyde and Loch Lomond	East Dunbartonshire Council, Stirling Council	River Endrick (Loch Lomond)

Summary of Progress for Strathblane (PVA 11/03)



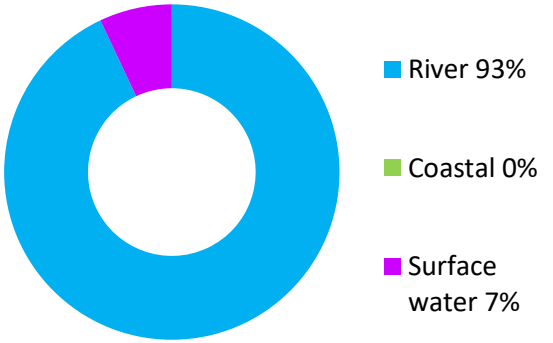
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The area has a risk of river and surface water flooding. The majority of damages are caused by river flooding. There are approximately 40 residential properties at risk of flooding. The Annual Average Damages are approximately £140,000. Further information can be found in the LFRMP under PVA 11/03.

Link to LFRMP PVA 11/03

Key progress:

- Installation of new river level monitoring equipment and cameras at Fintry and Strathblane to improve the operational response to flooding with a new Flood Pod provided to the Fintry community



Annual Average Damages by flood source

Overview of actions to manage flooding in PVA 11/03

PVA	Flood protection scheme/works	Natural flood management works	New flood warning	Community flood action groups	Property level protection scheme	Site protection plans	Flood protection study	Natural flood management study	Maintain flood warning	Awareness raising	Surface water plan/study	Emergency plans/response	Maintain flood protection scheme	Strategic mapping and modelling		Flood forecasting	Self help	Maintenance	Planning policies
11/03										G		G		A	G	G	G	G	G

Summary of progress of actions to manage flood risk in PVA 11/03						
Action	**Status**	**Description**	**Lead Authority**	**Start Date**	**Finish Date**	**Interim Progress**
Strategic mapping and modelling	**Amber**	SEPA will seek to incorporate additional surface water data into the flood maps to improve understanding of flood risk. Approximately 2,200km² of improved surface water data is currently available within this Local Plan District. The inclusion of additional surface water hazard data resulting from the completion of local authority surface water management plans and Scottish Water integrated catchment studies will be considered as these projects are completed.	SEPA	2016	2023	The national surface water flooding modelling project will be completed in 2023. The outputs from this will be used to update SEPA maps early in cycle 2 and will inform SEPA's flood risk assessments for the next flood risk management cycle.
Strategic mapping and modelling	**Green**	Scottish Water will undertake further investigation and modelling in the Balfron, Fintry and Strathblane sewer catchments to improve knowledge and understanding of flood risk in this area as required under Section 16 of the Flood Risk Management (Scotland) Act 2009.	SW	2016	202	The Scottish Water assessment of flood risk within the sewer catchment has been completed. The assessment helps to improve knowledge and understanding of surface water flood risk.

5.4 North of Glasgow City (PVA 11/04)

Local Plan District	Local authority	Main catchment
Clyde and Loch Lomond	East Dunbartonshire Council, Glasgow City Council, North Lanarkshire Council, Stirling Council, West Dunbartonshire Council	River Kelvin

Summary of Progress for Kilsyth to Bearsden (PVA 11/04)



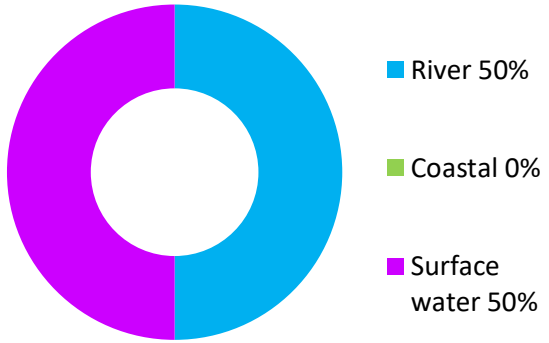
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The area has a risk of river and surface water flooding. The damages are evenly split. There are approximately 2,300 residential properties and 1,100 non-residential properties at risk of flooding. The Annual Average Damages are approximately £4.6 million. Further information can be found in the LFRMP under PVA 11/04.

Link to LFRMP PVA 11/04

Key progress:

- Surface Water Management Plans (SWMPs) for Bearsden, Bishopbriggs and Milngavie completed to feasibility stage.
- Park Burn Flood Prevention Works phase 1 is complete and work is progressing with phase 2



Annual Average Damages by flood source

Overview of actions to manage flooding in PVA 11/04

PVA	Flood protection scheme/works	Natural flood management works	New flood warning	Community flood action groups	Property level protection scheme	Site protection plans	Flood protection study		Natural flood management study		Maintain flood warning	Awareness raising	Surface water plan/study		Emergency plans/response	Maintain flood protection scheme	Strategic mapping and modelling	Flood forecasting	Self help	Maintenance	Planning policies
11/04	G			G		G	A	G	G	R	G	G	A	G	G	G	G	G	G	G	G

Summary of progress of actions to manage flood risk in PVA 11/04						
Action	**Status**	**Description**	**Lead Authority**	**Start Date**	**Finish Date**	**Progress**
Flood protection scheme/ works	**Green**	The Council plans to undertake flood protection works along the Park Burn. The potential for natural flood management actions to help reduce runoff will also be investigated. The works will include the profiling of the channel and provide scope to improve the ecology and morphology of the river in addition to the flooding benefits. It is recommended that additional property level protection options be investigated to improve the overall protection of the scheme. The flood mapping for the Park Burn should be revised to identify the areas protected by the works and any remaining residual risk now and in the future. SEPA will review the study outputs for possible inclusion in the Flood Maps.	EDC	2016	2019	Works completed.
Community flood action groups	**Green**	East Dunbartonshire Council has approached the Scottish Flood Forum for support in creating a community flood action group.	Community	2015	2022	No information available on the community group activities
Site protection plans	**Green**	A Site Protection Plan for the Kelvin Bridge Subway.	GCC	2017	2018	Contact has been established with SPT who have provided a document to GCC which is currently under review.
Flood protection study	**Green**	The Council plan to undertake a review of the outcomes of the River Kelvin study to determine the current level of flood risk in Kirkintilloch and the potential future risk with climate change. SEPA will review the study outputs for possible inclusion in the Flood Maps.	EDC	2015	2016	Action Complete.

Summary of progress of actions to manage flood risk in PVA 11/04						
Action	**Status**	**Description**	**Lead Authority**	**Start Date**	**Finish Date**	**Progress**
Flood protection study	**Green**	The Council plans to undertake a study to further investigate the feasibility of a flood protection scheme on the Allander Water in Milngavie, focusing on the construction of direct defences along with the benefits of property level protection and other actions which may enhance the level of protection offered.	EDC	2015	2019	Action Complete.
Flood protection study	**Green**	A hydraulic modelling study for the River Kelvin is being undertaken using updated hydrology and river sections to create a baseline assessment of flood risk. The Council plans to undertake a review of the outcomes of the River Kelvin study to determine the current risk in the west and north west of Glasgow and the potential future risk with climate change. SEPA will review the study outputs for possible inclusion in the Flood Maps.	GCC and EDC	2018	2020	The Flood Protection Study has now been concluded. Outputs are being reviewed to ascertain if any actions are required. The mapping is available for inclusion in the Flood Maps.
Flood protection study	**Amber**	The Council plans to undertake a study to further investigate the flood risk along the Luggie Water. As part of this study the feasibility of flood protection work in Cumbernauld will be examined, focusing on the potential to redesign the Badenheath Bridge to increase conveyance of the Luggie Water, and the benefit of direct defences along the Luggie Water. This study will consider property level protection and other complementary actions to determine the most sustainable combination of actions. North Lanarkshire Council and East Dunbartonshire Council may undertake this as a joint study to identify any further potential flood risk areas along the river.	NLC	2016	2019	Flood Protection Study Stage 1 was completed in early 2020. Stage Two comprises of the development, description and valuing of options and impact of any scheme. Stage 3 further compares and selects the most sustainable option. Before we can progress to Stage 2 a hydrological assessment and hydraulic modelling should be undertaken. NLC are liaising with EDC to part fund modelling of the Luggie Water. Delays due to resource constraints. We aim to complete this action within Cycle 2.

Summary of progress of actions to manage flood risk in PVA 11/04						
Action	**Status**	**Description**	**Lead Authority**	**Start Date**	**Finish Date**	**Progress**
Flood protection study	**Green**	A study to further investigate the feasibility of flood protection work in Kilsyth, focusing on the use of the Scottish Canals feeder as a bypass channel to divert flow from the Colzium Burn to Banton Loch for storage and increasing the conveyance of the Ebroch Burn by altering the footbridge at Burngreen Park. This study will also investigate the use of property level protection to reduce residual risk. Other actions will also be considered to select the most sustainable combination of actions.	NLC	2016	2019	Complete. This has now progressed to a stage where NLC and Scottish Canals have signed an MoU for the development and delivery of a Flood Protection Scheme in Kilsyth.
Natural flood management study	**Green**	SEPA is currently carrying out a study looking at potential options for river restoration and natural flood management in the Glazert catchment. This study will assess in detail runoff control and floodplain restoration.	SEPA	2016	2021	Study completed in May 2022.
Natural flood management study	**Amber**	River Kelvin catchment study to look at the potential for natural flood management. The study will focus on the potential benefit natural flood management actions may have on the tributaries of the River Kelvin but also if these actions combined would start to reduce flood risk on the River Kelvin.	GCVGN and local authorities	2017	2022	Action moved to Cycle 2.

Summary of progress of actions to manage flood risk in PVA 11/04						
Action	**Status**	**Description**	**Lead Authority**	**Start Date**	**Finish Date**	**Progress**
Maintain flood warning	**Green**	Continue to maintain the Cleveden Park, Goyle Bridge and Kelvinbridge Underground flood warning areas which are part of the Kelvin river flood warning scheme. When flood events occur in an area with a flood warning service, SEPA will seek to verify and validate the warning service. SEPA will use feedback and post-event data to ensure that the flood warning service is timely and accurate.	SEPA	2015	2022	SEPA has continued to operate the flood warning service.
Surface water plan/study	**Green**	The Council plans to undertake a surface water management plan or plans for Bishopbriggs, that set objectives for the management of surface water flood risk and identify the most sustainable actions to achieve the objectives. The Metropolitan Glasgow Strategic Drainage Partnership will support the process and improve knowledge and understanding of surface water flood risk and interactions with other sources of flooding e.g. with the sewer network and watercourses.	EDC	2016	2021	Action for Bishopbriggs complete to feasibility stage.
Surface water plan/study	**Green**	The Council plans to undertake a surface water management plan or plans that set objectives for the management of surface water flood risk and identify the most sustainable actions to achieve the objectives. The Metropolitan Glasgow Strategic Drainage Partnership will support the process and improve knowledge and understanding of surface water flood risk and interactions with other sources of flooding e.g. with the sewer network and watercourses.	EDC	2016	2021	Action for Milngavie complete to feasibility stage.

Summary of progress of actions to manage flood risk in PVA 11/04						
Action	**Status**	**Description**	**Lead Authority**	**Start Date**	**Finish Date**	**Progress**
Surface water plan/study	**Green**	The Council plans to undertake a surface water management plan or plans for Bearsden, that set objectives for the management of surface water flood risk and identify the most sustainable actions to achieve the objectives. The Metropolitan Glasgow Strategic Drainage Partnership will support the process and improve knowledge and understanding of surface water flood risk and interactions with other sources of flooding e.g. with the sewer network and watercourses.	EDC	2016	2021	Action for Bearsden complete to feasibility stage.
Surface water plan/study	**Amber**	The Council plans to undertake a surface water management plan or plans that set objectives for the management of surface water flood risk and identify the most sustainable actions to achieve the objectives. The Metropolitan Glasgow Strategic Drainage Partnership will support the process and improve knowledge and understanding of surface water flood risk and interactions with other sources of flooding e.g. with the sewer network and watercourses.	NLC	2016	2023	Phase 1a is complete. This study is progressing as part of a commission with a consultant and it is expected to be complete mid-2023. Delays due to resource constraints.

Summary of progress of actions to manage flood risk in PVA 11/04						
Action	**Status**	**Description**	**Lead Authority**	**Start Date**	**Finish Date**	**Progress**
Flood protection study	**Amber**	The Council plans to undertake a study to further investigate the flood risk along the Luggie Water. As part of this study the feasibility of flood protection work in Cumbernauld will be examined, focusing on the potential to redesign the Badenheath Bridge to increase conveyance of the Luggie Water, and the benefit of direct defences along the Luggie Water. This study will consider property level protection and other complementary actions to determine the most sustainable combination of actions. North Lanarkshire Council and East Dunbartonshire Council may undertake this as a joint study to identify any further potential flood risk areas along the river.	NLC	2016	2023	Flood Protection Study Stage 1 was completed in early 2020. The report recommends that two further stages are undertaken to develop the flood study. Stage Two comprises of the development, description and valuing of options and impact of any scheme. Stage 3 further compares and selects the most sustainable option. Before we can progress to Stage 2 a hydrological assessment and hydraulic modelling should be undertaken. NLC are liaising with EDC to part fund modelling of the Luggie Water. Delays due to resource constraints. We aim to complete this action within Cycle 2.
Maintain flood protection scheme	**Green**	Reduce the risk of river and surface water flooding to residential properties, non-residential properties, community facilities and transport routes in EDC - Kirkintilloch, Balmore, Torrance and Lennoxtown	EDC	2015	2022	This is undertaken on a regular basis via inspections, faults and reports on our RMMS system. We have a regular maintenance
Maintain flood protection scheme	**Green**	There are a number of sections of flood defence along the River Kelvin which offer protection to properties in the area. These defences will be maintained and will continue to manage flooding according to the design standard at the time of construction. Levels of flood risk are likely to increase over time as a consequence of climate change.	GCC	2015	2022	Glasgow City Council continues to maintain the existing flood defence.

Summary of progress of actions to manage flood risk in PVA 11/04						
Action	**Status**	**Description**	**Lead Authority**	**Start Date**	**Finish Date**	**Progress**
Strategic mapping and modelling	**Green**	Scottish Water will undertake further investigation and modelling in the Dalmuir, Dalmarnock and Dunnswood sewer catchments to improve knowledge and understanding of flood risk in this area as required under Section 16 of the Flood Risk Management (Scotland) Act 2009.	SW	2016	2020	The Scottish Water assessment of flood risk within the sewer catchment has been completed. The assessment helps to improve knowledge and understanding of surface water flood risk.

5.5 Yoker Catchment (PVA 11/05)

Local Plan District	Local authority	Main catchment
Clyde and Loch Lomond	East Dunbartonshire Council, Glasgow City Council, West Dunbartonshire Council	River Clyde

Summary of Progress for the Yoker catchment and the Clyde (PVA 11/05)



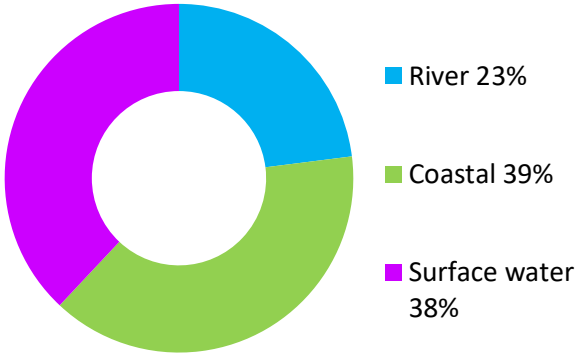
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The area has a risk of river, surface water and coastal flooding. Damages are split fairly evenly over all sources of flooding. There are approximately 4,900 residential properties and 700 non-residential properties at risk of flooding. The Annual Average Damages are approximately £8.1 million. Further information can be found in the LFRMP under PVA 11/05.

Link to LFRMP PVA 11/05

Key progress:

- All studies are expected to be completed before the next cycle, or have been completed



Annual Average Damages by flood source

Overview of actions to manage flooding in PVA 11/05

PVA	Flood protection scheme/works	Natural flood management works	New flood warning	Community flood action groups	Property level protection scheme	Site protection plans	Flood protection study	Natural flood management study	Maintain flood warning	Awareness raising	Surface water plan/study		Emergency plans/response	Maintain flood protection scheme	Strategic mapping and modelling	Flood forecasting	Self help	Maintenance	Planning policies
11/05							G	G	G	G	G	R	G	G	G	G	G	G	G

Summary of progress of actions to manage flood risk in PVA 11/05						
Action	**Status**	**Description**	**Lead Authority**	**Start Date**	**Finish Date**	**Progress**
Flood protection study	**Green**	The Council plans to undertake a study to further investigate the feasibility of a flood protection scheme on the Yoker Burn and Garscadden Burn, focusing on the benefit of direct defences along both banks, the potential benefit for runoff control using natural flood management and the benefits of a property level protection scheme to reduce residual risk.	GCC	2018	2020	The Yokermains SWMP study corrected a hydraulic model error relating to the Dumbarton Rd culvert which resulted in a reduction in the flood risk on the Yoker Burn. Pass forward flows on the Garscadden Burn which flows into the Yoker Burn have also been reduced through completion of the Drumchapel SWMP Phase 1 works. The NFM study has also been completed with elements implemented as part of the Drumchapel SWMP. No further direct defences are proposed along the Yoker and Garscadden Burns.
Natural flood management study	**Green**	A natural flood management study will be undertaken to further investigate the potential benefit from runoff control within the catchment. If there is an identified benefit of these actions the study will look at engaging with local land owners to establish the potential for future works.	GCVGN and local authorities	2016	2017	A Natural Flood Management Study for the Yoker Burn catchment was tendered and commissioned in 2016 with a final Report submitted to partners in February 2017.
Maintain flood warning	**Green**	Continue to maintain the Renfrew flood warning area which is part of the Firth of Clyde coastal flood warning scheme. When flood events occur in an area with a flood warning service, SEPA will seek to verify and validate the warning service. SEPA will use feedback and post-event data to ensure that the flood warning service is timely and accurate.	SEPA	2015	2022	SEPA has continued to operate the flood warning service.

Summary of progress of actions to manage flood risk in PVA 11/05						
Action	**Status**	**Description**	**Lead Authority**	**Start Date**	**Finish Date**	**Progress**
Surface water plan/study	**Green**	The Council plans to undertake a surface water management plan or plans for Bearsden, that set objectives for the management of surface water flood risk and identify the most sustainable actions to achieve the objectives. The Metropolitan Glasgow Strategic Drainage Partnership will support the process and improve knowledge and understanding of surface water flood risk and interactions with other sources of flooding e.g. with the sewer network and watercourses.	EDC	2016	2021	Action for Bearsden complete to feasibility stage.
Surface water plan/study	**Green**	The Council plans to undertake a surface water management plan or plans for Drumchapel that set objectives for the management of surface water flood risk and identify the most sustainable actions to achieve the objectives. The Metropolitan Glasgow Strategic Drainage Partnership will support the process and improve knowledge and understanding of surface water flood risk and interactions with other sources of flooding e.g. with the sewer network and watercourses.	GCC	2015	2016	The SWMP has been progressed, with Phase 1 construction complete. A further Phase of construction will be considered in Cycle 2.

