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**Flood Risk Management – Local Flood Risk Management Plan**

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**1.0 EXECUTIVE SUMMARY**

- 1.1 The Flood Risk Management (Scotland) Act 2009 placed duties on SEPA, Scottish Water, the National Park authorities, Forestry Commission and Local Authorities as Responsible Authorities to reduce flood risk across the country.
- 1.2 The Flood Risk Management Strategies were published by the Scottish Environment Protection Agency in December 2015 and are to be supported by Local Flood Risk Management Plans (LFRMP) for each of the 14 Local Plan Districts (LPD) in Scotland. Argyll & Bute Council are members of two Local Plan Districts:- Clyde & Loch Lomond with Glasgow City Council as Lead Local Authority (LLA), and Highland/Argyll with Highland Council as Lead Local Authority. It is for each LLA to publish the LFRMP for the particular LPD.
- 1.3 At its June 2015 meeting, Argyll and Bute Council approved that the Prioritised List of Actions represented the Council's preferred order for dealing with flood risk, subject to any funding being available. The list has now been included in the national Flood Risk Management Strategies and the actions to deliver the Strategies (the LFRMP for areas in Argyll and Bute) are listed in Appendix 2.
- 1.4 The Act requires the LFRMPs to be published by each LLA by 23 June 2016. The two LPDs the Council is a member of are finalising the formal LFRMPs and each LLA (Glasgow City and Highland Council) requires to sign off the Plan. The latest (but not final) version of the Clyde and Loch Lomond LFRMP will be considered by its Joint Committee (which includes one member from Argyll and Bute) at their meeting on 22 March. It is currently expected that the Highland area plan will be available late April at the earliest, and it is requested that delegated authority is given to the Executive Director in consultation with the Policy Lead and the Two Member representatives on the Local Plan District groups to approve the LFRMPs.
- 1.5 The purpose of the report is to update the committee on progress and to seek their endorsement of the summary of actions to be taken forward in the Local Flood Risk Management Plans by the Council, noting the status of the funding arrangements. To assist with Member representation being available at the LPDs, it is requested that each of the Argyll and Bute councillors appointed can substitute for each other as required.

## RECOMMENDATION

1.6 It is recommended that:-

- 1 The Committee approves the summary of actions and programme forming the basis of the Local Flood Risk Management Plans within Argyll and Bute listed in this report in Appendix 2, subject to appropriate funding being in place from the Scottish Government and the Council.
- 2 The Committee delegate authority to the Executive Director of Development and Infrastructure, in consultation with the Policy Lead and the Two Member representatives on the Local Plan District groups to approve the LFRMPs when they are available.
- 3 The Committee agrees that the Elected Members appointed to the LPDs can substitute for each other when necessary.

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**2.0 INTRODUCTION**

2.1 The Flood Risk Management (Scotland) Act 2009 placed duties on SEPA, Scottish Water, the National Park authorities, Forestry Commission and Local Authorities as Responsible Authorities to work together to reduce flood risk across the country. In December 2015 SEPA, as the supervising authority published the Flood Risk Management Strategies. The strategies have been approved by Scottish Ministers.

2.2 Supporting the Strategies will be Local Flood Risk Management Plans (LFRMPs). Argyll and Bute Council are partially responsible for producing two LFRMPs:-

- Highland and Argyll LFRMP
- Clyde and Loch Lomond LFRMP

The Strategies will cover three 6 year cycles of the Local Flood Risk Management Plan with the first cycle starting in June 2016.

2.3 The Strategies have identified Objectives to tackle flooding in Scotland. They have also identified Actions to deliver the Objectives. The Actions will be delivered by the Responsible Authorities through the Local Flood Risk Management Plans, in a 6 yearly cycle.

2.4 The purpose of the report is to update the committee on progress and to seek their endorsement of the summary of actions to be taken forward by the Council in the Local Flood Risk Management Plans noting the status of the funding arrangements.

2.5 The Act requires the LFRMPs to be published by each LLA by 23 June 2016. The two LPDs the Council is a member of are finalising the formal LFRMPs and each LLA (Glasgow City and Highland) requires to sign off the Plan. The latest (but not final) version of the Clyde and Loch Lomond LFRMP will be considered by its Joint Committee (which includes one member from Argyll and Bute) at their meeting on 22 March. However it is currently expected that the Plan with Highland will be available late April at the earliest, and it is requested that delegated authority is given to the Chair of the Committee together with the Elected Members of the LPDs to approve the LFRMPs.

- 2.6 To assist with Member representation being available at the LPDs, it is requested that each of the Argyll and Bute councillors appointed can substitute for each other as required.

### **3.0 RECOMMENDATIONS**

- 3.1 It is recommended that:-

- 1 The Committee approves the summary of actions and programme forming the basis of the Local Flood Risk Management Plans within Argyll and Bute listed in this report in Appendix 2, subject to appropriate funding being in place from the Scottish Government and the Council.
- 2 The Committee delegate authority to the Executive Director of Development and Infrastructure, in consultation with the Policy Lead and the two Member representatives on the Local Plan District groups to approve the LFRMPs when they are available.
- 3 The Committee agrees that the Elected Members appointed to the LPDs can substitute for each other when necessary.

### **4.0 DETAILS**

- 4.1 The Flood Risk Management (Scotland) Act 2009 placed duties on SEPA, Scottish Water, the National Park authorities, Forestry Commission and Local Authorities as Responsible Authorities to work together to reduce flood risk across the country. Scotland has been split into 14 Local Plan Districts (LPDs), based on catchment boundaries, for the purpose of managing flood risk. Each of these LPDs has a Flood Risk Management Strategy. In December 2015 SEPA, as the supervising authority, published Flood Risk Management Strategies. These strategies have now been approved by Scottish Ministers.
- 4.2 The Flood Risk Management Strategies set out the short to long term ambition for flood risk management in Scotland. They state the objectives, as agreed with the responsible authorities, for tackling flooding in high risk areas particularly Potentially Vulnerable Areas. Actions that will then deliver these Objectives are described in the strategies. The Objectives and Actions are based on the best evidence available on the causes and consequences of flooding. Through a risk-based and plan-led approach, it is intended that flood management will improve for individuals, communities and businesses at risk in Scotland.
- 4.3 The Actions are prioritised in the Local Flood Risk Management Plans (LFRMPs). The LFRMPs support the strategies for each of the 14 Local Plan Districts (LPD) in Scotland. Argyll & Bute Council are members of two Local Plan Districts:-
- Clyde & Loch Lomond with Glasgow City Council as Lead Local Authority (LLA),
  - Highland/Argyll with Highland Council as Lead Local Authority.

