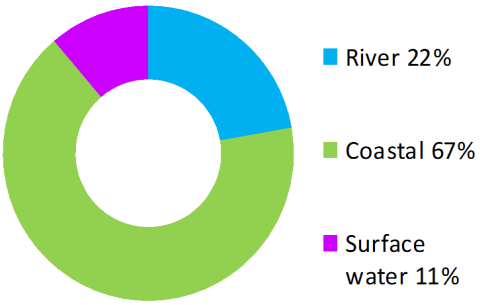
Loch Lomond and Vale of Leven (Potentially Vulnerable Area 11/01)

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

Summary of flooding impacts



At risk of flooding

- 3,300 residential properties
- 790 non-residential properties
- £17 million Annual Average Damages

(damages by flood source shown left)

Summary of objectives to manage flooding

Objectives have been set by SEPA and agreed with flood risk management authorities. These are the aims for managing local flood risk. The objectives have been grouped in three main ways: by reducing risk, avoiding increasing risk or accepting risk by maintaining current levels of management.

Many organisations, such as Scottish Water and energy companies, actively maintain and manage their own assets including their 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 Flood Risk Management Strategies.

Summary of actions to manage flooding

The actions below have been selected to manage flood risk.

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

Loch Lomond and Vale of Leven (Potentially Vulnerable Area 11/01)

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

Background

This Potentially Vulnerable Area is in the north of the Clyde and Loch Lomond Local Plan District (shown below). The area includes Loch Lomond and intersects the Loch Lomond and Trossachs National Park. It is approximately 300km^2.

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.

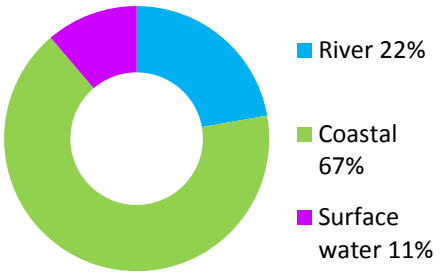


Figure 1: Annual Average Damages by flood source

Summary of flooding impacts

Coastal flooding from the Firth of Clyde and the River Leven present the greatest risk of flooding in this area. Coastal flooding is predicted to residential and non-residential properties within Dumbarton, Brucehill, Silverton and Dennyston.

River flooding is primarily from the River Leven and its tributaries, which include the Carrochan Burn, Knowle Burn, Gruggies Burn and the Murroch Burn along with two unnamed tributaries. The River Leven flows from Loch Lomond through Alexandria and Dumbarton before discharging to the Firth of Clyde. Flooding is predicted to a large number of residential and non-residential properties along the length of the Leven and the tributaries. This is shown to impact properties along the Vale of Leven and in the Bonhill area of Dumbarton. There are also transport links at risk of flooding (notably the A82 and A811).

A barrage across the River Leven in Alexandria maintains levels within Loch Lomond between a minimum of 23 feet (7m) above Ordnance Datum (AOD) and a maximum of 26 feet (7.6m) AOD. Levels exceeding 26 feet AOD will flow over the barrage gates. The barrage is operated by Scottish Water and is not formally used as a flood prevention structure, although it does help to reduce some flows.

There are a number of small areas around the shores of Loch Lomond which have non-residential properties and piers at risk of flooding.

There are approximately 400 residential properties at risk of surface water flooding. This risk is predominantly in the south, particularly affecting northern Dumbarton, including Silverton and Balloch. The areas at highest risk from surface water flooding will require the preparation of surface water management plans.

The risk of flooding to people and property, as well as to community facilities, utilities, the transport network, designated sites and agricultural land is summarised in Table 1. The damages associated with floods of different likelihood are shown in Figure 2. For this Potentially Vulnerable Area the highest damages are to non-residential properties followed by damages to residential properties.

Within this Potentially Vulnerable Area it is estimated that climate change will increase the number of residential properties at risk of flooding from approximately 3,300 to 4,700 and the number of non-residential properties from approximately 790 to 1,100.

The location of the impacts of flooding is shown in Figure 3. Most of the impacts lie to the east of the A82 at Alexandria and south of the A82 at Dumbarton. This includes people, non-residential properties, community facilities, utilities and railways. The A82 itself floods at Alexandria, Renton and Dumbarton.

The risk of flooding to utilities in Table 1 does not include Scottish Water data. Scottish Water undertook a national assessment of above ground assets at medium likelihood of flooding (including water treatment works, wastewater treatment works, and pumping stations). Within this Potentially Vulnerable Area there is one asset identified as being at risk of flooding.

