

Flood Risk Management (Scotland) Act 2009:

INTERIM REPORT

Local Flood Risk Management Plan

Clyde and Loch Lomond Local Plan District



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Foreword

This Interim 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 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 Interim Report shows that the co-ordinated and collaborative efforts of public bodies can be brought together to deliver sustainable outcomes.

The Interim 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’), which are detailed in this Interim Report.

Since the publication of the Plan in June 2016, public sector finances in Scotland have continued to be under considerable pressure. This places an even greater responsibility on SEPA, local authorities, Scottish Water and other responsible authorities to deliver their flood risk management responsibilities, particularly the actions in the Plan, to manage flood risk in a sustainable way.

SEPA, local authorities, Scottish Water, and other responsible authorities will continue to work collaboratively to implement the actions in the Plan up to the end of the 1st planning cycle in June 2022.



Councillor Greg Hepburn
Convener of the Clyde and Loch Lomond Local Plan District Joint
Committee



1 Background

The Interim Report is a legal requirement of the Flood Risk Management (Scotland) Act 2009 (Section 37) and presents a review of progress on the implementation of the CaLL LFRMP (the 'Plan'), published in June 2016.

Further details on flood risk management responsibilities in Scotland and the legal requirement for the publication of this Interim Report can be found in Appendix 1.

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 currency of the Plan, the significant challenges faced, the prioritisation of actions for the next planning cycle, arrangements to complete the remaining actions and the next steps.

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.

- ☐ PVA 11/01 – Gruggies Burn Flood Prevention Scheme has progressed to modelling/design stage;
- ☐ PVA 11/02 – Flood study works have commenced for Helensburgh (coastal) and Kilcreggan on the Rosneath peninsula;
- ☐ PVA 11/03 – 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;
- ☐ PVA 11/04 – Surface Water Management Plans (SWMPs) for Bearsden, Bishopbriggs and Milngavie have all commenced;
- ☐ PVA 11/04 – Park Burn Flood Prevention Works phase 1 is complete and work is progressing with phase 2;
- ☐ PVA11/07 – A SWMP has now commenced for the Dunoon area;
- ☐ PVA 11/08 – Greenock SWMP is currently ongoing;
- ☐ PVA 11/09 – Port Glasgow Integrated Catchment Study is expected to complete in October 2019;
- ☐ PVA 11/13 – White Cart Water Flood Prevention Scheme Phase 3 works have started on site;
- ☐ PVA 11/13 – Hillington and Cardonald SWMP Phase 1 is scheduled to start on site early 2019 with Phases 2 and 3 currently at detailed design stage; and
- ☐ PVA 11/21c – Natural Flood Management Study for Kilmacolm is progressing towards scheme design.

How Current is the Plan?

The Plan was published in June 2016 supplementing the Flood Risk Management Strategy published by SEPA in December 2015, and available here - <http://apps.sepa.org.uk/FRMStrategies/>. The Plan details how the actions identified in the Strategy were to be implemented over the period 2016 to 2022. The Strategy and Plan are based on the National Flood Risk Assessment and the designated Potentially Vulnerable Areas at that time.

Since the identification of the actions in the Plan, there have and continue to be advancements in our knowledge and development of assessment techniques. These include the publication by SEPA of a new National Flood Risk Assessment and revised designation of Potentially Vulnerable Areas in December 2018 (<https://www.sepa.org.uk/data-visualisation/nfra2018/>). These advancements inform the delivery of the actions in this Plan and will be used in the development of future Strategies and Plans.

The planned delivery and actual delivery of actions has changed for some actions as detailed in the 'Assessment of the progress of actions'.

The data summarised in this report was compiled September / October 2018, and some actions may have progressed since then.

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. Arrangements to complete the remaining actions are described below. 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 brought localised flooding to a number of areas, including Bearsden and Bishopbriggs. When flooding does occur, resources are directed away from

strategic planning to respond to the incident.

Resources

Whilst the majority of actions are on programme, the primary reason for actions being behind programme is a challenging resource environment. A range of resources are 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, will take longer to implement.

Prioritisation of Actions for Next Plan Cycle

Many actions contained in the Plan are to undertake studies that will assess the need for further actions to be implemented in future Plans. 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. This introduces a deadline date by when actions leading to physical works need to be detailed and submitted by responsible authorities to make an application for grant funding to undertake construction works during the 2nd plan cycle 2022-28. The deadline date for submission of these actions to SEPA has been set as December 2019. The actions submitted will

then be assessed and prioritised against the flood risk objectives, and consulted upon ahead of the publication of the next cycle of Flood Risk Management Strategies in December 2021 and Local Flood Risk Management Plans in June 2022. Actions that are unable to reach the required level of detail by December 2019 will continue to be developed and will be considered for grant funding at a subsequent prioritisation round.

Arrangements Planned to Deliver the Remaining Actions

The actions in the Plan will continue to be delivered over the remainder of the 2016 to 2022 period, with any variations to the planned approach noted in Sections 4 and 5 of this Interim Report.

Final Report

A Final Report on the Plan will be published between July 2021 and June 2022. This will include an updated assessment of the progress made towards implementing the current actions, the reasons why any actions have not been completed within the period and a description of any other measures implemented since the Plan was published, which the lead authority considers have contributed to the achievement of the flood risk objectives.

Conclusions

Overall, through partnership working, the progress to date delivering the actions set out in the CaLL LFRMP have reduced flood risk and helped to inform future actions to further reduce flood risk. Whilst the majority of actions are on programme, a number of actions have started late, primarily due to a lack of resources. 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.

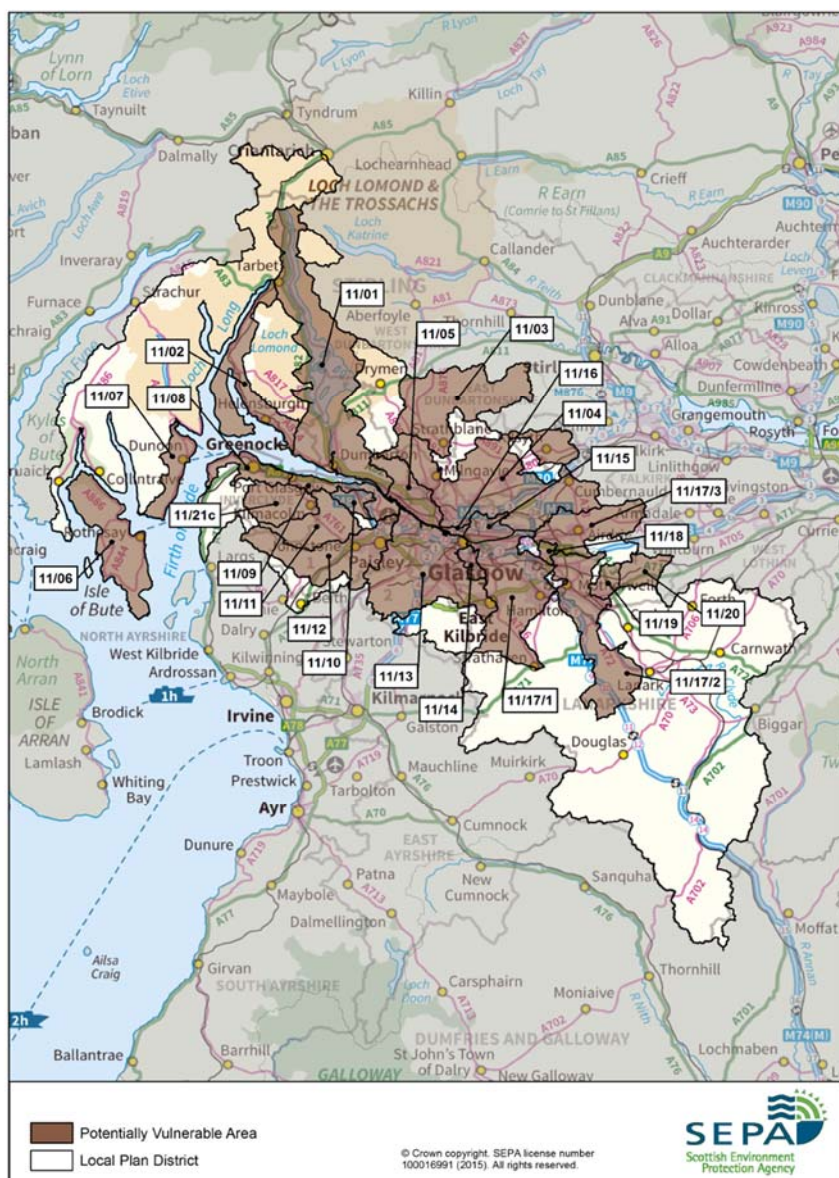


Figure 1: The Clyde and Loch Lomond Local Plan District with Potentially Vulnerable Areas identified

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 September / October 2018, where each item is marked as **Red**, **Amber** or **Green** (RAG) to describe the status of the action as follows:

Green – Action is on programme and within budget.

Amber – Action is behind programme and / or over budget but the key dates are anticipated still to be met.

Red – Actions is behind programme and / or over budget with key dates unlikely to be met and / or the outputs are likely to differ from what was anticipated by the LFRMP.

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	✓	✓	✓	Amber	✓	Amber	✓	✓	✓	✓			✓	✓	✓		✓	✓
11/02	Amber			✓		✓	Red	N/A	✓	✓			✓	✓	✓		✓	✓
11/03							Red	N/A	N/A	✓			✓	✓	✓		✓	✓
11/04	✓			Amber	✓	Red	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓
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	✓			✓	✓	✓	Red	✓	N/A	✓			✓	✓	✓		✓	✓
11/13	✓			✓	✓	Amber	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓
11/14				✓		✓	✓	✓	N/A	✓		✓	✓	✓	✓		✓	✓
11/15						✓	✓	N/A	N/A	✓			✓	✓	✓		✓	✓
11/16	Amber					✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓
11/17/1	✓			Amber		Red	Red	✓	✓	✓		✓	✓	✓	✓		✓	✓
11/17/2	✓			Amber		Red	✓	N/A	N/A	✓			✓	✓	✓	✓	✓	✓
11/17/3						Red	✓	N/A	N/A	✓			✓	✓	✓		✓	✓
11/18							✓	N/A	N/A	✓			✓	✓	✓		✓	✓
11/19						Red	Red	N/A	N/A	✓			✓	✓	✓		✓	✓
11/20							Red	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: Range of Objectives and Actions identified for each 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.

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

LLTNP – 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 Interim 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	Interim Progress	Planned actions to complete
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	Continue to update advice as required. Remind community councils of the information available on our website for dissemination.
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	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. We have worked with the Scottish Flood Forum in the aftermath of flood events to raise awareness of options available to property owners https://www.argyll-bute.gov.uk/transport-and-streets/flood-advice	Continue to update advice as required
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 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 https://www.argyll-bute.gov.uk/transport-and-streets/flood-advice	Continue to update advice as required

Summary of progress of PVA-wide actions to manage flood risk for Argyll and Bute Council							
Action	Status	PVA	Description	Start	End	Interim Progress	Planned actions to complete
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	ABC are developing a strategy for prioritising the assessment and clearing of watercourses that is appropriate to the geography, vulnerability/risk and resources available. ABC has conducted watercourse inspections to date, but a more targeted approach is required based on the volume of watercourses to assess in A&B. It is proposed to target PVA areas and large settlement areas in the first iteration, therefore focussing on the most vulnerable and potentially affected areas in terms of damage.	ABC to implement strategy across A&B
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	Argyll and Bute Council have engaged a consultant to provide a flood risk advice on development planning applications submitted to Argyll and Bute Council planning authority, and Local Lomond and Trossachs National Park planning authority. This review function has been in place from 2014 and has been renewed in 2018 up until 2022. Argyll and Bute Council are reviewing the existing Local Development Plan (LDP), with a programme for adoption of a revised plan by 2020, which will take into account the latest guidance from SEPA, the Scottish Government, and Local Flood Risk Management Plan actions in potentially vulnerable areas (PVAs), local flood risk areas, and known potential flood scheme areas.	Continue to complete flood risk management checks on appropriate development planning applications. Continue to develop the Local Development Plan for adoption in 2020.

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	Interim Progress	Planned actions to complete
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.	Currently ongoing
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.	Currently ongoing

Summary of progress of PVA-wide actions to manage flood risk for East Dunbartonshire Council							
Action	Status	PVA	Description	Start	End	Interim Progress	Planned actions to complete
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.	Currently ongoing and regular review for updates.
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.	Ongoing and to further develop as new software upgrades are progressing.

Summary of progress of PVA-wide actions to manage flood risk for East Dunbartonshire Council							
Action	Status	PVA	Description	Start	End	Interim Progress	Planned actions to complete
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.	Ongoing

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	Interim Progress	Planned actions to complete
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.	31/03/2019
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.	No further actions other than regular updates of contact details, etc.
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.	31/03/2019

Summary of progress of PVA-wide actions to manage flood risk for East Renfrewshire Council							
Action	Status	PVA	Description	Start	End	Interim Progress	Planned actions to complete
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.	31/03/2019
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.	31/03/2019

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	Interim Progress	Planned actions to complete
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.	Continue to raise awareness in PVAs. Continue publication of the MGSDP newsletter and website. Continue to support other Responsible Authorities to raise awareness. Continue to engage with Schools within SWMP areas. Raise public awareness during the LFRMP 2 Consultation.
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.	GCC FRM Team to continue to support the Emergency Response Team in an advisory role.
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.	Review information and links available on our website. Proactively raise awareness of self help options at SWMP public engagement events. A Property Level Protection scheme is under review.