The Strategies will cover three 6 year cycles of the Local Flood Risk Management Plan with the first cycle starting in June 2016. It is for each LLA to publish the LFRMP for the particular LPD.

- 4.4 At its June 2015 meeting, Argyll and Bute Council approved the Prioritised List of Actions to be included in the Strategies. These now represent the Council's preferred order for dealing with flood risk, subject to funding being available. As the Prioritised list has now been incorporated into the national Flood Risk Management Strategies, the Actions to deliver the Objectives are now being incorporated into the two LFRMPs covering the Argyll and Bute Council Area. A summary of these Actions is listed in Appendix 2.
- 4.5 The LFRMPs consist of a Supplementary Part and an Implementation Part:-
- The Supplementary Part consists of the Objectives, Actions and other information, such as maps, relevant to the LFRMP.
  - The Implementation Part addresses how the Actions are to be implemented including a detailed timetable for completion, how the Actions are to be funded, and who is responsible for implementing them. An estimate for the cost of implementation is listed in Appendix 2.
- 4.6 Argyll & Bute Council is represented at each Local Plan District by an Elected Member and officers. To assist the Council to have representation at the LPD meetings, it is recommended that the appointed Members may substitute for each other when necessary.
- 4.7 The summary of Actions within the Council area that will be included in the Local Flood Risk Management Plans of the Council's two Local Plan Districts that will encompass Argyll and Bute are given in Appendix 2. The funding assumptions are:-

Revenue – set aside by the Council as part of SOA (continuation of existing funding stream – exact amount to be confirmed, but anticipated to be £300-350k per year)

Capital from Scottish Government at a similar level to the Revenue to assist with studies and scheme preparation (new funding to assist with delivery of actions in the LFRMP with the exception of flood protection schemes / works - see below)

Scottish Government capital funding meeting 80% of the individual scheme costs (expected to be largely costs incurred following the promotion of a formal Flood Scheme through the Act).

Council Capital funding to meet the 20% not covered by the 80% above.

National funding is being discussed by Scottish Government and COSLA and it is expected that this will be announced in March.

## 5.0 CONCLUSION

5.1 The work undertaken by SEPA, the local authorities and the other Responsible Authorities has been a structured approach to identifying flood hazards and risks in Scotland. This has led to the production of the Flood Risk Management Strategy and is to be supported by 14 Local Flood Risk Management Plans. The Lead Local Authorities for the two Local Plan Districts that the Council is a member of will publish a Local Flood Risk Management Plan that will detail the actions necessary to deliver the strategy. National and Council Funding is yet to be clarified.

## 6.0 IMPLICATIONS

6.1	Policy	None
6.2	Financial	Projects identified will need to be incorporated within future capital programmes.
6.3	Legal	Complies with the Flood Risk Management (Scotland) Act 2009
6.4	HR	None.
6.5	Equalities	Na
6.6	Risk	The funding details have yet to be announced and therefore the full implications for the Council cannot yet be quantified..
6.7	Customer Services	NA

**Executive Director of Development and Infrastructure, Pippa Milne**

**Policy Lead Cllr Ellen Morton**

16 February 2016

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## APPENDICES

Appendix 1 – Link to SEPA Flood Risk Management Strategies for Highland and Argyll, noting that Clyde and Loch Lomond can be accessed from this link

<http://apps.sepa.org.uk/FRMStrategies/highlands-argyll.html>

Appendix 2 - Estimated cost and programme of Actions in Argyll & Bute that form the Local Flood Risk Management Plan [in preparation of Implementation 2016 rev 1.xlsx](#)

Appendix 3 - [Maps of the twelve Potentially Vulnerable Areas in Argyll and Bute within the Highland and Argyll Local Plan District.](#)

Appendix 4 – [Maps of the four Potentially Vulnerable Areas with Argyll and Bute in the Clyde and Loch Lomond Local Plan District.](#)

Estimated costs for FRM Actions and Duties 1st Cycle 2015-21																		
PVA	Location	Objective	Selected Action	Description / next Step	Estimated costs	Related actions	Economic Benefits	Expected funding source	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	Total Cycle 1			
(PVA 01/30)	Isle of Mull, Craignure	Reduce overall flood risk (100002)	MAINTENANCE (1000020007)	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. Assetowners and riparian landowners are responsible for the maintenance and management of their own assets including those which help to reduce flood risk	Assume £900 per year cycle £900			Revenue		300		300		300	900			
(PVA 01/29)	Ross of Mull	Reduce overall flood risk (100002)	MAINTENANCE (1000020007)	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. Assetowners and riparian landowners are responsible for the maintenance and management of their own assets including those which help to reduce flood risk	Assume £900 per year cycle £900			Revenue		300		300		300	900			
(PVA 01/31)	Oban	Reduce risk in Oban from coastal flooding Reduce flood risk in Oban from the Black Lynn Burn Objective ID: 103101, 103102.	Flood Protection Study (Including NFM Study) (1031010005)	A study is recommended to assess flood risk from the Black Lynn Burn, including tidal element and coastal flooding in Oban. The study should focus on direct defences, flood storage, runoff control, sediment management, increasing storage on the existing lochs (Loch Gleann a Bhearraidh and Luachrach Loch), property level protection and individual property relocation for residual risk. Other actions may also be considered to get the most sustainable flood risk management options.	£25,000 to £50,000 £37,500	SWMP	Flood protection works could reduce the impact of the flooding of 2975 residential and 260 non-residential properties which are currently at medium likelihood of flooding. Benefits of £45,630,060 could potentially be achieved over 100 year design life of a flood scheme.	Revenue	5,000	20,000	12,500				37,500			



PVA	Location	Objective	Selected Action	Description / next Step	Estimated costs		Related actions	Economic Benefits	Expected funding source	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	Total Cycle 1
(PVA 01/31 )	Oban	Reduce risk from surface water flooding in Oban (103106)	SURFACE WATER PLAN/STUDY (1031060018)	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		£45,000	Scottish Water will carry out an assessment of flood risk within the highest risk sewer catchments to improve knowledge and understanding of surface water flood risk.		Revenue	5,000	15,000	25,000				45,000
(PVA 01/31 )	Oban	Reduce overall flood risk (100002)	MAINTENANCE (1000020007)	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. Assetowners and riparian landowners are responsible for the maintenance and management of their own assets including those which help to reduce flood risk	Assume £2000 per year cycle	£12,000			Revenue		4,000		4,000		4,000	12,000
(PVA 01/32 )	Loch Feochan	Reduce overall flood risk (100002)	MAINTENANCE (1000020007)	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. Assetowners and riparian landowners are responsible for the maintenance and management of their own assets including those which help to reduce flood risk	Assume £1000 per year cycle	£6,000			Revenue		2,000		2,000		2,000	6,000