Summary of progress of actions to manage flood risk in PVA 11/05						
Action	**Status**	**Description**	**Lead Authority**	**Start Date**	**Finish Date**	**Progress**
Surface water plan/study	**Green**	The Council plans to undertake a surface water management plan or plans for High Knightswood and Netherton that set objectives for the management of surface water flood risk and identify the most sustainable actions to achieve the objectives. The Metropolitan Glasgow Strategic Drainage Partnership will support the process and improve knowledge and understanding of surface water flood risk and interactions with other sources of flooding e.g. with the sewer network and watercourses.	GCC	2016	2022	The SWMP has been progressed to detailed design stage. Construction is planned for Cycle 2.
Surface water plan/study	**Green**	The Council plans to undertake a surface water management plan or plans for the Yokermains Burn Catchment that set objectives for the management of surface water flood risk and identify the most sustainable actions to achieve the objectives. The Metropolitan Glasgow Strategic Drainage Partnership will support the process and improve knowledge and understanding of surface water flood risk and interactions with other sources of flooding e.g. with the sewer network and watercourses.	GCC	2018	2022	The SWMP has been completed to feasibility stage.

Summary of progress of actions to manage flood risk in PVA 11/05						
Action	**Status**	**Description**	**Lead Authority**	**Start Date**	**Finish Date**	**Progress**
Surface water plan/study	**Red**	The Council plans to undertake a surface water management plan or plans that set objectives for the management of surface water flood risk and identify the most sustainable actions to achieve the objectives. The Metropolitan Glasgow Strategic Drainage Partnership will support the process and improve knowledge and understanding of surface water flood risk and interactions with other sources of flooding e.g. with the sewer network and watercourses.	WDC	2016	2021	This action has been moved to Cycle 3.
Maintain flood protection scheme	**Green**	Reduce the risk of river and surface water flooding to residential properties, non-residential properties and transport routes in the River Clyde catchment	GCC	2015	2022	Glasgow City Council continues to maintain the existing flood defence.
Strategic mapping and modelling	**Green**	Scottish Water will undertake further investigation and modelling in the Ardoch and Dalmuir sewer catchment to improve knowledge and understanding of flood risk in this area as required under Section 16 of the Flood Risk Management (Scotland) Act 2009.	SW	2016	2020	Modelling of sewer catchment complete. The assessment will improve knowledge and understanding of surface water flood risk.

5.6 Isle of Bute (PVA 11/06)

Local Plan District	Local authority	Main catchment
Clyde and Loch Lomond	Argyll and Bute Council	Isle of Bute

Summary of Progress for the Isle of Bute (PVA 11/06)



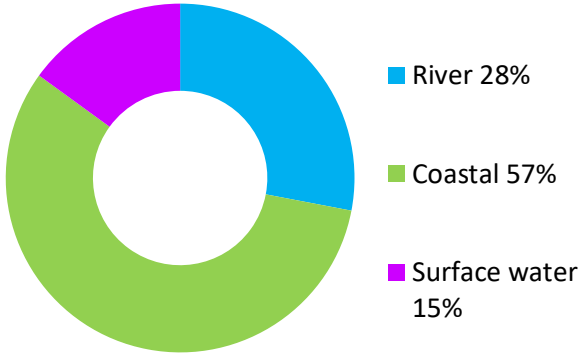
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The area has a risk of river, surface water and coastal flooding. The majority of damages are caused by coastal flooding. There are approximately 600 residential properties and 420 non-residential properties at risk of flooding. The Annual Average Damages are approximately £2.3 million. Further information can be found in the LFRMP under PVA 11/06.

Link to LFRMP PVA 11/06

Key progress:

- The modelling of the Rothesay sewer catchment has been completed.



Annual Average Damages by flood source

Overview of actions to manage flooding in PVA 11/06

PVA	Flood protection scheme/works	Natural flood management works	New flood warning	Community flood action groups	Property level protection scheme	Site protection plans	Flood protection study	Natural flood management study	Maintain flood warning	Awareness raising	Surface water plan/study	Emergency plans/response	Maintain flood protection scheme	Strategic mapping and modelling	Flood forecasting	Self help	Maintenance	Planning policies
11/06									G	G		G	G	G	G	G	G	G

Summary of progress of actions to manage flood risk in PVA 11/06						
Action	**Status**	**Description**	**Lead Authority**	**Start Date**	**Finish Date**	**Progress**
Maintain flood warning	**Green**	Continue to maintain the Rothesay Town Centre and Kames Bay Pointhouse Crescent flood warning areas which are part of the Firth of Clyde coastal flood warning scheme. When flood events occur in an area with a flood warning service, SEPA will seek to verify and validate the warning service. SEPA will use feedback and post-event data to ensure that the flood warning service is timely and accurate.	SEPA	2015	2022	SEPA has continued to operate the flood warning service.
Maintain flood protection scheme	**Green**	Rothesay Flood Protection Scheme was constructed in 2004 and consists of approximately 910m of seawall from Argyle Street, along the Esplanade to East Princes Street. This scheme provides protection to the area up to a 100 year flood. These defences will be maintained, and will continue to manage flooding according to the design standard at the time of construction. Levels of flood risk are likely to increase over time as a consequence of climate change.	ABC	2015	2022	Argyll and Bute Council continue to maintain the existing defences in Rothesay.
Strategic mapping and modelling	**Green**	Scottish Water will undertake further investigation and modelling in the Rothesay sewer catchment to improve knowledge and understanding of flood risk in this area as required under Section 16 of the Flood Risk Management (Scotland) Act 2009.	SW	2016	2019	Modelling of sewer catchment complete. The assessment will improve knowledge and understanding of surface water flood risk.

5.7 Dunoon (PVA 11/07)

Local Plan District	Local authority	Main catchment
Clyde and Loch Lomond	Argyll and Bute Council	Cowal / Clyde Sealochs coastal

Summary of Progress for Dunoon (PVA 11/07)



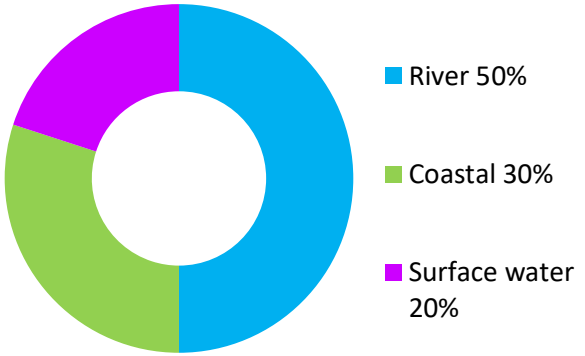
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The area has a risk of river, surface water and coastal flooding. The majority of damages are caused by river flooding. There are approximately 140 residential properties and 80 non-residential properties at risk of flooding. The Annual Average Damages are approximately £480,000. Further information can be found in the LFRMP under PVA 11/07.

Link to LFRMP PVA 11/07

Key progress:

- The Dunoon SWMP has been completed to feasibility stage.
- The modelling of the Dunoon sewer catchment has been completed.



Annual Average Damages by flood source

Overview of actions to manage flooding in PVA 11/07

PVA	Flood protection scheme/works	Natural flood management works	New flood warning	Community flood action groups	Property level protection scheme	Site protection plans	Flood protection study	Natural flood management study	Maintain flood warning	Awareness raising	Surface water plan/study	Emergency plans/response	Maintain flood protection scheme	Strategic mapping and modelling	Flood forecasting	Self help	Maintenance	Planning policies
11/07									G	G	G	G	G	G	G	G	G	G

Summary of progress of actions to manage flood risk in PVA 11/07						
Action	**Status**	**Description**	**Lead Authority**	**Start Date**	**Finish Date**	**Progress**
Maintain flood warning	**Green**	Continue to maintain the Dunoon Pier and Hunter's Grove flood warning areas which are part of the Firth of Clyde coastal flood warning scheme. When flood events occur in an area with a flood warning service, SEPA will seek to verify and validate the warning service. SEPA will use feedback and post-event data to ensure that the flood warning service is timely and accurate.	SEPA	2015	2022	SEPA has continued to operate the flood warning service.
Surface water plan/study	**Green**	The Council plans to undertake a surface water management plan or plans that set objectives for the management of surface water flood risk and identify the most sustainable actions to achieve the objectives.	ABC	2015	2019	Dunoon SWMP considered seventeen 'hotspots'. Six locations were identified for further investigation with three submitted to an options appraisal for Flood Protection Schemes / Works The SWMP was submitted to SEPA for inclusion in the national prioritisation process for flood alleviation schemes. Progression of the options will depend on ranking in the prioritisation process and subsequent funding from Scottish Government.
Maintain flood protection scheme	**Green**	The Milton Burn Flood Protection Scheme was completed in 2012 which consists of a 1.4m bypass pipe, flood wall improvements and the raising of a pedestrian bridge. This scheme reduces the impact of flooding in Dunoon and provides a standard of protection to a 1 in 100 year flood plus climate change in the St Mun's area. These defences will be maintained, and will continue to manage flooding according to the design standard at the time of construction. Unless actions are put in place to enhance the standard of protection, levels of flood risk are likely to increase over time as a consequence of climate change.	ABC	2012	2022	Argyll and Bute Council continue to maintain the existing defences in Dunoon.

Summary of progress of actions to manage flood risk in PVA 11/07						
Action	**Status**	**Description**	**Lead Authority**	**Start Date**	**Finish Date**	**Progress**
Strategic mapping and modelling	**Green**	Scottish Water will undertake further investigation and modelling in the Dunoon sewer catchment to improve knowledge and understanding of flood risk in this area as required under Section 16 of the Flood Risk Management (Scotland) Act 2009.	SW	2015	2019	Modelling of sewer catchment complete. The assessment will improve knowledge and understanding of surface water flood risk.

5.8 North West of the Local Plan District (PVA 11/08)

Local Plan District	Local authority	Main catchment
Clyde and Loch Lomond	Inverclyde Council	Inverclyde coastal

Summary of Progress for Greenock to Gourock (PVA 11/08)



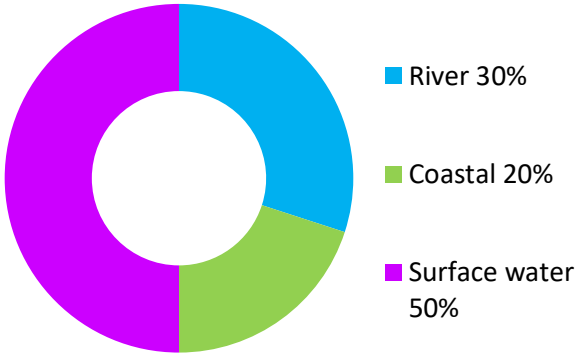
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The area has a risk of river, surface water and coastal flooding. The majority of damages are caused by surface water flooding. There are approximately 820 residential properties and 730 non-residential properties at risk of flooding. The Annual Average Damages are approximately £1.5 million. Further information can be found in the LFRMP under PVA 11/08.

Link to LFRMP PVA 11/08

Key progress:

- The Coves Burn Flood Protection Scheme has been completed.
- The integrated catchment study for Greenock and Port Glasgow has been completed.



Annual Average Damages by flood source

Overview of actions to manage flooding in PVA 11/08

PVA	Flood protection scheme/works		Natural flood management works	New flood warning	Community flood action groups	Property level protection scheme	Site protection plans	Flood protection study	Natural flood management study	Maintain flood warning	Awareness raising	Surface water plan/study		Emergency plans/response	Maintain flood protection scheme	Strategic mapping and modelling	Flood forecasting	Self help	Maintenance	Planning policies
11/08	G	A				G				G	G	A	G	G	G	G	G	G	G

Summary of progress of actions to manage flood risk in PVA 11/08						
Action	**Status**	**Description**	**Lead Authority**	**Start Date**	**Finish Date**	**Progress**
Flood protection scheme / works	**Green**	The Council plans to progress the flood protection scheme proposed for the Coves Burn. The work involves a number of conveyance modification actions including: upgrading of culverts, construction of a new connection chamber and tidal valve.	IC	2017	2019	Project complete.
Flood protection scheme/ works	**Amber**	The Council plans to progress the Greenock Flood Protection Scheme which will involve a number of conveyance modification actions along the Bouverie Burn.	IC	2017	2019	Phase 1 complete, phase 2 being planned.
Property level protection scheme	**Green**	Flood Gates have been issued to a number of businesses in several locations as part of an interim solution to reduce the impact of flooding.	IC	2015	2017	Inverclyde Council continue to inspect flood protection measures.
Maintain flood warning	**Green**	Continue to maintain the Gourock Cove Road and the Greenock and Port Glasgow flood warning areas which are part of the Firth of Clyde coastal flood warning scheme. When flood events occur in an area with a flood warning service, SEPA will seek to verify and validate the warning service. SEPA will use feedback and post-event data to ensure that the flood warning service is timely and accurate.	SEPA	2015	2022	SEPA has continued to operate the flood warning service.
Surface water plan/study	**Amber**	The Council plans to undertake a surface water management plan or plans that set objectives for the management of surface water flood risk and identify the most sustainable actions to achieve the objectives.	IC	2016	2019	In progress for Greenock. A consultant has still to be appointed.

Summary of progress of actions to manage flood risk in PVA 11/08						
Action	**Status**	**Description**	**Lead Authority**	**Start Date**	**Finish Date**	**Progress**
Surface water plan/study	**Green**	An integrated catchment study covering the Inverclyde catchment will be carried out in Greenock and Port Glasgow to improve knowledge and understanding of the interactions between the above ground and below ground drainage network e.g. with the sewer network, watercourses and the sea.	SW partnered with IC	2016	2019	Action complete.
Surface water plan/study	**Amber**	The Council plans to undertake a surface water management plan or plans that set objectives for the management of surface water flood risk and identify the most sustainable actions to achieve the objectives.	IC	2016	2019	In progress for Port Glasgow. A consultant has still to be appointed.
Surface water plan/study	**Green**	An integrated catchment study covering the Inverclyde catchment will be carried out in Greenock and Port Glasgow to improve knowledge and understanding of the interactions between the above ground and below ground drainage network e.g. with the sewer network, watercourses and the sea.	SW partnered with IC	2016	2019	Action complete.
Maintain flood protection scheme	**Green**	V-notches were installed in the spillways of four reservoirs and two on Greenock Cut. These measures reduce the peak flow in the Hole Burn and the Eastern Lines of Falls by attenuating the reservoirs	IC	2015	2022	Inspection of v-notches undertaken monthly.
Strategic mapping and modelling	**Green**	Scottish Water will undertake further investigation and modelling in the Inverclyde sewer catchment to improve knowledge and understanding of flood risk in this area as required under Section 16 of the Flood Risk Management (Scotland) Act 2009.	SW	2016	2019	Modelling of sewer catchment complete. The assessment will improve knowledge and understanding of surface water flood risk.

5.9 South of the Clyde (PVA 11/09)

Local Plan District	Local authority	Main catchment
Clyde and Loch Lomond	Inverclyde Council, Renfrewshire Council	Firth of Clyde – Renfrew to Port Glasgow

Summary of Progress for Port Glasgow to Inchinnan (PVA 11/09)



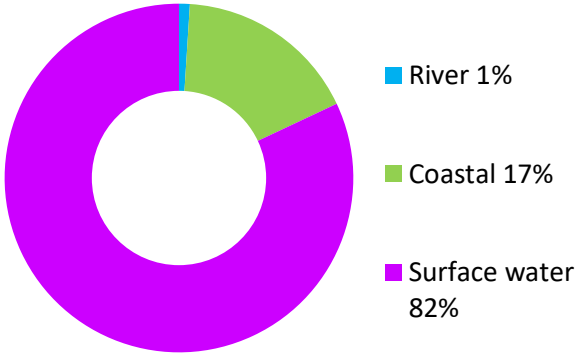
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The area has a risk of river, surface water and coastal flooding. The majority of damages are caused by surface water flooding. There are approximately 190 residential properties and 60 non-residential properties at risk of flooding. The Annual Average Damages are approximately £310,000. Further information can be found in the LFRMP under PVA 11/09.

Link to LFRMP PVA 11/09

Key progress:

- Civil engineering works to reduce the flood risk to the railway network completed.
- The integrated catchment study covering the Erskine sewer catchment has been completed.



Annual Average Damages by flood source

Overview of actions to manage flooding in PVA 11/09

PVA	Flood protection scheme/works	Natural flood management works	New flood warning	Community flood action groups	Property level protection scheme	Site protection plans	Flood protection study	Natural flood management study	Maintain flood warning	Awareness raising	Surface water plan/study		Emergency plans/response	Maintain flood protection scheme	Strategic mapping and modelling	Flood forecasting	Self help	Maintenance	Planning policies
11/09	G									G	A	G	G		G	G	G	G	G

Summary of progress of actions to manage flood risk in PVA 11/09						
Action	**Status**	**Description**	**Lead Authority**	**Start Date**	**Finish Date**	**Progress**
Flood protection scheme / works	**Green**	Network Rail will carry out civil engineering work which will reduce flood risk to identified sections of the rail network within this PVA, including work to Langbank Coastal Defence.	NR	2019	2024	Action completed.
Surface water plan/study	**Amber**	The Council plans to undertake a surface water management plan or plans that set objectives for the management of surface water flood risk and identify the most sustainable actions to achieve the objectives.	IC	2016	2019	In progress. A consultant has still to be appointed.
Surface water plan/study	**Green**	An integrated catchment study covering the Inverclyde catchment will be carried out in Greenock and Port Glasgow to improve knowledge and understanding of the interactions between the above ground and below ground drainage network e.g. with the sewer network, watercourses and the sea.	SW partnered with IC	2016	2019	Action complete.
Surface water plan/study	**Green**	An integrated catchment study covering the Erskine catchment will be carried out to support the surface water management planning process in Erskine, Inchinnan, Linwood, Johnstone and Kilbarchan. The study will improve knowledge and understanding of the interactions between the above ground and below ground drainage network e.g. with the sewer network, watercourses and the sea. This will improve the understanding of local surface water flood risk.	SW partnered with RC	2016	2020	Action complete.
Strategic mapping and modelling	**Green**	Scottish Water will undertake further investigation and modelling in the Inverclyde and Erskine sewer catchments to improve knowledge and understanding of flood risk in this area as required under Section 16 of the Flood Risk Management (Scotland) Act 2009.	SW	2016	2020	Modelling of sewer catchment complete. The assessment will improve knowledge and understanding of surface water flood risk.