Summary of progress of PVA-wide actions to manage flood risk for Glasgow City Council							
Action	Status	PVA	Description	Start	End	Interim Progress	Planned actions to complete
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.	Continue to monitor and maintain watercourses. On completion of the "At Risk Culvert Strategy" we expect to better understand the extent of the problem and the likely costs and timescales for rehabilitation.
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.	Continue to monitor planning applications for compliance with current planning policy for flood risk management.

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	Interim Progress	Planned actions to complete
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	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	Ongoing
Self help	Green	11/08 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	Raise awareness

Summary of progress of PVA-wide actions to manage flood risk for Inverclyde Council							
Action	Status	PVA	Description	Start	End	Interim Progress	Planned actions to complete
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	Continue to walk and inspect the watercourses and clear and repair all grilles
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.	Continue to consult with SEPA on new planning applications and continue to use the Planning Guidance

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	Interim Progress	Planned actions to complete
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.	Review and update flooding reference and links within the NLC website
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.	Review and update flooding reference and links within the NLC website
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.	Review and update flooding reference and links within the NLC website

Summary of progress of PVA-wide actions to manage flood risk for North Lanarkshire Council							
Action	Status	PVA	Description	Start	End	Interim Progress	Planned actions to complete
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. Continue to populate sec17 mapping of bodies of water and SUDS
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.	Supplementary Planning Guidance SPG09 Flooding and Drainage dated 2010 to be reviewed and updated 2019/20.

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	Interim Progress	Planned actions to complete
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	All studies and physical actions proposed will be subject to community engagement, inclusive of highlighting self help need.
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	Maintain and comply with plan
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	All studies and physical actions proposed will be subject to community engagement, inclusive of highlighting self help need.

Summary of progress of PVA-wide actions to manage flood risk for Renfrewshire Council							
Action	Status	PVA	Description	Start	End	Interim Progress	Planned actions to complete
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	Maintain compliance
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.	Continued compliance to Local Development Plan and Supplementary Planning Guidance flood management requirements.

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	Interim Progress	Planned actions to complete
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.	SLC will continue to work with Scottish Water and SEPA to raise public awareness of Flood Risk. SLC's annual Winter Awareness Campaign will continue to include information on flooding which will be cascaded to staff and the public via the Council's social media accounts. SLC will also continue to raise public awareness during the LFRMP 2 Consultation process.
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.	We have an Emergency Management Team, led by our Contingency Planning Officer and made up of senior managers representing each of our main departments, which takes responsibility for preparing for and responding to emergencies. The Council's Flood Risk Management Team are represented on the Council's EMT.
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 will continue to offer advice and will work with Scottish Flood Forum in relation to Self Help requests from those affected by flooding.

Summary of progress of PVA-wide actions to manage flood risk for South Lanarkshire Council							
Action	Status	PVA	Description	Start	End	Interim Progress	Planned actions to complete
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.	Continue to assess and maintain watercourses within the SLC area. Continue to review the application of the SLC watercourse telemetry network.
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.	The Council's Planning and Development Management process will continue to be implemented to ensure developments manage flood risk in accordance with the latest Council policy.

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	Interim Progress	Planned actions to complete
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	Generic awareness raising is carried out through the council website and social media. The council use SEPA flood Alerts as a targeted timing to deliver flood awareness information. The council are developing an annual programme of attending local highland games to deliver awareness raising objectives. The council will work with Scottish Fire and Rescue Service to deliver joint flooding messages at Fire station open days annually.	The council will work with Scottish Fire and Rescue Service to deliver joint flooding messages at Fire station open days annually to reach a wider audience. The council are also developing a programme of local public events to attend to engage communities. This will consist of attending local events such as highland games and community fayres. This will begin in 2019.
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.	Stirling Council will continue to develop a partnership working model and embed communications links between key group stakeholders and also to expand group membership to other potential partners (e.g. volunteer sector).
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	One community within Stirling Council area has developed a community resilience plan since the publication of the Local Flood Risk Management Plan. The resilience officer is working with outer communities to develop further resilient communities.	The resilience and risk team within the council is working with communities to aid development of further resilient communities and supporting the resilience plans already in place.

Summary of progress of PVA-wide actions to manage flood risk for Stirling Council							
Action	Status	PVA	Description	Start	End	Interim Progress	Planned actions to complete
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	The council have a successful watercourse inspection regime in place which identifies risks. Where the problems reside in private property the council will notify landowners of their riparian responsibilities. There are plans to expand this to involve criminal justice colleagues to arrange clearance works where they are not council responsibility or ownership and where landowners are amenable. The council also have a fortnightly maintenance regime in place where key hot spot locations have been identified. This work is carried out by contractors and managed by the flooding team. Any additional works identified are added to a schedule of works and prioritised based on risk and the available budget.	Stirling council will continue to inspect watercourses to identify flood risks and to carry out the fortnightly inspection and clearance regime which has resulted in a reduction in localised and repeat flooding incidents. Budgets have however been reduced therefore the volume of clearance and repair works have reduced. They continue to be carried out on a risk based priority. The council will continue to seek methods of continuing a sustainable level of maintenance activities through volunteers and criminal justice support.
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	Flood risk information including the local flood risk management plan feed into the local development plan. Planning departments are kept abreast of development through the flooding team and through local advisory group meetings.	Stirling Council will continue work closely with both planning authorities in the development and implementation of local development plans to incorporate flood risk management objectives into the process from the outset.

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	Interim Progress	Planned actions to complete
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.	Continue to raise awareness via council's social media platform.
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.	Continue with engagement of current collaboration and review annually/as required.
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.	Ongoing commitment to support those residents and businesses requiring assistance and advice on FRM issues.

Summary of progress of PVA-wide actions to manage flood risk for West Dunbartonshire Council							
Action	Status	PVA	Description	Start	End	Interim Progress	Planned actions to complete
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	Inspections/maintenance regime currently under review with a view of moving to a webbase database. This will result in improved access for public inspection.
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.	West Dunbartonshire Council is currently preparing a replacement Local Development Plan 2 which is also compliant with SPP & includes sites requiring a Flood Risk Assessment. Indicative adoption date of January 2020.

4.2.11 SEPA actions

Summary of progress of PVA-wide actions to manage flood risk for SEPA							
Action	Status	PVA	Description	Start	End	Interim Progress	Planned actions to complete
Awareness raising	Green	All	<p>From 2016 SEPA will engage with the community and promote Floodline. This will be achieved through SEPA-led education events.</p> <p>Across Scotland, SEPA will create and share communication and education resources with other responsible authorities. These resources will include awareness campaigns, media and marketing activity and promotion of SEPA's flood forecasting and warning services (Floodline). Where they exist, SEPA will engage with community resilience groups and community safety partnerships. For the new flood protection scheme, SEPA will support the local authority's communications and engagement activities with media activity, local public awareness events and education engagement with schools. SEPA will also deliver joint communications with local authorities for Floodline customers in any newly protected flood warning area.</p> <p>To support the delivery of the new SEPA flood warning scheme, SEPA will carry out a local launch event and engage directly with residents in the area. This will be supported by local and national media communications. SEPA will also support and participate in local public awareness events, in partnership with the local authority, community council or other local representative organisations, including schools. Argyll & Bute Council Website has a Flood Advice webpage.</p> <p>Other awareness raising activities will be identified during the 1st FRM Act cycle.</p> <p>Scottish Water will keep responsible authorities informed of its awareness raising activities through the Local Plan District partnerships.</p>	2015	2022	<p>SEPA has delivered a range of awareness raising activities through campaigning, education activities and partnership delivery. We have run national and local digital and direct engagement campaigns to raise awareness of flood risk and SEPA's flood warning service, Floodline. We publish and publicise an electronic newsletter (Flooding Gateway) four times a year which is distributed to a wide audience. We are working with Education Scotland and Scottish Government Resilience team to embed flooding awareness within the Curriculum for Excellence, and resilience partners in Safer Communities programmes. We have also developed an online tool that helps everyone share information on current flooding issues (Report-a-Flood). We have worked in partnership with local authorities, emergency services and community organisations (e.g. Neighbourhood Watch Scotland, Citizens Advice Scotland and others) to share our resources and help to promote preparedness and understanding of how we manage flood risk in Scotland. We have actively supported the Scottish Flood Forum and worked closely with UK agencies to develop joint flooding information. In association with the launch of the Loch Lomond Flood Warning Scheme in 2017, SEPA engaged with the local community to raise awareness of flood risk and encourage uptake of targeted flood warnings.</p>	<p>SEPA will continue 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 our awareness raising activities currently underway will continue. Our focus will be on promoting flood warning and forecasting service, innovation, education and engagement with partners, customers and the public.</p>

Summary of progress of PVA-wide actions to manage flood risk for SEPA							
Action	Status	PVA	Description	Start	End	Interim Progress	Planned actions to complete
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 has continued to operate the Scottish Flood Forecasting Service (SFFS) Partnership with the Met Office with daily, national Flood Guidance Statements issued to Category 1 and 2 agencies (such as emergency responders, local authorities and other organisations with flooding management duties) and regional Flood Alerts issued to the public. Each daily statement gives an assessment of the risk of flooding for the next five days to enable these organisations to put preparations in place to reduce the impact of flooding. SEPA's Flood Alert service is freely available to everyone and enables communities to be aware and prepared to reduce the impacts of flooding.	SEPA will continue and improve the Scottish Flood Forecasting Service (SFFS) 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 is currently exploring options to develop a public version of the daily Flood Guidance Statement to provide better and earlier information to the public.

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/>


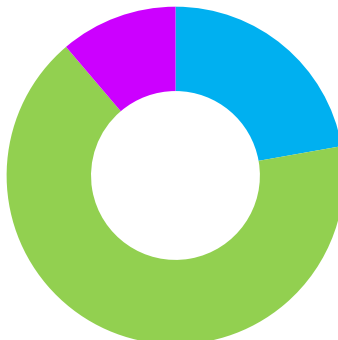
The background information sets the scene for the planned actions to manage flooding that have been prioritised for delivery between 2016 and 2022. The Potentially Vulnerable Area level action tables set out the flood management objective that is to be achieved, provide a description of the action, identify 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. Scottish Natural Heritage 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)																		
 <small>© Crown copyright. SEPA licence number 100016991 (2015). All rights reserved.</small>			<p>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.</p> <p>Link to LFRMP PVA 11/01</p> <p>Key progress:</p> <ul style="list-style-type: none">Gruggies Burn Flood Prevention Scheme has progressed to modelling/design stageNew and existing flood warnings are being maintained					 <p>Annual Average Damages by flood source</p> <ul style="list-style-type: none">River 22%Coastal 67%Surface water 11%										
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				A	G	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	Interim Progress	Planned actions to complete
Flood protection scheme/ works	Green	Reduce the risk of disruption along the A82 due to flooding	TS	2016	2021	<p>Collaboration in progress between Transport Scotland and Loch Lomond and Trossach National Park. Transport Scotland keen to be part of a scoping study and will provide data and authoring support. To help inform where the scoping study should focus on Transport Scotland will develop a background note which will look at their datasets internally and share where there are current flooding issues or flood risks to be managed in future projects (incl. the A82 Tarbet to Inverarnan upgrade), which could be included as part of the scoping study for further investigation. This could be background material and an evidence report for a consultant to use. LLTNPA will ask the other Local Authorities if they can also look at the areas they submitted and provide evidence why there should be used to research in that area and what benefits it would bring by undertaking a study in that location ie catchment characteristics and potential benefits. Timescales are LLTNPA to draft a brief for end of December and seek funding with study to be undertaken in financial year 19/20. Forestry commission as major landowner in the area were identified as an additional partner and LLTNPA will contact them to see if they want to be involved in the project. Once a draft brief is drafted and shared with partners it could be useful to sit down around a map with all the partners and finalise the areas we want to focus the scoping report on, using the background reports and looking at the catchment characteristics and where we will get most multiple benefits, and then finalise the brief based on these discussions.</p>	Transport Scotland are considering opportunities within planned maintenance work and future proposed schemes for the A82.