PVA	Location	Objective	Selected Action	Description / next Step	Estimated costs		Related actions	Economic Benefits	Expected funding source	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	Total Cycle
																1
(PVA 01/33)	Taynuilt	Reduce overall flood risk (100002)	MAINTENANCE (1000020007)	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. Assetowners and riparian landowners are responsible for the maintenance and management of their own assets including those which help to reduce flood risk	Assume £1000 over 6 year cycle	£1,000			Revenue		300		300		400	1,000
(PVA 01/34)	Loch Awe	Reduce overall flood risk (100002)	MAINTENANCE (1000020007)	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. Assetowners and riparian landowners are responsible for the maintenance and management of their own assets including those which help to reduce flood risk	Assume £12000 over 6 year cycle	£12,000			Revenue	2,000	2,000	2,000	2,000	2,000	2,000	12,000
(PVA 01/35)	Craignish	Reduce overall flood risk (100002)	MAINTENANCE (1000020007)	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. Assetowners and riparian landowners are responsible for the maintenance and management of their own assets including those which help to reduce flood risk	Assume £6000 over 6 year cycle	£6,000			Revenue		2,000		2,000		2,000	6,000

PVA	Location	Objective	Selected Action	Description / next Step	Estimated costs		Related actions	Economic Benefits	Expected funding source	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	Total Cycle
															1	
(PVA 01/36 )	Kilmartin	Reduce overall flood risk (100002)	MAINTENANCE (1000020007)	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. Assetowners and riparian landowners are responsible for the maintenance and management of their own assets including those which help to reduce flood risk	Assume £6000 over 6 year cycle	£6,000			Revenue		2,000		2,000		2,000	6,000
(PVA 01/37 )	Inveraray	Reduce overall flood risk (100002)	MAINTENANCE (1000020007)	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. Assetowners and riparian landowners are responsible for the maintenance and management of their own assets including those which help to reduce flood risk	Assume £3000 over 6 year cycle	£3,000			Revenue	1,000		1,000		1,000		3,000
(PVA 01/38 )	Lochgilphead	Reduce flood risk in Lochgilphead from the Badden Burn Objective ID: 103801.	FLOOD PROTECTION STUDY (1038010005)	A hydraulic study is required to investigate river and coastal flooding in Lochgilphead. The flood risk in the Lochgilphead area is complex due to the interaction of different sources, which are not thought to be currently represented accurately in the baseline flood modelling. A better understanding of the interaction of the Badden Burn with the Crinan Canal and the tide is needed before the feasibility of actions can be appraised in greater detail. Due to the frequency history of flooding that results in annual road closures and significant disruption to travel, this study will be progressed in cycle 1.	£25,000 to £50,000	£37,500	Flood Study C2 Action 1038010005 Scottish water to review assessment of flood risk in sewer catchment between 2016-21 Action 1000020019		Revenue	2,500	10,000	25,000				37,500



PVA	Location	Objective	Selected Action	Description / next Step	Estimated costs		Related actions	Economic Benefits	Expected funding source	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	Total Cycle 1
(PVA 01/40)	Campbeltown	Reduce flood risk in Campbeltown from river flooding (104001)	FLOOD PROTECTION SCHEME/WORKS (1040010006)	A flood protection scheme is to be developed for Campbeltown to reduce flood risk from small watercourses. Feasibility studies indicate that the scheme should include temporary storage of flood water on two burns plus a relief culvert in the town to a standard of 1 in 200 years. There have been a number of floods in Campbeltown in recent years including incidence of sewer flooding which the scheme should contribute to reducing. The detailed design should also include consideration of runoff reduction (woodland planting).	Estimate for A&B Staff Design Supervision Costs £1000000	£1,000,000	SURFACE WATER PLAN/STUDY (1040050018)- Reduce risk from surface water flooding in Campbeltown (104005)	The proposed flood protection works could achieve damages avoided of £18 million. The benefit-cost ratio of the proposed works is estimated to be 3.49	Capital	50,000	150,000	400,000	2,000,000	6,430,000	250,000	9,280,000
(PVA 01/40)	Campbeltown	Reduce risk from surface water flooding in Campbeltown (104005)	SURFACE WATER PLAN/STUDY (1040050018)	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.	Estimate £50,000	£50,000	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 STRATEGIC MAPPING AND MODELLING (1000020019)		Revenue	5,000	20,000	25,000				50,000
(PVA 01/40)	Campbeltown	Reduce overall flood risk (100002)	MAINTENANCE (1000020007)	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. Assetowners and riparian landowners are responsible for the maintenance and management of their own assets including those which help to reduce flood risk	Assume £3000 per year	£18,000			Revenue	3,000	3,000	3,000	3,000	3,000	3,000	18,000
(PVA 11/01)	Loch Lomond and Vale of Leven	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)	NATURAL FLOOD MANAGEMENT STUDY (110750003)	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.	Assume £20000 part funding	£20,000		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.	Revenue				10,000	10,000		20,000

PVA	Location	Objective	Selected Action	Description / next Step	Estimated costs		Related actions	Economic Benefits	Expected funding source	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	Total Cycle 1	
(PVA 11/01)	Loch Lomond and Vale of Leven	Reduce overall flood risk (11132)	MAINTENANCE (111320007)	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. Assetowners and riparian landowners are responsible for the maintenance and management of their own assets including those which help to reduce flood risk	Assume £15000 over 6 year cycle	£15,000	CARDROSS FLOOD PROTECTION STUDY (110750005) Cycle 2 STRATEGIC MAPPING AND MODELLING (111320019) 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. Cycle 1		Revenue	5,000		5,000		5,000			15,000
(PVA 11/02)	Helensburgh	Reduce the economic damages and risk to people from surface water flooding in Kilcreggan (11084)	FLOOD PROTECTION SCHEME/WORKS (110840005)	Argyll and Bute Council have completed a study of surface water flooding in Kilcreggan, which identified frequent surface water flooding due to runoff from the surrounding area. It is recommended that mitigation options are further refined to produce an economic appraisal of benefits from flood protection works. The preparation work should 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. Any works would be expected to be in cycle 2.	Scheme 700000plus 20% design etc = 840000 A&B contribution 20%	£168,000		The economic impacts will be established during the study, however frequent flooding to roads has been experienced.	Capital		20,000	20,000	20,000	20,000	20,000		100,000