	1 in 10 High likelihood	1 in 200 Medium likelihood	1 in 1000 Low likelihood
Residential properties (total 28,000)	1,700	3,300	4,500
Non-residential properties (total 2,200)	210	790	990
People	3,800	7,300	9,900
Community facilities	10 Includes: educational buildings, emergency services and healthcare facilities	10 Includes: educational buildings, emergency services and healthcare facilities	20 Includes: educational buildings, emergency services and healthcare facilities
Utilities assets	20	50	80
Transport links - roads (km)	8.8 (of which 3.7 is A road)	19.3 (of which 7.4 is A road)	23.8 (of which 8.7 is A road)
Transport links - rail (km)	6.9	12.6	16.5
Environmental designated areas (km^2)	10.7	11.7	12.3
Designated cultural heritage sites	27	35	36
Agricultural land (km^2)	1.4	1.9	2.2

Table 1: Summary of flooding impacts[1]

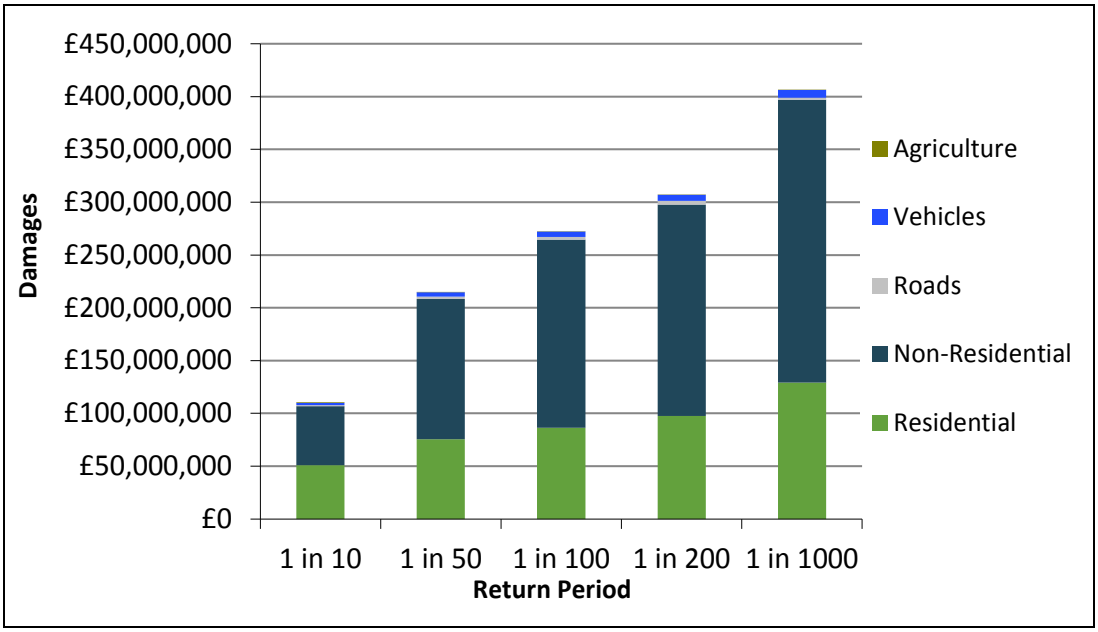


Figure 2: Damages by flood likelihood

[1] Some receptors are counted more than once if flooded from multiple sources

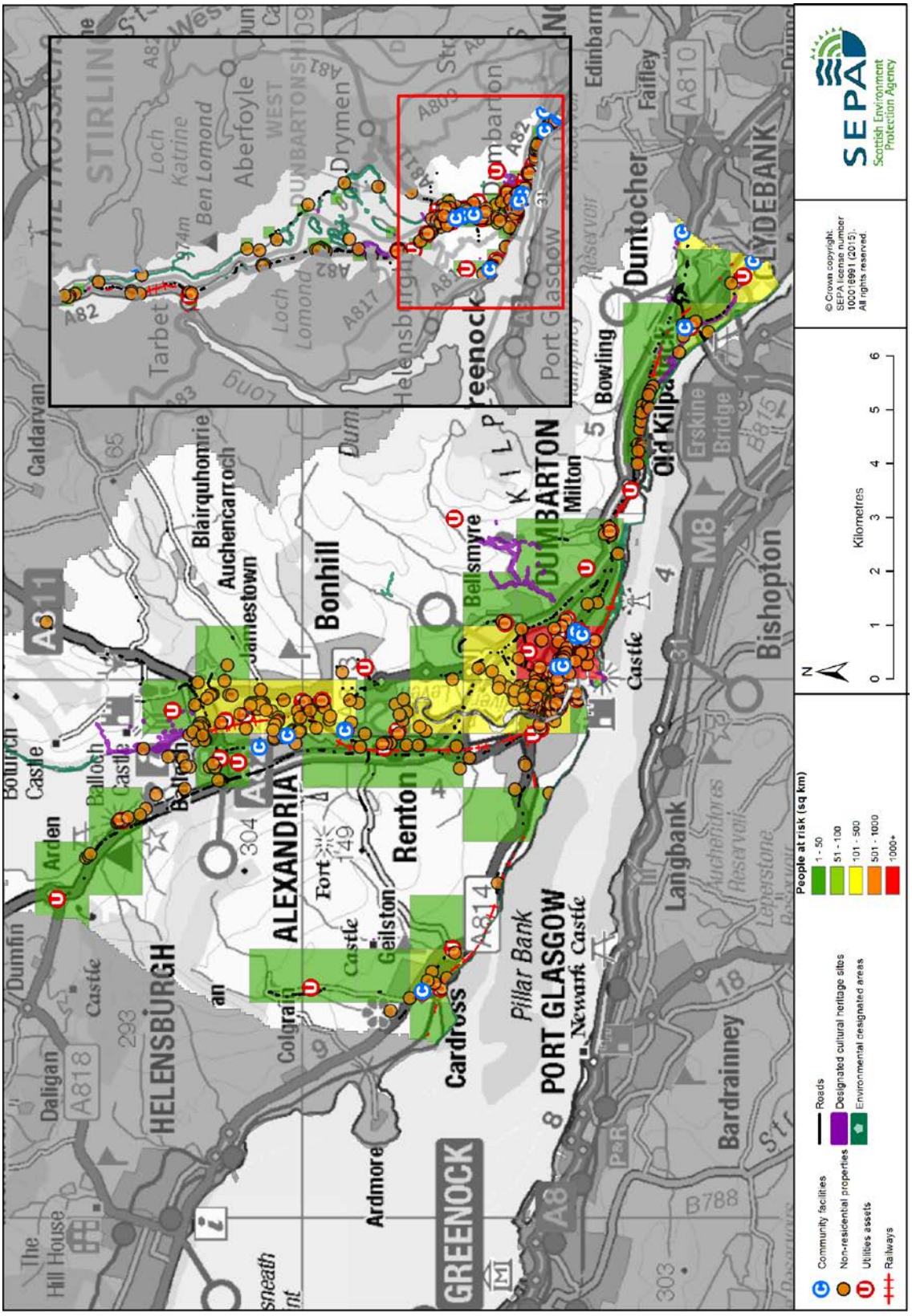


Figure 3: Impacts of flooding

History of flooding

There have been frequent reports of flooding in area, with flooding from coastal, river and surface water impacting people and properties. Coastal floods were reported in February 1856 and December 1900, inundating High Street in Dumbarton and destroying Dumbarton Pier. A tidal event in January 1991 affected Dumbarton when an extreme high tide (the most intense depression recorded in the North Atlantic until that time) coincided with a moderately high river flow and resulted in over £500,000 of damages.

River floods have mainly been recorded in Dumbarton with flooding also reported in Alexandria. Within Dumbarton there are numerous recent recorded floods on the Gruggies Burn and Knowles Burn, with records in 2002, 2004 and 2005. On the 29 November 2011 the Gruggies Burn flooded and affected a number of properties near the east bank of the River Leven in Dumbarton. There are a number of river flooding reports near Silverton, which has also been subject to coastal and surface water flooding. These floods have impacted residential properties, hotels, trunk roads and agricultural land.

One river flood in particular occurred in Dumbarton in January 1909, destroying a bridge and impacting nearby roads and residential properties. Main roads have been impacted by flooding on a number of occasions with the A82 flooding in July 2004, and in October 2005 a culvert blockage caused a surcharge onto the A813 south of the access to the Vale of Leven Industrial Estate.

Several properties and roads around Loch Lomond have also been significantly impacted by river floods, such as Duck Bay, which flooded in December 2006. During this flood the River Leven flows were the highest on record, with an estimated return period of 110-120 years.

Surface water flooding has occurred further north of the Silverton area in Bellsmyre and Jamestown, affecting gardens and low lying farmland. In February 2011 floods caused extensive damage to the recreational reserve at Cardross, destroying the oval, clubrooms, playground and netball courts.