Summary of progress of actions to manage flood risk in PVA 11/01

Action	Status	Description	Lead Authority	Start Date	Finish Date	Interim Progress	Planned actions to complete
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	Development of Options and " Buildability" assessment currently being undertaken.	Engaging with specialist Contractors via national frame work contract to progress to next stage of development.
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	NA
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 completed development of a flood forecasting model for Loch Lomond and has worked with local authorities to develop procedures for the new flood warning service. A new flood warning area has been introduced.	SEPA will continue to operate the flood warning service

Summary of progress of actions to manage flood risk in PVA 11/01

Action	Status	Description	Lead Authority	Start Date	Finish Date	Interim Progress	Planned actions to complete
Flood protection study	Amber	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	Await outcomes of NFM	Upon completion of NFM Study lead by LLTTNP.
Natural flood management study	Green	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	Has not started yet.	NA
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 recently reviewed and recalibrated the Firth of Clyde flood forecasting model. SEPA has merged the Dumbarton Central, Dumbarton East End and the Dumbarton Common flood warning areas (part of the Firth of Clyde coastal flood warning scheme) to create a new flood warning area for 'Dumbarton'.	SEPA will continue to operate the flood warning service

Summary of progress of actions to manage flood risk in PVA 11/01

Action	Status	Description	Lead Authority	Start Date	Finish Date	Interim Progress	Planned actions to 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.	WDC	2016	2021	Identifying specific locations within Dumbarton area which require a SWMP.	Locations {7no} identified SWMP will be developed upon completion of Gruggies Burn FPS & River Leven Study
Maintain flood protection scheme	Green	Continue to maintain the existing flood defences along the Knowle Burn.	WDC	2015	2022	Ongoing	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 started. The assessment will improve knowledge and understanding of surface water flood risk.	On track to deliver within agreed LFRMP timescales
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.	LLTNP	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	Ongoing

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)



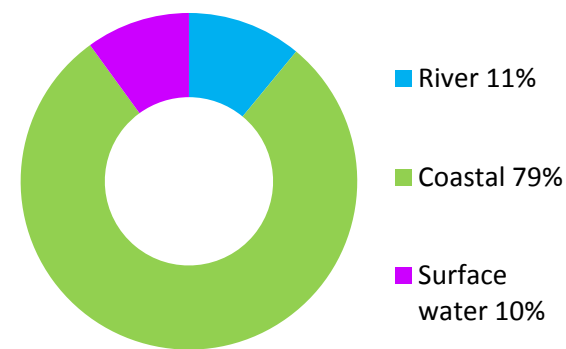
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The area has a risk of river, surface water and coastal flooding. The majority of damages are caused by coastal flooding. There are approximately 70 residential properties and 90 non-residential properties at risk of flooding. The Annual Average Damages 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
- SEPA floodmaps will be updated next cycle due to new FEH guidelines



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		R	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	Interim Progress	Planned actions to complete
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	2022	Not started	Depending upon the results of the surface water plan/study, either a scheme will be put forward for Cycle 2 or programmed into works funded directly by Argyll and Bute Council as funding allows.
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	Development works only.	Works planned to Craigendoran Coastal Defence (CD 200/557) for 2018/19. Works to improve durability of the wall and backfill during storm conditions and overtopping. Works are to ensure the wall's stability against wave action and overtopping.

Summary of progress of actions to manage flood risk in PVA 11/02

Action	Status	Description	Lead Authority	Start Date	Finish Date	Interim Progress	Planned actions to complete
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 commenced in May 2018 and is being progressed by JBA. As of August 2018 the gap analysis has been completed ahead of baseline modelling.	Internal programme deadline of June 2019 for completion of the study
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 recently reviewed and recalibrated the Firth of Clyde flood forecasting model. As part of the Firth of Clyde coastal flood warning scheme SEPA has renamed the 'Helensburgh A814' flood warning area to 'Helensburgh'.	SEPA will continue to operate the flood warning service
Awareness raising	Green	See page 32 for the LPD-wide action description.	SEPA	2015	2022	SEPA supported a community event in the Helensburgh & District Civic Society to promote flood awareness as well as improve knowledge of the local Flood Warning Scheme and further encourage uptake of targeted flood warnings. SEPA also arranged for 'Rapid Departure', an interactive play about flooding, to be shown at the town of Cove.	See page 32 for the LPD-wide planned actions to complete.

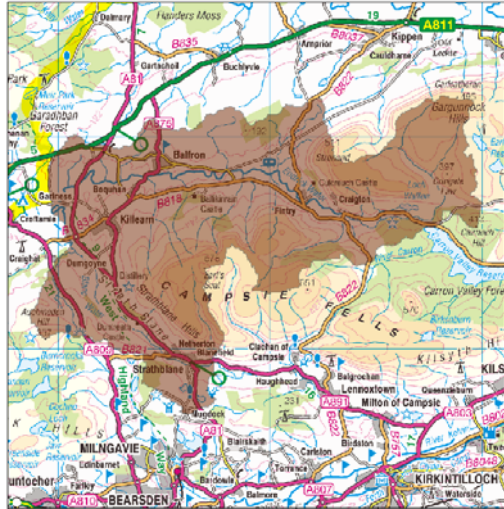
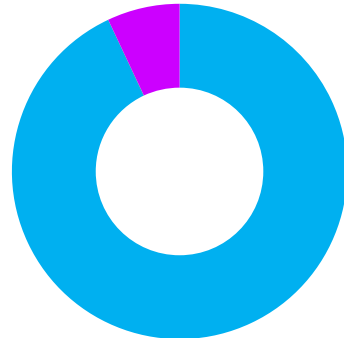
Summary of progress of actions to manage flood risk in PVA 11/02

Action	Status	Description	Lead Authority	Start Date	Finish Date	Interim Progress	Planned actions to complete
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	The Kilcreggan SWMP commenced in May 2018 and is being progressed by JBA. Given the localised nature and understanding of flood issues from previous investigations, it is expected that the SWMP will be solutions focussed. As of August 2018 the gap analysis has been completed ahead of baseline modelling.	Anticipated SWMP completion end 2018
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	The Kilcreggan SWMP commenced in May 2018 and is being progressed by JBA. Given the localised nature and understanding of flood issues from previous investigations, it is expected that the SWMP will be solutions focussed. As of August 2018 the gap analysis has been completed ahead of baseline modelling.	Internal programme deadline of October 2018 for completion of the SWMP.
Strategic mapping and modelling	Red	SEPA will update strategic surface water mapping in some parts of this catchment to improve understanding of flood risk. The inclusion of additional surface water hazard data resulting from the completion of local authority surface water management plans will be considered as these projects are completed.	SEPA	2016	2016	SEPA's current Surface water hazard maps use design rainfall estimates based on FEH99 methodology, this has now been superseded by FEH13 methodology. The FEH13 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 considered appropriate to deliver this action as originally intended.	This action will not be taken forwards as described. SEPA will develop new Surface water flood hazard maps over the remainder of Cycle 1. It is anticipated that updated flood mapping from this revised action will be available early in Cycle 2. Alongside this SEPA is investigating the feasibility of developing an interim approach to assess the change in Surface water hazard (and risk) associated with FEH13, such that we could consider it in the development of the 2021 FRM Strategies.

Summary of progress of actions to manage flood risk in PVA 11/02

Action	Status	Description	Lead Authority	Start Date	Finish Date	Interim Progress	Planned actions to complete
Strategic mapping and modelling	Green	Scottish Water will undertake further investigation and modelling in the Helensburgh, Garelochhead, Cove & Killcraggan 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 started. The assessment will improve knowledge and understanding of surface water flood risk.	On track to deliver within agreed LFRMP timescales
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	Ongoing

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)																		
<div><p>© Crown copyright. SEPA licence number 100016991 (2015). All rights reserved.</p></div>		<p>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.</p> <p>Link to LFRMP PVA 11/03</p> <p>Key progress:</p> <ul style="list-style-type: none">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 communitySEPA floodmaps will be updated next cycle due to new FEH guidelines	<div><p>Annual Average Damages by flood source</p><table><tr><td>River</td><td>93%</td></tr><tr><td>Coastal</td><td>0%</td></tr><tr><td>Surface water</td><td>7%</td></tr></table></div>	River	93%	Coastal	0%	Surface water	7%									
River	93%																	
Coastal	0%																	
Surface water	7%																	
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		R	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	Planned actions to complete
Strategic mapping and modelling	Red	SEPA will update strategic surface water mapping in some parts of this catchment to improve understanding of flood risk. The inclusion of additional surface water hazard data resulting from the completion of local authority surface water management plans will be considered as these projects are completed.	SEPA	2016	2016	SEPA's current Surface water hazard maps use design rainfall estimates based on FEH99 methodology, this has now been superseded by FEH13 methodology. The FEH13 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. SEPA will develop new Surface water flood hazard maps over the remainder of Cycle 1. It is anticipated that updated flood mapping from this revised action will be available early in Cycle 2. Alongside this SEPA is investigating the feasibility of developing an interim approach to assess the change in Surface water hazard (and risk) associated with FEH13, such that we could consider it in the development of the 2021 FRM Strategies.
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	2020	The Scottish Water assessment of flood risk within the sewer catchment has not yet started. The assessment will improve knowledge and understanding of surface water flood risk.	On track to deliver within agreed LFRMP timescales

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)



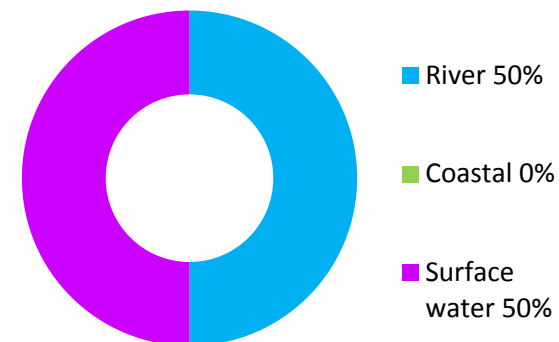
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The area has a risk of river and surface water flooding. The damages are evenly split. There are approximately 2,300 residential properties and 1,100 non-residential properties at risk of flooding. The Annual Average Damages are approximately £4.6 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 have all commenced
- 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	A	G	G	R 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	Interim Progress	Planned actions to complete
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	These works are being developed to detail design stage. Phase 1 for clearance and vegetation clearance has been undertaken to date. Tis to allow us access to undertake Phase 2 works. Detail design is now completed and with our procurement to appoint a contractor to undertake Phase 2 works which involves regrading / profiling and silt removal of Park Burn in early 2019 with works being undertaken in spring / summer.	Phase 1 completed with Phase 2 works requiring to be put out to Tender.
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	NA
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.	Complete the review of the Site Protection Plan and provide advice as to any necessary updates.
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	The River Kelvin study has been completed. Review of the study indicated that the existing flood defences in place protect the associated areas to the required SOP. No additional works are required to bring these defences to current predicted return periods. Details have been provided to SEPA.	No further action required however the FRA study will feed into other proposed studies being considered in the catchment.

Summary of progress of actions to manage flood risk in PVA 11/04

Action	Status	Description	Lead Authority	Start Date	Finish Date	Interim Progress	Planned actions to complete
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	The Allander Flood Study has been completed. There is no flood defence scheme being proposed at this stage however the outputs and areas of flood risk will feed into a NFM study and other RMBP opportunities that might be progressed via SEPA and other stakeholders to minimise flood risk in the catchment and provide multiple benefits.	Flood Study for Allander Water Completed
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.

Summary of progress of actions to manage flood risk in PVA 11/04

Action	Status	Description	Lead Authority	Start Date	Finish Date	Interim Progress	Planned actions to complete
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	Draft Scope issued to consultant for discussion.	Stage1 consultant to be appointed Sept 2018 and work completed by Mar 2019
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	Draft Scope issued to consultant for discussion. Associated Garrell Burn restoration project on going. Agreed in principle with Scottish Canals subject to further study.	Stage 2 Option Appraisal to be procured Sept 2018 and completed by Mar 2019.

Summary of progress of actions to manage flood risk in PVA 11/04

Action	Status	Description	Lead Authority	Start Date	Finish Date	Interim Progress	Planned actions to complete
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	Following confirmation of East Dunbartonshire Council funding for the detailed design phase of the Upper Glazert catchment restoration project and Water Environment Fund approved by the Scottish Government the project is now set to progress.	Detailed design phase of the project is due to be completed in 2018. SEPA and East Dunbartonshire Council are working in partnership to secure funding to progress to works phase.
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	2018	Initial discussions have taken place with project partners on the scope of the project with a view to tendering the work in March/April. Project initiation has been delayed slightly to ensure recent modelling has been completed and available to the Study.	Write project brief, commission study and project manage to completion
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	SEPA will continue to operate the flood warning service

Summary of progress of actions to manage flood risk in PVA 11/04

Action	Status	Description	Lead Authority	Start Date	Finish Date	Interim Progress	Planned actions to complete
Awareness raising	Green	See page 32 for the LPD-wide action description.	SEPA	2015	2022	SEPA attended an education events at Balmuidy Primary School (October 2017) and Clober Primary School (November 2017) to promote flood awareness. Engagement with local community following a flood incident / historic issues. Initial Community engagement with both Community Council and the wider community, exploring possible options regarding SEPA and Local Authority engagement. Community engagement presentation and appropriate advice – short term strategic development.	See page 32 for the LPD-wide planned actions to complete.
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	AECOM were appointed to undertake this work for all three SWMP areas. This is currently progressing. Local consultations have been undertaken in schools and communities in these areas. After the Pluvial flood event experienced in June 2018 in Bishopbriggs and Bearsden data will be included to show a good understanding of our hot spot areas. The SWMP is due to be completed in November 2019.	Work is currently ongoing.
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	Milngavie AECOM were appointed to undertake this work for all three SWMP areas. This is currently progressing. Local consultations have been undertaken in schools and communities in these areas. After the Pluvial flood event experienced in June 2018 in Bishopbriggs and Bearsden data will be included to show a good understanding of our hot spot areas. The SWMP is due to be completed in November 2019.	Work is currently ongoing.