PVA	Location	Objective	Selected Action	Description / next Step	Estimated costs		Related actions	Economic Benefits	Expected funding source	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	Total Cycle 1	
(PVA 11/02 )	Helensburgh	Reduce the economic damages and risk to people from surface water flooding in Kilcreggan (11084)	SURFACE WATER PLAN/STUDY (110840018)	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.	Assume £25000	£25,000	STRATEGIC MAPPING AND MODELLING (111320019) 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.		Revenue	5,000	10,000	10,000					25,000
(PVA 11/02 )	Helensburgh	Reduce the risk of coastal flooding to residential properties and non-residential properties in Helensburgh (11003)	FLOOD PROTECTION STUDY (110030005)	A study is recommended to further investigate the feasibility of new and or enhanced sections of defences along the seafront of Helensburgh. This study should look to complement and enhance the proposed development along the seafront including a new swimming pool and raised car park in Helensburgh. The study should 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	SEPA Estimate £30,000 - £70,000	£50,000		The flood protection study should consider how to reduce flooding to 26 residential properties and 13 non-residential properties. The potential damages avoided are estimated to be up to £1.2 million. A reduction of flooding in the area could have a positive economic benefit to the local economy	Revenue	5,000	20,000	25,000					50,000
(PVA 11/02 )	Helensburgh	Reduce overall flood risk (11132)	MAINTENANCE (111320007)	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	Assume £15000 over 6 year cycle	£15,000			Revenue		5,000		5,000		5,000		15,000

PVA	Location	Objective	Selected Action	Description / next Step	Estimated costs		Related actions	Economic Benefits	Expected funding source	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	Total Cycle
															1	
(PVA 11/06 )	Isle of Bute	Reduce the risk of combined flooding to residential properties and non-residential properties in Rothesay (11004)	MAINTAIN FLOOD PROTECTION SCHEME (110040017)	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.	Assume £3000 over 6 year cycle	£3,000			Revenue		1,000		1,000		1,000	3,000
(PVA 11/06 )	Isle of Bute	Reduce overall flood risk (11132)	MAINTENANCE (111320007)	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. Assetowners and riparian landowners are responsible for the maintenance and management of their own assets including those which help to reduce flood risk	Assume £15000 over 6 year cycle	£15,000	FLOOD PROTECTION STUDY (110040005) cycle 2 A study is recommended to further investigate the feasibility of a flood protection scheme in Rothesay		Revenue		5,000		5,000		5,000	15,000



PVA	Location	Objective	Selected Action	Description / next Step	Estimated costs		Related actions	Economic Benefits	Expected funding source	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	Total Cycle	
														1			
(PVA 11/07 )	Dunoon	Reduce the economic damages and risk to people from surface water flooding in Dunoon (11083)	SURFACE WATER PLAN/STUDY (110830018)	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	Assume £50000	£50,000	FLOOD PROTECTION STUDY (110060005) Cycle 2 A study is recommended to further investigate the feasibility of increasing the level of protection in Dunoon, focusing on extending and enhancing the Milton Burn Flood Protection Scheme and property level protection for the residual risk. The study should also look at the potential for Natural Flood Management actions such as land management and runoff control near the town to reduce the impact flooding in the town. There is also a surface water management plan being developed for the area which will look at surface run off and mitigation measures. These two studies should complement each other to develop the most sustainable combination of actions.		Revenue	5,000	20,000	25,000					50,000
(PVA 11/07 )	Dunoon	Accept that current and future significant flood risks in the Kilbride Road and Crochan Road area are being managed appropriately (11005)	MAINTAIN FLOOD PROTECTION SCHEME (110050017)	Continue to maintain the existing defences in Dunoon	Assume £3000 over 6 year cycle	£3,000			Revenue		1,000		1,000		1,000		3,000



PVA	Location	Objective	Selected Action	Description / next Step	Estimated costs		Related actions	Economic Benefits	Expected funding source	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	Total Cycle 1	
N/A	Areas outwith PVA's	REDUCE OVERALL FLOOD RISK Clyde and Loch Lomond 11132 Highland and Argyll 100002	MAINTENANCE Clyde and Loch Lomond 111320007 Highland and Argyll 1000020007	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.	Assume £100000 annually for clearance, repair and reactive works over 6 year cycle	£600,000	Roads Ops budget?		Revenue	100,000	100,000	100,000	100,000	100,000	100,000	600,000	
		REDUCE OVERALL FLOOD RISK Clyde and Loch Lomond 11132 Highland and Argyll 100002	AWARENESS RAISING Clyde and Loch Lomond 111320013 Highland and Argyll 1000020013	From 2016 SEPA will engage with the community through local participation in national initiatives, including partnership working with Neighbourhood Watch Scotland. In addition, SEPA will engage with local authorities and community resilience groups where possible. Local authorities will be undertaking additional awareness raising activities. Further details will be set out in the Local FRM Plan.	Assume £12000 over 6 year cycle	£12,000	Scottish Flood Forum services ?		Revenue	2,000	2,000	2,000	2,000	2,000	2,000	12,000	
N/a	A&BC	Reduce flooding by forward planning		Ensure flood risk assessments are appropriate for each planning application	Assume £20,000 per year	£120,000			Revenue	20,000	20,000	20,000	20,000	20,000	20,000	120,000	
						£2,462,300			Revenue	207,500	322,900	330,000	197,900	180,000	188,000	1,426,300	
									Capital	50,000	170,000	420,000	2,020,000	6,450,000	270,000	9,380,000	
									Totals	257,500	492,900	750,000	2,217,900	6,630,000	458,000	10,806,300	
				<b>Annual Revenue Cost over 6 year cycle =</b>		<b>£410,383</b>											
									Assumed Scottish Government Capital grant	80%	40,000	136,000	336,000	1,616,000	5,160,000	216,000	7,504,000
									Argyll & Bute Capital internal allocation required	20%	10,000	34,000	84,000	404,000	1,290,000	54,000	1,876,000
									Argyll and Bute Revenue		207,500	322,900	330,000	197,900	180,000	188,000	1,426,300
									Argyll & Bute Capital		10,000	34,000	84,000	404,000	1,290,000	54,000	1,876,000
									Total Argyll and Bute		217,500	356,900	414,000	601,900	1,470,000	242,000	3,302,300
									<b>As at 16 March 2016, none of the above funding has been confirmed.</b>								
									All of the figures above are estimates and are subject to change as the programme progresses.								