5.10 Bishopton (PVA 11/10)

Local Plan District	Local authority	Main catchment
Clyde and Loch Lomond	Renfrewshire Council	River Gryfe

Summary of Progress for Bishopton (PVA 11/10)



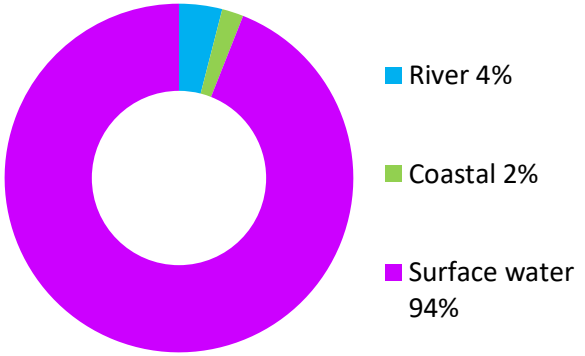
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The area has a risk of river, surface water and coastal flooding. The majority of damages are caused by surface water flooding. There are approximately 30 residential properties at risk of flooding. The Annual Average Damages are approximately £35,000. Further information can be found in the LFRMP under PVA 11/10.

Link to LFRMP PVA 11/10

Key progress:

- The integrated catchment study covering the Erskine sewer catchment has been completed.



Annual Average Damages by flood source

Overview of actions to manage flooding in PVA 11/10

PVA	Flood protection scheme/works	Natural flood management works	New flood warning	Community flood action groups	Property level protection scheme	Site protection plans	Flood protection study	Natural flood management study	Maintain flood warning	Awareness raising	Surface water plan/study	Emergency plans/response	Maintain flood protection scheme	Strategic mapping and modelling	Flood forecasting	Self help	Maintenance	Planning policies
11/10										G	G	G		G	G	G	G	G

Summary of progress of actions to manage flood risk in PVA 11/10						
Action	**Status**	**Description**	**Lead Authority**	**Start Date**	**Finish Date**	**Progress**
Surface water plan/study	**Green**	An integrated catchment study covering the Erskine catchment will be carried out in Erskine, Inchinnan, Linwood, Johnstone and Kilbarchan to improve knowledge and understanding of the interactions between the above ground and below ground drainage network e.g. with the sewer network, watercourses and the sea.	SW partnered with RC	2016	2020	Action complete.
Strategic mapping and modelling	**Green**	Scottish Water will undertake further investigation and modelling in the Erskine sewer catchments to improve knowledge and understanding of flood risk in this area as required under Section 16 of the Flood Risk Management (Scotland) Act 2009.	SW	2017	2020	Modelling of sewer catchment complete. The assessment will improve knowledge and understanding of surface water flood risk.

5.11 Gryfe catchment (PVA 11/11)

Local Plan District	Local authority	Main catchment
Clyde and Loch Lomond	Inverclyde Council, Renfrewshire Council	River Gryfe

Summary of Progress for Bridge of Weir to Houston (PVA 11/11)



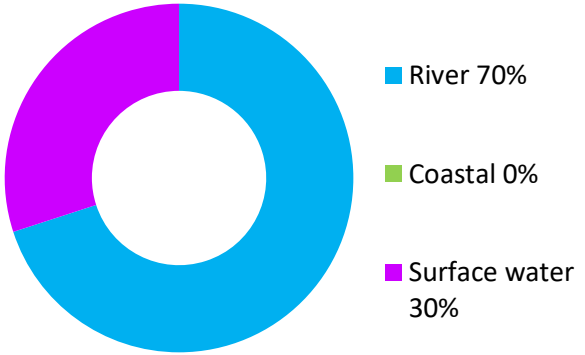
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The area has a risk of river and surface water flooding. The majority of damages are caused by river flooding. There are approximately 190 residential properties and 20 non-residential properties at risk of flooding. The Annual Average Damages are approximately £430,000. Further information can be found in the LFRMP under PVA 11/11.

Link to LFRMP PVA 11/11

Key progress:

- The integrated catchment study covering the Erskine sewer catchment has been completed.



Annual Average Damages by flood source

Overview of actions to manage flooding in PVA 11/11

PVA	Flood protection scheme/works	Natural flood management works	New flood warning	Community flood action groups	Property level protection scheme	Site protection plans	Flood protection study	Natural flood management study	Maintain flood warning	Awareness raising	Surface water plan/study		Emergency plans/response	Maintain flood protection scheme	Strategic mapping and modelling	Flood forecasting	Self help	Maintenance	Planning policies
11/11	A									G	R	G	G		G	G	G	G	G

Summary of progress of actions to manage flood risk in PVA 11/11						
Action	**Status**	**Description**	**Lead Authority**	**Start Date**	**Finish Date**	**Progress**
Flood protection scheme / works	**Amber**	Inverclyde Council plans to progress the flood protection scheme proposed for the Gotter Water in Quarrier's Village. Inverclyde Council have completed a study and this will be progressed to develop a detailed design of the scheme. SEPA will review the output of the study for inclusion in the Flood Maps.	IC	2017	2019	Works due to commence in January 2023.
Surface water plan/study	**Red**	Reduce the economic damages and risk to people from surface water flooding in Johnstone and Kilbarchan	RC	2020	2021	Action hasn't been commenced due to staff resourcing issues.
Surface water plan/study	**Green**	An integrated catchment study covering the Erskine catchment will be carried out to support the surface water management planning process in Erskine, Inchinnan, Linwood, Johnstone and Kilbarchan. The study will improve knowledge and understanding of the interactions between the above ground and below ground drainage network e.g. with the sewer network, watercourses and the sea. This will improve the understanding of local surface water flood risk.	SW partnered with RC	2016	2020	Action complete.
Strategic mapping and modelling	**Green**	Scottish Water will undertake further investigation and modelling in the Erskine sewer catchments to improve knowledge and understanding of flood risk in this area as required under Section 16 of the Flood Risk Management (Scotland) Act 2009.	SW	2017	2020	Modelling of sewer catchment complete. The assessment will improve knowledge and understanding of surface water flood risk.

5.12 Black Cart Water catchment (PVA 11/12)

Local Plan District	Local authority	Main catchment
Clyde and Loch Lomond	East Renfrewshire Council, Inverclyde Council, Renfrewshire Council	Black Cart Water

Summary of Progress for Lochwinnoch to Johnstone (PVA 11/12)



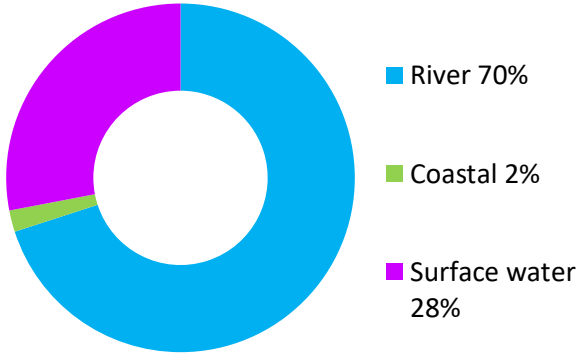
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The area has a risk of river, surface water and coastal flooding. The majority of damages are caused by river flooding. There are approximately 1,300 residential properties and 550 non-residential properties at risk of flooding. The Annual Average Damages are approximately £2.6 million. Further information can be found in the LFRMP under PVA 11/12.

Link to LFRMP PVA 11/12

Key progress:

- Network Rail has completed a range of actions to reduce the risk of flooding to the rail network.
- The integrated catchment study covering the Erskine sewer catchment has been completed.



Annual Average Damages by flood source

Overview of actions to manage flooding in PVA 11/12

PVA	Flood protection scheme/works	Natural flood management works	New flood warning	Community flood action groups	Property level protection scheme	Site protection plans	Flood protection study		Natural flood management study	Maintain flood warning	Awareness raising	Surface water plan/study		Emergency plans/response	Maintain flood protection scheme	Strategic mapping and modelling		Flood forecasting	Self help	Maintenance	Planning policies
11/12	G						R	A	R		G	R	G	G	G	A	G	G	G	G	G

Summary of progress of actions to manage flood risk in PVA 11/12						
Action	**Status**	**Description**	**Lead Authority**	**Start Date**	**Finish Date**	**Progress**
Flood protection scheme / works	**Green**	Network Rail will carry out civil engineering work which will reduce flood risk to identified sections of the rail network within this Potentially Vulnerable Area.	NR	2019	2024	Network Rail have completed a range of maintenance, scoping, and design works at these locations as part of our 2016 to 2021 FRMA obligations, with further works planned for 2023 as part of our Vulnerable Locations pilot adaptation programme, and our general maintenance programme.
Flood protection study	**Amber**	The Candren Burn, focusing on the use of sustainable drainage systems and short sections of flood defences. The study will also examine the potential benefit of property level protection both as a single action and in combination with other actions. Other actions will also be considered to select the most sustainable combination of actions.	RC	2021	2022	Action being progressed in partnership with SEPA.
Flood protection study	**Red**	The Council plans a study to further investigate the feasibility of actions recommended in the Green Networks Integrated Urban Infrastructure report. These focused on the potential to create small areas of offline storage at a number of locations within Johnstone and the potential to improve culvert conveyance and investigate culvert daylighting. In addition to this the study will examine the potential benefit of automatic property level protection and sustainable drainage systems. Other actions will also be considered to select the most sustainable combination of actions.	RC	2020	2021	Action hasn't been commenced due to staff resourcing issues.

Summary of progress of actions to manage flood risk in PVA 11/12						
Action	**Status**	**Description**	**Lead Authority**	**Start Date**	**Finish Date**	**Progress**
Flood protection study	**Red**	The Council plans a study to further investigate the feasibility of a flood protection scheme in Kilbarchan. The study will focus on storage for the Kilbarchan Burn at Bog Park and improved conveyance of the Kilbarchan Burn through Kilbarchan by upgrading of culverts and watercourse channel. Other actions will also be considered to select the most sustainable combination of actions.	RC	2020	2021	Action hasn't been commenced due to staff resourcing issues.
Flood protection study	**Red**	The Council plans a study to undertake a study to further investigate the feasibility of a flood protection scheme along the River Calder within Lochwinnoch, focusing on the benefit of direct defences. Other actions may also be considered to select the most sustainable combination of actions.	RC	2021	2022	Action hasn't been commenced due to staff resourcing issues.
Natural flood management study	**Red**	The Council plans to undertake a natural flood management study to further investigate the potential benefit for sediment management at Kilbarchan.	RC	2020	2021	Action hasn't been commenced due to staff resourcing issues.
Natural flood management study	**Red**	The Council plans to undertake a natural flood management study to further investigate the potential benefit for runoff control and sediment management in Lochwinnoch. The study will look at the land management upstream of Lochwinnoch and start engagement with local land owners to establish the potential for works.	RC	2021	2022	Action hasn't been commenced due to staff resourcing issues.
Surface water plan/study	**Red**	Reduce the economic damages and risk to people from surface water flooding in Johnstone	RC	2020	2021	Action hasn't been commenced due to staff resourcing issues.

Summary of progress of actions to manage flood risk in PVA 11/12						
Action	**Status**	**Description**	**Lead Authority**	**Start Date**	**Finish Date**	**Progress**
Surface water plan/study	**Red**	Reduce the economic damages and risk to people from surface water flooding in Kilbarchan	RC	2020	2021	Action hasn't been commenced due to staff resourcing issues.
Surface water plan/study	**Green**	An integrated catchment study covering the Erskine catchment will be carried out to support the surface water management planning process in Erskine, Inchinnan, Linwood, Johnstone and Kilbarchan. The study will improve knowledge and understanding of the interactions between the above ground and below ground drainage network e.g. with the sewer network, watercourses and the sea. This will improve the understanding of local surface water flood risk.	SW partnered with RC	2016	2020	Action complete.
Surface water plan/study	**Red**	The Council plans to undertake a surface water management plan or plans that set objectives for the management of surface water flood risk and identify the most sustainable actions to achieve the objectives. The Metropolitan Glasgow Strategic Drainage Partnership will support the process and improve knowledge and understanding of surface water flood risk and interactions with other sources of flooding e.g. with the sewer network, watercourses and the sea.	RC	2021	2022	Action hasn't been commenced due to staff resourcing issues.
Maintain flood protection scheme	**Green**	Reduce the risk of river and surface water flooding to residential properties, non-residential properties, community facilities and transport routes in Johnstone	RC	2015	2022	Ongoing Maintenance

Summary of progress of actions to manage flood risk in PVA 11/12						
Action	**Status**	**Description**	**Lead Authority**	**Start Date**	**Finish Date**	**Progress**
Strategic mapping and modelling	**Amber**	SEPA will seek to incorporate additional surface water data into the flood maps to improve understanding of flood risk. Approximately 2,200km² of improved surface water data is currently available within this Local Plan District. The inclusion of additional surface water hazard data resulting from the completion of local authority surface water management plans and Scottish Water integrated catchment studies will be considered as these projects are completed.	SEPA	2016	2023	The national surface water flooding modelling project will be completed in 2023. The outputs from this will be used to update SEPA maps early in cycle 2 and will inform SEPA's flood risk assessments for the next flood risk management cycle.
Strategic mapping and modelling	**Green**	Scottish Water will undertake further investigation and modelling in the Erskine, Laighpark, Paisley, and Lochwinnoch sewer catchments to improve knowledge and understanding of flood risk in this area as required under Section 16 of the Flood Risk Management (Scotland) Act 2009.	SW	2016	2020	Modelling of sewer catchment complete. The assessment will improve knowledge and understanding of surface water flood risk.

5.13 White Cart Water catchment (PVA 11/13)

Local Plan District	Local authority	Main catchment
Clyde and Loch Lomond	East Renfrewshire Council, Glasgow City Council, Renfrewshire Council, South Lanarkshire Council	White Cart Water

Summary of Progress for the White Cart Water catchment (PVA 11/13)



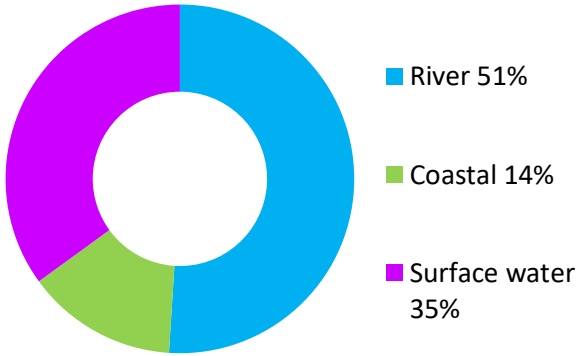
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The area has a risk of river, surface water and coastal flooding. The majority of damages are caused by river flooding. There are approximately 4,700 residential properties and 2,800 non-residential properties at risk of flooding. The Annual Average Damages are approximately £10 million. Further information can be found in the LFRMP under PVA 11/13.

Link to LFRMP PVA 11/13

Key progress:

- The final phase of White Cart Water Flood Prevention Scheme works has been completed.
- Hillington and Cardonald SWMP Phase 1 works have been completed and Phase 3 works are on site.



Annual Average Damages by flood source

Overview of actions to manage flooding in PVA 11/13

PVA	Flood protection scheme/works	Natural flood management works	New flood warning	Community flood action groups	Property level protection scheme	Site protection plans	Flood protection study			Natural flood management study	Maintain flood warning	Awareness raising	Surface water plan/study			Emergency plans/response	Maintain flood protection scheme	Strategic mapping and modelling	Flood forecasting	Self help	Maintenance	Planning policies
11/13	G			G		G	R	A	G	R	G	G	R	A	G	G	G	G	G	G	G	G

Summary of progress of actions to manage flood risk in PVA 11/13						
Action	**Status**	**Description**	**Lead Authority**	**Start Date**	**Finish Date**	**Progress**
Flood protection scheme / works	**Green**	The Sewer Flooding Project by Scottish Water proposes a new pumping station (at Woodfarm playing fields) which will receive storm flows from the existing combined sewer network. A new rising main will transfer storm flows from this pumping station to a new combined sewer overflow at Robslee Drive. As part of Scottish Water's Unsatisfactory Intermittent Discharge (UID) projects a diversion at Thornliebank is being carried out which will intercept flow and divert it to the Shieldhall Tunnel. The Scottish Water Shieldhall Tunnel Project will add capacity and conveyance for the catchment flows to reach Shieldhall Wastewater Treatment Works and at times of extreme storm conditions, act as online storage for the combined flows.	SW	2015	2019	Shieldhall Tunnel complete and operational
Flood protection scheme / works	**Green**	The Council plans to progress the flood protection scheme proposed for the White Cart Water. The scheme is an extension of the existing defences, and will increase the level of protection to a number of properties along parts of the Auldhouse Burn and White Cart Water. The proposed scheme includes building flood walls in locations where properties are still identified to be at risk. The flood mapping for the White Cart Water and Auldhouse Burn will be revised to include all defences to understand any remaining residual risk now and in the future.	GCC	2017	2019	Phase 3 of the White Cart FPS is now complete.

Summary of progress of actions to manage flood risk in PVA 11/13						
Action	**Status**	**Description**	**Lead Authority**	**Start Date**	**Finish Date**	**Progress**
Flood protection scheme / works	**Green**	The North Renfrew Flood Protection Scheme which and consists of embankments, demountable barriers, raised ground and a new pumping station.	RC	2014	2016	Action complete
Community flood action groups	**Green**	The local community set up the White Cart Flood Action group to raise awareness of flood risk in the area.	Community	2015	2022	Action group has been dormant since the completion of phases 1 and 2 of the White Cart.
Site protection plans	**Green**	Site protection plans have been developed for Strathclyde Police Horse and Dog Training Division and the cattle in Pollok Country Park and these will be maintained and periodically reviewed.	GCC	2015	2022	The horses have been relocated to Ayrshire. The White Cart works will not require alterations to be made to the plan.
Flood protection study	**Green**	The Council plans to undertake a study to further investigate the feasibility of a flood protection scheme to reduce the risk of river flooding in Barrhead. The study will focus on placing direct defences along the watercourses and the potential for runoff control and floodplain restoration using natural flood management. This study will also include an assessment of the potential benefit of a property level protection scheme in Barrhead.	ERC	2017	2020	Sept. 2018: ERC have completed the joint workshops with SEPA, Scottish Water and neighbouring LAs. RPS Consultants utilised information from these workshops in the latest update of the SWMP. There were no further actions recommended by RPS Consultants for the individual Flood Cells. Minor alterations regarding specific planned developments are to be referenced within the report. ERC will then submit to committee for local members approval and it will then be made available for public viewing.
Flood protection study	**Amber**	The Council plans to progress the Gorbals Tidal Weir morphology study to further investigate the potential risk to key community facilities on the south bank of the Clyde. The outcomes of this study will be used to determine if /when further action is required to increase the level of protection to these facilities.	GCC	2020	2022	The Tidal Clyde Phase 1 model upgrade and River Clyde Fluvial model have both been completed. Further studies required to ascertain any actions to be progressed.