Objectives to manage flooding in Potentially Vulnerable Area 11/01

Objectives provide a common goal and shared ambition for managing floods. These objectives have been set by SEPA and agreed with flood risk management authorities following consultation. They were identified through an assessment of the underlying evidence of the causes and impacts of flooding. Target areas have been set to focus actions; they do not necessarily correspond to areas at risk in SEPA's flood map. The objectives below have been set for Loch Lomond and Vale of Leven Potentially Vulnerable Area.

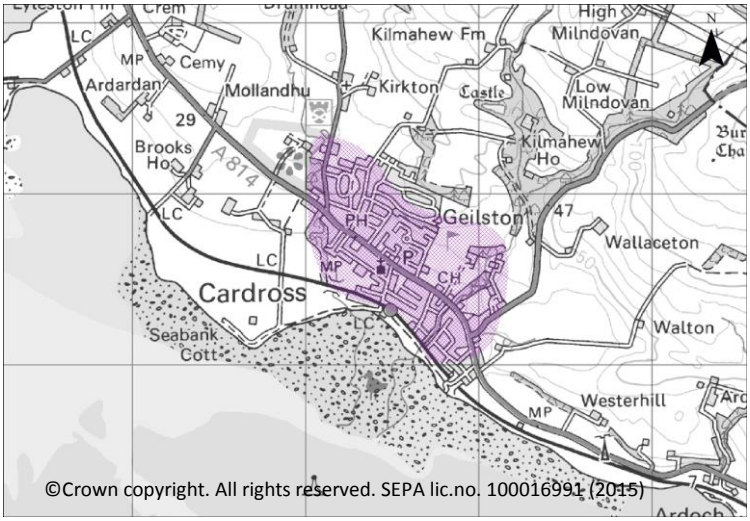
Reduce the risk of river and surface water flooding to residential properties and community facilities in Cardross

Indicators:

- 40 residential properties
- £92,000 Annual Average Damages
- 1 educational building

Objective ID: 11001

Target area:



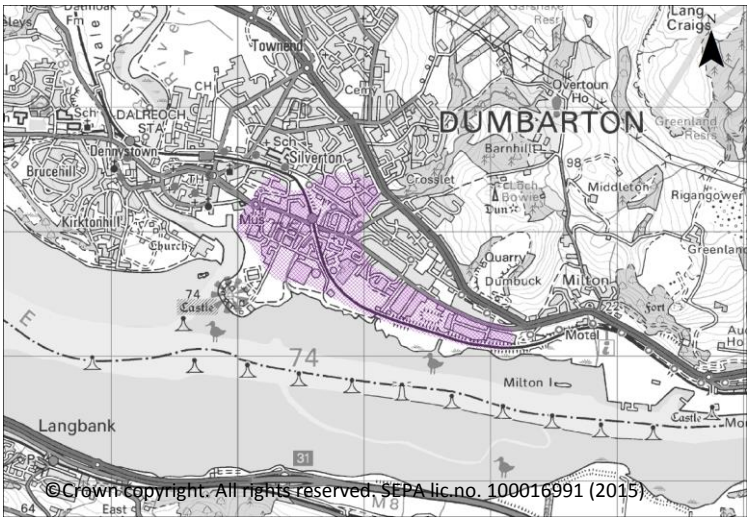
Reduce the risk of flooding to residential properties, non-residential properties and transport routes in Dumbarton from the Gruggies Burn and coast

Indicators:

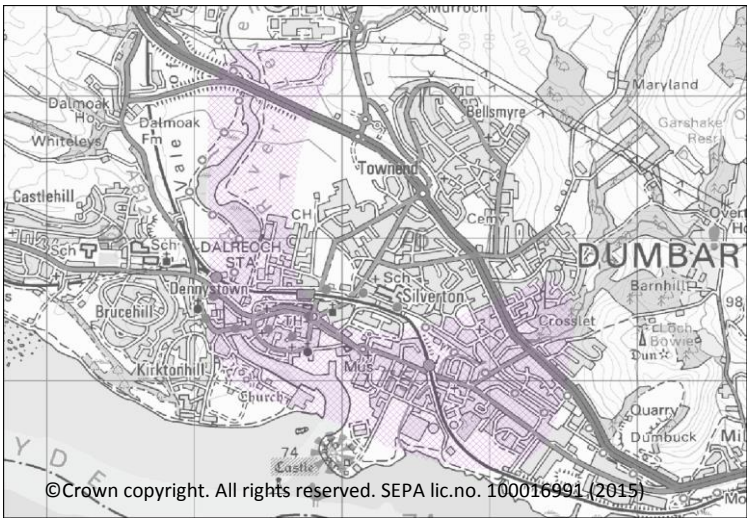
- 1,300 residential properties
- 110 non-residential properties
- £5.9 million Annual Average Damages
- 1.1km of road