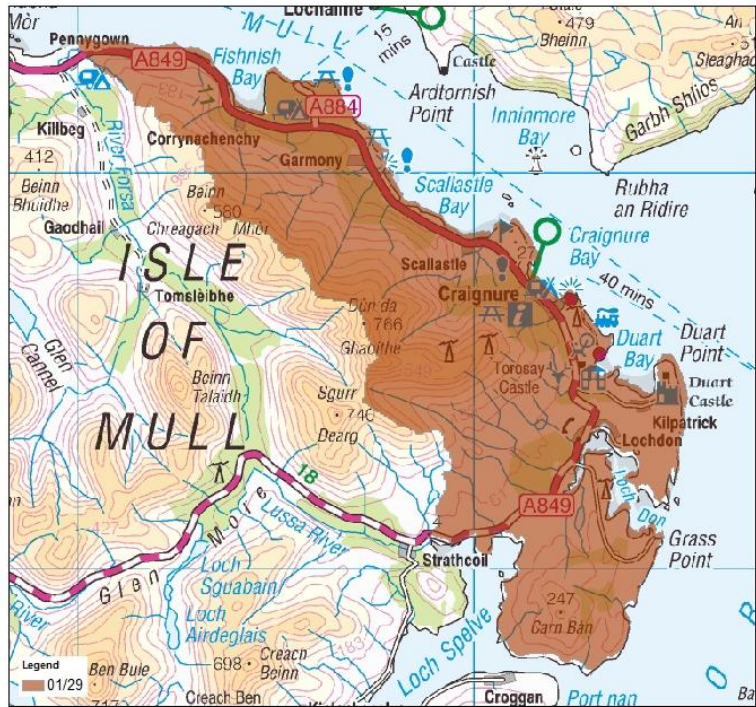
# Cycle 2

Local Authority	PVA	Selected Action	Location	Objective	Next Step	Study Cost Range Average	Related actions	Economic Benefits	PVD Damages	Non-Monetised Score	Ranking (evidence based)	Ranking (local preference)			Reason	Proposed delivery cycle
Argyll & Bute	(PVA 11/07)	Flood Protection Study (110060005)	Dunoon	Reduce the risk of Milton Burn flooding to residential properties in Dunoon. Objective ID: 11006.	There is potential to extend the Milton Burn Flood Prevention Scheme to achieve a standard of protection of 1 in 100 year event plus climate change for a greater area of Dunoon, and this should be investigated further by a flood protection study. SUDs should be assessed in any future flood study undertaken in the area. This study may also consider the NFM and PLP actions.	£30,000 - £50,000		There are 31 residential and 3 non-residential properties at risk in a 200 year event, with a PVD of £3,278,162. This action may also protect an electricity substation but this has not been included in the PVD figure.	£3,278,162	6	103	23	3	5	Local Knowledge and Flood History	C2
Argyll & Bute	(PVA 11/02)	Flood Protection Study (110020005)	Garelochhead	Reduce the risk of coastal flooding to residential properties and non residential properties in Garelochhead. Objective ID: 11002.	A flood protection study should be carried out to investigate further the lower reaches of the McAuley Burn and to enhance the existing retaining wall in Garelochhead against coastal flooding. This study may also consider property level protection and other complimentary actions.	£30,000 - £50,000		There are 12 residential and 5 non-residential properties at risk in a 200 year coastal event, with a PVD of £1,305,333.	£1,305,333	2	133	27	5	6	Local Knowledge and Flood History	C2
Argyll & Bute	(PVA 11/06)	Flood Protection Study (Including NFM Study) (110040005)	Rothesay	Reduce the risk of combined flooding to residential properties and non residential properties in Rothesay.	A flood protection study should be carried out to further investigate the potential to use Kirk Dam for storage. This study should also consider natural flood management, property level protection and other complimentary actions.	£30,000 - £70,000		There are 161 residential and 112 non-residential properties at risk in a 200 year river event, with a PVD of £628,378.	£628,378	4	143	29	6	9	Local Knowledge and Flood History	C2
Argyll & Bute	(PVA 01/40)	Flood Protection Study (1040020005)	Campbeltown	Reduce risk in Campbeltown from coastal flooding Objective ID: 104002.	A study is recommended to further investigate the feasibility of a flood protection scheme for the coastal frontage of Campbeltown, focusing on direct defences. The study should look to confirm the existing defence levels of structures and the promenade to identify where structures need to be raised and where gaps in the defences need to be filled (i.e. at the piers). Other actions may also be considered to develop the most sustainable range of options.	<£25,000		Flood protection works could reduce the impact of the flooding of 96 residential and 178 non-residential properties which are currently at medium likelihood of flooding. Benefits of £1,131,975 could potentially be achieved over 100 year design life of a flood scheme. There is potential for disruption to the operational areas of the harbour which	£1,131,975	4	143	17	6	7	Local Knowledge and Flood History	C2
Argyll & Bute	(PVA 11/01)	Flood Protection Study (110010005)	Cardross	Reduce the risk of river / surface water flooding to residential properties and community facilities in Cardross. Objective ID: 11001.	A flood protection study should be carried out to investigate further the construction of storage areas upstream of the Moore's Bridge and to assess the drainage in Cardross. This study may also consider property level protection and other complimentary actions.	£20,000 - £30,000		There are 10 residential and 1 non-residential properties at risk in a 100 year fluvial event with a PVD of £602,388.	£602,388	4	157	31	9	8	Local Knowledge and Flood History	C2

	Objective ID	Action ID	PVA	Location	Source	Next Step			Status	SFR Position	SFR Priority							
	103301	1033010016	Jan-33	Taynuilt		The baseline flood modelling is thought to be overestimating the flood risk in Taynuilt as there is not a known history of flooding in the community. Due to this low level of confidence in the baseline modelling improvements are required to confirm the extent of flooding. Due to the interaction between the River				Collaborative	C							
						Nant and tidal flows from Loch Etive this action should be carried out in combination with the improved understanding action for objective 103302: reduce flood risk in Taynuilt from Loch Etive.				Working								
	103302	1033020016	Jan-33	Taynuilt		The baseline flood modelling is thought to be overestimating the Nant and tidal flows from Loch Etive this action should be carried				Collaborative	C							
										Working								
1.04E+09	103701	Argyll and Bute	Jan-37	Inveraray	Coastal	Improve			Not started	Further Inf	A (see comment for coastal)							

Appendix 3 - Maps of the twelve Potentially Vulnerable Areas in Argyll and Bute within the Highland and Argyll Local Plan District.