Summary of progress of actions to manage flood risk in PVA 11/13						
Action	**Status**	**Description**	**Lead Authority**	**Start Date**	**Finish Date**	**Progress**
Flood protection study	**Red**	The Council plans to undertake a study to further investigate flood risk in Merrylee. This will be a detailed study of the burns and culverted sections to identify any potential constraints and identify the flood risk to people and properties. This study will be carried out by Glasgow City Council with the cooperation of East Renfrewshire Council. The flood mapping from the study should be used to revise SEPA's strategic mapping.	GCC	2020	2022	This project has been moved to Cycle 2.
Natural flood management study	**Red**	A catchment wide natural flood management study is planned to be undertaken for the White Cart Water catchment. The study will focus on the potential for runoff control and sediment management within the tributaries of the White Cart Water, however it will also examine how these might combine to reduce flows to the White Cart Water itself.	GCVGN on behalf of local authorities	2018	2019	Action moved to Cycle 2.
Maintain flood warning	**Green**	Continue to maintain the Alyth Crescent, Pollok, Pollokshaws, Pollok Country Park and the Shawlands, Langside and Cathcart flood warning areas which are part of the White Cart Water flood warning scheme. Continue to maintain the Glasgow Quay Walls and Renfrew flood warning areas which are part of the Firth of Clyde coastal flood warning scheme. When flood events occur in an area with a flood warning service, SEPA will seek to verify and validate the warning service. SEPA will use feedback and post-event data to ensure that the flood warning service is timely and accurate.	SEPA	2015	2022	SEPA has continued to operate the flood warning service

Summary of progress of actions to manage flood risk in PVA 11/13						
Action	**Status**	**Description**	**Lead Authority**	**Start Date**	**Finish Date**	**Progress**
Surface water plan/study	**Green**	The Council plans to undertake a surface water management plan or plans that set objectives for the management of surface water flood risk and identify the most sustainable actions to achieve the objectives. The Metropolitan Glasgow Strategic Drainage Partnership will support the process and improve knowledge and understanding of surface water flood risk and interactions with other sources of flooding e.g. with the sewer network, watercourses and the sea.	ERC	2017	2020	Barrhead. Sept. 2018: ERC have completed the joint workshops with SEPA, Scottish Water and neighbouring LAs. RPS Consultants utilised information from these workshops in the latest update of the SWMP. There were no further actions recommended by RPS Consultants for the individual Flood Cells. Minor alterations regarding specific planned developments are to be referenced within the report. ERC will then submit to committee for local members approval and it will then be made available for public viewing.
Surface water plan/study	**Green**	The Council plans to undertake a surface water management plan or plans that set objectives for the management of surface water flood risk and identify the most sustainable actions to achieve the objectives. The Metropolitan Glasgow Strategic Drainage Partnership will support the process and improve knowledge and understanding of surface water flood risk and interactions with other sources of flooding e.g. with the sewer network and watercourses. Merrylee section of the plan to be completed in the first cycle with remaining areas to be completed during the second Flood Risk Management cycle.	ERC	2021	2027	Merrylee, Thornliebank, Giffnock and Eastwood North. Sept. 2018: ERC have completed the joint workshops with SEPA, Scottish Water and neighbouring LAs. RPS Consultants utilised information from these workshops in the latest update of the SWMP. There were no further actions recommended by RPS Consultants for the individual Flood Cells. Minor alterations regarding specific planned developments are to be referenced within the report. ERC will then submit to committee for local members approval and it will then be made available for public viewing.

Summary of progress of actions to manage flood risk in PVA 11/13						
Action	**Status**	**Description**	**Lead Authority**	**Start Date**	**Finish Date**	**Progress**
Surface water plan/study	**Green**	The Council plans to undertake a surface water management plan or plans that set objectives for the management of surface water flood risk and identify the most sustainable actions to achieve the objectives. The Metropolitan Glasgow Strategic Drainage Partnership will support the process and improve knowledge and understanding of surface water flood risk and interactions with other sources of flooding e.g. with the sewer network and watercourses.	ERC	2021	2027	Newton Mearns. Sept. 2018: ERC have completed the joint workshops with SEPA, Scottish Water and neighbouring LAs. RPS Consultants utilised information from these workshops in the latest update of the SWMP. There were no further actions recommended by RPS Consultants for the individual Flood Cells. Minor alterations regarding specific planned developments are to be referenced within the report. ERC will then submit to committee for local members approval and it will then be made available for public viewing.
Surface water plan/study	**Green**	The Council plans to undertake a surface water management plan or plans for Darnley Mains, that set objectives for the management of surface water flood risk and identify the most sustainable actions to achieve the objectives. The Metropolitan Glasgow Strategic Drainage Partnership will support the process and improve knowledge and understanding of surface water flood risk and interactions with other sources of flooding e.g. with the sewer network and watercourses.	GCC	2016	2018	Initial phases of the SWMP determined that no actions required to be implemented. Area is planned for development which will include sustainable drainage and separate systems which is sufficient to manage the flood risk in the area.

Summary of progress of actions to manage flood risk in PVA 11/13						
Action	**Status**	**Description**	**Lead Authority**	**Start Date**	**Finish Date**	**Progress**
Surface water plan/study	**Green**	The Council plans to undertake a surface water management plan or plans for Hillington and Cardonald, that set objectives for the management of surface water flood risk and identify the most sustainable actions to achieve the objectives. The plan is to be carried out by Glasgow City Council and Renfrewshire Council. The Metropolitan Glasgow Strategic Drainage Partnership will support the process and improve knowledge and understanding of surface water flood risk and interactions with other sources of flooding e.g. with the sewer network, watercourses and the sea.	GCC	2016	2018	The SWMP has been progressed through detailed design. Construction works for Phase 1 (Moss Heights) have been completed, Phase 3A (Penilee) are onsite and Phase 2 (Queensland Gardens) has been tendered.
Surface water plan/study	**Red**	Reduce the economic damages and risk to people from surface water flooding in Paisley	RC	2021	2022	Action hasn't been commenced due to staff resourcing issues.
Surface water plan/study	**Amber**	Reduce the economic damages and risk to people from surface water flooding in East Kilbride	SLC	2016	2019	This was reliant on the completion of the East Kilbride ICS. On completion this became a Cycle 2 Action and East Kilbride SWMP is currently underway.
Surface water plan/study	**Green**	An integrated catchment study covering the Philipshill catchment will be carried out to support the surface water management planning process in East Kilbride. The study will improve knowledge and understanding of the interactions between the above ground and below ground drainage network e.g. with the sewer network and watercourses. This will improve the understanding of local surface water flood risk.	SW partnered with SLC	2016	2019	Catchment Flood Assessment complete and the ICS signed off by all parties.

Summary of progress of actions to manage flood risk in PVA 11/13						
Action	**Status**	**Description**	**Lead Authority**	**Start Date**	**Finish Date**	**Progress**
Maintain flood protection scheme	**Green**	In Langside and Shawlands there are sections of direct flood defences constructed along the White Cart Water and Auldhouse Burn as part of the White Cart Water Flood Prevention Scheme, upper cathment reservoirs also provide protection to the area. This scheme along with the new phase of work, will be maintained and will continue to manage flooding according to the design standard at the time of construction. Levels of flood risk are likely to increase over time as a consequence of climate change.	GCC	2015	2022	Glasgow City Council continues to maintain the existing flood defence.
Maintain flood protection scheme	**Green**	Reduce the risk of flooding from the Espedair Burn / Gleniffer Burn and surface water to residential properties, non-residential properties, community facilities and transport routes in Paisley	RC	2015	2022	Ongoing Maintenance
Maintain flood protection scheme	**Green**	Reduce the risk of coastal flooding to residential properties, non-residential properties and transport routes in Renfrew North	RC	2015	2022	Ongoing Maintenance
Strategic mapping and modelling	**Green**	Scottish Water will undertake further investigation and modelling in the Phillipshill & Allers sewer catchments to improve knowledge and understanding of flood risk in this area as required under Section 16 of the Flood Risk Management (Scotland) Act 2009	SW	2016	2019	Modelling of sewer catchment complete. The assessment will improve knowledge and understanding of surface water flood risk.

Summary of progress of actions to manage flood risk in PVA 11/13						
Action	**Status**	**Description**	**Lead Authority**	**Start Date**	**Finish Date**	**Progress**
Strategic mapping and modelling	**Green**	Scottish Water will undertake further investigation and modelling in the Shieldhall, Laighpark, Paisley, Philipshill, and Neilston sewer catchments to improve knowledge and understanding of flood risk in this area as required under Section 16 of the Flood Risk Management (Scotland) Act 2009	SW	2016	2019	Modelling of sewer catchment complete. The assessment will improve knowledge and understanding of surface water flood risk.

5.14 Rutherglen (PVA 11/14)

Local Plan District	Local authority	Main catchment
Clyde and Loch Lomond	Glasgow City Council, South Lanarkshire Council	Cityford Burn

Summary of Progress in Rutherglen (PVA 11/14)



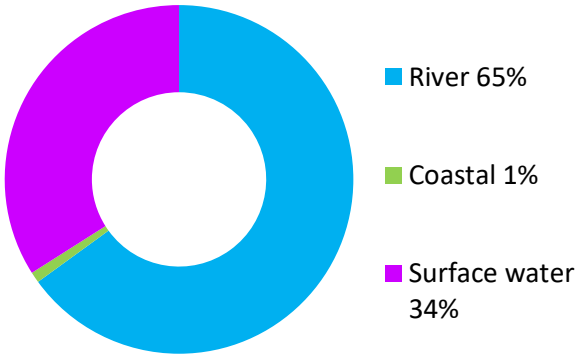
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The area has a risk of river, surface water and coastal flooding. The majority of damages are caused by river flooding. There are approximately 1,800 residential properties and 280 non-residential properties at risk of flooding. The Annual Average Damages are approximately £3.2 million. Further information can be found in the LFRMP under PVA 11/14.

Link to LFRMP PVA 11/14

Key progress:

- Phase 1 and 2 construction works for the SE Glasgow SWMP have been completed.
- The River Clyde fluvial model has been completed.



Annual Average Damages by flood source

Overview of actions to manage flooding in PVA 11/14

PVA	Flood protection scheme/works	Natural flood management works	New flood warning	Community flood action groups	Property level protection scheme	Site protection plans	Flood protection study	Natural flood management study	Maintain flood warning	Awareness raising	Surface water plan/study	Emergency plans/response	Maintain flood protection scheme	Strategic mapping and modelling	Flood forecasting	Self help	Maintenance	Planning policies
11/14				G			G			G	G	G	G	G	G	G	G	G

Summary of progress of actions to manage flood risk in PVA 11/14						
Action	**Status**	**Description**	**Lead Authority**	**Start Date**	**Finish Date**	**Progress**
Community flood action groups	**Green**	The Croftfoot Community Flood Action Group was set up by the local community to raise awareness of flood risk in the area.	Community	2015	2022	Group has been dormant since the completion of the basin in Croftfoot Park.
Flood protection study	**Green**	The Council plans to undertake a study to further investigate the feasibility of a flood protection scheme on the Cityford / Spittal Burn. The study will focus on identifying the most sustainable combination of actions for managing flooding in the area including, upstream storage, modification of conveyance by upgrading culverts and construction of an embankment along sections of the Cityford Burn / Spittal Burn.	GCC and SLC	2018	2020	Glasgow City Council has undertaken a project looking at culverted watercourses which may be in need of intervention. Recommendations are being taken forward into Cycle 2. This action is being progressed by GCC.
Flood protection study	**Green**	The Council plans to undertake a review of the Clyde Gateway masterplan at Shawfield to assess if further work is required to assess the level of flood risk. The review will be coordinated between Glasgow City Council and South Lanarkshire Council for the Rutherglen / Shawfield areas. If the review identifies further investigation of actions may be required, sustainable drainage systems and property level protection will be considered.	GCC	2018	2020	The River Clyde Fluvial model has been completed which is being used to inform the Shawfield masterplan.

Summary of progress of actions to manage flood risk in PVA 11/14						
Action	**Status**	**Description**	**Lead Authority**	**Start Date**	**Finish Date**	**Progress**
Surface water plan/study	**Green**	The Council is undertaking a surface water management plan for Kings Park to set objectives for the management of surface water flood risk and identify the most sustainable actions to achieve the objectives. The Metropolitan Glasgow Strategic Drainage Partnership will support the process and improve knowledge and understanding of surface water flood risk and interactions with other sources of flooding e.g. with the sewer network and watercourses.	GCC	2015	2016	The SWMP has been completed. Phase 1 and Phase 2 construction is complete. Further phases may be progressed in Cycle 2.
Surface water plan/study	**Green**	The Council plans to undertake a surface water management plan or plans for Croftfoot that set objectives for the management of surface water flood risk and identify the most sustainable actions to achieve the objectives. The Metropolitan Glasgow Strategic Drainage Partnership will support the process and improve knowledge and understanding of surface water flood risk and interactions with other sources of flooding e.g. with the sewer network, watercourses and the sea.	GCC	2015	2016	The SWMP has been completed. Phase 1 and Phase 2 construction is complete. Further phases may be progressed in Cycle 2.
Surface water plan/study	**Green**	The Council is undertaking a surface water management plan or plans that set objectives for the management of surface water flood risk and identify the most sustainable actions to achieve the objectives.	SLC	2015	2017	The Muirbank SWMP first phase is substantially complete and has been passed to SEPA and Scottish Water for comment.

Summary of progress of actions to manage flood risk in PVA 11/14						
Action	**Status**	**Description**	**Lead Authority**	**Start Date**	**Finish Date**	**Progress**
Surface water plan/study	**Green**	The Council plans to undertake a surface water management plan or plans for Castlemilk that set objectives for the management of surface water flood risk and identify the most sustainable actions to achieve the objectives. The Metropolitan Glasgow Strategic Drainage Partnership will support the process and improve knowledge and understanding of surface water flood risk and interactions with other sources of flooding e.g. with the sewer network and watercourses.	GCC	2019	2021	The SWMP is complete to feasibility stage, with the intention to progress to outline design in Cycle 2.
Maintain flood protection scheme	**Green**	The Cityford Burn Culvert Flood Protection Scheme was designed to protect properties in Landemer Drive from fluvial flooding. This scheme will be maintained and will continue to manage flooding according to the design standard at the time of construction. Levels of flood risk are likely to increase over time as a consequence of climate change.	GCC	2015	2022	Glasgow City Council continues to maintain the existing flood defence.
Strategic mapping and modelling	**Green**	Scottish Water will undertake further investigation and modelling in the Shieldhall sewer catchment to improve knowledge and understanding of flood risk in this area as required under Section 16 of the Flood Risk Management (Scotland) Act 2009.	SW	2016	2019	Modelling of sewer catchment complete. The assessment will improve knowledge and understanding of surface water flood risk.

5.15 North of Glasgow City (PVA 11/15)

Local Plan District	Local authority	Main catchment
Clyde and Loch Lomond	Glasgow City Council, North Lanarkshire Council	East Glasgow

Summary of Progress in the North of Glasgow City (PVA 11/15)



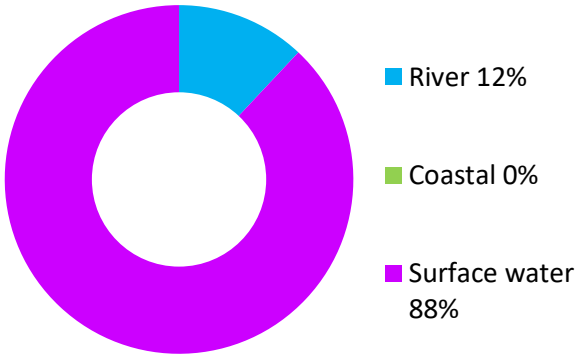
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The area has a risk of river and surface water flooding. The majority of damages are caused by surface water flooding. There are approximately 710 residential properties and 410 non-residential properties at risk of flooding. The Annual Average Damages are approximately £750,000. Further information can be found in the LFRMP under PVA 11/15.

Link to LFRMP PVA 11/15

Key progress:

- The surface water management plan for Eastern Springburn Phase 1 has been completed to detailed design stage.
- The Dalmarnock sewer catchment modelling has been completed.



Annual Average Damages by flood source

Overview of actions to manage flooding in PVA 11/15

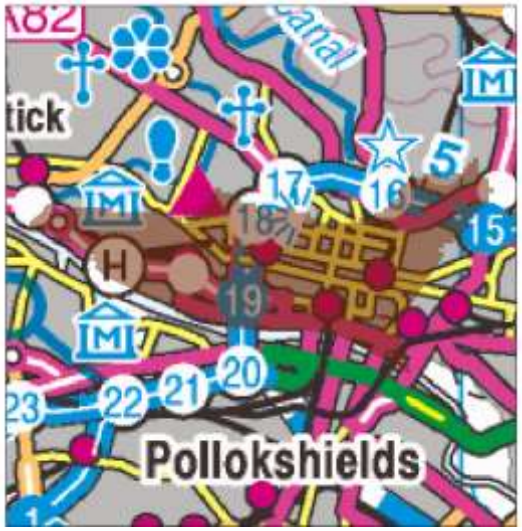
PVA	Flood protection scheme/works	Natural flood management works	New flood warning	Community flood action groups	Property level protection scheme	Site protection plans	Flood protection study	Natural flood management study	Maintain flood warning	Awareness raising	Surface water plan/study	Emergency plans/response	Maintain flood protection scheme	Strategic mapping and modelling	Flood forecasting	Self help	Maintenance	Planning policies
11/15										G	G	G		G	G	G	G	G

Summary of progress of actions to manage flood risk in PVA 11/15						
Action	**Status**	**Description**	**Lead Authority**	**Start Date**	**Finish Date**	**Progress**
Surface water plan/study	**Green**	The Council is undertaking a surface water management plan for Cockenzie Street, to set objectives for the management of surface water flood risk and identify the most sustainable actions to achieve the objectives. The Metropolitan Glasgow Strategic Drainage Partnership will support the process and improve knowledge and understanding of surface water flood risk and interactions with other sources of flooding e.g. with the sewer network and watercourses.	GCC	2014	2016	SWMP completed to outline design. Initial phase planned for construction in Cycle 2.
Surface water plan/study	**Green**	The Council plans to undertake a surface water management plan or plans for East Springburn, that set objectives for the management of surface water flood risk and identify the most sustainable actions to achieve the objectives. The Metropolitan Glasgow Strategic Drainage Partnership will support the process and improve knowledge and understanding of surface water flood risk and interactions with other sources of flooding e.g. with the sewer network and watercourses.	GCC	2016	2018	SWMP completed to detailed design. Initial phase planned for construction in Cycle 2.
Strategic mapping and modelling	**Green**	Scottish Water will undertake further investigation and modelling in the Dalmarnock sewer catchments to improve knowledge and understanding of flood risk in this area as required under Section 16 of the Flood Risk Management (Scotland) Act 2009.	SW	2016	2019	Modelling of sewer catchment complete. The assessment will improve knowledge and understanding of surface water flood risk.