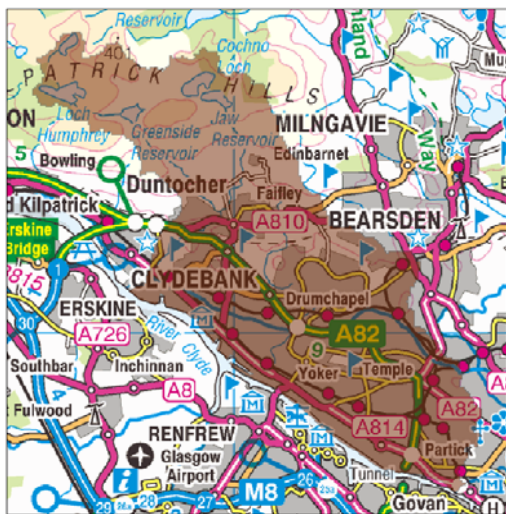

Summary of progress of actions to manage flood risk in PVA 11/04

Action	Status	Description	Lead Authority	Start Date	Finish Date	Interim Progress	Planned actions to complete
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	Bearsden AECOM were appointed to undertake this work for all three SWMP areas. This is currently progressing. Local consultations have been undertaken in schools and communities in these areas. After the Pluvial flood event experienced in June 2018 in Bishopbriggs and Bearsden data will be included to show a good understanding of our hot spot areas. The SWMP is due to be completed in November 2019.	Work is currently ongoing.
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.	NLC	2016	2019	Data collection – Cumbernauld.	Development of Scope and procure consultant Jan /Feb 2019
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.	NLC	2016	2019	Data collection – Kilsyth.	Development of Scope and procure consultant Jan /Feb 2019

Summary of progress of actions to manage flood risk in PVA 11/04

Action	Status	Description	Lead Authority	Start Date	Finish Date	Interim Progress	Planned actions to complete
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	Ongoing
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 currently maintains the existing flood defence.	Maintenance will continue.
Strategic mapping and modelling	Green	Scottish Water will undertake further investigation and modelling in the Dalmuir, Dalarnock 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 started. The assessment will improve knowledge and understanding of surface water flood risk.	On track to deliver within agreed LFRMP timescales

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)																		
 <p>© Crown copyright. SEPA licence number 100016991 (2015). All rights reserved.</p>		<p>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.</p> <p>Link to LFRMP PVA 11/05</p> <p>Key progress:</p> <ul style="list-style-type: none">All studies are expected to be completed before the next cycle, or have been completed	 <p>Annual Average Damages by flood source</p> <table><thead><tr><th>Flood Source</th><th>Percentage</th></tr></thead><tbody><tr><td>River</td><td>23%</td></tr><tr><td>Coastal</td><td>39%</td></tr><tr><td>Surface water</td><td>38%</td></tr></tbody></table>	Flood Source	Percentage	River	23%	Coastal	39%	Surface water	38%							
Flood Source	Percentage																	
River	23%																	
Coastal	39%																	
Surface water	38%																	
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	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	Interim Progress	Planned actions to complete
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 NFM Study has been completed with the implementation works being progressed alongside the Drumchapel SWMP.	A Planning Advice Note is to be issued ahead of the Planning Application submission. Once Planning Permission has been submitted other permissions such as CAR and Reservoir Licences will be sought prior to tendering for the construction.
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.	Selected recommendations from the study are to be implemented via the Drumchapel Surface Water Management Plan
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 recently reviewed and recalibrated the Firth of Clyde flood forecasting model. SEPA has continued to maintain the Renfrew flood warning area which is part of the Firth of Clyde coastal flood warning scheme.	SEPA will continue to operate the flood warning service
Awareness raising	Green	See page 32 for the LPD-wide action description.	SEPA	2015	2022	SEPA arranged for 'Rapid Departure', an interactive play about flooding, to be shown at the nearby town of Lochwinnoch (March 2016). The show was advertised throughout the Gryfe catchment.	See page 32 for the LPD-wide planned actions to complete.

Summary of progress of actions to manage flood risk in PVA 11/05

Action	Status	Description	Lead Authority	Start Date	Finish Date	Interim Progress	Planned actions to complete
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	AECOM were appointed to undertake this work for all three SWMP areas. This is currently progressing. Local consultations have been undertaken in schools and communities in these areas. After the Pluvial flood event experienced in June 2018 in Bishopbriggs and Bearsden data will be included to show a good understanding of our hot spot areas. The SWMP is due to be completed in November 2019.	Ongoing
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 completed to the outline design stage. We are now in the early stages of tendering for the detailed design stage to progress from Outline to Detailed design.	Begin implementing the actions recommended through the NFM and SWMP studies.

Summary of progress of actions to manage flood risk in PVA 11/05

Action	Status	Description	Lead Authority	Start Date	Finish Date	Interim Progress	Planned actions to complete
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	2016	2017	High Knightswood, Netherton. The SWMP has been completed to the outline design stage. We are now in the early stages of tendering for the detailed design stage to progress from Outline to Detailed design.	Promote the preferred options for implementation.
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	2018	2020	Yokermain Burn. This project is yet to begin.	In workplan for 2018/2019.
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.	WDC	2016	2021	Old Kilpatrick, Duntocher and Mountblow. Identifying specific locations within these areas requiring a SWMP {Initial indications suggest a minimum of 5 locations within Clydebank area}	SWMP will commence upon completion of Gruggies Burn FPS & River Leven Study.

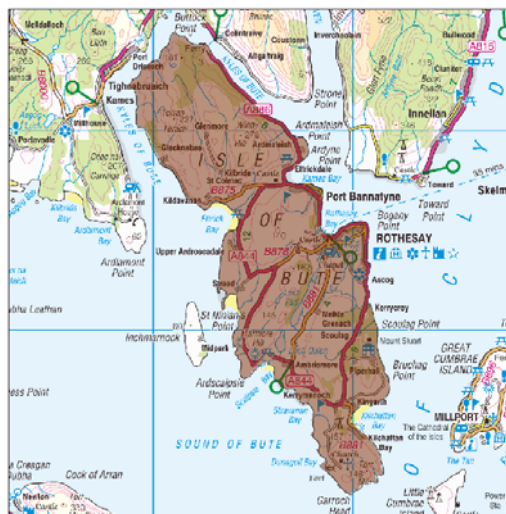
Summary of progress of actions to manage flood risk in PVA 11/05

Action	Status	Description	Lead Authority	Start Date	Finish Date	Interim Progress	Planned actions to complete
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 currently maintains the existing flood defence.	Maintenance will continue.
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	The Scottish Water assessment of flood risk within the sewer catchment has started. The assessment will improve knowledge and understanding of surface water flood risk.	On track to deliver within agreed LFRMP timescales

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)



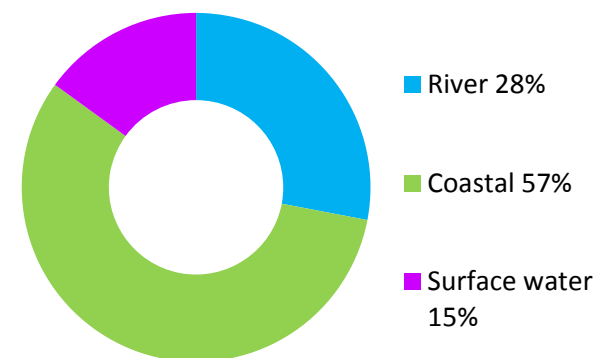
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The area has a risk of river, surface water and coastal flooding. The majority of damages are caused by coastal flooding. There are approximately 600 residential properties and 420 non-residential properties at risk of flooding. The Annual Average 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 flood warning and protection schemes are being maintained
- The Scottish Water assessment of flood risk is on track to deliver within planned timescales



Annual Average Damages by flood source

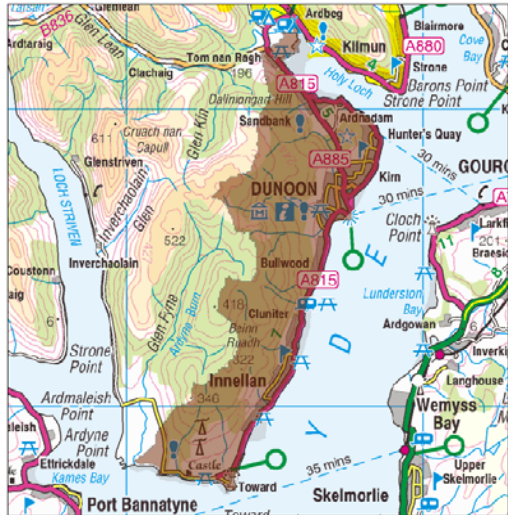

Overview of actions to manage flooding in PVA 11/06

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	Interim Progress	Planned actions to complete
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 recently reviewed and recalibrated the Firth of Clyde flood forecasting model. SEPA has merged the Kames Bay Pointhouse Crescent and Rothesay Town Centre flood warning areas (part of the Firth of Clyde coastal flood warning scheme) to create a new flood warning area for 'Kames Bay to Rothesay'.	SEPA will continue 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	Continue to maintain the existing defences in Rothesay.	Monitor performance and maintain structure of defences.
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	The Scottish Water assessment of flood risk within the sewer catchment has not yet started. The assessment will improve knowledge and understanding of surface water flood risk.	On track to deliver within agreed LFRMP timescales

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)																		
 <p>© Crown copyright. SEPA licence number 100016991 (2015). All rights reserved.</p>		<p>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.</p> <p>Link to LFRMP PVA 11/07</p> <p>Key progress:</p> <ul style="list-style-type: none">A SWMP has now commenced for the Dunoon areaThe existing flood warning and protection schemes are being maintained	 <p>Annual Average Damages by flood source</p>															
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

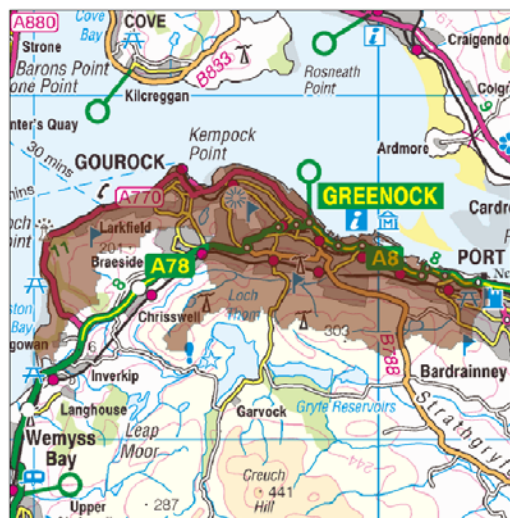
Summary of progress of actions to manage flood risk in PVA 11/07

Action	Status	Description	Lead Authority	Start Date	Finish Date	Interim Progress	Planned actions to complete
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 recently reviewed and recalibrated the Firth of Clyde flood forecasting model. SEPA has merged the Dunoon Pier and Hunter's Grove flood warning areas (part of the Firth of Clyde coastal flood warning scheme) to create a new flood warning area for 'Hunter's Quay to Dunoon'.	SEPA will continue 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	The Dunoon SWMP commenced in May 2018 and is being progressed by JBA.	Anticipated SWMP completion – October 2018
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	Continue to maintain the existing defences in Dunoon	Monitor performance and maintain structure of defences
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	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	Completed

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)



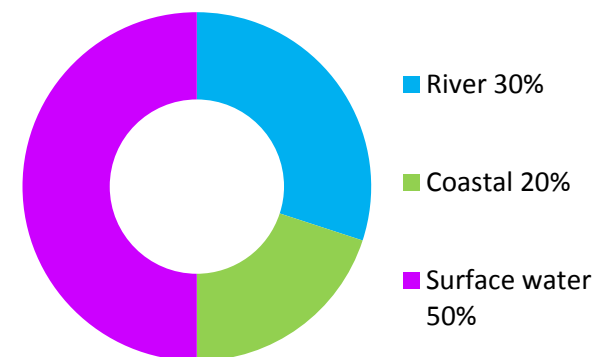
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The area has a risk of river, surface water and coastal flooding. The majority of damages are caused by surface water flooding. There are approximately 820 residential properties and 730 non-residential properties at risk of flooding. The Annual Average 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:

- Greenock SWMP is currently ongoing
- Flood warnings and protection schemes are being maintained



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				G				G	G	G	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	Interim Progress	Planned actions to complete
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	This project is complete as the flooding is Coastal Flooding	Complete
Flood protection scheme/ works	Green	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	Design works are complete, awaiting detailed drawings and tender documentation	Service Diversions for the proposed works are programmed to start Dec 2018 and the construction works are programmed to start early 2019.
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	Flood Protection works completed to prevent flooding	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 recently reviewed and recalibrated the Firth of Clyde flood forecasting model. SEPA has merged the Gourock Cove Road and the Greenock and Port Glasgow flood warning areas (part of the Firth of Clyde coastal flood warning scheme) to create a new flood warning area for 'Gourock to Port Glasgow'.	SEPA will continue to operate the flood warning service
Awareness raising	Green	See page 32 for LPD-wide action description.	SEPA	2015	2022	Engagement with local community following a flood incident / historic issues. Initial Community engagement with both Community Council and the wider community, exploring possible options regarding SEPA and Local Authority engagement. Community engagement presentation and appropriate advice – short term strategic development.	See page 32 for LPD-wide planned actions to complete.