PVA ID 01/29 Isle of Mull-Craignure Potentially Vulnerable Area



Legend  
 01/29  
 0 1 2 4 Kilometers  
 0 0.5 1 2 Miles  
 Helpdesk ref. N/A. Produced: 30/8/2013

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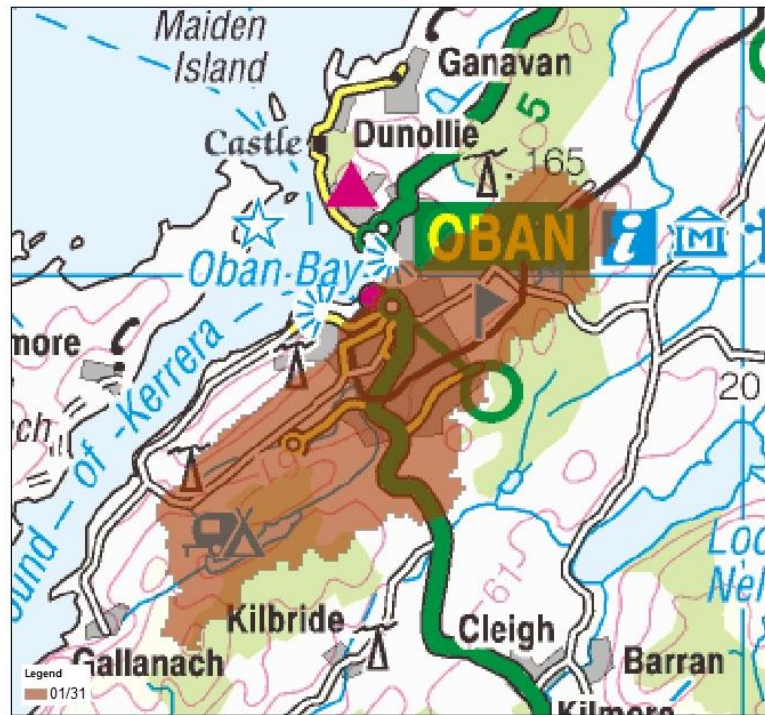
PVA ID 01/30 Ross of Mull Potentially Vulnerable Area



Legend  
 01/30  
 0 2.5 5 10 Kilometers  
 0 1.25 2.5 5 Miles  
 Helpdesk ref. N/A. Produced: 30/8/2013

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PVA ID 01/31 Oban Potentially Vulnerable Area

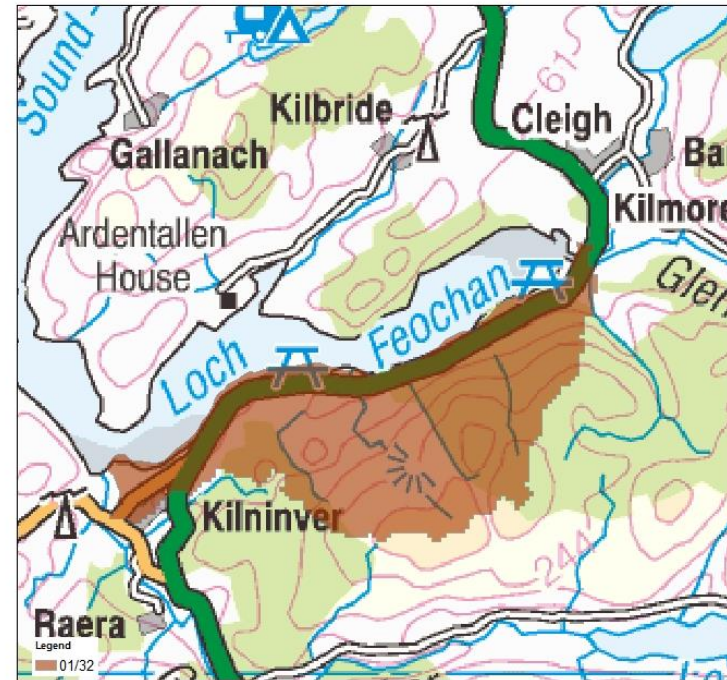


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PVA ID 01/32 Loch Feochan Potentially Vulnerable Area

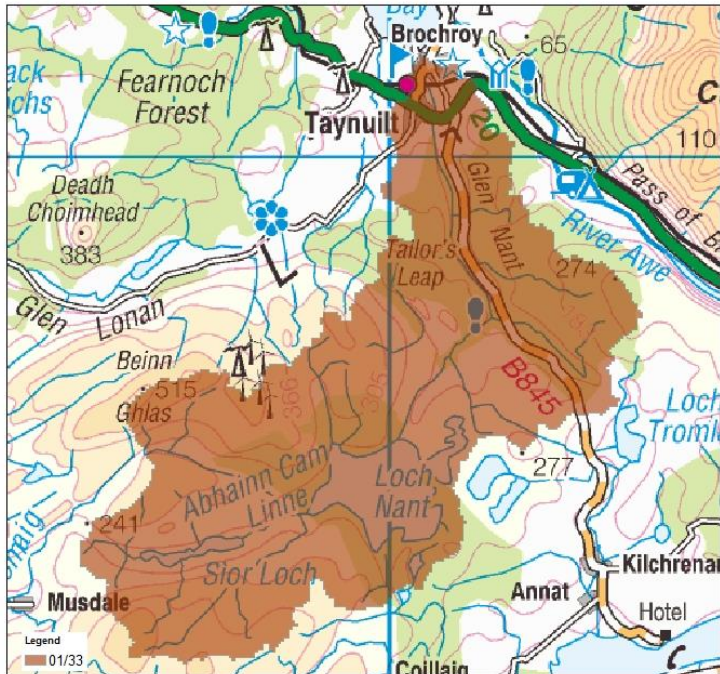


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**PVA ID 01/33 Taynuilt Potentially Vulnerable Area**



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**PVA ID 01/34 Loch Awe Potentially Vulnerable Area**