5.16 Glasgow City Centre (PVA 11/16)

Local Plan District	Local authority	Main catchment
Clyde and Loch Lomond	Glasgow City Council	River Clyde

Summary of Progress in Glasgow City centre (PVA 11/16)



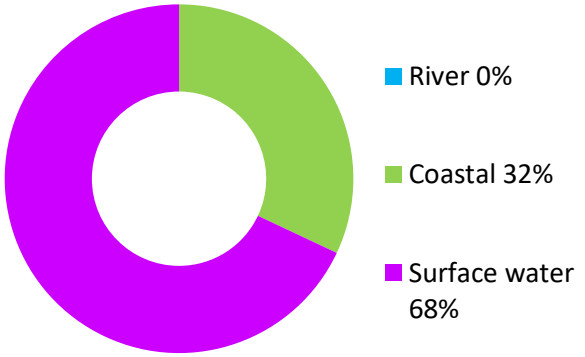
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The area has a risk of river, surface water and coastal flooding. The majority of damages are caused by surface water flooding. There are approximately 420 residential properties and 460 non-residential properties at risk of flooding. The Annual Average Damages are approximately £550,000. Further information can be found in the LFRMP under PVA 11/16.

Link to LFRMP PVA 11/16

Key progress:

- The Dalmuir Wastewater Strategy Review including modelling has been completed.



Annual Average Damages by flood source

Overview of actions to manage flooding in PVA 11/16

PVA	Flood protection scheme/works	Natural flood management works	New flood warning	Community flood action groups	Property level protection scheme	Site protection plans	Flood protection study	Natural flood management study	Maintain flood warning	Awareness raising	Surface water plan/study	Emergency plans/response	Maintain flood protection scheme	Strategic mapping and modelling	Flood forecasting	Self help	Maintenance	Planning policies
11/16	A					G			G	G		A	G	G	G	G	G	G

Summary of progress of actions to manage flood risk in PVA 11/16						
Action	**Status**	**Description**	**Lead Authority**	**Start Date**	**Finish Date**	**Progress**
Flood protection scheme / works	**Amber**	Scottish Water has proposed a large combined sewer overflow interceptor for Yorkhill adjacent to the Heliport which will remove combined sewer spills from the River Kelvin.	SW	2015	2019	The Dalmuir Wastewater Strategy Review is complete, but there are no detailed proposals to progress.
Site protection plans	**Amber**	A site protection plan for the Exhibition Centre should be developed and the multiple operators in the Centre should be involved in the process.	GCC	2017	2018	Ongoing engagement with Scottish Event Campus regarding flood resilience.
Maintain flood warning	**Green**	Continue to maintain the Glasgow Quay Walls flood warning area which is part of the Firth of Clyde coastal flood warning scheme. When flood events occur in an area with a flood warning service, SEPA will seek to verify and validate the warning service. SEPA will use feedback and post-event data to ensure that the flood warning service is timely and accurate.	SEPA	2015	2022	SEPA has continued to operate the flood warning service.
Maintain flood protection scheme	**Green**	There are a number of sections of flood defence along the River Clyde which offer protection to properties in this area including the Exhibition Centre Quarter. These defences will continue to be maintained with the responsibility for this task being split between Glasgow City Council and the riparian landowners. This will continue to manage flooding according to the design standard at the time of construction. Levels of flood risk are likely to increase over time as a consequence of climate change.	GCC	2015	2022	Glasgow City Council continues to maintain the existing flood defence.
Strategic mapping and modelling	**Green**	Scottish Water will undertake further investigation and modelling in the Dalmuir sewer catchments to improve knowledge and understanding of flood risk in this area as required under Section 16 of the Flood Risk Management (Scotland) Act 2009.	SW	2016	2020	Modelling of sewer catchment complete. The assessment will improve knowledge and understanding of surface water flood risk.

5.17 East of Glasgow (PVA 11/17/1)

Local Plan District	Local authority	Main catchment
Clyde and Loch Lomond	Glasgow City Council, North Lanarkshire Council, South Lanarkshire Council	River Clyde

Summary of Progress in the East of Glasgow (PVA 11/17/1)



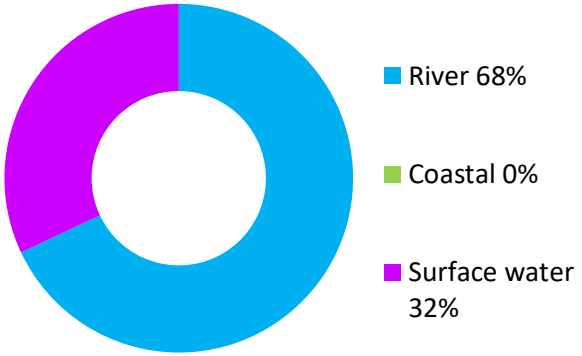
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The area has a risk of river and surface water flooding. The majority of damages are caused by river flooding. There are approximately 2,500 residential properties and 650 non-residential properties at risk of flooding. The Annual Average Damages are approximately £6.7 million. Further information can be found in the LFRMP under PVA 11/17/1.

Link to LFRMP PVA 11/17/1

Key progress:

- The River Clyde fluvial model has been completed.
- Engineering works on the Camlachie and Tollcross Burns have been substantially completed.



Annual Average Damages by flood source

Overview of actions to manage flooding in PVA 11/17/1

PVA	Flood protection scheme/works	Natural flood management works	New flood warning	Community flood action groups	Property level protection scheme	Site protection plans	Flood protection study		Natural flood management study	Maintain flood warning	Awareness raising	Surface water plan/study			Emergency plans/response	Maintain flood protection scheme	Strategic mapping and modelling		Flood forecasting	Self help	Maintenance	Planning policies
11/17/1	G			G			G	R		G	G	G	A	R	G	G	A	G	G	G	G	G

Summary of progress of actions to manage flood risk in PVA 11/17/1						
Action	**Status**	**Description**	**Lead Authority**	**Start Date**	**Finish Date**	**Progress**
Flood protection scheme / works	**Green**	Reduce the physical risk, or disruption risk, related to areas of the M8, M73, M74 at risk of flooding	TS	2016	2021	Transport Scotland have completed a range of maintenance, scoping, and design works at these locations as part of our 2016 to 2021 FRMA obligations, with further works planned for 2023 as part of our Vulnerable Locations pilot adaptation programme, and our general maintenance programme.
Flood protection scheme / works	**Green**	Network Rail will carry out civil engineering work which will reduce flood risk to identified sections of the rail network within this Potentially Vulnerable Area.	NR	2019	2024	No significant planned works by Network Rail within this PVA.
Flood protection scheme / works	**Green**	The Council plans to progress the flood protection scheme proposed for the Camlachie Burn. The work includes diversion of extreme flows and watercourse restoration to remove substantial network constraints close to Biggar Street and Shettleston Road. The flood mapping for the Camlachie Burn will be revised to include all elements of the scheme to understand any remaining residual risk now and in the future.	GCC	2016	2018	Project construction is substantially complete.
Community flood action groups	**Green**	The Clyde River Users group was set up by the local community to raise awareness of flood risk in the area.	Community	2015	2022	This action group is currently dormant.

Summary of progress of actions to manage flood risk in PVA 11/17/1						
Action	**Status**	**Description**	**Lead Authority**	**Start Date**	**Finish Date**	**Progress**
Flood protection study	**Green**	The Council plans to progress work to deculvert sections of the Tollcross Burn in Sandyhills Park. The work is being carried out in coordination with river basin management planning and should help to improve the condition of the river. The Council plans to undertake a study to further investigate the flood benefit of the deculverting work and feasibility of a flood protection scheme on the Tollcross Burn focusing on, upstream storage, modification of conveyance by upgrading culverts, sustainable drainage systems, modification of fluvial control structures by replacing existing trash screens and construction of a river wall. Other actions will also be considered to select the most sustainable combination of actions.	GCC	2016	2018	Daylighting of the Tollcross Burn through Sandyhills Park is now complete.
Flood protection study	**Green**	The Council plans to undertake a study to further investigate the feasibility of a flood protection scheme along the lower River Clyde. The study will focus on establishing the most sustainable combination of actions including; improving the conveyance through a number of structures, the construction of a control structure on the Powburn with a pumping station to force water into the River Clyde, and the benefit of flood defences. The study will also assess the benefit of sustainable drainage systems and property level protection. SEPA will review the output from this study for inclusion in the Flood Maps.	SLC	2017	2019	A hydraulic model has been completed and information gathered. This influences actions in Cycle 2.

Summary of progress of actions to manage flood risk in PVA 11/17/1						
Action	**Status**	**Description**	**Lead Authority**	**Start Date**	**Finish Date**	**Progress**
Flood protection study	**Red**	The Council plans to undertake a study to further investigate the feasibility of a flood protection scheme in Strathaven focusing on the benefit from storage from the Powmillon Burn, improving the conveyance through existing structures on the Powmillon Burn, modification of the existing weirs at Strathaven Park and the Old Mill and construction of flood defences along the Powmillon Burn within Strathaven. Sustainable drainage systems will be assessed in any future flood study undertaken in the area. This study may also consider natural flood management, property level protection actions and other complementary actions.	SLC	2015	2017	This has been carried forward to Cycle 2.
Maintain flood warning	**Green**	Continue to maintain the Cambuslang Road and Morriston Park, Carmyle, Dalbeth, Dalmarnock Bridge, Hamilton Services and the Watersports Centre at Strathclyde Loch flood warning areas which are part of the River Clyde flood warning scheme. When flood events occur in an area with a flood warning service, SEPA will seek to verify and validate the warning service. SEPA will use feedback and post-event data to ensure that the flood warning service is timely and accurate.	SEPA	2015	2022	SEPA has continued to operate the flood warning service.
Awareness raising	**Green**	See page 32 for the LPD-wide action description.	SEPA	2015	2022	SEPA continues to work with others to raise awareness of flood risk and its flood warning service. It has participated in local activities including school / education and community resilience activities when able. Some planned activities notably in person joint events have been limited or delayed due to Covid 19.

Summary of progress of actions to manage flood risk in PVA 11/17/1						
Action	**Status**	**Description**	**Lead Authority**	**Start Date**	**Finish Date**	**Progress**
Surface water plan/study	**Green**	The Council is undertaking a surface water management plan for Garrowhill & Baillieston to set objectives for the management of surface water flood risk and identify the most sustainable actions to achieve the objectives. The Metropolitan Glasgow Strategic Drainage Partnership will support the process and improve knowledge and understanding of surface water flood risk and interactions with other sources of flooding e.g. with the sewer network and watercourses.	GCC	2015	2016	Constuction works within Early Braes Park complete with works to construct a connecting surface water network within the Pendeen Rd area including a new drainage pipe below the railway to be progressed in Cycle 2.
Surface water plan/study	**Green**	The Council plans to undertake a surface water management plan or plans that set objectives for the management of surface water flood risk and identify the most sustainable actions to achieve the objectives. The Metropolitan Glasgow Strategic Drainage Partnership will support the process and improve knowledge and understanding of surface water flood risk and interactions with other sources of flooding e.g. with the sewer network and watercourses.	GCC	2020	2022	Tollcross SWMP is complete to feasibility stage. Outputs will be considered for further development.
Surface water plan/study	**Green**	The Council plans to undertake a surface water management plan or plans that set objectives for the management of surface water flood risk and identify the most sustainable actions to achieve the objectives. The Metropolitan Glasgow Strategic Drainage Partnership will support the process and improve knowledge and understanding of surface water flood risk and interactions with other sources of flooding e.g. with the sewer network and watercourses.	NLC	2016	2019	Phase 1a of this is complete. This study is progressing as part of a commission with a consultant and it is expected to be complete mid-2023. Delays due to resource constraints.

Summary of progress of actions to manage flood risk in PVA 11/17/1						
Action	**Status**	**Description**	**Lead Authority**	**Start Date**	**Finish Date**	**Progress**
Surface water plan/study	**Amber**	The Council plans to undertake a surface water management plan or plans for East Kilbride, that set objectives for the management of surface water flood risk and identify the most sustainable actions to achieve the objectives.	SLC	2016	2019	This was reliant on the completion of the East Kilbride ICS. On completion this became a Cycle 2 Action and East Kilbride SWMP is currently underway.
Surface water plan/study	**Green**	An integrated catchment study covering the Philipshill catchment will be carried out in East Kilbride to improve knowledge and understanding of the interactions between the above ground and below ground drainage network e.g. with the sewer network, watercourses and the sea.	SW partnered with SLC	2016	2019	Model Build Complete. Catchment Flood Assessment complete and the ICS signed off by all parties.
Surface water plan/study	**Green**	The Council is undertaking a surface water management plan for Eastfield to set objectives for the management of surface water flood risk and identify the most sustainable actions to achieve the objectives.	SLC	2015	2019	The Eastfield SWMP first phase is substantially complete and has been passed to SEPA and Scottish Water for comment.
Surface water plan/study	**Green**	The Council is undertaking a surface water management plan for Halfway to set objectives for the management of surface water flood risk and identify the most sustainable actions to achieve the objectives.	SLC	2015	2017	The Halfway SWMP first phase is substantially complete and has been passed to SEPA and Scottish Water for comment.
Surface water plan/study	**Red**	The Council plans to undertake a surface water management plan or plans for Hamilton that set objectives for the management of surface water flood risk and identify the most sustainable actions to achieve the objectives.	SLC	2016	2018	This has been carried forward to Cycle 2.

Summary of progress of actions to manage flood risk in PVA 11/17/1						
Action	**Status**	**Description**	**Lead Authority**	**Start Date**	**Finish Date**	**Progress**
Maintain flood protection scheme	**Green**	The Dalmarnock Flood Bund Flood Protection Scheme consists of a flood embankment adjacent to the River Clyde at Downiebrae Road. These defences will continue to be maintained and will continue to manage flooding according to the design standard at the time of construction. Levels of flood risk are likely to increase over time as a consequence of climate change.	GCC	2015	2022	Glasgow City Council continues to maintain the existing flood defence.
Maintain flood protection scheme	**Green**	Reduce the risk of flooding to residential properties, non-residential properties and transport routes along the River Clyde from Strathclyde Park to Shawfield	SLC	2015	2022	The River Clyde fluvial model has been completed.
Strategic mapping and modelling	**Amber**	SEPA will seek to incorporate additional surface water data into the flood maps to improve understanding of flood risk. Approximately 2,200km² of improved surface water data is currently available within this Local Plan District. The inclusion of additional surface water hazard data resulting from the completion of local authority surface water management plans and Scottish Water integrated catchment studies will be considered as these projects are completed.	SEPA	2016	2023	The national surface water flooding modelling project will be completed in 2023. The outputs from this will be used to update SEPA maps early in cycle 2 and will inform SEPA's flood risk assessments for the next flood risk management cycle.
Strategic mapping and modelling	**Green**	Scottish Water will undertake further investigation and modelling in the Allers, Bothwellbank, Hamilton, Shieldhall, and Strathaven sewer catchments to improve knowledge and understanding of flood risk in this area as required under Section 16 of the Flood Risk Management (Scotland) Act 2009.	SW	2016	2021	Modelling of sewer catchments complete. The assessment will improve knowledge and understanding of surface water flood risk.

5.18 Clyde catchment (PVA 11/17/2)

Local Plan District	Local authority	Main catchment
Clyde and Loch Lomond	North Lanarkshire Council, South Lanarkshire Council	River Clyde

Summary of Progress in the Clyde catchment, from Motherwell to Lesmahagow (PVA 11/17/2)



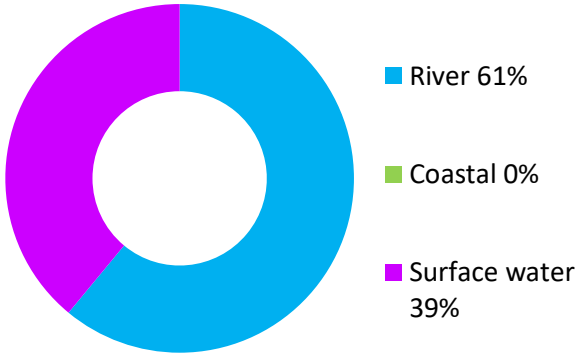
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The area has a risk of river and surface water flooding. The majority of damages are caused by river flooding. There are approximately 420 residential properties and 210 non-residential properties at risk of flooding. The Annual Average Damages are approximately £1.1 million. Further information can be found in the LFRMP under PVA 11/17/2.

Link to LFRMP PVA 11/17/2

Key progress:

- Scottish Water has completed modelling in multiple sewer catchments.
- Transport Scotland has progressed actions to reduce flood risk on the M74.



Annual Average Damages by flood source

Overview of actions to manage flooding in PVA 11/17/2

PVA	Flood protection scheme/works	Natural flood management works	New flood warning	Community flood action groups	Property level protection scheme	Site protection plans	Flood protection study		Natural flood management study	Maintain flood warning	Awareness raising	Surface water plan/study	Emergency plans/response	Maintain flood protection scheme	Strategic mapping and modelling	Flood forecasting	Self help	Maintenance	Planning policies
11/17/2	G					R	A	G			G	A	G		G	G	G	G	G

Summary of progress of actions to manage flood risk in PVA 11/17/2						
Action	**Status**	**Description**	**Lead Authority**	**Start Date**	**Finish Date**	**Progress**
Flood protection scheme / works	**Green**	Reduce the physical risk, or disruption risk, related to areas of the M74 at risk of flooding	TS	2016	2021	We have completed a range of maintenance, scoping, and design works at these locations as part of our 2016 to 2021 FRMA obligations, with further works planned for 2023 as part of our Vulnerable Locations pilot adaptation programme, and our general maintenance programme.
Site protection plans	**Red**	A site protection plan will be developed for the Caravan Park and hotels in Bothwellhaugh adjacent to M&D's theme park.	NLC	2016	2021	Not currently being assessed due to resource constraints. Will be reassessed 2023. Aim to progress within Cycle 2.
Flood protection study	**Amber**	The Council will undertake a study to further investigate the feasibility of flood protection work in Greenacres, focusing on direct defences and sustainable drainage systems. Property level protection should also be considered to reduce residual risk. Other actions will also be considered to select the most sustainable combination of actions.	NLC	2016	2019	Phase 1a of this is complete. This study is progressing as part of a commission with a consultant and it is expected to be complete mid-2023. Delays due to resource constraints.