Objective ID: 11072

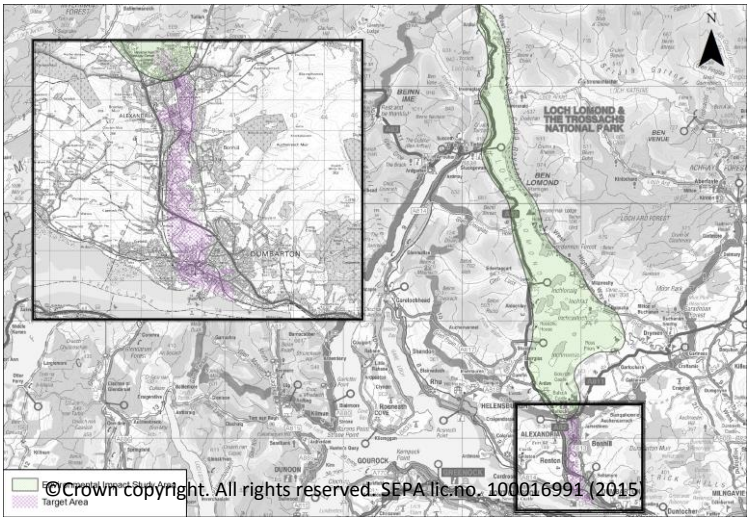
Target area:



Accept that current significant flood risks along the Knowle Burn are being managed appropriately

Indicators:	Target area:
Protection provided to: • 69 residential properties • 1 Educational building	
Objective ID: 11074	

Reduce the risk of flooding from the River Leven and Firth of Clyde to residential properties, non-residential properties and community facilities in Vale of Leven and Dumbarton

Indicators:	Target area:
• 2,600 residential properties • 520 non-residential properties • £15 million Annual Average Damages • 5 educational buildings	
Objective ID: 11075	

Target area	Objective	ID	Indicators within PVA
Loch Lomond and Vale of Leven	Reduce the risk of disruption along the A82 due to flooding	11300	• 1.2km of the A82 at 58 locations
Alexandria	Reduce the economic damages and risk to people from surface water flooding in Alexandria	11124	* See note below
Dumbarton	Reduce the economic damages and risk to people from surface water flooding in Dumbarton	11125	* See note below
Applies across Clyde and Loch Lomond Local Plan District	Avoid an overall increase in flood risk	11127	• 3,300 residential properties • £17 million Annual Average Damages
Applies across Clyde and Loch Lomond Local Plan District	Reduce overall flood risk	11132	• 3,300 residential properties • £17 million Annual Average Damages
Applies across Clyde and Loch Lomond Local Plan District	Organisations such as Scottish Water, energy companies and Historic Environment Scotland actively maintain and manage their own assets, including the risk of flooding. These actions are not detailed further in the Flood Risk Management Strategies.		

* This objective will be monitored using surface water flood risk across the Potentially Vulnerable Area. For 11/01 there are 870 residential properties at risk and Annual Average Damages of £2.0 million.

Actions to manage flooding in Potentially Vulnerable Area 11/01

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 was based on a detailed assessment and comparison of economic, social and environmental criteria. The actions shaded and then described below have been selected as the most appropriate for Loch Lomond and Vale of Leven Potentially Vulnerable Area.

Selected actions					
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

Action (ID):	**FLOOD PROTECTION SCHEME/WORKS** (110720006)		
Objective (ID):	Reduce the risk of flooding from the River Leven and Firth of Clyde to residential properties, non-residential properties and community facilities in Vale of Leven and Dumbarton (11075) Reduce the risk of flooding to residential properties, non-residential properties and transport routes in Dumbarton from the Gruggies Burn and coast (11072)		
Delivery lead:	West Dunbartonshire Council		
Priority:	National:	Within local authority:	
	29 of 42	**1 of 1**	
Status:	**Under development**	Indicative delivery:	**2016-2021**
Description:	It is recommended that the council progress 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 should be investigated. The natural flood management work (action 110720004) will also help to reduce the impact of flooding in this area. SEPA will review the study outputs for possible inclusion to the Flood Maps.		
Potential impacts			
Economic:	The proposed scheme may benefit 350 residential properties and 20 non-residential properties at risk of flooding in this location, damages avoided are estimated to be £20 million. The flood protection scheme has an estimated benefit cost ratio of 1.3.		