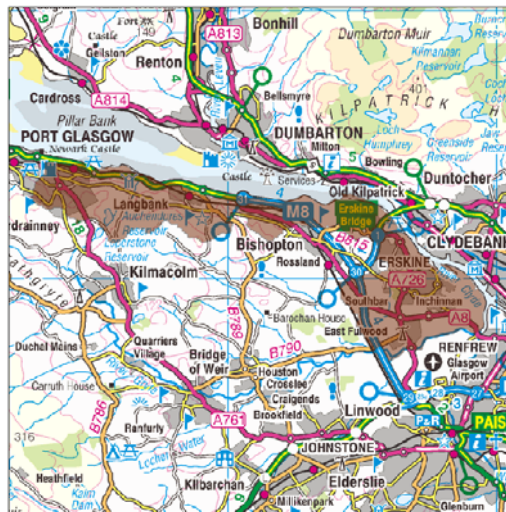
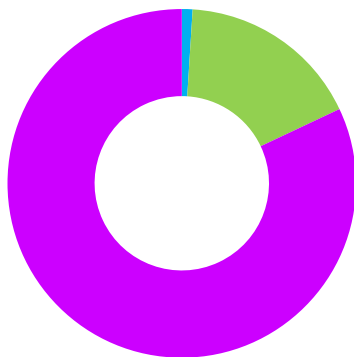
Summary of progress of actions to manage flood risk in PVA 11/08

Action	Status	Description	Lead Authority	Start Date	Finish Date	Interim Progress	Planned actions to complete
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.	IC	2016	2019	Greenock. Surface Water Management Plan started, however early stages.	Surface Water Management Plan to be completed in 2019, after the Integrated Catchment Study is complete.
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	Greenock. Model Build Complete, Model build verification underway	Complete Catchment Flood Assessment
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.	IC	2016	2019	Port Glasgow. Surface Water Management Plan started, however early stages.	Surface Water Management Plan to be completed in 2019, after the Integrated Catchment Study is complete.
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	Port Glasgow. Model Build Complete, Model build verification underway	Complete Catchment Flood Assessment
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	Continue to inspect V-notches and clean out and repair any damage.

Summary of progress of actions to manage flood risk in PVA 11/08

Action	Status	Description	Lead Authority	Start Date	Finish Date	Interim Progress	Planned actions to complete
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	The Scottish Water assessment of flood risk within the sewer catchment has started. The assessment will improve knowledge and understanding of surface water flood risk.	On track to deliver within agreed LFRMP timescales

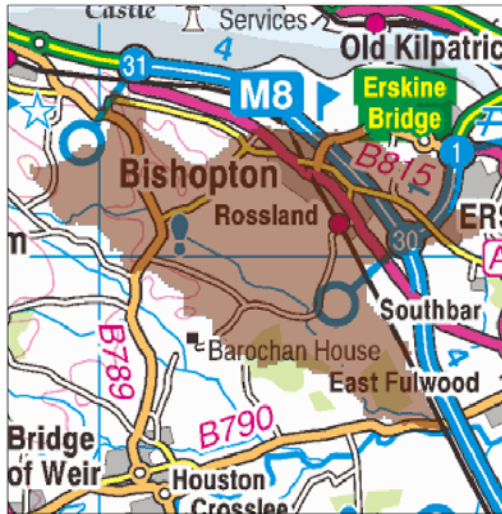
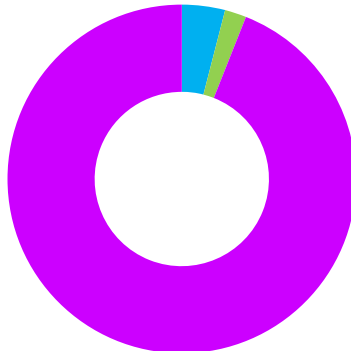
5.9 South of the Clyde (PVA 11/09)

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)																		
 <p>© Crown copyright. SEPA licence number 100016991 (2015). All rights reserved.</p>		<p>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.</p> <p>Link to LFRMP PVA 11/09</p> <p>Key progress:</p> <ul style="list-style-type: none">Flood protection works have been completedPort Glasgow Integrated Catchment Study is expected to complete in October 2019	 <p>Annual Average Damages by flood source</p>															
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	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	Interim Progress	Planned actions to complete
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	Langbank Coastal Defence (CD 200/911), works completed 2015. The works involved laying rock armour protection to the track embankment.	Completed
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.	IC	2016	2019	Surface Water Management Plan started, however early stages.	Surface Water Management Plan to be completed in 2019, after the Integrated Catchment Study is complete.
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	Model Build Complete, Model build verification underway	Complete catchment Flood Assessment
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	Manhole, Ancillary, watercourse and flow surveys complete. Model build 96 % complete. Regular stakeholder liaison meetings undertaken.	Complete, report on and verify model build and catchment / flood needs assessment.
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	The Scottish Water assessment of flood risk within the sewer catchment has started. The assessment will improve knowledge and understanding of surface water flood risk.	On track to deliver within agreed LFRMP timescales

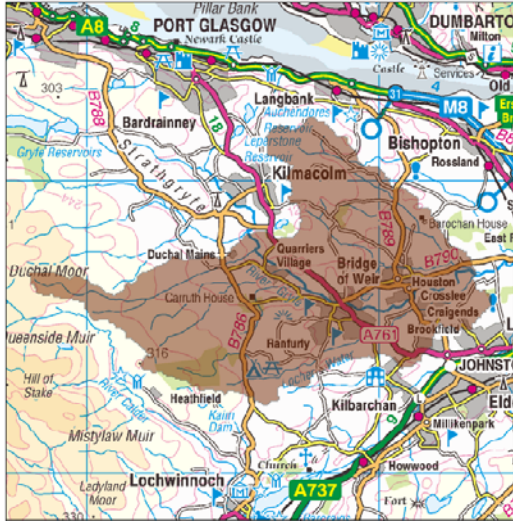
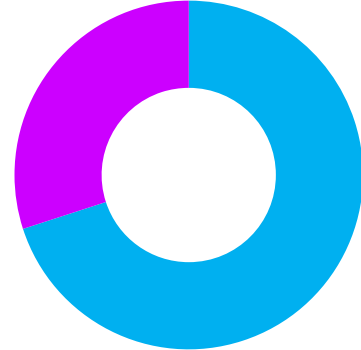
5.10 Bishopton (PVA 11/10)

Local Plan District			Local authority			Main catchment												
Clyde and Loch Lomond			Renfrewshire Council			River Gryfe												
Summary of Progress for Bishopton (PVA 11/10)																		
 <p>© Crown copyright. SEPA licence number 100016991 (2015). All rights reserved.</p>			<p>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.</p> <p>Link to LFRMP PVA 11/10</p> <p>Key progress:</p> <ul style="list-style-type: none">The Scottish Water surveys and assessment of flood risk are on track to deliver within their planned timescales			 <p>Annual Average Damages by flood source</p> <table><thead><tr><th>Flood Source</th><th>Percentage</th></tr></thead><tbody><tr><td>Surface water</td><td>94%</td></tr><tr><td>River</td><td>4%</td></tr><tr><td>Coastal</td><td>2%</td></tr></tbody></table>			Flood Source	Percentage	Surface water	94%	River	4%	Coastal	2%		
Flood Source	Percentage																	
Surface water	94%																	
River	4%																	
Coastal	2%																	
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	Interim Progress	Planned actions to complete
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	Manhole, Ancillary, watercourse and flow surveys complete. Model build 96 % complete. Regular stakeholder liaison meetings undertaken.	Complete, report on and verify model build and catchment / flood needs assessment.
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	The Scottish Water assessment of flood risk within the sewer catchment has started. The assessment will improve knowledge and understanding of surface water flood risk.	On track to deliver within agreed LFRMP timescales

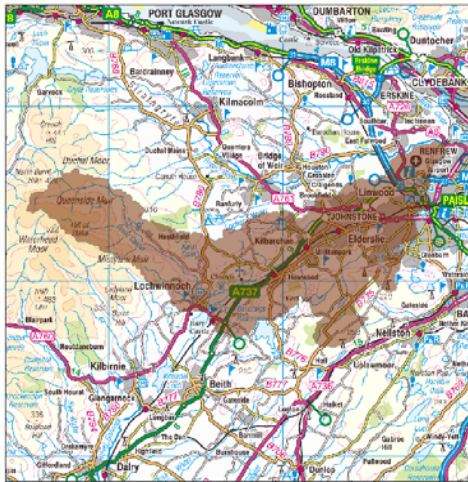
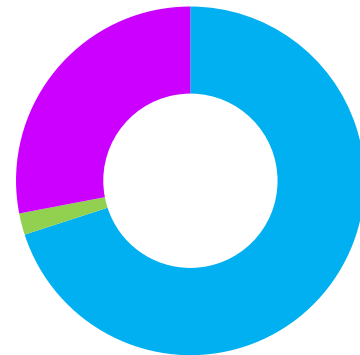
5.11 Gryfe catchment (PVA 11/11)

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)																		
 <p>© Crown copyright. SEPA licence number 100016991 (2015). All rights reserved.</p>		<p>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.</p> <p>Link to LFRMP PVA 11/11</p> <p>Key progress:</p> <ul style="list-style-type: none">Flood protection construction works will start in summer 2019All studies and assessments of flood risk are on track to deliver within their planned timescales	 <p>Annual Average Damages by flood source</p> <ul style="list-style-type: none">River 70%Coastal 0%Surface water 30%															
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	G									G	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	Interim Progress	Planned actions to complete
Flood protection scheme / works	Green	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	Revised solutions are currently being prepared and will be complete in 2018	The construction works on site are programmed to start summer 2019
Surface water plan/study	Green	Reduce the economic damages and risk to people from surface water flooding in Johnstone and Kilbarchan	RC	2020	2021	Prior to start date	NA
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	Manhole, Ancillary, watercourse and flow surveys complete. Model build 96 % complete. Regular stakeholder liaison meetings undertaken.	Complete, report on and verify model build and catchment / flood needs assessment.
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	The Scottish Water assessment of flood risk within the sewer catchment has not yet started. The assessment will improve knowledge and understanding of surface water flood risk.	On track to deliver within agreed LFRMP timescales

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)																									
 <p>© Crown copyright. SEPA licence number 100016991 (2015). All rights reserved.</p>						<p>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.</p> <p>Link to LFRMP PVA 11/12</p> <p>Key progress:</p> <ul style="list-style-type: none">• Most flood protection and surface water studies have not yet commenced• Ongoing studies are on track to deliver within their planned timescales• SEPA floodmaps will be updated in the next cycle due to new FEH guidelines								 <p>Annual Average Damages by flood source</p> <table><tr><td>River</td><td>70%</td></tr><tr><td>Coastal</td><td>2%</td></tr><tr><td>Surface water</td><td>28%</td></tr></table>						River	70%	Coastal	2%	Surface water	28%
River	70%																								
Coastal	2%																								
Surface water	28%																								
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						G	G		G	G	G	G	R	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	Interim Progress	Planned actions to complete
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.	NA
Flood protection study	Green	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	Prior to start date	NA
Flood protection study	Green	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	Prior to start date.	NA

Summary of progress of actions to manage flood risk in PVA 11/12

Action	Status	Description	Lead Authority	Start Date	Finish Date	Interim Progress	Planned actions to complete
Flood protection study	Green	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	Prior to start date	NA
Flood protection study	Green	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	Prior to start date	NA
Natural flood management study	Green	The Council plans to undertake a natural flood management study to further investigate the potential benefit for sediment management at Kilbarchan.	RC	2020	2021	Prior to start date.	NA
Natural flood management study	Green	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	Prior to start date.	NA
Awareness raising	Green	See page 32 of the LPD-wide action description.	SEPA	2015	2022	SEPA arranged for 'Rapid Departure', an interactive play about flooding, to be shown at the nearby town of Lochwinnoch (March 2016). The show was advertised throughout the Gryfe catchment.	See page 32 of the LPD-wide planned actions to complete.

Summary of progress of actions to manage flood risk in PVA 11/12

Action	Status	Description	Lead Authority	Start Date	Finish Date	Interim Progress	Planned actions to complete
Surface water plan/study	Green	Reduce the economic damages and risk to people from surface water flooding in Johnstone	RC	2020	2021	Prior to start date	NA
Surface water plan/study	Green	Reduce the economic damages and risk to people from surface water flooding in Kilbarchan	RC	2020	2021	Prior to start date	NA
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	Manhole, Ancillary, watercourse and flow surveys complete. Model build 96 % complete. Regular stakeholder liaison meetings undertaken.	Complete, report on and verify model build and catchment / flood needs assessment.
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.	RC	2021	2022	Paisley. Prior to start date	NA
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	Continue maintenance programme.