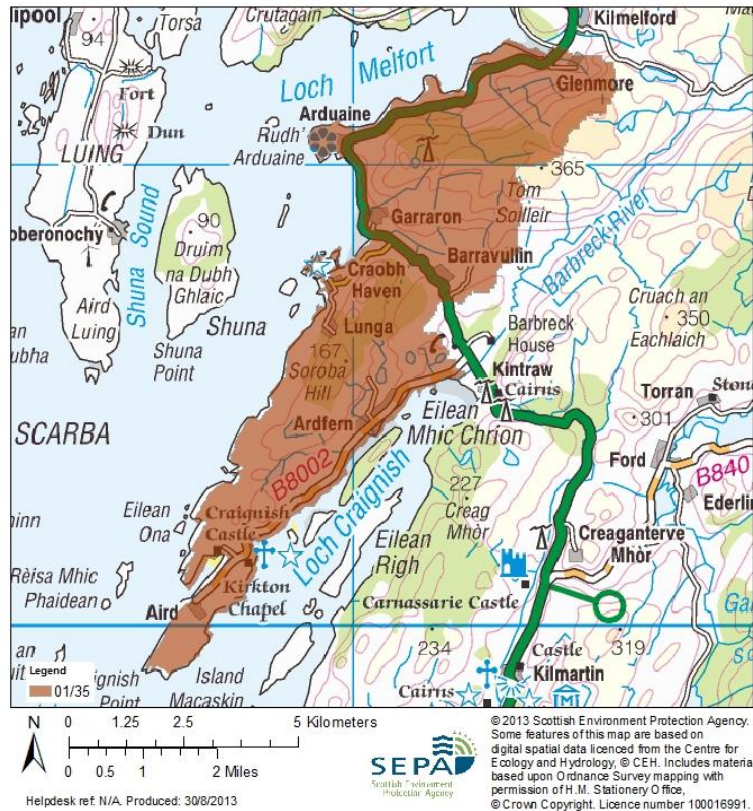
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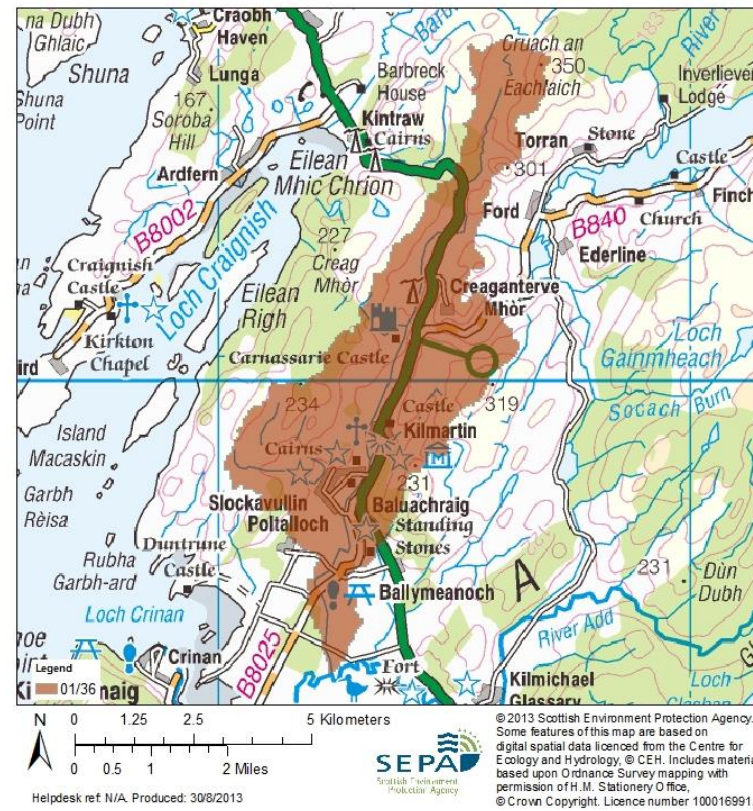
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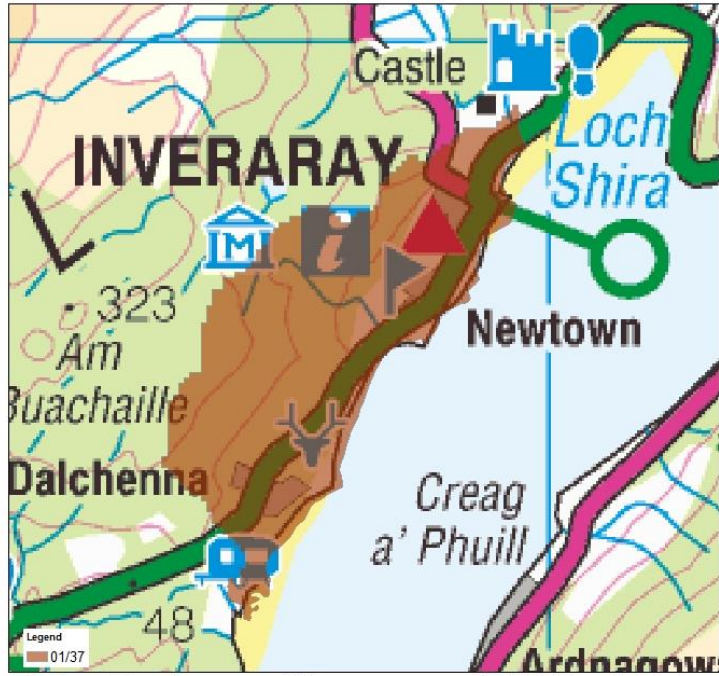
PVA ID 01/35 Craignish Potentially Vulnerable Area



PVA ID 01/36 Kilmartin Potentially Vulnerable Area



PVA ID 01/37 Inveraray Potentially Vulnerable Area

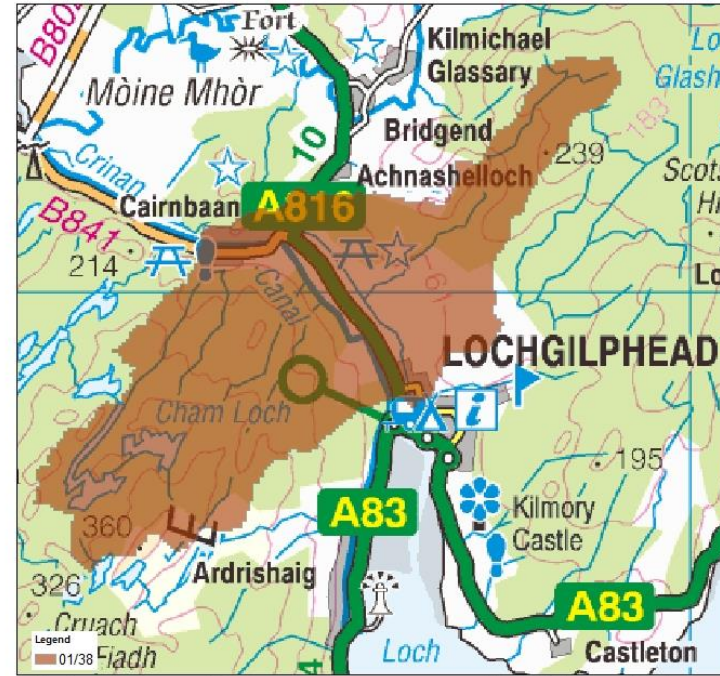


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PVA ID 01/38 Lochgilphead Potentially Vulnerable Area

