

Prestwick/Ayr (Potentially Vulnerable Area 12/09)

Local Plan District	Local authority	Main catchment
Ayrshire	South Ayrshire Council	Doonfoot to Monkton coastal

Background

This Potentially Vulnerable Area is located on the west coast of the Ayrshire Local Plan District along the Prestwick and Ayr coastline. It is approximately 10km² (shown below).



There are approximately 300 residential properties at risk of flooding. The Annual Average Damages are approximately £240,000.

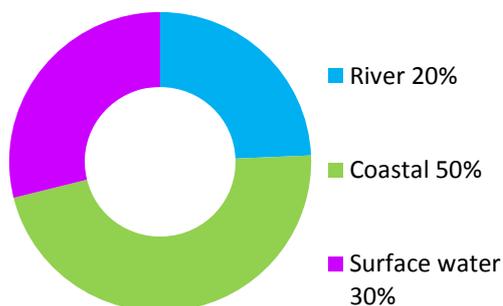


Figure 1: Annual Average Damages by flood source

Summary of flooding impacts

This area fronts onto the Firth of Clyde and has tidally influenced rivers, including the River Ayr which flows through the centre as far as the Nethermills weir at Victoria Bridge. The most notable area at risk of coastal flooding is Prestwick. This assessment does not include the impact of wave overtopping which is known to occur in Prestwick and Newton Shore, therefore the reported risk from coastal flooding may be underestimated. Cunning Park in Ayr is also predicted to flood, putting a large number of properties at risk.

River flooding is mainly attributed to the River Ayr, with properties along the course of the river impacted. River flooding is also attributed to a lesser extent to the Slaphouse Burn, which is located just outside the area and is predicted to impact properties in Cunning Park in Ayr.

In this area there are a large number of culverts and structures, plus the potential for interaction between river and surface water flooding. This complexity means that the strategic modelling used for this area carries more uncertainty than some other areas. A more detailed study of flooding and the interaction between different sources of flooding is currently underway, to improve the understanding of flooding in the area.

Interaction between coastal and river flooding is predicted to occur in the lower reaches of the River Ayr where it discharges to the Firth of Clyde.

Surface water flooding is shown to impact residential properties within the area of Whitletts, Heathfield, Lockside and Belmont, along with sections of main rail and road routes (notably the A77). The areas at highest risk from surface water flooding will require the preparation of surface water management plans.

Residential properties affected by coastal flooding experience the highest economic impact at approximately 40% of the damages. Non-residential properties also provide a notable proportion of the damages.

Within this Potentially Vulnerable Area it is estimated that climate change will increase the number of residential properties at risk of flooding from approximately 300 to 1,200 and the number of non-residential properties from approximately 160 to 340.

Most of the impacts are within Prestwick and Ayr and flooding to people, non-residential properties, utilities, roads and railways.

Further details of the risk of flooding to people and property, as well as to community facilities, utilities, the transport network, designated sites and agricultural land is available in the Flood Risk Management Strategy for Ayrshire, Prestwick/Ayr Potentially Vulnerable Area 12/09.

http://apps.sepa.org.uk/FRMStrategies/pdf/pva/PVA_12_09_Full.pdf

Objectives to reduce flooding in the Potentially Vulnerable Area 12/09

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. The objectives below have been set for Prestwick/Ayr Potentially Vulnerable Area:

- Reduce the economic damages and risk to people from surface water flooding in Prestwick and Ayr (ID 12043)
- Avoid an overall increase in flood risk (ID 12039)
- Reduce overall flood risk (ID 12082)
- 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.

Summary of flooding 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 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 Prestwick/Ayr Potentially Vulnerable Area.

Summary of flooding actions

Flood protection scheme/work	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 management	Emergency plans/response
Maintain flood protection scheme	Strategic mapping and modelling	Flood forecasting	Self help	Maintenance	Planning policies

The delivery of selected actions by year over the six-year plan cycle is summarised below.

Delivery of selected actions					
Year 1 (2016/17)	Year 2 (2017/18)	Year 3 (2018/19)	Year 4 (2019/20)	Year 5 (2020/21)	Year 6 (2021/22)
Natural Flood Management Works					
Shoreline Management Plan					
Surface Water Management Plan					
Integrated Catchment Study					

The Maintain flood warning, Maintain flood protection scheme, Strategic mapping and modelling, Awareness Raising, Emergency Plans/response, Flood Forecasting, Self help, Maintenance and Planning policies will be delivered continuously throughout the 6 year cycle between 2016 and 2021.