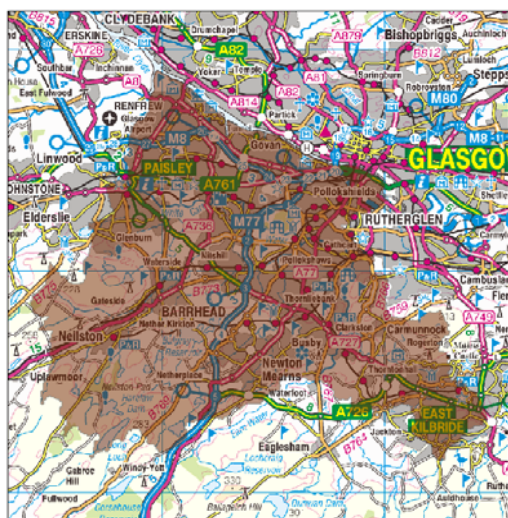
Summary of progress of actions to manage flood risk in PVA 11/12

Action	Status	Description	Lead Authority	Start Date	Finish Date	Interim Progress	Planned actions to complete
Strategic mapping and modelling	Red	SEPA will update strategic surface water mapping in some parts of this catchment to improve understanding of flood risk. The inclusion of additional surface water hazard data resulting from the completion of local authority surface water management plans will be considered as these projects are completed.	SEPA	2016	2016	SEPA's current Surface water hazard maps use design rainfall estimates based on FEH99 methodology, this has now been superseded by FEH13 methodology. The FEH13 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. SEPA will develop new Surface water flood hazard maps over the remainder of Cycle 1. It is anticipated that updated flood mapping from this revised action will be available early in Cycle 2. Alongside this SEPA is investigating the feasibility of developing an interim approach to assess the change in Surface water hazard (and risk) associated with FEH13, such that we could consider it in the development of the 2021 FRM Strategies.
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	The Scottish Water assessment of flood risk within two of the sewer catchments has been completed. The assessment helps to improve knowledge and understanding of surface water flood risk	Erskine on track to deliver to LFRMP dates Laighpartk complete Shieldhall Complete

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)



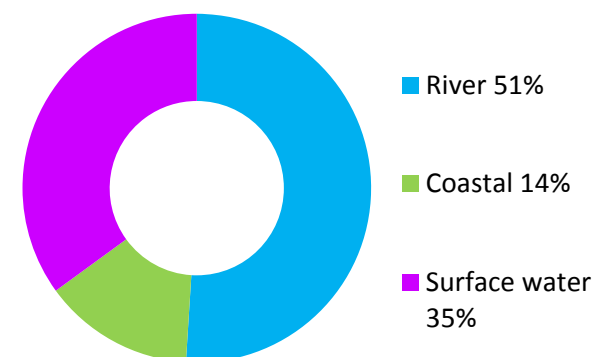
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The area has a risk of river, surface water and coastal flooding. The majority of damages are caused by river flooding. There are approximately 4,700 residential properties and 2,800 non-residential properties at risk of flooding. The Annual Average 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:

- White Cart Water Flood Prevention Scheme Phase 3 works have started on site
- Hillington and Cardonald SWMP Phase 1 is scheduled to start on site early 2019 with Phases 2 and 3 currently at detailed design stage



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	G	G	G	G	A	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	Interim Progress	Planned actions to complete
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	Robslee Drive works due to start on site and complete late 2019
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	The construction has been procured and the contractor is on site. This is still on track for completion June 2019.	Continue with construction works.

Summary of progress of actions to manage flood risk in PVA 11/13

Action	Status	Description	Lead Authority	Start Date	Finish Date	Interim Progress	Planned actions to complete
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	Complete	Maintain
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.	Review the model of Action Groups and liaise with key stakeholders to ascertain the best approach for an urban environment.
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.	Following completion of the White Cart Phase 3 the plan will be reviewed and updated where necessary.
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.	ERC are to prepare finalised report for local members approval and it will then be made available for public viewing. ERC will carry out a public engagement consultation scheme within ERC. ERC in conjunction with MGSDP will carry out similar public engagement schemes that relate to any boundary issues between ERC and GCC. ERC have updated and redesigned the Flooding section of their website to improve levels of stakeholder engagement. This may require further updates as the public engagement process progresses.

Summary of progress of actions to manage flood risk in PVA 11/13

Action	Status	Description	Lead Authority	Start Date	Finish Date	Interim Progress	Planned actions to complete
Flood protection study	Green	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	SEPA have progressed work in relation to the Tidal Weir.	Further studies required to ascertain any actions to be progressed.
Flood protection study	Green	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 is yet to begin.	NA
Natural flood management study	Green	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	A project brief for the White Cart Natural Flood Management Study is in development and the process of tendering the work has been initiated. The study is likely to be commissioned in March/April 2019	Complete project brief, commission study and project manage to completion

Summary of progress of actions to manage flood risk in PVA 11/13

Action	Status	Description	Lead Authority	Start Date	Finish Date	Interim Progress	Planned actions to complete
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	SEPA will continue to operate the flood warning service
Awareness raising	Green	See page 32 for the LPD-wide action description.	SEPA	2015	2022	SEPA attended an education event at Crookfur Primary School (February 2016) to promote flood awareness.	See page 32 for the LPD-wide planned actions to complete.
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.	ERC are to prepare finalised report for local members approval and it will then be made available for public viewing. ERC will carry out a public engagement consultation scheme within ERC. ERC in conjunction with MGSDP will carry out similar public engagement schemes that relate to any boundary issues between ERC and GCC. ERC have updated and redesigned the Flooding section of their website to improve levels of stakeholder engagement. This may require further updates as the public engagement process progresses.

Summary of progress of actions to manage flood risk in PVA 11/13

Action	Status	Description	Lead Authority	Start Date	Finish Date	Interim Progress	Planned actions to complete
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.	ERC are to prepare finalised report for local members approval and it will then be made available for public viewing. ERC will carry out a public engagement consultation scheme within ERC. ERC in conjunction with MGSDP will carry out similar public engagement schemes that relate to any boundary issues between ERC and GCC. ERC have updated and redesigned the Flooding section of their website to improve levels of stakeholder engagement. This may require further updates as the public engagement process progresses.
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.	ERC are to prepare finalised report for local members approval and it will then be made available for public viewing. ERC will carry out a public engagement consultation scheme within ERC. ERC in conjunction with MGSDP will carry out similar public engagement schemes that relate to any boundary issues between ERC and GCC. ERC have updated and redesigned the Flooding section of their website to improve levels of stakeholder engagement. This may require further updates as the public engagement process progresses.

Summary of progress of actions to manage flood risk in PVA 11/13

Action	Status	Description	Lead Authority	Start Date	Finish Date	Interim Progress	Planned actions to complete
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.	No further actions are planned for this project.
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 completed to the outline design stage. We are now in the early stages of tendering for the detailed design stage to progress from Outline to Detailed design.	Promote the preferred options for implementation.
Surface water plan/study	Green	Reduce the economic damages and risk to people from surface water flooding in Paisley	RC	2021	2022	Prior to start date	NA



Summary of progress of actions to manage flood risk in PVA 11/13

Action	Status	Description	Lead Authority	Start Date	Finish Date	Interim Progress	Planned actions to complete
Surface water plan/study	Amber	Reduce the economic damages and risk to people from surface water flooding in East Kilbride	SLC	2016	2019	The start date for surface water management planning has been delayed to allow for incorporation of best available data from the Phillipshill and Allers Integrated Catchment Study	The area must be covered by 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.
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	Model build complete, Complete Historical Verification still to complete Catchment Flood assessment. Due to delays in audit CFA completion pushed out to January 2019 but will deliver within LFRMP dates.	On track to deliver within LFRMP timescales
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 catchment 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 currently maintains the existing flood defence.	Maintenance will continue.

Summary of progress of actions to manage flood risk in PVA 11/13

Action	Status	Description	Lead Authority	Start Date	Finish Date	Interim Progress	Planned actions to complete
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	Continue Maintenance Programme.
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	Continue Maintenance Programme.
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	The Scottish Water assessment of flood risk within the sewer catchment has started. The assessment will improve knowledge and understanding of surface water flood risk.	On track to deliver within agreed LFRMP timescales
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	The Scottish Water assessment of flood risk within the sewer catchments has started. The assessment will improve knowledge and understanding of surface water flood risk.	On track to deliver within agreed LFRMP timescales

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)																											
 <p>© Crown copyright. SEPA licence number 100016991 (2015). All rights reserved.</p>				<p>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.</p> <p>Link to LFRMP PVA 11/14</p> <p>Key progress:</p> <ul style="list-style-type: none">All flood protection and surface water studies are on track to deliver within their planned timescalesThe existing flood protection scheme is being maintained										 <p>Annual Average Damages by flood source</p> <table><thead><tr><th>Flood Source</th><th>Percentage</th></tr></thead><tbody><tr><td>River</td><td>65%</td></tr><tr><td>Surface water</td><td>34%</td></tr><tr><td>Coastal</td><td>1%</td></tr></tbody></table>						Flood Source	Percentage	River	65%	Surface water	34%	Coastal	1%
Flood Source	Percentage																										
River	65%																										
Surface water	34%																										
Coastal	1%																										
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	Interim Progress	Planned actions to complete
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.	Review the model of Action Groups and liaise with key stakeholders to ascertain the best approach for an urban environment.
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	Croftfoot. Glasgow City Council has undertaken a project looking at culverted watercourses which may be in need of intervention. Recommendations are being reviewed and any necessary actions progressed.	On review of recommendations take forward any necessary actions dependant on funding.
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	2017	2019	Glasgow City Council has undertaken a project looking at culverted watercourses which may be in need of intervention. Recommendations are being reviewed and any necessary actions progressed.	On review of recommendations take forward any necessary actions dependant on funding.

Summary of progress of actions to manage flood risk in PVA 11/14

Action	Status	Description	Lead Authority	Start Date	Finish Date	Interim Progress	Planned actions to complete
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	GCC has engaged with Clyde Gateway regarding the timing of a review.	Review the Masterplan with Clyde Gateway. In workplan for 2018/2019.
Awareness raising	Green	See page 32 for the LPD-wide action description.	SEPA	2015	2022	SEPA attended an Emergencies day education event organised by the F&R Service in Cambuslang to promote flood awareness to 150 Primary 6 school students.	See page 32 for the LPD-wide planned actions to complete.
Surface water plan/study	Green	The Council is undertaking a surface water management plan 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	Kings Park. The SWMP has been completed. Construction tender is about to be issued.	Implementation phase will begin early 2019.



Summary of progress of actions to manage flood risk in PVA 11/14

Action	Status	Description	Lead Authority	Start Date	Finish Date	Interim Progress	Planned actions to complete
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.	GCC	2015	2016	Croftfoot. The SWMP has been completed. Construction tender is about to be issued.	Implementation phase will begin early 2019.
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	Muirbank. SWMP is complete, and the identified actions are being considered for inclusion in future works programmes. The SWMP has been circulated to SEPA and Scottish Water for their comments	SWMP produced is currently being reviewed
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	2019	2021	Castlemilk This project is yet to begin.	In workplan for 2018/2019.

Summary of progress of actions to manage flood risk in PVA 11/14

Action	Status	Description	Lead Authority	Start Date	Finish Date	Interim Progress	Planned actions to complete
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 currently maintains the existing flood defence.	Maintenance will continue.
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	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	NA

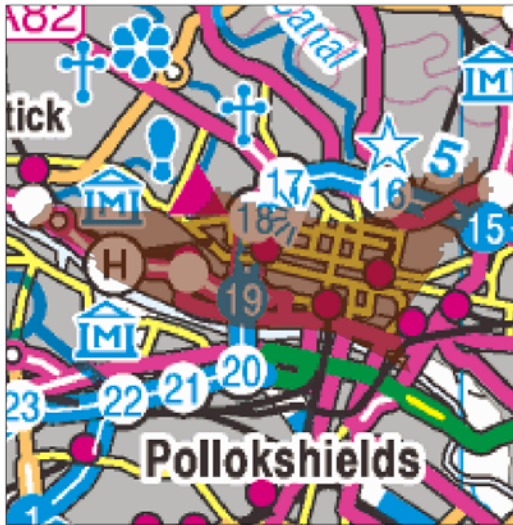

5.15 North of Glasgow City (PVA 11/15)

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)																		
<div><p>© Crown copyright. SEPA licence number 100016991 (2015). All rights reserved.</p></div>		<p>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.</p> <p>Link to LFRMP PVA 11/15</p> <p>Key progress:</p> <ul style="list-style-type: none">• The surface water management plans are underway and will be implemented before their planned timescales• The Scottish Water assessment of flood risk has been completed		<div><p>■ River 12%</p><p>■ Coastal 0%</p><p>■ Surface water 88%</p><p>Annual Average Damages by flood source</p></div>														
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	Interim Progress	Planned actions to complete
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. Land is currently being assembled to allow detailed design to progress.	On completion of the detailed design, implementation is likely to begin 2020.
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 outline design. Detailed Design now being tendered.	On completion of the detailed design, implementation is likely to begin 2020.
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	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	NA

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)																		
 <p>© Crown copyright. SEPA licence number 100016991 (2015). All rights reserved.</p>						<p>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.</p> <p>Link to LFRMP PVA 11/16</p> <p>Key progress:</p> <ul style="list-style-type: none">• The flood protection scheme is under review to ensure the option proposed is the optimum one• The existing flood warning and protection scheme are being maintained						 <p>Annual Average Damages by flood source</p>						
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		G	G	G	G	G	G	G


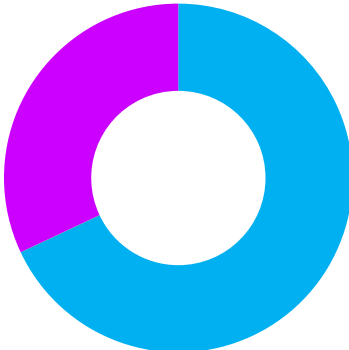
Summary of progress of actions to manage flood risk in PVA 11/16

Action	Status	Description	Lead Authority	Start Date	Finish Date	Interim Progress	Planned actions to complete
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	A recent study has been initiated (Dalmuir Wastewater Strategy Review) to determine if the interceptor sewer is still the optimum option to address the water quality needs on the River Kelvin. This will help inform the future strategy and capital interventions.	Complete Dalmuir Wastewater Strategy Review to confirm interceptor sewer overflow or alternative proposal.
Site protection plans	Green	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	Initial contact is being established with Exhibition Centre Operators.	Meeting to be held to ensure that vulnerability to flooding has been taken account of in the resilience plans.
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 recently reviewed and recalibrated the Firth of Clyde flood forecasting model. SEPA has continued to maintain the Glasgow Quay Walls flood warning area which is part of the Firth of Clyde coastal flood warning scheme.	SEPA will continue 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 currently maintains the existing flood defence.	Maintenance will continue.