Social:	A reduction in flood risk would have a positive benefit to the health and wellbeing of the community.
Environmental:	Flood protection schemes can have both positive and negative impacts on the ecological quality of the environment depending on how they are designed. To be in accord with the FRM Strategy, the responsible authority should seek to ensure that the scheme will not have an adverse effect on the integrity of the Inner Clyde Special Protection Area. There is the potential for the action to have an impact on the Inner Clyde Site of Special Scientific Interest. The proposed Flood protection works may cover part of the Clyde Estuary water body ID 200320. The physical condition of this estuary is identified by river basin management planning to be at less than good status. Future works could improve the condition of the estuary or degrade it. Opportunities to improve the condition of the estuary should be considered by coordinating with river basin management planning.

Action (ID):	**FLOOD PROTECTION SCHEME/WORKS** (11300021)		
Objective (ID):	Reduce the risk of disruption along the A82 due to flooding (11300)		
Delivery lead:	Transport Scotland		
Status:	**Under development**	Indicative delivery:	**2016-2021**
Description:	Transport Scotland will carry out civil engineering work which will reduce flood risk to identified sections of the trunk road.		

Action (ID):	**NATURAL FLOOD MANAGEMENT WORKS** (110720004)		
Objective (ID):	Reduce the risk of flooding to residential properties, non-residential properties and transport routes in Dumbarton from the Gruggies Burn and coast (11072)		
Delivery lead:	West Dunbartonshire Council		
Status:	**Not started**	Indicative delivery:	**2016-2021**
Description:	Native woodland planting in the upper catchment has been investigated by the council. The woodland will help to slow and reduce runoff into the river which could reduce the impact from high likelihood flooding. It is recommended that the council start woodland planting and investigate other locations with the potential for runoff control which have also been identified in the strategic assessment of this area.		
Potential impacts			
Economic:	The economic impact of natural flood management actions is difficult to define. However, these actions can reduce risk from high likelihood floods. In this location, it has been estimated that 220 residential and non-residential properties could potentially benefit from natural flood management actions.		

Social:	A reduction in flood risk would have a positive benefit to the health and wellbeing of the community. In addition, there are one community facility, one educational building and one utility which have been identified as potentially benefitting from this action. Natural flood management actions can restore and enhance natural environments and create opportunities for recreation and tourism.
Environmental:	Natural flood management actions can have a positive impact on the ecological quality of the environment by restoring and enhancing natural habitats. There are unlikely to be significant negative impacts on protected environmental sites from this action, provided that any runoff control does not impact the three nearby Sites of Special Scientific Interest. There is the potential for the existing ecosystems in the area to be impacted through a potential change to woodland. There are likely to be improvements in water quality through reduced agricultural chemical and sediment runoff, which will have positive impacts on the terrestrial and freshwater habitats and species in the area. There is also the potential for increased carbon storage with this action.

Action (ID):	**NEW FLOOD WARNING** (111320010)		
Objective (ID):	Reduce overall flood risk (11132)		
Delivery lead:	SEPA		
Status:	**Ongoing**	Indicative delivery:	**2016-2021**
Description:	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.		

Action (ID):	**FLOOD PROTECTION STUDY** (110750005)		
Objective (ID):	Reduce the risk of flooding from the River Leven and Firth of Clyde to residential properties, non-residential properties and community facilities in Vale of Leven and Dumbarton (11075)		
Delivery lead:	West Dunbartonshire Council		
Priority:	National:		Within local authority:
	1 of 168		**1 of 2**
Status:	**Not started**	Indicative delivery:	**2016-2021**
Description:	A study is recommended to further investigate the feasibility of a flood protection scheme to reduce river and coastal risk along the River Leven. This should 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, should be investigated. The study should 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 should be undertaken. The second stage of work should focus on engaging with interested stakeholders to establish the feasibility and restrictions to taking forward this action. Due to the importance of the area, the study, while led by West Dunbartonshire Council, should be carried out in partnership with Loch Lomond and The Trossachs National Park, Scottish Water and SEPA. SEPA will review the study outputs for possible inclusion to the Flood Maps.
Potential impacts	
Economic:	The flood protection study should consider how to reduce flood risk to 610 residential properties and 70 non-residential properties in this location, with potential damages avoided of up to £32 million.
Social:	A reduction in flood risk would have a positive benefit to the health and wellbeing of the community and socially vulnerable people located within the flood protection study area. In addition, there are one educational building and three utilities which have been identified as potentially benefitting from this action.
Environmental:	Flood protection studies should consider the positive and negative impacts of proposed actions on the ecological quality of the environment. This study is proposed for the Outer Clyde Estuary (water body ID 200320). The physical condition of this estuary is identified by river basin management planning to be at less than good status. Future works could improve the condition of the estuary or degrade it. Opportunities to improve the condition of the estuary should be considered by coordinating with river basin management planning. To be in accord with the FRM Strategy, the responsible authority should seek to ensure that the actions will not have an adverse effect on the integrity of the Inner Clyde Special Protection Area, Loch Lomond Water Special Area of Conservation, Endrick Water Special Area of Conservation, and Loch Lomond Special Protection Area. The international, national and local level environmental designations in the area are unlikely to be impacted by this action provided any temporary changes in hydrology from barrage operation are within the current operating regime. Any drawdown in loch levels prior to a flood should only provide slight temporary impacts, which should be within the normal barrage operating regime. Increased use of the Leven Barrage to take account of potential floods would be likely to cause increases in greenhouse gas emissions.