Actions to manage flooding in Potentially Vulnerable Area 12/09

Action (ID):	NATURAL FLOOD MANAGEMENT WORKS (120240004)
Objective (ID):	Reduce the risk of coastal and surface water flooding to residential properties and non-residential properties in Ayr (12024)
Delivery lead:	South Ayrshire Council
Action Description:	South Ayrshire Council manage the beach in Ayr to promote the natural development of sand dunes by restricting the beach areas where the use of mechanical beach cleaning equipment is permitted. This beach management policy is ongoing and some of the benefits of this action are to help reduce the risk of coastal erosion and flooding.
Timing and status:	Ongoing, monitoring
Funding:	This study will be funded through South Ayrshire Council's revenue budget provided by Scottish Government.
Coordination:	South Ayrshire Council will work in coordination with SEPA, Scottish Natural Heritage, landowners and all appropriate stakeholders identified through the study.
Potential Environmental Impacts:	Natural flood management actions can have a positive impact on the ecological quality of the environment by restoring and enhancing natural habitats. Sand dune restoration offshore of Seafield in Ayr has the potential to impact upon the coastal processes and sediment supply to the Maidens to Doonfoot Site of Special Scientific Interest and the Troon Golf Links and Foreshore Site of Special Scientific Interest. The impacts could be positive or negative and would require further study. Dune restoration in the area could provide greater areas of habitat for flora and fauna to colonise.

Action (ID):	FLOOD PROTECTION STUDY (121030005)
Objective (ID):	Reduce the risk of coastal and surface water flooding to residential properties and non-residential properties in Ayr (12024)
Delivery lead:	South Ayrshire Council
Action Description:	<p>The requirement for a Shoreline Management Plan (SMP) covering the Ayrshire coastline was identified by SEPA through the development of the Ayrshire Regional Flood Risk Management Strategy. The SMP is required to provide guidance to operating authorities and regulatory bodies as to future sustainable flood and coastal erosion risk management, essentially providing an agreed high level approach, intent and framework for management. In addition, the SMP should provide guidance to planners, individuals and organisations with interests in the coast, setting out an understanding of coastal behaviour, the pressures, constraints and opportunities for sustainable use of the coastal zone to facilitate and guide others in developing their own planning.</p> <p>The Ayrshire SMP is being developed in partnership between the operating authorities and those other organisations with key roles in</p>

	<p>shoreline management. To this end the project is led by a SMP Project Steering Group (PSG), with detailed management being undertaken by the SMP Technical Group (TG). These groups would include members of the following organisations: North Ayrshire Council (involving their engineering and planning departments); South Ayrshire Council (involving their engineering and planning departments); Scottish Environment Protection Agency (SEPA); Scottish Natural Heritage (SNH) and Historic Environment Scotland.</p> <p>The Shoreline Management data gathering analysing stage is completed and through this process, information gaps were identified for Arran coast and the South Ayrshire coastline. The study will include coastal process modelling, sediment sampling and lab analysis to develop a robust understanding of the coastal processes along the Arran coast. It will also allow the existing information for the North Ayrshire mainland coast to be updated based on more recent information on sea level rise.</p>
Timing and status:	<p>As part of the Ayrshire SMP, which is currently underway, a gap study for the North & South Ayrshire Mainland is currently progressing, which will assess the coastal processes and sediment movement along the shore. The recommendation of the report will be considered in the wider SMP study.</p>
Funding:	<p>This study will be funded through South Ayrshire Council's revenue budget provided by Scottish Government.</p>
Coordination:	<p>The list of statutory bodies and key stakeholders are identified through the scoping stage of the process approved by the Steering Group, led by South Ayrshire Council.</p>
Potential Environmental Impacts:	<p>Flood protection studies will consider the positive and negative impacts of proposed actions on the ecological quality of the environment. Ayr Estuary (water body ID 200018), within this study area, is identified by river basin management planning to be at less than good status. Opportunities to improve the condition of the estuary will be considered by coordinating with river basin management planning.</p>

Action (ID):	SURFACE WATER PLAN/STUDY (120431018)
Objective (ID):	Reduce the economic damages and risk to people from surface water flooding in Prestwick and Ayr (12043)
Delivery lead:	South Ayrshire Council
Action Description:	<p>South Ayrshire Council will develop a surface water management plan or plans to cover Prestwick and Ayr which set objectives for the management of surface water flood risk and identify the most sustainable actions to achieve the objectives.</p> <p>Scottish Water will provide local knowledge and understanding of the sewer network. This includes Scottish Water corporate data (as applicable) and outputs of the Meadowhead integrated catchment study and Section 16 modelling, to assist with the surface water management planning process.</p>

Timing and status:	A surface water management plan for these areas will be developed between 2016 and 2021.
Funding:	This study will be funded through South Ayrshire Council's revenue budget provided by Scottish Government.
Coordination:	South Ayrshire Council will co-ordinate the preparation of a surface water management plan in partnership with other responsible authorities. Scottish Water will work with local authorities and support surface water management planning through ensuring that best available knowledge and data is used to input into the surface water management plans.