Summary of progress of actions to manage flood risk in PVA 11/16

Action	Status	Description	Lead Authority	Start Date	Finish Date	Interim Progress	Planned actions to complete
Strategic mapping and modelling	Green	Scottish Water will undertake further investigation and modelling in the Dalmeir 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	NA

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)																					
 <p>© Crown copyright. SEPA licence number 100016991 (2015). All rights reserved.</p>				<p>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.</p> <p>Link to LFRMP PVA 11/17/1</p> <p>Key progress:</p> <ul style="list-style-type: none">Flood protection construction works are underwayMultiple flood protection and surface water management studies are slightly behind schedule but should deliver within planned timescales										 <p>■ River 68%</p> <p>■ Coastal 0%</p> <p>■ Surface water 32%</p> <p>Annual Average Damages by flood source</p>							
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			A	G		G	G	R	G	G	R	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	Interim Progress	Planned actions to complete
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	<p>The M8, M73, M74 improvements considered the nature of the existing floodplain and flooding in detail. The water quality and drainage assessment was carried out in accordance with the Design Manual for Road and Bridges (DMRB), (1998); volume 11; Environmental Assessment, section 3; Environmental Assessment Techniques, Part 10; Water Quality and Drainage. In consideration of planning authority requirements, the assessment of flood risk was carried out in accordance with Scottish Planning Policy 7 (SPP7): Planning and Flooding. The main objective of the desing was to treat and control runoff as near to the source as possible thus protecting downstream habitats. The objective of the mitigation measures was to convey surface water run-off from the road surface to a receiving watercourse without increased risk of flooding downstream and detrimental effect on water quality and associated ecosystems. Mitigation measures included those that aim to prevent, reduce or offset potential effects using SUDS. The assessment of the road physical structure within the flood plain was carried out in accordance with DMRB (1995); volume 4; Geotechnics and Drainage, section 2; Drainage, Part 1, HA 71/95; The Effect of Flooding of Road Construction on Flood Plains. The preferred scheme was designed so that the risk of flooding of areas in the vicinity was not increased during construction and operation of the road. Potential effects on the existing flood plain were assessed as part of the Stage 3 assessment and appropriate recommendations made.</p>	Transport Scotland are considering opportunities within planned maintenance work and future proposed schemes for the M8 and M73

Summary of progress of actions to manage flood risk in PVA 11/17/1

Action	Status	Description	Lead Authority	Start Date	Finish Date	Interim Progress	Planned actions to complete
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.	None
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	Works are approximately 60% complete. Completion is expected during 2019.	Continue with construction works.
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.	Review the model of Action Groups and liaise with key stakeholders to ascertain the best approach for an urban environment.

Summary of progress of actions to manage flood risk in PVA 11/17/1

Action	Status	Description	Lead Authority	Start Date	Finish Date	Interim Progress	Planned actions to complete
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	Detailed design is now complete and the planning application is about to be submitted. Wider study is complete and additional reaches of the Tollcross Burn have been suggested for daylighting.	On completion of the detailed design, construction is likely to begin early 2019. Implementation of the wider study to begin once agreement is reached regarding the lengths of burn to be daylighted and budgets agreed.
Flood protection study	Amber	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 brief for this project has been drafted and circulated to the potential project partners for comments. A review of these comments, and further discussion on the extent of the works to be carried out, are required. The tender for undertaking the catchment analysis and hydraulic modelling for this project is expected to be progressed in Autumn/Winter 2018	South Lanarkshire Council has had discussions with SEPA regarding their involvement in shaping the scope of this study. The brief is being finalised and the tender for undertaking this study will be progressed early 2019.

Summary of progress of actions to manage flood risk in PVA 11/17/1

Action	Status	Description	Lead Authority	Start Date	Finish Date	Interim Progress	Planned actions to complete
Flood protection study	Amber	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	An updated hydraulic model and Option Appraisal are required at this location to produce a more robust Flood Protection Study. We are programmed to undertake this updated Flood Protection Study at this location in 2018/19 depending on available resources	A change of our Consultant has resulted in the need to review the quality of the hydraulic model and option appraisal recently produced for this location. Further data collection is required to allow a more robust flood study to be progressed. We are programmed to undertake a Flood Protection Study at this location in 2019/20 subject to available resources.
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	SEPA will continue to operate the flood warning service
Awareness raising	Green	See page 32 for the LPD-wide action description.	SEPA	2015	2022	SEPA attended an education event at St Bridgids Primary School (February 2015) to promote flood awareness.	See page 32 for the LPD-wide planned actions to complete.

Summary of progress of actions to manage flood risk in PVA 11/17/1

Action	Status	Description	Lead Authority	Start Date	Finish Date	Interim Progress	Planned actions to complete
Surface water plan/study	Green	The Council is undertaking a surface water management plan 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	Garrowhill & Baillieston SWMP is complete. Implementation phase to be tendered for in Autumn 2018.	Implementation phase likely to begin early 2019.
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 Burn catchment. This project is yet to begin.	In workplan for 2018/2019.
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.	NLC	2016	2019	Motherwell & Wishaw. Data collection.	Development of Scope and procure consultant Jan /Feb 2019

Summary of progress of actions to manage flood risk in PVA 11/17/1

Action	Status	Description	Lead Authority	Start Date	Finish Date	Interim Progress	Planned actions to complete
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	No further progress to date. Outputs from Philipshill and Allers ICS will be used to inform this SWMP. The delays experienced in the ICS project are impacting upon our ability to complete this SWMP by the proposed Target Date	Waiting for ICS project completion
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.	Complete Historical Verification Complete Catchment Flood assessment. Due to delays in audit CFA completion pushed out to January 2019 but will deliver within LFRMP dates.
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	SWMP is complete, and the identified actions are being considered for inclusion in future works programmes. The SWMP has been circulated to SEPA and Scottish Water for their comments	NA
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	SWMP is complete, and the identified actions are being considered for inclusion in future works programmes. The SWMP has been circulated to SEPA and Scottish Water for their comments	NA
Surface water plan/study	Green	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	Data gathering exercise was carried out in 2017. We are programmed to progress a Surface Water Management Plan at this location in 2019/20	South Lanarkshire Council has had discussions with SW regarding their involvement in this SWMP. The brief is being finalised and the tender for undertaking this study will be progressed in 2019.

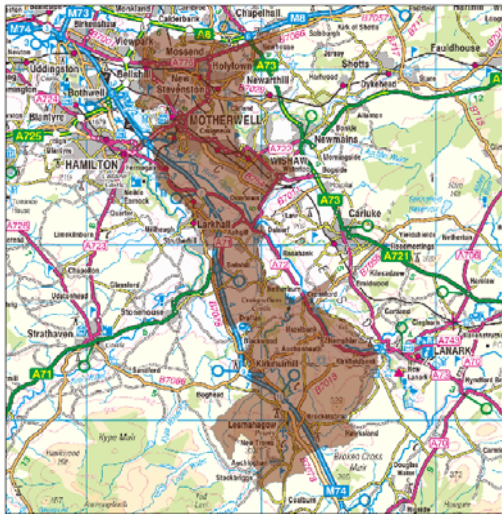
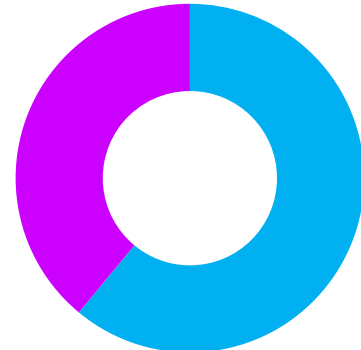
Summary of progress of actions to manage flood risk in PVA 11/17/1

Action	Status	Description	Lead Authority	Start Date	Finish Date	Interim Progress	Planned actions to complete
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 currently maintains the existing flood defence.	Maintenance will continue.
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	An assessment of this feature is being considered as part of the scope of works of Action ID 110651705	The assessment of this feature is being considered as part of the River Clyde project being progressed under Action ID110651705.
Strategic mapping and modelling	Red	SEPA will update strategic surface water mapping in some parts of this catchment to improve understanding of flood risk. The inclusion of additional surface water hazard data resulting from the completion of local authority surface water management plans will be considered as these projects are completed.	SEPA	2016	2016	SEPA's current Surface water hazard maps use design rainfall estimates based on FEH99 methodology, this has now been superseded by FEH13 methodology. The FEH13 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. SEPA will develop new Surface water flood hazard maps over the remainder of Cycle 1. It is anticipated that updated flood mapping from this revised action will be available early in Cycle 2. Alongside this SEPA will investigate the feasibility of developing an interim approach to assess the change in Surface water hazard (and risk) associated with FEH13, such that we could consider it in the development of the 2021 FRM Strategies.

Summary of progress of actions to manage flood risk in PVA 11/17/1

Action	Status	Description	Lead Authority	Start Date	Finish Date	Interim Progress	Planned actions to complete
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	Allers & Hamilton: The Scottish Water assessment of flood risk within the sewer catchment has started. The assessment will improve knowledge and understanding of surface water flood risk. Strathaven & Bothwellbank: The Scottish Water assessment of flood risk within the sewer catchment has not yet started. The assessment will improve knowledge and understanding of surface water flood risk. Shieldhall is complete, the assessment will improve the knowledge and understanding of surface water flood risk.	On track to deliver within agreed LFRMP timescales

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)																					
 <p>© Crown copyright. SEPA licence number 100016991 (2015). All rights reserved.</p>			<p>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.</p> <p>Link to LFRMP PVA 11/17/2</p> <p>Key progress:</p> <ul style="list-style-type: none">The Scottish Water assessment of flood risk is on track to deliver within planned timescales					 <p>Annual Average Damages by flood source</p> <table><thead><tr><th>Flood Source</th><th>Percentage</th></tr></thead><tbody><tr><td>River</td><td>61%</td></tr><tr><td>Coastal</td><td>0%</td></tr><tr><td>Surface water</td><td>39%</td></tr></tbody></table>						Flood Source	Percentage	River	61%	Coastal	0%	Surface water	39%
Flood Source	Percentage																				
River	61%																				
Coastal	0%																				
Surface water	39%																				
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					G	A			G	R	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	Interim Progress	Planned actions to complete
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	The M8, M73, M74 improvements considered the nature of the existing floodplain and flooding in detail. The water quality and drainage assessment was carried out in accordance with the Design Manual for Road and Bridges (DMRB), (1998); volume 11; Environmental Assessment, section 3; Environmental Assessment Techniques, Part 10; Water Quality and Drainage. In consideration of planning authority requirements, the assessment of flood risk was carried out in accordance with Scottish Planning Policy 7 (SPP7): Planning and Flooding. The main objective of the design was to treat and control runoff as near to the source as possible thus protecting downstream habitats. The objective of the mitigation measures was to convey surface water runoff from the road surface to a receiving watercourse without increased risk of flooding downstream and detrimental effect on water quality and associated ecosystems. Mitigation measures included those that aim to prevent, reduce or offset potential effects using SUDS. The assessment of the road physical structure within the flood plain was carried out in accordance with DMRB (1995); volume 4; Geotechnics and Drainage, section 2; Drainage, Part 1, HA 71/95; The Effect of Flooding of Road Construction on Flood Plains. The preferred scheme was designed so that the risk of flooding of areas in the vicinity was not increased during construction and operation of the road. Potential effects on the existing flood plain were assessed as part of the Stage 3 assessment and appropriate recommendations made	Transport Scotland are considering opportunities within planned maintenance work and future proposed schemes for the M74
Site protection plans	Green	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	Data collection. River Clyde Modelling to be included in South Lanarkshire Council modelling work	Development of Scope and procure consultant early 2019


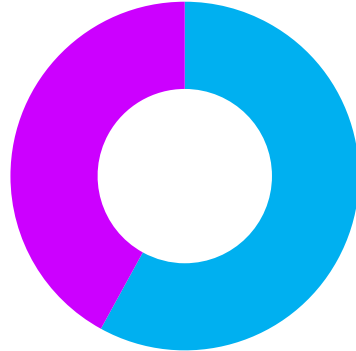
Summary of progress of actions to manage flood risk in PVA 11/17/2