Summary of progress of actions to manage flood risk in PVA 11/17/2						
Action	**Status**	**Description**	**Lead Authority**	**Start Date**	**Finish Date**	**Progress**
Flood protection study	**Amber**	The Council will undertake a study to further investigate surface water flood risk in Holytown. Review of the study will establish the level of risk and if further stages are required to examine actions to manage flooding. The flood mapping from the study should be used to revise SEPA's strategic mapping.	NLC	2016	2019	Partly complete. Stage one conclusion below: The review found that the LFRMP indicates that flood risk within Holytown is predominantly the result of fluvial mechanisms. However, the NLC Biennial Flood Reports, along with anecdotal evidence, suggest that flooding is largely the result of surface water unable to drain effectively. This latter conclusion is supported by Section 16 data which identifies a number of manholes which have the potential to surcharge in relation to return periods lower than the 1:30 year recommended capacity of the system. That said, evidence gathered both through the engineering walkover and community survey indicate that there is potential for fluvial flooding within Holytown, largely due to the build-up of debris within the watercourse. Further investigation is required but mainly on the Surface Water front. This is being captured under action 1002 in cycle 2.
Flood protection study	**Green**	The Council will undertake a study to further investigate the feasibility of a flood protection scheme on the upper River Clyde (upstream of Strathclyde Park) focusing on, improving the conveyance of a number of existing structures and the benefit of flood defences at various locations along the upper River Clyde. This should also assess the benefit of sustainable drainage systems and property level protection. SEPA will review the output from this study for inclusion in the Flood Maps.	SLC	2016	2019	A hydraulic model has been completed and information gathered. This influences actions in Cycle 2.
Surface water plan/study	**Amber**	Reduce the economic damages and risk to people from surface water flooding in Motherwell and Wishaw	NLC	2016	2019	Phase 1a of this is complete. This study is progressing as part of a commission with a consultant and it is expected to be complete mid-2023. Delays due to resource constraints.

Summary of progress of actions to manage flood risk in PVA 11/17/2						
Action	**Status**	**Description**	**Lead Authority**	**Start Date**	**Finish Date**	**Progress**
Strategic mapping and modelling	**Green**	Scottish Water will undertake further investigation and modelling in the Ashgill New, Blackwood, Crossford, Carbarns, Coursington, Daldowie, Lesmahagow, and Skellyton sewer catchments to improve knowledge and understanding of flood risk in this area as required under Section 16 of the Flood Risk Management (Scotland) Act 2009.	SW	2015	2021	Modelling of sewer catchments complete. The assessment will improve knowledge and understanding of surface water flood risk.

5.19 Coatbridge and Airdrie (PVA 11/17/3)

Local Plan District	Local authority	Main catchment
Clyde and Loch Lomond	North Lanarkshire Council	North Calder Water

Summary of Progress for Coatbridge and Airdrie (PVA 11/17/3)



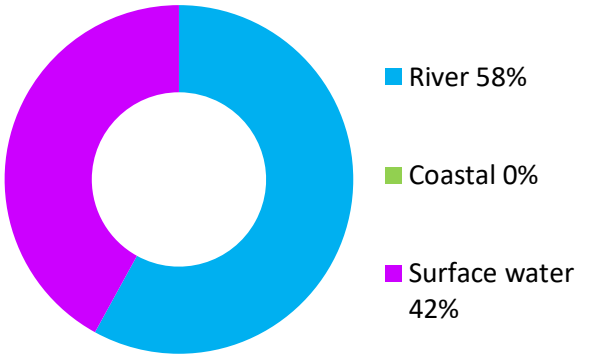
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The area has a risk of river and surface water flooding. The majority of damages are caused by river flooding. There are approximately 470 residential properties and 150 non-residential properties at risk of flooding. The Annual Average Damages are approximately £900,000. Further information can be found in the LFRMP under PVA 11/17/3.

Link to LFRMP PVA 11/17/3

Key progress:

- Phase 1a of the Coatbridge and Airdrie SWMP has been completed.
- The Daldowie sewer catchment modelling has been completed.



Annual Average Damages by flood source

Overview of actions to manage flooding in PVA 11/17/3

PVA	Flood protection scheme/works	Natural flood management works	New flood warning	Community flood action groups	Property level protection scheme	Site protection plans	Flood protection study	Natural flood management study	Maintain flood warning	Awareness raising	Surface water plan/study	Emergency plans/response	Maintain flood protection scheme	Strategic mapping and modelling	Flood forecasting	Self help	Maintenance	Planning policies
11/17/3										G	A	G		G	G	G	G	G

Summary of progress of actions to manage flood risk in PVA 11/17/3						
Action	**Status**	**Description**	**Lead Authority**	**Start Date**	**Finish Date**	**Progress**
Surface water plan/study	**Amber**	The Council plans to undertake a surface water management plan or plans for Coatbridge and Airdrie that set objectives for the management of surface water flood risk and identify the most sustainable actions to achieve the objectives. The Metropolitan Glasgow Strategic Drainage Partnership will support the process and improve knowledge and understanding of surface water flood risk and interactions with other sources of flooding e.g. with the sewer network and watercourses.	NLC	2016	2019	Phase 1a of this is complete. This study is progressing as part of a commission with a consultant and it is expected to be complete mid-2023. Delays due to resource constraints.
Strategic mapping and modelling	**Green**	Scottish Water will undertake further investigation and modelling in the Daldowie and Plains sewer catchments to improve knowledge and understanding of flood risk in this area as required under Section 16 of the Flood Risk Management (Scotland) Act 2009.	SW	2016	2020	Modelling of sewer catchment complete. The assessment will improve knowledge and understanding of surface water flood risk.

5.20 Coatbridge/Viewpark (PVA 11/18)

Local Plan District	Local authority	Main catchment
Clyde and Loch Lomond	North Lanarkshire Council	North Calder Water

Summary of Progress for Coatbridge/Viewpark (PVA 11/18)



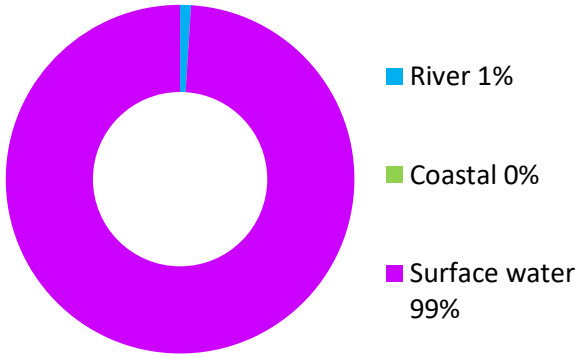
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The area has a risk of river and surface water flooding. The majority of damages are caused by surface water flooding. There are approximately 50 residential properties at risk of flooding. The Annual Average Damages are approximately £43,000. Further information can be found in the LFRMP under PVA 11/18.

Link to LFRMP PVA 11/18

Key progress:

- The Scottish Water assessment of flood risk has been completed



Annual Average Damages by flood source

Overview of actions to manage flooding in PVA 11/18

PVA	Flood protection scheme/works	Natural flood management works	New flood warning	Community flood action groups	Property level protection scheme	Site protection plans	Flood protection study	Natural flood management study	Maintain flood warning	Awareness raising	Surface water plan/study	Emergency plans/response	Maintain flood protection scheme	Strategic mapping and modelling	Flood forecasting	Self help	Maintenance	Planning policies
11/18										G		G		G	G	G	G	G

Summary of progress of actions to manage flood risk in PVA 11/18						
Action	**Status**	**Description**	**Lead Authority**	**Start Date**	**Finish Date**	**Progress**
Strategic mapping and modelling	**Green**	Scottish Water will undertake further investigation and modelling in the Daldowie sewer catchments to improve knowledge and understanding of flood risk in this area as required under Section 16 of the Flood Risk Management (Scotland) Act 2009.	SW	2016	2020	Modelling of sewer catchment complete. The assessment will improve knowledge and understanding of surface water flood risk.

5.21 North of Wishaw (PVA 11/19)

Local Plan District	Local authority	Main catchment
Clyde and Loch Lomond	North Lanarkshire Council	South Calder Water

Summary of Progress for the North of Wishaw (PVA 11/19)



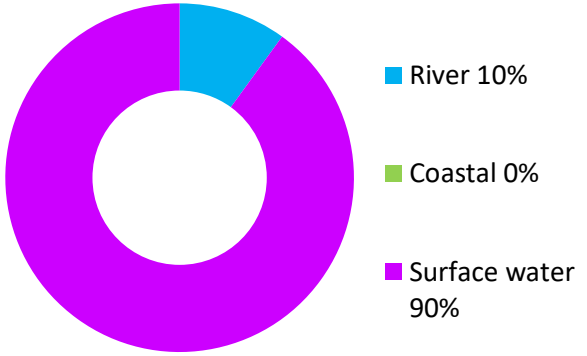
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The area has a risk of river and surface water flooding. The majority of damages are caused by surface water flooding. There are approximately 30 residential properties at risk of flooding. The Annual Average Damages are approximately £50,000. Further information can be found in the LFRMP under PVA 11/19.

Link to LFRMP PVA 11/19

Key progress:

- Phase 1a of the Motherwell and Wishaw SWMP has been completed.



Annual Average Damages by flood source

Overview of actions to manage flooding in PVA 11/19

PVA	Flood protection scheme/works	Natural flood management works	New flood warning	Community flood action groups	Property level protection scheme	Site protection plans	Flood protection study	Natural flood management study	Maintain flood warning	Awareness raising	Surface water plan/study	Emergency plans/response	Maintain flood protection scheme	Strategic mapping and modelling		Flood forecasting	Self help	Maintenance	Planning policies
11/19										G	A	G		A	G	G	G	G	G

Summary of progress of actions to manage flood risk in PVA 11/19						
Action	**Status**	**Description**	**Lead Authority**	**Start Date**	**Finish Date**	**Progress**
Surface water plan/study	**Amber**	Reduce the economic damages and risk to people from surface water flooding in Motherwell and Wishaw	NLC	2016	2019	Phase 1a of this is complete. This study is progressing as part of a commission with a consultant and it is expected to be complete mid-2023. Delays due to resource constraints.
Strategic mapping and modelling	**Amber**	SEPA will seek to incorporate additional surface water data into the flood maps to improve understanding of flood risk. Approximately 2,200km² of improved surface water data is currently available within this Local Plan District. The inclusion of additional surface water hazard data resulting from the completion of local authority surface water management plans and Scottish Water integrated catchment studies will be considered as these projects are completed.	SEPA	2016	2023	The national surface water flooding modelling project will be completed in 2023. The outputs from this will be used to update SEPA maps early in cycle 2 and will inform SEPA's flood risk assessments for the next flood risk management cycle.
Strategic mapping and modelling	**Green**	Scottish Water will undertake further investigation and modelling in the Carbarns and Swinstie sewer catchments to improve knowledge and understanding of flood risk in this area as required under Section 16 of the Flood Risk Management (Scotland) Act 2009.	SW	2016	2021	Modelling of sewer catchment complete. The assessment will improve knowledge and understanding of surface water flood risk.

5.22 Shotts (PVA 11/20)

Local Plan District	Local authority	Main catchment
Clyde and Loch Lomond	North Lanarkshire Council	South Calder Water

Summary of Progress for Shotts (PVA 11/20)



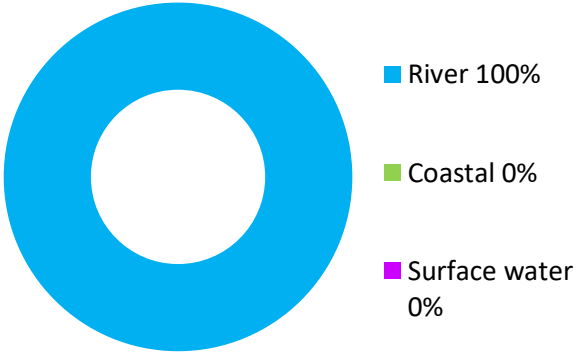
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There are less than 10 residential and non-residential properties at risk of flooding. The Annual Average Damages are approximately £7,200. All damages in this Potentially Vulnerable Area are caused by river flooding. Further information can be found in the LFRMP under PVA 11/20.

Link to LFRMP PVA 11/20

Key progress:

- The Scottish Water assessment of flood risk has been completed.



Annual Average Damages by flood source

Overview of actions to manage flooding in PVA 11/20

PVA	Flood protection scheme/works	Natural flood management works	New flood warning	Community flood action groups	Property level protection scheme	Site protection plans	Flood protection study	Natural flood management study	Maintain flood warning	Awareness raising	Surface water plan/study	Emergency plans/response	Maintain flood protection scheme	Strategic mapping and modelling		Flood forecasting	Self help	Maintenance	Planning policies
11/20										G		G		A	G	G	G	G	G

Summary of progress of actions to manage flood risk in PVA 11/20						
Action	**Status**	**Description**	**Lead Authority**	**Start Date**	**Finish Date**	**Progress**
Strategic mapping and modelling	**Amber**	SEPA will seek to incorporate additional surface water data into the flood maps to improve understanding of flood risk. Approximately 2,200km² of improved surface water data is currently available within this Local Plan District. The inclusion of additional surface water hazard data resulting from the completion of local authority surface water management plans and Scottish Water integrated catchment studies will be considered as these projects are completed.	SEPA	2016	2023	The national surface water flooding modelling project will be completed in 2023. The outputs from this will be used to update SEPA maps early in cycle 2 and will inform SEPA's flood risk assessments for the next flood risk management cycle.
Strategic mapping and modelling	**Green**	Scottish Water will undertake further investigation and modelling in the Shotts and Swinstie sewer catchments to improve knowledge and understanding of flood risk in this area as required under Section 16 of the Flood Risk Management (Scotland) Act 2009.	SW	2016	2021	Modelling of sewer catchment complete. The assessment will improve knowledge and understanding of surface water flood risk.

5.23 Kilmacolm (PVA 11/21C)

Local Plan District	Local authority	Main catchment
Clyde and Loch Lomond	Inverclyde Council, Renfrewshire Council	Gryfe Water

Summary of Progress for Kilmacolm (PVA 11/21C)



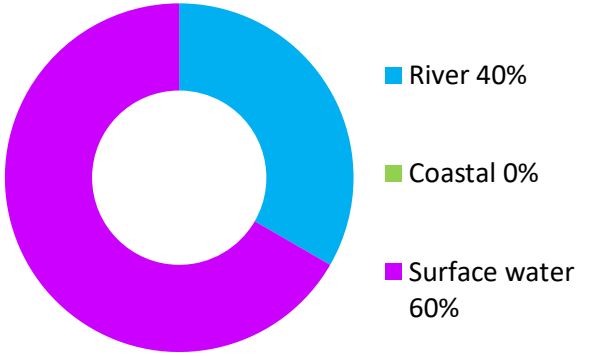
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The area has a risk of river and surface water flooding. The majority of damages are caused by surface water flooding. There are approximately 30 residential properties and 40 non-residential properties at risk of flooding. The Annual Average Damages are approximately £96,000. Further information can be found in the LFRMP under PVA 11/21C.

Link to LFRMP PVA 11/21C

Key progress:

- The Glenmosston Burn Flood Protection Scheme has been completed.
- The Kilmacolm Natural Flood Management Study has been completed.



Annual Average Damages by flood source

Overview of actions to manage flooding in PVA 11/21C

PVA	Flood protection scheme/works	Natural flood management works	New flood warning	Community flood action groups	Property level protection scheme	Site protection plans	Flood protection study	Natural flood management study	Maintain flood warning	Awareness raising	Surface water plan/study	Emergency plans/response	Maintain flood protection scheme	Strategic mapping and modelling	Flood forecasting	Self help	Maintenance	Planning policies
11/21C	G							G		G		G		G	G	G	G	G

Summary of progress of actions to manage flood risk in PVA 11/21C						
Action	**Status**	**Description**	**Lead Authority**	**Start Date**	**Finish Date**	**Progress**
Flood protection scheme / works	**Green**	The Council plans to progress the flood protection scheme proposed for the Glenmosston Burn. The works include upgrading a culvert at Market Place and a new overflow pipe at Gowkhouse Road. A separate natural flood management study is being carried out in the area which may identify additional actions that could be included within the flood protection scheme.	IC	2017	2019	Action complete.
Natural flood management study	**Green**	The Council plans to undertake a natural flood management study to further investigate the potential benefit for floodplain restoration at Glen Moss in Kilmacolm. A scoping study is to be carried out by Inverclyde Council to inform future direction of the natural flood management study. The council will look to engage with land owners early in the process to establish the potential for any works.	IC	2016	2019	Action complete.
Awareness raising	**Green**	See page 32 for the LPD-wide action description.	SEPA	2015	2022	SEPA continues to work with others to raise awareness of flood risk and its flood warning service. It has participated in local activities including school / education and community resilience activities when able. Some planned activities notably in person joint events have been limited or delayed due to Covid 19.
Strategic mapping and modelling	**Green**	Scottish Water will undertake further investigation and modelling in the Erskine sewer catchments to improve knowledge and understanding of flood risk in this area as required under Section 16 of the Flood Risk Management (Scotland) Act 2009.	SW	2017	2020	Modelling of sewer catchment complete. The assessment will improve knowledge and understanding of surface water flood risk.

Annex 1: Actions

Annex 1 provides a full list of Clyde and Loch Lomond Local Plan District Cycle 1 Actions and is available for download from the GCC website here – www.glasgow.gov.uk/clydeandlochlomond

Annex 2: Roles and Responsibilities

Individuals are the first line of defence against flooding. However, public bodies have responsibilities too and are working together to reduce the impacts of flooding in Scotland. Responsibility for flood risk management planning falls in the main to SEPA, local authorities and Scottish Water. However, individuals have a personal responsibility to protect themselves and their property.

Some of the key roles are outlined below and more information is available from the SEPA website.

Your responsibilities

Organisations and individuals have responsibilities to protect themselves from flooding. Being prepared by knowing what to do and who to contact if flooding happens can help you reduce the damage and disruption flooding can have on your life.

The first step to being prepared is to sign up to Floodline - www.floodlinescotland.org.uk - to receive messages to let you know where and when flooding is likely to happen. Other useful tools and advice on how to be prepared are available on the Floodline website including a quick guide to who to contact in the event of a flood. You can also check how your area could be affected by flooding by looking at SEPA's flood maps - www.sepa.org.uk/environment/water/flooding/flood-maps

SEPA

SEPA is Scotland's national flood forecasting, flood warning and strategic flood risk management authority. SEPA has a statutory duty to produce Scotland's Flood Risk Management Strategies. SEPA works closely with other organisations responsible for managing flood risk through a network of partnerships and stakeholder groups to ensure that a nationally consistent approach to flood risk management is adopted.