Action (ID):	SURFACE WATER PLAN/STUDY (120431019)
Objective (ID):	Reduce the economic damages and risk to people from surface water flooding in Prestwick and Ayr (12043)
Delivery lead:	Scottish Water in partnership with South Ayrshire Council
Action Description:	An integrated catchment study covering the Meadowhead catchment was carried out in SR10 (2010-2015) to support the surface water management planning process in Kilmarnock, Greenholm, Irvine, Prestwick and Ayr. The study has improved knowledge and understanding of surface water flood risk and interactions between the above ground and below ground drainage network e.g. with the sewer network, watercourses and the sea. The Optioneering phase of this study will be carried out in SR15 (2015-2021).
Timing and status:	Characterisation of flood risk from the Integrated Catchment Study was completed in 2015. The Optioneering phase of this study, to establish the preferred solution(s) to the significant flooding issues, will be carried out in SR15 (2015-2021).
Funding:	The Integrated Catchment Study is being funded by Scottish Water in partnership with North, East and South Ayrshire Councils. Scottish Water funding is committed in its capital programme through Q&S 4a (2015-2021) which is approved by its regulators and customers. The Councils are funding both the Integrated Catchment project and the Surface Water Management Plan from their revenue budget.
Coordination:	Scottish Water will work collaboratively with project partners throughout the studies. Scottish Water will provide project partners with the outputs of the integrated catchment study which, where relevant, may be used to inform surface water management plans.

Action (ID):	STRATEGIC MAPPING AND MODELLING (120820016)
Objective (ID):	Reduce overall flood risk (12082)
Delivery lead:	SEPA

Action Description:	SEPA will seek to develop flood mapping in the Ayr to Ardrossan area to improve understanding of coastal flood risk. The extent and timing of improvements will depend on detailed scoping and data availability. Where this work coincides with local authority studies, SEPA will work collaboratively to ensure consistent modelling approaches are applied. The coastal mapping and modelling process will start in 2016, with early work focussing on methodology development and data collection. Once this stage has been completed a thorough review will be carried out to identify the final mapping improvements that can be made in the area.
Timing and status:	The coastal strategic mapping and modelling will begin in 2016 and will be completed by 2019.
Funding:	SEPA's strategic mapping and modelling activities are funded by Scottish Government through SEPA's grant in aid settlement.
Coordination:	A flood protection study is proposed for Ayr. SEPA will work with the local authority to ensure that new information about flood risk resulting from the proposed flood protection study is considered in SEPA's strategic mapping and modelling developments where appropriate and relevant.

Action (ID):	STRATEGIC MAPPING AND MODELLING (120820019)
Objective (ID):	Reduce overall flood risk (12082)
Delivery lead:	Scottish Water
Action Description:	Scottish Water will undertake further investigation and modelling in the Meadowhead 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.
Timing and status:	This project will commence in 2016 and will be completed in 2019.
Funding:	Scottish Water funding is committed in its capital programme through Q&S 4a (2015-2021) which is approved by its regulators and customers.
Coordination:	Scottish Water will work with responsible authorities to incorporate relevant information into these studies and by regularly keeping the responsible authorities informed of their progress. Scottish Water will provide responsible authorities with the outputs of the Section 16 assessment which, where relevant, may be used to inform surface water management plans and SEPA flood hazard and risk maps.

Action (ID):	MAINTAIN FLOOD PROTECTION SCHEME (120240017)
Objective (ID):	Reduce the risk of coastal and surface water flooding to residential properties and non-residential properties in Ayr (12024)
Delivery lead:	South Ayrshire Council

Action Description:	The South Pier protects the entrance of Ayr Harbour from the action of waves while also reducing siltation in the channel. An existing seawall runs from the South Pier to the mouth of the River Doon, the purpose of which is to protect coastal erosion however it also provides a limited level of flood protection to the area. These defences will be maintained, and will continue to manage flooding according to the design standard at the time of construction. An annual inspection is carried out on all coastal protection structures in South Ayrshire Council with maintenance works carried out on a priority basis within available resources. Additional inspections are carried out in response to external defect reports or following severe storm events.
Timing and status:	Ongoing
Funding:	The maintenance of flood protection scheme will be funded through South Ayrshire Council's Revenue Budget provided by Scottish Government.
Coordination:	South Ayrshire Council will work in coordination with all appropriate stakeholders identified through the inspection and maintenance process.