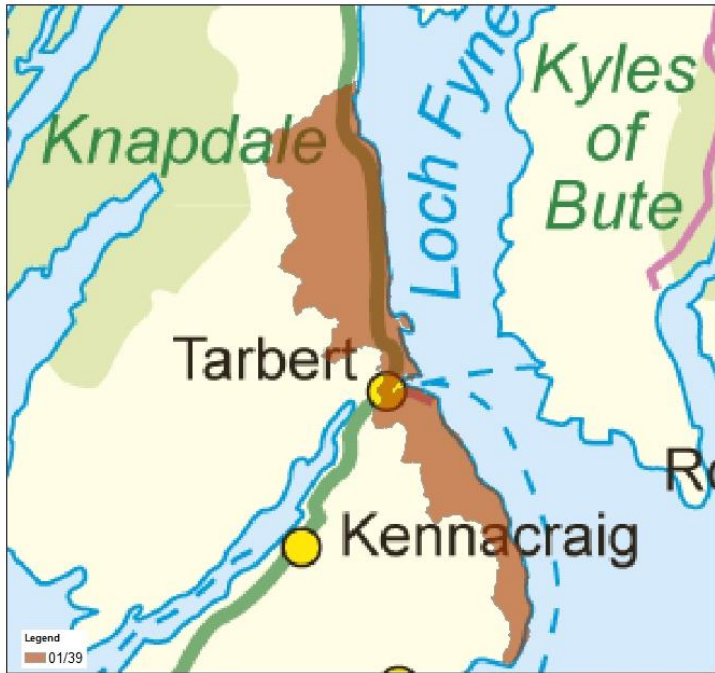


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PVA ID 01/39 Tarbert Potentially Vulnerable Area



N 0 1.5 3 6 Kilometers  
 0 3055 1.5 Miles  
 Helpdesk ref. N/A. Produced: 30/8/2013



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PVA ID 01/40 Campbeltown Potentially Vulnerable Area



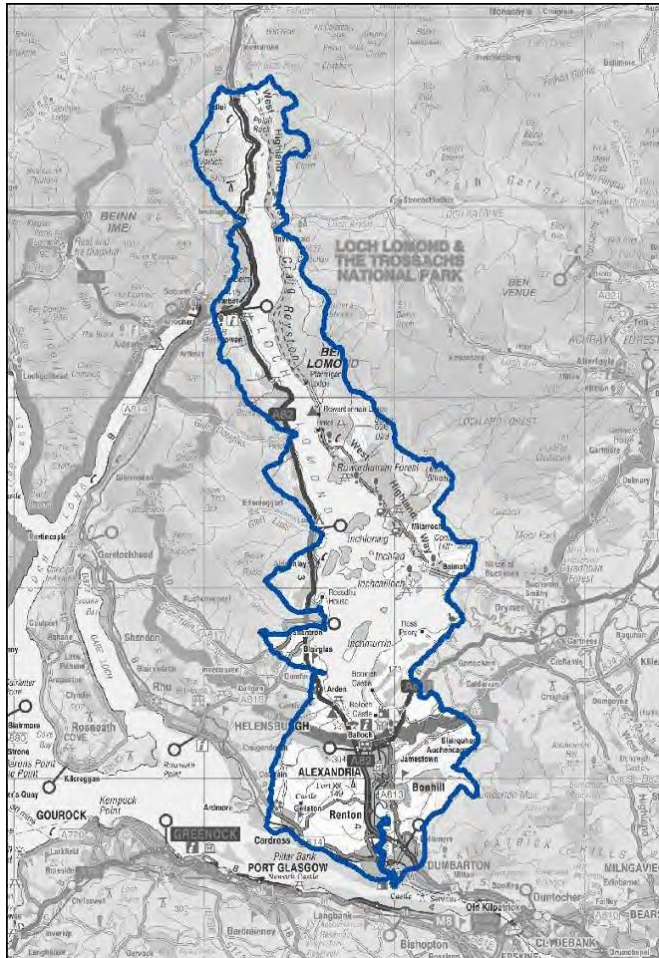
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 0 0.5 1 2 Miles  
 Helpdesk ref. N/A. Produced: 29/8/2013



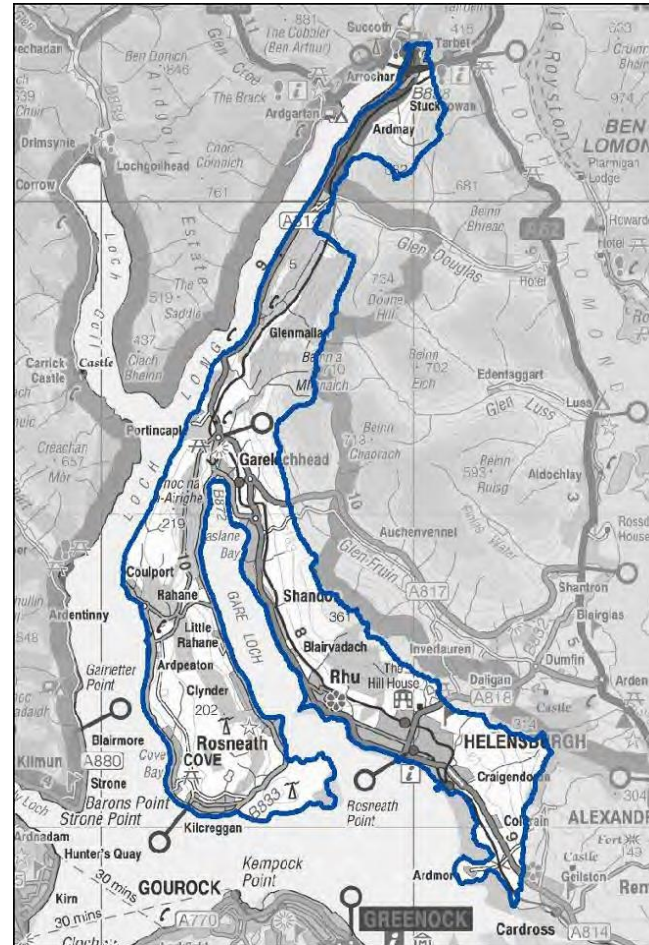
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**Appendix 4 maps of Potentially Vulnerable areas in the Clyde and Loch Lomond Local Plan District**

PVA ID 11/01 Loch Lomond Potentially Vulnerable Area



PVA ID 11/02 Helensburgh and Arrochar Potentially Vulnerable Area



PVA ID 11/06 Isle of Bute Potentially Vulnerable Area

PVA ID 11/07 Dunoon and Toward Potentially Vulnerable Area