SEPA also has a responsibility to identify where in Scotland there is the potential for natural flood management techniques to be introduced. Natural flood management is the use of the natural features of the land to store and slow down the flow of water.

In running Floodline, SEPA provides live flooding information and advice on how to prepare for or cope with the impacts of flooding 24 hours a day, seven days a week. To help forecast for flooding SEPA works closely with the Met Office.

To raise awareness of flooding at a national level, SEPA runs education initiatives, community engagement programmes and an annual campaign to promote the useful advice and information available through Floodline. SEPA works in partnership with local authorities, Neighbourhood Watch Scotland, Ready Scotland and others to share resources and help to promote preparedness and understanding of how flood risk is managed.

SEPA has a statutory role in relation to the provision of flood risk advice to planning authorities. This role is expressed in Section 72 of the FRM Act, 2009. SEPA also has a duty to co-operate with planning authorities in the preparation of development plans. When consulted in relation to planning applications for development or site allocations in development plans, and where the planning authority considers there may be a risk of

flooding, SEPA will provide advice. The advice provided by SEPA will be with respect to the risk of flooding and on the basis of the relevant information it holds which is suitable for planning purposes. It will also be in line with the principles and duties set out in the FRM Act. Further information about how SEPA engage in the planning system, including guidance on flood risk and planning is available on SEPA website www.sepa.org.uk/environment/land/planning

Local authorities

Local authorities work together for flood risk management planning purposes through a single lead authority which has the responsibility to produce a Local Flood Risk Management Plan. Local authorities have been working collaboratively in the manner described above to develop these.

It is the responsibility of your local authority to implement its flood protection actions agreed within the Local Flood Risk Management Plan. You can help your local authority to manage flooding by not dumping material on the banks of a watercourse and by letting them know if flood defences are tampered with.

During severe flooding, local authorities will work with the emergency services and coordinate shelter for people evacuated from their homes.

The Lead Local Authority for the Clyde and Loch Lomond Local Plan District is:

Glasgow City Council

Other local authorities who are responsible authorities for the Clyde and Loch Lomond Local Plan District are:

Argyll and Bute District Council;

East Dunbartonshire Council;

East Renfrewshire Council;

Inverclyde Council;

North Lanarkshire Council;

Renfrewshire Council;

South Lanarkshire Council;

Stirling Council; and

West Dunbartonshire Council.

Scottish Water

Scottish Water is a responsible authority for flood risk management and is working closely with SEPA, local authorities and other responsible authorities to coordinate plans to manage flood risk.

Scottish Water has the public drainage duty and is responsible for foul drainage and the drainage of rainwater run-off from roofs and any paved ground surfaces from the boundary of properties. Additionally, Scottish Water helps to protect homes from flooding caused by sewers either overflowing or becoming blocked. Scottish Water is not responsible for private pipework or guttering within the property boundary.

National Park

The two National Park Authorities, Loch Lomond and the Trossachs National Park Authority and Cairngorms National Park, were designated as responsible authorities for flood risk management purposes in 2013. Both have worked with SEPA, local authorities and Scottish Water to help develop Flood Risk Management Strategies and Local Flood Risk Management Plans. They also fulfil an important role in land use planning, carrying out or granting permission for activities that can play a key role in managing and reducing flood risk. Loch Lomond and the Trossachs National Park Authority is a responsible authority for the Clyde and Loch Lomond Local Plan District.

Forestry Commission Scotland

Forestry Commission Scotland was designated in 2013 as a responsible authority for flood risk management planning purposes and has engaged in the development of the Local Flood Risk Management Plan. This reflects the widely held view that forestry can play a significant role in managing flooding.

Other organisations

- The **Scottish Government** oversees the implementation of the Flood Risk Management (Scotland) Act 2009 which requires the production of Flood Risk Management Strategies and Local Flood Risk Management Plans. Scottish Ministers are responsible for setting the policy framework for how organisations collectively manage flooding in Scotland.
- **NatureScot** has provided general and local advice in the development of this Flood Risk Management Strategies. Flooding is seen as a natural process that can maintain the features of interest at many designated sites, so NatureScot helps to ensure that any changes to patterns of flooding do not adversely affect the environment. NatureScot also provides advice on the impact of Flood Protection Schemes and other land use development on designated sites and species.
- During the preparation of the first flood risk management plans **Network Rail** and **Transport Scotland** have identified works to address flooding at a number of frequently flooded sites. Further engagement is planned with SEPA and local authorities to identify areas of future work. There is the opportunity for further works to be undertaken during the first flood risk management planning cycle although locations for these works are yet to be confirmed.

- **Utility companies** have undertaken site specific flood risk studies for their primary assets and have management plans in place to mitigate the effects of flooding to their assets and also minimise the impacts on customers.
- The **Met Office** provides a wide range of forecasts and weather warnings. SEPA and the Met Office work together through the Scottish Flood Forecasting Service.
- The **emergency services** provide emergency relief when flooding occurs and can coordinate evacuations. You should call the emergency services on 999 if you are concerned about your safety or the safety of others and act immediately on any advice provided.
- **Historic Environment Scotland** considers flooding as part of their regular site assessments. As such, flooding is considered as one of the many factors which inform the development and delivery of its management and maintenance programmes.
- The **Scottish Flood Forum** is a Scottish charitable organisation that provides support for those who are affected by, or are at risk of, flooding. It provides flood advice, information, awareness, education and training to individuals and communities to help reduce the risk of flooding; in partnership with the local authority, provides support during the recovery process following a flood incident and aims to support the development of resilient communities.

Annex 3: Links to other plans, policies, strategies and legislative requirements

S18 Schedule of Clearance and Repair

The table below provides details of how to access schedules of clearance and repair for each local authority under Section 18 of the Flood Risk Management (Scotland) Act 2009:

Local Authority	Method of public access to the S18 Schedule
Argyll and Bute District Council	Information available on request. Details available here http://www.argyll-bute.gov.uk/transport-and-streets/flood-advice or for further information contact floodingenquiries@argyll-bute.gov.uk
East Dunbartonshire Council	Information available on request. Details available here http://www.eastdunbarton.gov.uk/residents/flooding or for further information contact customerservices@eastdunbarton.gov.uk
East Renfrewshire Council	Information available on request. Details available here https://www.eastrenfrewshire.gov.uk/Flood-Risk-Management-Plans or for further information contact roads@eastrenfrewshire.gov.uk
Glasgow City Council	Information available on request. Details available here https://www.glasgow.gov.uk/index.aspx?articleid=17739 or for further information contact FloodRiskManagement@drs.glasgow.gov.uk
Inverclyde Council	Information available on request. Details available here https://www.inverclyde.gov.uk/environment/roads-lighting/flood-prevention or for further information contact customerservice@inverclyde.gov.uk
North Lanarkshire Council	Information available on request. Details available here http://www.northlanarkshire.gov.uk/index.aspx?articleid=13610 or for further information complete the online request form also at this address.
Renfrewshire Council	Information available on request. Details available here http://renfrewshire.gov.uk/flooding or for further information contact pt@renfrewshire.gov.uk
South Lanarkshire Council	Information available on request. Details available here http://www.southlanarkshire.gov.uk/info/200163/home_safety_and_planning_for_emergencies/404/flooding_advice_and_support or for further information call 0800 24 20 24
Stirling Council	Information available on request. Details available here https://www.stirling.gov.uk/planning-building-the-environment/flooding/ or for further information call 0845 277 7000
West Dunbartonshire Council	Information available on request. Details available here http://www.west-dunbarton.gov.uk/emergencies-safety-crime/flooding-information-and-advice/ or for further information contact roads@west-dunbarton.gov.uk

Annex 4: Supporting information

Sources of flooding described in this Plan

The Local Flood Risk Management Plan addresses the risk of flooding from rivers, the coast and surface water. The risk of flooding from rivers is usually due to rainfall causing a river to rise above bank level spreading out and inundating adjacent areas. Coastal flooding is where the risk is from the sea. Sea levels can change in response to tidal cycles or atmospheric conditions. Over the longer term sea levels and coastal flood risk may change due to climate change. Surface water flooding happens when rainwater does not drain away through the normal drainage systems or soak into the ground, but lies on or flows over the ground instead.

There can be interactions between these sources of flooding, and the Actions set out in this Plan take this into account.

The following aspects of flooding have not been incorporated into this Plan:

- **Groundwater** is generally a contributing factor to flooding rather than the primary source. It is caused by water rising up from underlying rocks or flowing from springs.
- **Reservoir breaches** have been assessed under separate legislation (Reservoirs (Scotland) Act 2011). Further information and maps can be found on SEPA's website.
- The Flood Risk Management Act (Scotland) 2009 does not require SEPA or responsible authorities to assess or manage **coastal erosion**. However, SEPA has included consideration of erosion in the Flood Risk Management Strategies by identifying areas that are likely to be susceptible to erosion and where erosion can exacerbate flood risk. As part of considering where actions might deliver multiple benefits, SEPA has looked to see where the focus of coastal flood risk management studies coincides with areas of high susceptibility to coastal erosion. Subsequent detailed studies and scheme design will need to consider how coastal erosion in these areas.
- **Coastal flood modelling.** The information on coastal flooding used to set objectives and identify actionsis based on SEPA modelling using simplified coastal processes and flooding mechanisms at work during a storm. Wave overtopping cannot be accurately modelled at a national scale due to the importance of local factors such as prevailing wind conditions, the depth and profile of the near-shore sea bed or the influence of any existing defences or management structures. As a result, coastal flood risk may be underestimated in some areas. Conversely, in locations with wide and flat floodplains, the modelling may overestimate flood risk. To address this, in a number of locations where more detailed local models were available they have been incorporated into the development of the Flood Risk Management Strategies. Where wave overtopping has been specifically identified as a concern – but where no further detailed modelling is available – particular compensation has been made in the selection of appropriate actions to address coastal flood risk.

Commonly used terms

Below are explanatory notes for commonly used terms in flood risk management. A glossary of terms is also available.

- **Reference to flood risk.** During the development of the Strategy and Plan, flood risk has been assessed over a range of likelihoods. For consistency in reporting information, unless otherwise stated, all references to properties or other receptors being 'at risk of flooding' refer to a medium likelihood flood (up to a 1 in 200 chance of flooding in any given year). By exception, references will be made to high or low risk flooding, which should be taken to mean a 1 in 10 chance/likelihood or 1 in 1000 chance/likelihood of flooding in any given year respectively.

Likelihood of Flooding	Return Period	Annual Exceedance Probability (chance of event occurring in any one year)
High	10 year	10%
Medium	200 year	0.5%
Low	1000 year	0.1%

- **Annual Average Damages** have been used to assess the potential economic impact of flooding within an area. Depending on its size or severity each flood will cause a different amount of damage to a given area. Annual Average Damages are the theoretical average economic damages caused by flooding when considered over a very long period of time. It does not mean that damage will occur every year: in many years there will be no damages, in some years minor damages and in a few years major damages may occur.
  High likelihood events, which occur more regularly, contribute proportionally more to Annual Average Damages than rarer events. Annual Average Damages incorporate economic damages to the following receptors: residential properties, non-residential properties, vehicles, emergency services, agriculture and roads. They have been calculated based on the principles set out in the Flood Hazard Research Centre Multi-Coloured Handbook (2010).

Flood risk management planning process

Flood risk management in Scotland aims to manage flooding in a sustainable way. Sustainable flood risk management considers where floods are likely to occur in the future and takes action to reduce their impact without moving the problem elsewhere. It considers all sources of flooding, whether from rivers, the sea or from surface water. It delivers actions that will meet the needs of present and future generations whilst also protecting and enhancing the environment.

The sustainable approach to managing flood risk works on a six year planning cycle, progressing through the key stages outlined below.

- ***Identifying priority areas at significant flood risk***

The first step to delivering a risk based, sustainable and plan-led approach to flood risk management was SEPA's **National Flood Risk Assessment**, which was published in 2011. The assessment considered the likelihood of flooding from rivers, groundwater and the sea, as well as flooding caused when heavy rainfall is unable to enter drainage systems or the river network. The likelihood of flooding was examined alongside the estimated impact on people, the economy, cultural heritage and the environment. It significantly improved our understanding of the causes and consequences of flooding, and identified areas most vulnerable to floods.

- ***Potentially Vulnerable Areas and Local Plan Districts***

Based on the National Flood Risk Assessment, SEPA identified areas where flooding was considered to be nationally significant. These areas are based on catchment units as it is within the context of the wider catchment that flooding can be best understood and managed. These nationally significant catchments are referred to as **Potentially Vulnerable Areas**.

In Scotland, 243 Potentially Vulnerable Areas were identified. They are estimated to contain 92% of the total number of properties at risk.

A small number of Candidate Potentially Vulnerable Areas were identified after the National Flood Risk Assessment in light of new information that warranted further assessment and appraisal. They are included in the flood risk management planning process. The National Flood Risk Assessment will be updated to inform each subsequent planning cycle.

For flood risk management purposes, Scotland was divided into 14 Local Plan Districts. Each Local Plan District will have a Flood Risk Management Strategy and a Local Flood Risk Management Plan.

- ***Improving the understanding of flooding***

SEPA developed **flood hazard and flood risk maps** between 2012 and 2014. These maps improved the understanding of flooding and helped inform the subsequent selection of actions to manage flood risk in Potentially Vulnerable Areas. The flood hazard maps show information such as the extent of flooding, water level, as well as depth and velocity where appropriate. The flood risk maps provide detail on the impacts on people, the economy, cultural heritage and the environment.

In 2012 SEPA also developed an **assessment of the potential for natural flood management**. The assessment produced the first national source of information on where natural flood management actions would be most effective within Scotland.

Flood hazard and flood risk maps and the assessment of the potential for natural flood management can be viewed on the SEPA website www.sepa.org.uk.

- ***Identifying objectives and selecting actions***

The objectives and actions to manage flooding will provide the long-term vision and practical steps for delivering flood risk management in Scotland.

Working collaboratively with local partnerships, SEPA has agreed the objectives for addressing the main flooding impacts. Actions that could deliver these agreed objectives have been appraised for their costs and benefits to ensure the right combinations are identified and prioritised. The actions considered in the development of this strategy include structural actions (such as building floodwalls, restoring flood plains, or clearance and repair works to rivers) and non-structural actions (such as flood warning, land use planning or improving our emergency response). Structural and non-structural actions should be used together to manage flood risk effectively.

An assessment of the potential for natural flood management was used to help identify opportunities for using the land and coast to slow down and store water. Natural flood management actions were recommended in areas where they could contribute to the management of flood risk. In such instances these actions were put forward as part of flood protection or natural flood management studies.

- ***Lead local authority***

The FRM Act requires a lead local authority to be identified for each Local Plan District. The lead local authority is crucial to the successful implementation of the FRM Act and, as such, must perform several important functions over and above the general duties and powers given to local authorities elsewhere in the FRM Act.

The lead local authority, having contributed with other local authorities to the production of the Flood Risk Management Strategy, must prepare a Local Flood Risk Management Plan of co-ordinated actions to reduce flood risk within the Local Plan District. Although the lead local authority is responsible for the production of the plan, its content will be drawn from and agreed by all local authorities, other responsible authorities and SEPA within the Local Plan District.

- ***Surface Water Management Plans***

A Surface Water Management Plan (SWMP) is a best practice plan which outlines the preferred surface water management strategy in a given location. In this context surface water flooding describes flooding from sewers, drains, groundwater, and runoff from land, small water courses and ditches that occurs as a result of heavy rainfall.

A SWMP study is undertaken in consultation with key local partners who are responsible for surface water management and drainage in their area. Partners work together to

understand the causes and effects of surface water flooding and agree the most cost effective way of managing surface water flood risk for the long term. The process of working together as a partnership is designed to encourage the development of innovative solutions and practices.

A SWMP should establish a long-term action plan to manage surface water in an area and should influence future capital investment, drainage maintenance, public engagement and understanding, land-use planning, emergency planning and future developments.

The UK Government SWMP guidance seeks to provide a simplified overarching framework, which allows different organisations to work together and develop a shared understanding of the most suitable solutions to surface water flooding problems. The SWMP guidance has been written for local authorities to assist them as they co-ordinate and lead local flood risk management activities.

- ***Integrated Catchment Studies***

Integrated Catchment Studies (ICS) are led by Scottish Water in partnership with local authorities and SEPA. These studies will improve knowledge and understanding of the interactions between the above ground and below ground drainage network e.g. with the sewer network, watercourses and (where appropriate) the sea. This will improve the understanding of contributions these drainage networks play in local surface water flood risk.

Five ICS's were undertaken in Scotland during SR10 (2010-2015), to Modelling and Flood Risk Assessment stage, which have provided a fuller understanding of the sources and mechanisms of flooding across these catchments. These studies are expected to undertake an Optioneering phase between 2015-2021. This will identify the actions to reduce flood risk across the catchments, with the outputs feeding into the Local Authority led Surface Water Management Planning process.

Fifteen ICS's will begin in Scotland during SR15 (2015-2021). These studies will go through the Scoping and Modelling phases, which culminates in defining the sources and mechanisms of flooding in the catchment, and an understanding of the impacts of that flooding. It is expected that the ICS partnerships will remain and it is anticipated that the Optioneering phase for these studies will be initiated directly after the preceding phases.

Within this Local Plan District, ICS's are being carried out in the following areas; Inverclyde (including Greenock and Port Glasgow), Erskine (including Inchinnan and Linwood) and East Kilbride.

- ***Natural flood management assessment and mapping of artificial and natural features***

The new approach to Flood Risk Management requires SEPA to consider whether techniques that restore, enhance or alter natural features and characteristics can contribute to managing flood risk. This means looking at the potential to work with natural hydrological and morphological processes.

Because the National Flood Risk Assessment provides only a strategic assessment of flood risk, further refined assessments may be required in Potentially Vulnerable Areas, including the mapping of artificial and natural features whose removal could increase flood risk.

The development of catchment characteristics and methodologies, to assess the potential for natural flood management, commenced in 2012 alongside work to identify natural flood management actions, that could contribute to the management of flood risk. The information was published in 2013. The assessment of natural flood management was a consideration in the setting of objectives and actions in the Flood Risk Management Strategies. In January 2016 SEPA published the Natural Flood Management Handbook to provide practitioners with information on how best to implement natural flood management measures.