Action	Status	Description	Lead Authority	Start Date	Finish Date	Interim Progress	Planned actions to complete
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	Draft Scope issued to consultant for discussion.	Stage1 consultant to be appointed Sept 2018 and work completed by Mar 2019
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	Draft Scope issued to consultant for discussion.	Stage1 consultant to be appointed Sept 2018 and work completed by Mar 2019
Flood protection study	Amber	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 brief for this project has been drafted and circulated to the potential project partners for comments. A review of these comments, and further discussion on the extent of the works to be carried out, are required. The tender for undertaking the catchment analysis and hydraulic modelling for this project is expected to be progressed in Autumn/Winter 2018	South Lanarkshire Council has had discussions with SEPA regarding their involvement in shaping the scope of this study. The brief is being finalised and the tender for undertaking this study will be progressed early 2019.
Surface water plan/study	Red	Reduce the economic damages and risk to people from surface water flooding in Motherwell and Wishaw	NLC	2016	2019	Motherwell & Wishaw. Data collection.	Development of Scope and procure consultant Jan /Feb 2019

Summary of progress of actions to manage flood risk in PVA 11/17/2

Action	Status	Description	Lead Authority	Start Date	Finish Date	Interim Progress	Planned actions to complete
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	Ashgill - Complete Blackwood - Complete Crossford - Complete Carbarns - Not Started Coursington - Complete Daldowie - Complete Lesmahagow - Complete Skellyton - Started	Ashgill - NA Blackwood - NA Crossford - NA Carbarns - On track to deliver within agreed LFRMP timescales Coursington - NA Daldowie - NA Lesmahagow - NA Skellyton - On track to deliver within agreed LFRMP timescales

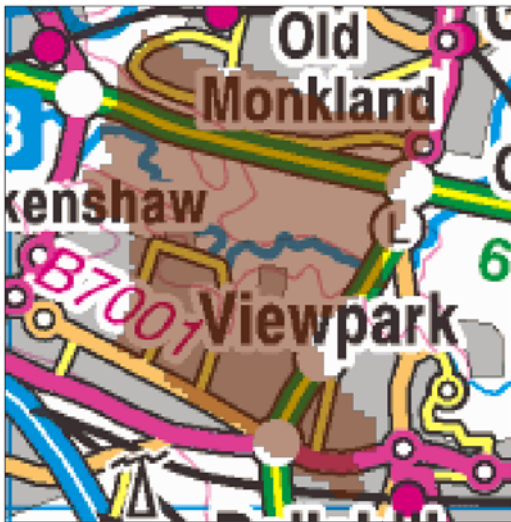
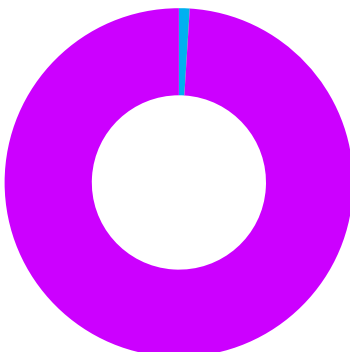
5.19 Coatbridge and Airdrie (PVA 11/17/3)

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)																		
 <p>© Crown copyright. SEPA licence number 100016991 (2015). All rights reserved.</p>		<p>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.</p> <p>Link to LFRMP PVA 11/17/3</p> <p>Key progress:</p> <ul style="list-style-type: none">• The surface water management study is behind schedule• The Scottish Water assessment of flood risk has yet to begin but on track to deliver within planned timescales	 <p>Annual Average Damages by flood source</p> <ul style="list-style-type: none">■ River 58%■ Coastal 0%■ Surface water 42%															
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	R	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	Interim Progress	Planned actions to complete
Surface water plan/study	Red	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	Data collection.	Development of Scope and procure consultant Jan /Feb 2019
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	The Scottish Water assessment of flood risk within the sewer catchment has not yet started. The assessment will improve knowledge and understanding of surface water flood risk.	On track to deliver within agreed LFRMP timescales


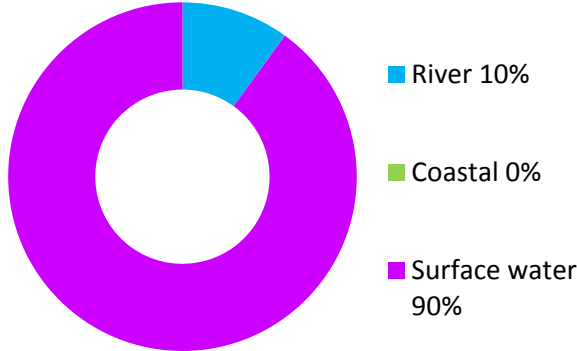
5.20 Coatbridge/Viewpark (PVA 11/18)

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)																		
<div><p>© Crown copyright. SEPA licence number 100016991 (2015). All rights reserved.</p></div>	<p>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.</p> <p>Link to LFRMP PVA 11/18</p> <p>Key progress:</p> <ul style="list-style-type: none">The Scottish Water assessment of flood risk has been completed	<div><p>■ River 1% ■ Coastal 0% ■ Surface water 99%</p></div> <p>Annual Average Damages by flood source</p>																
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	Interim Progress	Planned actions to complete
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	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	NA

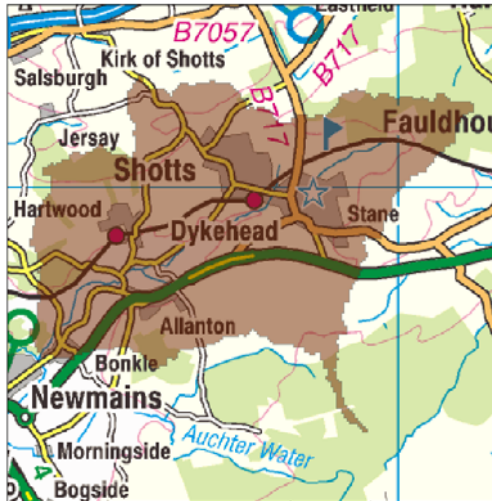
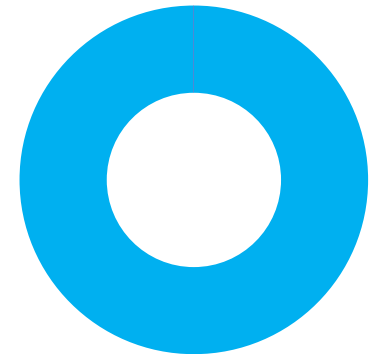
5.21 North of Wishaw (PVA 11/19)

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)																		
 <p>© Crown copyright. SEPA licence number 100016991 (2015). All rights reserved.</p>		<p>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.</p> <p>Link to LFRMP PVA 11/19</p> <p>Key progress:</p> <ul style="list-style-type: none">SEPA floodmaps will be updated next cycle due to new FEH guidelines		 <p>Annual Average Damages by flood source</p>														
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	R	G		R	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	Interim Progress	Planned actions to complete
Surface water plan/study	Red	Reduce the economic damages and risk to people from surface water flooding in Motherwell and Wishaw	NLC	2016	2019	Motherwell & Wishaw. Data collection.	Development of Scope and procure consultant Jan /Feb 2019
Strategic mapping and modelling	Red	SEPA will update strategic surface water mapping in some parts of this catchment to improve understanding of flood risk. The inclusion of additional surface water hazard data resulting from the completion of local authority surface water management plans will be considered as these projects are completed.	SEPA	2016	2016	SEPA's current Surface water hazard maps use design rainfall estimates based on FEH99 methodology, this has now been superseded by FEH13 methodology. The FEH13 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. SEPA will develop new Surface water flood hazard maps over the remainder of Cycle 1. It is anticipated that updated flood mapping from this revised action will be available early in Cycle 2. Alongside this SEPA will investigate the feasibility of developing an interim approach to assess the change in Surface water hazard (and risk) associated with FEH13, such that we could consider it in the development of the 2021 FRM Strategies.
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	The Scottish Water assessment of flood risk within the sewer catchment has not yet started. The assessment will improve knowledge and understanding of surface water flood risk.	On track to deliver within agreed LFRMP timescales



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)																		
 <p>© Crown copyright. SEPA licence number 100016991 (2015). All rights reserved.</p>		<p>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.</p> <p>Link to LFRMP PVA 11/20</p> <p>Key progress:</p> <ul style="list-style-type: none">SEPA floodmaps will be updated next cycle due to new FEH guidelinesThe Scottish Water assessment of flood risk has been completed		 <p>Annual Average Damages by flood source</p>														
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		R	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	Interim Progress	Planned actions to complete
Strategic mapping and modelling	Red	SEPA will update strategic surface water mapping in some parts of this catchment to improve understanding of flood risk. The inclusion of additional surface water hazard data resulting from the completion of local authority surface water management plans will be considered as these projects are completed.	SEPA	2016	2016	SEPA's current Surface water hazard maps use design rainfall estimates based on FEH99 methodology, this has now been superseded by FEH13 methodology. The FEH13 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. SEPA will develop new Surface water flood hazard maps over the remainder of Cycle 1. It is anticipated that updated flood mapping from this revised action will be available early in Cycle 2. Alongside this SEPA will investigate the feasibility of developing an interim approach to assess the change in Surface water hazard (and risk) associated with FEH13, such that we could consider it in the development of the 2021 FRM Strategies.
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	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	NA

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)																		
 <p>© Crown copyright. SEPA licence number 100016991 (2015). All rights reserved.</p>				<p>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.</p> <p>Link to LFRMP PVA 11/21C</p> <p>Key progress:</p> <ul style="list-style-type: none">Natural Flood Management Study for Kilmacolm is progressing towards scheme designThe Scottish Water assessment of flood risk has been completed				 <p>Annual Average Damages by flood source</p> <ul style="list-style-type: none">River 40%Coastal 0%Surface water 60%										
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	Interim Progress	Planned actions to complete
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	Still looking at possible solutions.	Looking at solution as well as attenuation upstream
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	Looking at attenuation again in light of the difficulty finding a solution to the flooding	Progress consultant to look at the attenuation of the Glen Moss. Expected completion summer 2019
Awareness raising	Green	See page 32 for the LPD-wide action description.	SEPA	2015	2022	SEPA arranged for 'Rapid Departure', an interactive play about flooding, to be shown at the nearby town of Lochwinnoch (March 2016). The show was advertised in Kilmacolm.	See page 32 for the LPD-wide planned actions to 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	The Scottish Water assessment of flood risk within the sewer catchment has started. The assessment helps to improve knowledge and understanding of surface water flood risk	On track to deliver within LFRMP timescales.

Annex 1: Actions

Annex 1 provides a full list of Clyde and Loch Lomond Local Plan District Actions for all ongoing and 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](http://www.floodlinescotland.org.uk) 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](http://www.sepa.org.uk/environment/water/flooding/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.
- **Scottish Natural Heritage** 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 Scottish Natural Heritage helps to ensure that any changes to patterns of flooding do not adversely affect the environment. Scottish Natural Heritage 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: Consultation and engagement

From 22 December 2014 a national consultation on the current state of knowledge of flood risk across Scotland and what the potential solutions might be, was undertaken with the public on the work carried out to develop draft Flood Risk Management Strategies and Local Flood Risk Management Plans.

The consultation was run jointly between SEPA and local authorities and involved the publication of draft information that is contained in the strategies and local plans. The consultation was carried out in 2 phases:

- Phase 1 commenced on 22 December 2014 and initially provided a summary of the main sources and impacts of flooding.
- Phase 2 commenced on 2 March 2015 when the proposed initial objectives to manage the identified flood risk were made available alongside a short list of potential measures, as well as information on the draft local flood risk management plans.

There was an opportunity to comment on the all the information provided between 2 March and 2 June 2015. The responses helped to form the final Strategies and Plans.

The final Flood Risk Management Strategies for 14 Local Plan Districts were approved by the Scottish Government and published by SEPA in December 2015. Further information is available on the SEPA website here - <http://apps.sepa.org.uk/FRMStrategies/>

Following publication of the Flood Risk Management Strategies by SEPA, the Clyde and Loch Lomond local authorities undertook a range of engagement activities through February and early March 2016 to raise awareness of the Clyde and Loch Lomond Flood Risk Management Strategy, flood risk within the local authority area, as identified in the SEPA Flood Maps available here - <http://map.sepa.org.uk/floodmap/map.htm> - and inform the development of the Clyde and Loch Lomond Local Flood Risk Management Plan. The objective of this activity was to ensure a greater awareness of these key documents, particularly for those communities identified as at risk of flooding. Further details of the activities being undertaken are available from each Clyde and Loch Lomond Local Authority. No changes were made to the Clyde and Loch Lomond Local Flood Risk Management Plan in light of the views and representations received.

There will be ongoing engagement both with raising public awareness of the Plan and its approaches to managing or reducing flood risk, and as part of the process of delivering Actions.

Annex 4: 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 http://www.eastrenfrewshire.gov.uk/flooding 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://www.renfrewshire.gov.uk/webcontent/Home/Services/Environment/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 http://my.stirling.gov.uk/services/planning-and-the-environment/emergencies-and-emergency-services/emergencies-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 5: 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 actions is 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 6: 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

Flood risk information has been derived from BGS digital data under licence. British Geological Survey ©NERC

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).