Action (ID):	MAINTAIN FLOOD WARNING (120820030)
Objective (ID):	Reduce overall flood risk (12082)
Delivery lead:	SEPA
Action Description:	SEPA will continue to maintain the Ayr Seafield the Prestwick Links Road 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 our flood warning service is timely and accurate.
Timing and status:	Ongoing
Funding:	The maintenance of SEPA's flood warning service is funded by Scottish Government through SEPA's grant in aid settlement.
Coordination:	A flood protection study is proposed for Ayr. SEPA will work with the local authority to ensure that any new information about flood risk resulting from the proposed flood protection study is considered in the existing flood warning system.

Action (ID):	FLOOD FORECASTING (120820009)
Objective (ID):	Reduce overall flood risk (12082)
Delivery lead:	SEPA

Action 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.
Timing and status:	Ongoing
Funding:	SEPA's flood forecasting service is funded through Scottish Government's grant in aid allocation. The Met Office receives funding from the UK Government.
Coordination:	SEPA / Met Office joint initiative. Hydrological information is provided by SEPA and meteorological information is provided by the Met Office. SEPA uses the information to predict the likelihood and timing of river, coastal and surface water flooding.

Action (ID):	SELF HELP (120820011)
Objective (ID):	Reduce overall flood risk (12082)
Delivery lead:	—
Action 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. The Councils, SEPA and Scottish Water will continue to engage with responsible authorities and all other stakeholders, including community groups and the public to raise awareness of flood risk and how those affected can be better prepared. Further detail can be found in the Councils and Scottish Flood Forum websites.
Timing and status:	Ongoing
Funding:	Individual property owners have a responsibility to prevent flooding to their properties, therefore there is no fund allocated to this task in the Council's budget.
Coordination:	The Councils, SEPA and Scottish Water will continue to engage with responsible authorities and all other stakeholders, including community groups and the public to raise awareness of flood risk and how those affected can be better prepared.

Action (ID):	AWARENESS RAISING (120820013)
Objective (ID):	Reduce overall flood risk (12082)
Delivery lead:	Responsible authorities

Action Description:	<p>South Ayrshire Council, SEPA and Scottish Water collectively work to raise awareness of flood risk and how those affected can be better prepared. In May of 2015, as part of the Draft Flood Risk Management Strategy Public Consultation, the Council and SEPA gave residents in Prestwick and Ayr the opportunity to meet and discuss the Draft Ayrshire Flood Risk Management Strategy and raise awareness of the SEPA Coastal Flood Warning Scheme.</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). Scottish Water will provide targeted flooding communications for Scottish Water specific activities and raise awareness by producing and supplying targeted information to the public on large capital projects and detailed local studies.</p> <p>Further Information is provided on North Ayrshire Council, SEPA and Scottish Water websites.</p>
Timing and status:	Ongoing
Funding:	<p>South Ayrshire Council's awareness raising activities will continue to be funded from the revenue budget provided by Scottish Government.</p> <p>SEPA's awareness raising activities are funded by Scottish Government through SEPA's grant in aid settlement. Scottish Water is funded by customer charges as set by our economic regulator. All business activities required under this action by Scottish Water are accounted for in their capital or operational expenditure.</p>
Coordination:	South Ayrshire Council, SEPA and Scottish Water will continue to engage with responsible authorities and all other stakeholders, including community groups and the public to raise awareness of flood risk and how those affected can be better prepared.

Action (ID):	MAINTENANCE (120820007)
Objective (ID):	Reduce overall flood risk (12082)
Delivery lead:	South Ayrshire Council, asset / land managers
Action Description:	<p>South Ayrshire Council in accordance with Section 18 of the Flood Risk Management (Scotland) Act 2009 undertake assessment of water bodies to determine whether works of clearance and repair would substantially reduce the risk of flooding. This information is used to produce a schedule of works which is available for the public to inspect.</p> <p>High risk locations such as those with screens and some smaller culverts are inspected on a scheduled basis. The majority of inspections tend to be undertaken in the winter months when flows are higher, and leaves and other waterborne debris can be an issue. Works of clearance are carried out during these inspections which</p>