Action (ID):	**FLOOD PROTECTION STUDY** (110010005)		
Objective (ID):	Reduce the risk of river and surface water flooding to residential properties and community facilities in Cardross (11001)		
Delivery lead:	Argyll and Bute Council		
Priority:	National:		Within local authority:
	156 of 168		**9 of 9**
Status:	**Not started**	Indicative delivery:	**2022-2027**

Description:	A study is recommended to further investigate the feasibility of a flood protection scheme in Cardross, focusing on the potential for storage areas upstream of Moore's Bridge and consideration of property level protection. The study should also consider the combined risk from the current drainage system and rivers to investigate the feasibility of mitigation actions including sustainable drainage systems. Other actions may also be considered to select the most sustainable combination of actions.
Potential impacts	
Economic:	The flood protection study should consider how to reduce flooding to 10 residential properties and one non-residential property identified at risk of flooding in this location. The potential damages avoided are estimated to be up to £600,000.
Social:	A reduction in flood risk would have a positive benefit to the health and wellbeing of the community. There may be negative impacts through disturbance to the local community during the construction phase.
Environmental:	Flood protection studies should consider the positive and negative impacts of proposed actions on the ecological quality of the environment. Opportunities to mitigate any environmental impacts may include design and timing of works.

Action (ID):	**NATURAL FLOOD MANAGEMENT STUDY** (110750003)		
Objective (ID):	Reduce the risk of flooding from the River Leven and Firth of Clyde to residential properties, non-residential properties and community facilities in Vale of Leven and Dumbarton (11075)		
Delivery lead:	Loch Lomond and The Trossachs National Park Authority		
Status:	**Not started**	Indicative delivery:	**2016-2021**
Description:	It is recommended that a natural flood management study should be undertaken by Loch Lomond and The Trossachs National Park in partnership with West Dunbartonshire Council, Argyll and Bute Council and Stirling Council to further investigate in detail 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.		
Potential impacts			
Economic:	The economic impact of natural flood management actions is difficult to define. However, these actions can reduce flood risk for high likelihood events. In this location, it has been estimated that 250 residential and non-residential properties could potentially benefit from natural flood management actions.		
Social:	A reduction in flood risk would have a positive benefit to the health and wellbeing of the community. In addition there are one educational building and one utility which have been identified as potentially benefitting from this action. Natural flood management actions can restore and enhance natural environments and create opportunities for recreation and tourism.		
Environmental:	Natural flood management actions can have a positive impact on the ecological quality of the environment by restoring and enhancing		

Environmental:	natural habitats. To be in accord with the Flood Risk Management Strategy, the responsible authority should seek to ensure as part of the study that the action will not have an adverse effect on the integrity of the Loch Lomond Woods Special Area of Conservation, Endrick Water Special Area of Conservation, Glen Etive and Glen Fyne Special Protection Area, and Loch Lomond Special Protection Area. There is potential for impacts on 12 Sites of Special Scientific Interest in the area. Depending on the runoff control measures implemented and given the natural state of this area, impacts to Loch Lomond could be positive or negative. Positive impacts will occur through more natural drainage, reduced agricultural and sediment runoff and therefore improved water quality. Negative impacts will occur through potential change of land use and ecology if woodland planting is undertaken where not appropriate. There is high potential for priority bogs in upland areas including Auchinden Hill, Strathblane Hills and Gargunnock Hills. Runoff control using more sensitive land management may be more appropriate throughout these areas than woodland planting, which may only be appropriate in less natural areas on the periphery of Renton, Alexandria and Dumbarton. There is the potential for catchment runoff control at the northern end of Loch Lomond to impact upon the Ben Lui National Nature Reserve. Locally there is the potential for improved water quality, reduced sediment and reduced scour from this action. There is also the potential for increased carbon storage with this action. However, given the natural state of much of Loch Lomond, most benefits would be in the Renton, Alexandria, Bonhill and Dumbarton areas from local runoff control measures. There may be short term negative impacts on water quality during sediment management works. There may be localised loss of habitat and displacement of species during sediment management works; however, these may re-establish and return to the area following sediment management activities. There is the potential for this action to impact on the Rossdhu protected garden and designed landscape, the Luss and Fintry heritage conservation areas and 17 scheduled sites and monuments. Although the highlighted areas for potential runoff control intersect over 100 listed building, it is unlikely that this action would significantly impact upon them or their setting.