- ***Flood hazard and flood risk maps***

The production of flood hazard and flood risk maps has improved our understanding of flooding and helped inform the selection of actions required to manage flood risk in Potentially Vulnerable Areas. Work on production of these maps began in January 2012. These maps show details of flood events for a range of probabilities and cover flooding from rivers, the sea, sewers, surface water run-off and groundwater.

A flood hazard map shows information that describes the nature of a flood, such as the extent of flooding, water level, depth and velocity where appropriate.

A flood risk map provides detail on the impacts on people, the economy, cultural heritage and the environment.

Further information regarding the development of the flood maps and providing a link to the maps, is available online on the SEPA website here – http://www.sepa.org.uk/environment/water/flooding/flood-maps/

Annex 5: Acknowledgments

The information described in this Annex relates to the Figures and Maps that have been generated by SEPA as part of the Flood Risk Management Strategy and have been reproduced in this Local Flood Risk Management Plan. The Clyde and Loch Lomond Local Plan District Partners gratefully acknowledge the cooperation and input that various parties have provided, including inter alia, the following organisations:

SEPA

Local authorities acknowledge the inclusion of Figures, Maps and text generated by SEPA in preparation of the Clyde and Loch Lomond Flood Risk Management Strategy. Figures and Maps produced by SEPA for the Clyde and Loch Lomond Flood Risk Management Strategy have been reproduced in the Clyde and Loch Lomond Local Flood Risk Management Plan with authorisation from SEPA under SEPA Licence number 100016991 (2015).

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British Geological Survey

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Local authorities

Lead authorities acknowledge the provision of flood models and other supporting data and information from local authorities and their collaboration in the production of flood risk management information.

Scottish Water

Local authorities acknowledge the inclusion of surface water flooding data generated by Scottish Water in preparation of flood risk information.

Glossary

Actions - Actions describe where and how flood risk will be managed. These actions have been set by SEPA and agreed with flood risk management authorities following consultation. Selection of actions to deliver the agreed objectives has been based on a detailed assessment and comparison of economic, social and environmental criteria. The FRM Act uses the term 'measures' rather than 'actions'.

Annual Average Damages (AAD) - Depending on its size or severity, each flood will cause a different amount of damage to a flood prone area and we can calculate the cost of this damage. Annual Average Damages for an area are the average costs per year that would occur from flooding over a very long period of time. Scottish figures have been calculated based on the method set out in the Flood Hazard Research Centre's Multi-Coloured Handbook (2010).

Appraisal - Appraisal is the process of defining objectives, examining options and weighing up the costs, benefits, risks and uncertainties before a decision is made. The FRM Strategy appraisal method is designed to set objectives and identify the most sustainable combination of actions to tackle flooding from rivers, sea and surface water.

Awareness Raising - Public awareness, participation and community support are essential components of sustainable flood risk management. SEPA and the responsible authorities have a duty to raise public awareness of flood risk. This is undertaken both individually and collaboratively by a range of organisations. Improved awareness of flood risk and actions that prepare individuals, homes and businesses for flooding can reduce the overall impact.

Benefit Cost Ratio (BCR) - A benefit cost ratio summarises the overall value for money of an action or project. It is expressed as the ratio of benefits to costs (both expressed as present value monetary values). A ratio of greater than 1:1 indicates that the economic benefits associated with an action are greater than the economic costs of implementation; therefore this is taken as the threshold of economic viability. It should be acknowledged that it is not always possible to accurately estimate economic values for all elements of benefit, and BCR is just one of a number of techniques used in appraisal.

Candidate Potentially Vulnerable Area – A small number of Candidate Potentially Vulnerable Areas were identified after the National Flood Risk Assessment in light of new information that warranted further assessment and appraisal. They are included in the flood risk management planning process. The National Flood Risk Assessment will be updated to inform each subsequent planning cycle.

Catchment – The area of land drained by a drainage system – either natural or piped.

Category (CAT) 1 and 2 Responders – As defined by the Civil Contingencies Act 2004. Category 1 responders are 'core' responders: local authorities, police, fire and rescue services, ambulance service, NHS health boards, SEPA and the Maritime and Coastguard Agency. Category 2 responders are key co-operating responders in support of Category 1 responders. These include gas and electricity companies, rail and air transport operators, harbour authorities, telecommunications providers, Scottish Water, the Health and Safety Executive and NHS National Services Scotland.

Coastal Flooding – Flooding that results from sea level rise from a combination of high tides and stormy conditions. The term coastal flooding is used under the Flood Risk Management (Scotland) Act 2009, but in some areas it is also referred to as tidal flooding and covers areas such as estuaries and river channels that are influenced by tidal flows.

Combined Sewer - Combined sewers transport foul sewage from homes and industry as well as carrying surface water runoff from gutters, drains and some highways. Heavy or prolonged rainfall can rapidly increase the flow in a combined sewer until the amount of water exceeds sewer capacity.

Combined Sewer Overflow - Combined sewer overflows are purposely designed structures to ensure any excess water from sewerage systems is discharged in a controlled way and at a specific managed location.

Confluence - Where two or more rivers meet.

Conveyance - Conveyance is a measure of the carrying capacity of a watercourse. Increasing conveyance enables flow to pass more rapidly and reducing conveyance slows flow down. Both actions can be effective in managing flood risk depending on local conditions.

Cultural Heritage Site - Sites of particular cultural significance may be designated. The highest level of designation is a World Heritage Site. Historic Environment Scotland maintains lists of buildings of special architectural or historic interest; these buildings are referred to as 'listed buildings'.

Culvert - A pipe, channel or tunnel used for the conveyance of a watercourse or surface drainage water under a road, railway, canal or other obstacle.

Damages - Flood damages are categorised as direct or indirect i.e. as a result of the flood water itself, or subsequent knock on effects. Damage to buildings and contents caused by flood water are an example of direct damages, whilst loss of industrial production, travel disruption or stress and anxiety are indirect. Some damages can be quantified in monetary terms, and others can only be described. The potential damages avoided by implementation of a flood risk management action are commonly referred to as the benefits of that action. When comparing the effectiveness of different actions, it is useful to consider estimated damages and damages avoided across the lifespan of the action. Within the FRM Strategies, a 100 year appraisal period has been used as standard. This allows costs, damages and benefits across this time frame to be compared in present value terms. See also 'Annual Average Damages'.

Economic Impact - An assessment of the economic value of the positive and negative effects of flooding and / or the actions taken to manage floods.

Embankment – A flood embankment is an engineered earthfill structure designed to contain high river levels or protect against coastal flooding. They are commonly grass-covered, but may need additional protection against erosion by swiftly flowing water, waves or overtopping.

Emergency Plans / Response - Emergency response plans are applicable for all types of flooding. They set out the steps to be taken during flooding in order to maximise safety and minimise impacts where possible. Under the Civil Contingencies Act, Category 1 Responders

have a duty to maintain emergency plans. Emergency plans may also be prepared by individuals, businesses, organisations or communities.

Environmental Impact - A change in the environment as a result of an action or activity. Impacts can be positive or negative and may vary in significance, scale and duration.

Environmental Impact Assessment (EIA) - A process which identifies the potential environmental impacts, both negative and positive, of a proposal.

Estuary - A coastal body of water usually found where a river meets the sea; the part of the river that is affected by tides.

Flood - In the terms of the FRM Act, 'flood' means a temporary covering by water, from any source, of land not normally covered by water. This does not include a flood solely from a sewerage system, as a result of normal weather or infrastructure drainage. A flood can cause significant adverse impacts on people, property and the environment.

Flood Bund - A constructed retaining wall, embankment or dyke designed to protect against flooding to a specified standard of protection.

Flood defence - Infrastructure, such as flood walls, embankments or flood storage intended to protect an area against flooding to a specified standard of protection.

Flood Extent - The area that has been affected by flooding, or is at risk of flooding from one or more sources for a particular likelihood.

Flood Frequency - The probability that a particular size/severity of flood will occur in a given year (see likelihood).

Flood Hazard - In terms of the FRM Act, hazard refers to the characteristics (extent, depth, velocity) of a flood.

Flood Hazard Map - Flood hazard maps are required by the FRM Act to show information that describes the nature of a flood in terms of the source, extent, water level or depth and, where appropriate, velocity of water. Flood hazard and risk maps are referred to collectively as flood maps and are available on the SEPA website.

Flood Prevention / Protection Scheme - A flood protection scheme, as defined by the FRM Act, is a scheme by a local authority for the management of flood risk within the authority area. This includes defence measures (flood prevention schemes) formerly promoted under the Flood Prevention (Scotland) Act 1961.

Flood Protection Study - Flood protection studies aim to refine understanding of the hazard and risk associated with flooding in a particular area, catchment or coastline. They will involve detailed assessment of flood hazard and / or risk and may develop options for managing flood risk.

Flood Protection Works - Flood protection works can include the same flood defence measures that would make up a formal Flood Protection Scheme but without the legal process, protections and requirements that would come by delivering the works as a scheme.

Flood Risk - A measure of the combination of the likelihood of flooding occurring and the associated impacts on people, the economy and the environment.

Flood Risk Assessment - Flood Risk Assessments are detailed studies of an area where flood risk may be present. These are often used to inform planning decisions, may help to develop flood schemes and have also contributed to the National Flood Risk Assessment.

Flood Risk Management Strategy - Sets out a long-term vision for the overall reduction of flood risk. Contains a summary of flood risk in each Local Plan District, together with information on catchment characteristics and a summary of objectives and actions for Potentially Vulnerable Areas.

Flood Risk Management (Scotland) Act 2009 (FRM Act) - The flood risk management legislation for Scotland. It transposes the EC Floods Directive into Scots Law and aims to reduce the adverse consequences of flooding on communities, the environment, cultural heritage and economic activity.

Flood Risk Management Cycle - Under the FRM Act flood risk management planning is undertaken in six year cycles. The first planning cycle is 2015 – 2021. The first delivery cycle is lagged by approximately 6 months and is from 2016 - 2022.

Flood Warning Scheme - A flood warning scheme is the network of monitoring on a coastal stretch or river, which provides SEPA with the ability to issue Flood Warnings.

Floodplain - Area of land that borders a watercourse, an estuary or the sea, over which water flows in time of flood, or would naturally flow but for the presence of flood defences and other structures where they exist.

Floodplain Storage - Floodplains naturally store water during high flows. Storage can be increased through natural or man-made features to increase flood depth or slow flows in order to reduce flooding elsewhere.

Green (Blue-Green) Infrastructure - The European Commission defines green infrastructure as “the use of ecosystems, green spaces and water in strategic land use planning to deliver environmental and quality of life benefits. It includes parks, open spaces, playing fields, woodlands, wetlands, road verges, allotments and private gardens. Green infrastructure can contribute to climate change mitigation and adaptation, natural disaster risk mitigation, protection against flooding and erosion as well as biodiversity conservation.”

Historic Environment Scotland - The new lead public body for the country’s historic environment. It brings together Historic Scotland and the Royal Commission on the Ancient and Historic Monuments of Scotland.

Habitats Regulations Appraisal - The Habitats Regulations require competent authorities to assess certain plans or projects which affect Natura sites. Any development proposal, which requires planning permission or other consent, is a 'project' which may require consideration under the Habitats Regulations.

Land Use Planning – The process undertaken by public authorities to identify, evaluate and decide on different options for the use of land, including consideration of long term economic, social and environmental objectives and the implications for different communities and interest groups.

Lead Local Authority - A local authority responsible for leading the production, consultation, publication and review of a Local Flood Risk Management Plan.

Local Development Plan – A Local Development Plan (LDP) provides the vision for how communities will grow and develop in the future. The intention is that they provide certainty for communities and investors alike about where development should take place and where it should not and the supporting infrastructure required for growth. A LDP is required for each council area across Scotland.

Local Flood Risk Management Plan - Produced by lead local authorities, these will take forward the objectives and actions set out in Flood Risk Management Strategies. They will provide detail on the funding, timeline of delivery, arrangements and co-ordination of actions at the local level during each six year FRM planning cycle.

Local Plan District - Geographical areas for the purposes of flood risk management planning. There are 14 Local Plan Districts in Scotland.

Local Plan District Partnerships - Each Local Plan District has established a local partnership comprised of local authorities, SEPA, Scottish Water and others as appropriate. These partnerships are distinct from the FRM Local Advisory Groups and they retain clear responsibility for delivery of the FRM actions set out in the Local Flood Risk Management Plans. It is the local partnership that makes decisions and supports the delivery of these plans.

Maintenance - Sections 18 and 59 of the Flood Risk Management (Scotland) Act 2009 put duties of watercourse inspection, clearance and repair on local authorities. In addition, local authorities may also be responsible for maintenance of existing flood protection schemes or defences.

National Flood Risk Assessment (NFRA) - A national analysis of flood risk from all sources of flooding which also considers climate change impacts. Completed in December 2011 this provides the information required to undertake a strategic approach to flood management that identifies areas at flood risk that require further appraisal. The NFRA will be reviewed and updated for the second cycle of FRM Planning by December 2018.

Natural Flood Management - A set of flood management techniques that aim to work with natural processes (or nature) to manage flood risk.

Non-Residential Properties - Properties that are not used for people to live in, such as shops or other public, commercial or industrial buildings.

Potentially Vulnerable Area - Catchments identified as being at risk of flooding and where the impact of flooding is sufficient to justify further assessment and appraisal. There were 243 Potentially Vulnerable Areas identified by SEPA in the National Flood Risk Assessment and these will be the focus of the first FRM planning cycle.

Property Level Protection - Property level protection includes flood gates, sandbags and other temporary barriers that can be used to prevent water from entering individual properties during a flood.

Q&S - Quality and Standards (Q&S) is the process, governing costs and outputs, through which the planning and delivery of improvements by Scottish Water to the public drinking water and sewerage services in Scotland is carried out.

Receptor - Refers to the entity that may be impacted by flooding (a person, property, infrastructure or habitat). The vulnerability of a receptor can be reduced by increasing its resilience to flooding.

Residual Risk - The risk that remains after risk management and mitigation. This may include risk due to very severe (above design standard) storms or risks from unforeseen hazards.

Resilience - The ability of an individual, community or system to recover from flooding.

Responsible Authority - Designated under the FRM (Scotland) Act 2009 and associated legislation as local authorities, Scottish Water and, from 21 December 2013, the National Park Authorities and Forestry Commission Scotland. Responsible authorities, along with SEPA and Scottish Ministers, have specific duties in relation to their flood risk related functions.

Return Period - A measure of the rarity of a flood event. It is the statistical average length of time separating flood events of a similar size.

River Basin Management Planning (RBMP) - The Water Environment and Water Services (Scotland) Act 2003 transposed the European Water Framework Directive into Scots law. The Act created the River Basin Management Planning process to achieve environmental improvements to protect and improve our water environment. It also provided the framework for regulations to control the negative impacts of all activities likely to have an impact on the water environment.

Runoff Reduction - Actions within a catchment or sub-catchment to reduce the amount of runoff during rainfall events. This can include intercepting rainfall, storing water, diverting flows or encouraging infiltration.

Scottish Advisory and Implementation Forum for Flooding (SAIFF) - The stakeholder forum on flooding set up by the Scottish Government to ensure legislative and policy aims are met and to provide a platform for sharing expertise and developing common aspirations and approaches to reducing the impact of flooding on Scotland's communities, environment, cultural heritage and economy.

Scottish Flood Forecasting Service - SEPA operates a network of over 250 rainfall, river and coastal monitoring stations throughout Scotland that generate data 24 hours a day. The Scottish Flood Forecasting Service is a joint initiative between SEPA and the Met Office that produces daily, national flood guidance statements which are issued to Category 1 and 2 Responders. The flood guidance statements provide an assessment of the risk of flooding for a five day period allowing responders time to put preparations in place to reduce the impact of flooding. The service also provides information which allows SEPA to issue flood warnings, giving people a better chance of reducing the impact of flooding on their home or business. For more information please visit SEPA's website.

Self Help - Self help actions can be undertaken by any individuals, businesses, organisations or communities at risk of flooding. They are applicable to all sources, frequency and scales of flooding. They focus on awareness raising and understanding of flood risk.

Site Protection Plans - Site protection plans are developed to identify whether normal operation of a facility can be maintained during a flood. This may be due to existing protection or resilience of the facility or the network.

Site of Special Scientific Interest - Sites protected by law under the Nature Conservation (Scotland) Act 2004 to conserve their plants, animals and habitats, rocks and landforms.

Special Area of Conservation (SAC) - Strictly protected site designated under the European Habitats Directive. The Directive requires the establishment of a European network of protected areas which are internationally important for threatened habitats and species.

Strategic Environmental Assessment - A process for the early identification and assessment of the likely significant environmental effects, positive and negative, of activities. Often considered before actions are approved or adopted.

Strategic Flood Risk Assessment (SFRA) - A Strategic Flood Risk Assessment is designed for the purposes of specifically informing the Development Plan Process. A SFRA involves the collection, analysis and presentation of all existing and readily available flood risk information (from any source) for the area of interest. It constitutes a strategic overview of flood risk.

Standard of protection (SoP) - All flood protection structures are designed to be effective up to a specified flood likelihood (Standard of Protection). For events beyond this standard, flooding will occur. The chosen Standard of Protection will determine the required defence height and / or capacity.

Surface Water Management Plan (SWMP) - A plan that takes an integrated approach to drainage accounting for all aspects of urban drainage systems and produces long term and sustainable actions. The aim is to ensure that during a flood the flows created can be managed in a way that will cause minimum harm to people, buildings, the environment and business.

Surface Water Plan / Study - The management of flooding from surface water sewers, drains, small watercourses and ditches that occurs, primarily in urban areas, during heavy rainfall. FRM Strategy actions in this category include: Surface Water Management Plans, Integrated Catchment Studies and assessment of flood risk from sewerage systems (FRM Act Section 16) by Scottish Water. These have been selected as appropriate for each Potentially Vulnerable Area.

Sustainable Drainage Systems (SuDS) - A set of techniques designed to slow the flow of water. They can contribute to reducing flood risk by absorbing some of the initial rainfall and then releasing it gradually, thereby reducing the flood peak and helping to mitigate downstream problems. SuDS encourage us to take account of quality, quantity and amenity / biodiversity.

Sustainable Flood Risk Management - The sustainable flood risk management approach aims to meet human needs, whilst preserving the environment so that these needs can be

met not only in the present, but also for future generations. The delivery of sustainable development is generally recognised to reconcile three pillars of sustainability – environmental, social and economic.

Surface Water Flooding - Flooding that occurs when rainwater does not drain away through the normal drainage systems or soak into the ground, but lies on or flows over the ground instead.

Vulnerability - A measure of how likely someone or something is to suffer long-term damage as a result of flooding. It is a combination of the likelihood of suffering harm or damage during a flood and the ability to recover following a flood (resilience).