	<p>are not specifically "scheduled". The main water bodies, and other water bodies, within urban areas are subject to an annual visual inspection and any works identified are scheduled in accordance with Section 59 of the Act.</p> <p>Furthermore, South Ayrshire Council inspects the coastal defences in this area on an annual basis and undertakes additional inspections as and when required. There is an annual prioritised maintenance programme for coastal defences in the South Ayrshire Council area. South Ayrshire Council reviews the locations at which visual inspections are undertaken based on changing circumstances. For example a new flooding issue or concern raised by a member of the public at a location will lead to officers undertaking further inspection works at that location. South Ayrshire Council also works with riparian landowners to ensure that, within the constraints of the legal obligations, they manage their responsibilities in a manner which reduces flood risk.</p> <p>Scottish Water undertake risk based inspection, maintenance and repair on the public sewer network.</p>
Timing and status:	Ongoing
Funding:	The maintenance work will be funded through South Ayrshire Council's Revenue Budget provided by Scottish Government.
Coordination:	South Ayrshire Council will work in coordination with all appropriate stakeholders identified through the inspection and maintenance process. Scottish Water will keep responsible authorities informed of large scale capital maintenance work to identify opportunities for co-ordination.

Action (ID):	EMERGENCY PLANS/RESPONSE (120820014)
Objective (ID):	Reduce overall flood risk (12082)
Delivery lead:	Category 1 and 2 Responders
Action Description:	<p>The Civil Contingencies Team ensures that the Council will be able to respond speedily and effectively in a major emergency. North, South and East Ayrshire teams are a shared service team known as the Ayrshire Civil Contingencies Team. If disaster strikes, or if emergencies develop in Ayrshire, communities will look to the Council for support and advice. The Ayrshire Civil Contingencies Team ensures that the Council will be able to respond speedily and effectively in a major emergency in accordance with the Civil Contingencies Act 2004 (Contingency Planning) (Scotland) Regulations 2005. Our responsibilities include preparing comprehensive and robust contingency plans and procedures irrespective of the nature of the emergency. The main aim is to preserve life and property. Every emergency plan also sets out to: Mitigate the harmful effects of the emergency on the environment; bring about a swift return to normal life in the communities and environment affected; and encourage all agencies and organisations to prepare for their role.</p>

Timing and status:	Ongoing
Funding:	Funding is allocated to category 1 and 2 responders by the Scottish Government for dealing with emergency response and in extreme cases may reimburse responders after an extreme event.
Coordination:	Category 1 and 2 responders will coordinate in the development of the Emergency Response Plan and actions during a flood event. When civil contingencies come into force Police Scotland co-ordinate category 1 and 2 responders in severe flood events.

Action (ID):	PLANNING POLICIES (120390001)
Objective (ID):	Reduce overall flood risk (12082) Avoid an overall increase in flood risk (12039)
Delivery lead:	Planning authority
Action Description:	<p>The current South Ayrshire Local Development Plan (LDP) was adopted on 23 September 2014. It sets out how the Council envisages South Ayrshire will be developed over the 10 year period from its adoption. It will be replaced in 2019, though the town centre and retail policies element of the Plan are likely to be replaced in 2016/17. A Land Assessment Framework was used to assess the merits of submitted development sites for inclusion in the LDP. This Framework comprised a range of environmental criteria, including flood risk. The LDP contains a specific policy on flooding and development, which identifies a flood risk framework against which development proposals will be assessed. The policy indicates that development should avoid areas likely to be affected by flooding or increasing the likelihood of flooding elsewhere. It also requires impermeable surfaces to be minimised in all new developments, which must include Sustainable Urban Drainage Systems. Individual planning applications are assessed against the LDP, including LDP policy: flooding and development, and other material considerations, such as SPP. If flood risk is perceived as a possible concern, further information, such as a flood risk assessment, may be sought from the applicant. In addition, the Council maintains an interactive mapping facility, which identifies environmental constraints, including coastal and fluvial flooding. At an individual scale all planning applications received by the Council are reviewed on a variety of criteria and if flooding may be a concern the further information is sought.</p> <p>Scottish Water is a statutory consultee within the planning legislation and is required to comment on all outline or full planning applications which are referred by a local authority.</p> <p>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</p>

	<p>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 SEPA's Strategy.</p> <p>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's website http://www.sepa.org.uk/environment/land/planning/.</p>
Timing and status:	Ongoing
Funding:	The development and review of the Council's Planning Policies and Guidance notes will be funded through South Ayrshire Council's revenue budget provided by Scottish Government. SEPA's land use planning activities are funded by Scottish Government through SEPA's grant in aid settlement.
Coordination:	South Ayrshire Council's land use planning will be co-ordinated with the activities of other responsible authorities as required.