Action (ID):	**SURFACE WATER PLAN/STUDY** (111240018)		
Objective (ID):	Reduce the economic damages and risk to people from surface water flooding in Alexandria (11124)		
Delivery lead:	West Dunbartonshire Council		
Status:	**Not started**	Indicative delivery:	**2022-2027**
Description:	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.		

Action (ID):	**SURFACE WATER PLAN/STUDY** (111250018)		
Objective (ID):	Reduce the economic damages and risk to people from surface water flooding in Dumbarton (11125)		
Delivery lead:	West Dunbartonshire Council		
Status:	**Not started**	Indicative delivery:	**2016-2021**
Description:	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.		

Action (ID):	**STRATEGIC MAPPING AND MODELLING** (111320019)		
Objective (ID):	Reduce overall flood risk (11132)		
Delivery lead:	Scottish Water		
Status:	**Not started**	Indicative delivery:	**2016-2021**
Description:	Scottish Water will review the assessment of flood risk within the highest risk sewer catchments to improve knowledge and understanding of surface water flood risk.		

Action (ID):	**MAINTAIN FLOOD PROTECTION SCHEME** (110740017)		
Objective (ID):	Accept that current significant flood risks along the Knowle Burn are being managed appropriately (11074)		
Delivery lead:	West Dunbartonshire Council		
Status:	**Existing**	Indicative delivery:	**Ongoing**
Description:	Continue to maintain the existing flood defences along the Knowle Burn.		

Action (ID):	**MAINTAIN FLOOD WARNING** (111320030)		
Objective (ID):	Reduce overall flood risk (11132)		
Delivery lead:	SEPA		
Status:	**Existing**	Indicative delivery:	**Ongoing**
Description:	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.		

Action (ID):	**FLOOD FORECASTING** (111320009)		
Objective (ID):	Reduce overall flood risk (11132)		
Delivery lead:	SEPA		
Status:	**Existing**	Indicative delivery:	**Ongoing**
Description:	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.		

Action (ID):	**SELF HELP** (111320011)		
Objective (ID):	Reduce overall flood risk (11132)		
Delivery lead:	—		
Status:	**Existing**	Indicative delivery:	**Ongoing**
Description:	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. West Dunbartonshire Council have in place a flood resilience subsidy scheme which permits any residential or business property at risk of flooding to apply. The scheme enables applicants to purchase selected property level protection products at cost price less a maximum subsidy.		

Action (ID):	**AWARENESS RAISING** (111320013)		
Objective (ID):	Reduce overall flood risk (11132)		
Delivery lead:	Responsible authorities		
Status:	**Existing**	Indicative delivery:	**Ongoing**
Description:	SEPA and the responsible authorities have a duty to raise public awareness of flood risk. Improved awareness of flood risk and actions that prepare individuals, homes and businesses for flooding can reduce the overall impact. From 2016 SEPA will engage with the community and promote Floodline. This will be achieved through SEPA-led education events. Local authorities will be undertaking additional awareness raising activities. Further details will be set out in the Local FRM Plan.		

Action (ID):	**MAINTENANCE** (111320007)		
Objective (ID):	Reduce overall flood risk (11132)		
Delivery lead:	Local authorities, asset / land managers		
Status:	**Existing**	Indicative delivery:	**Ongoing**
Description:	Local authorities have a duty to assess watercourses and carry out clearance and repair works where such works would substantially reduce flood risk. They produce schedules of clearance and repair works and make these available for public inspection. Scottish Water undertake inspection 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.		

Action (ID):	**EMERGENCY PLANS/RESPONSE** (111320014)		
Objective (ID):	Reduce overall flood risk (11132)		
Delivery lead:	Category 1 and 2 Responders		
Status:	**Existing**	Indicative delivery:	**Ongoing**
Description:	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.		

Action (ID):	**PLANNING POLICIES** (111270001)		
Objective (ID):	Avoid an overall increase in flood risk (11127) Reduce overall flood risk (11132)		
Delivery lead:	Planning authority		
Status:	**Existing**	Indicative delivery:	**Ongoing**
Description:	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.		