Catchment to Coast

Flood and Coastal Resilience Innovation Programme

Innovative Resilience Fund (IRF)

Five Key Principles

1. Achieve practical changes which increase resilience within the project area by reducing the likelihood or consequences of flooding or coastal erosion

2. Provide public benefits

3. Be consistent with existing flood and coastal erosion plans, for example: LFRMS, FRMPS, SMPs etc

4. Demonstrate added value – for example, they must:
   - go beyond other local resilience work programmes and other funding mechanisms
   - work with actions funded by other routes

5. Demonstrate innovation

The Catchment to Coast Project will…

- enhance existing collaborative working arrangements between Southend-on-Sea and Thurrock Borough Councils and develop new collaborative working relationships between key stakeholders in the area to deliver multiple benefits.

- examine, implement and evaluate the use of Natural Flood Management (NFM) to protect the upper catchments within Thurrock, Rochford and Southend-on-Sea.

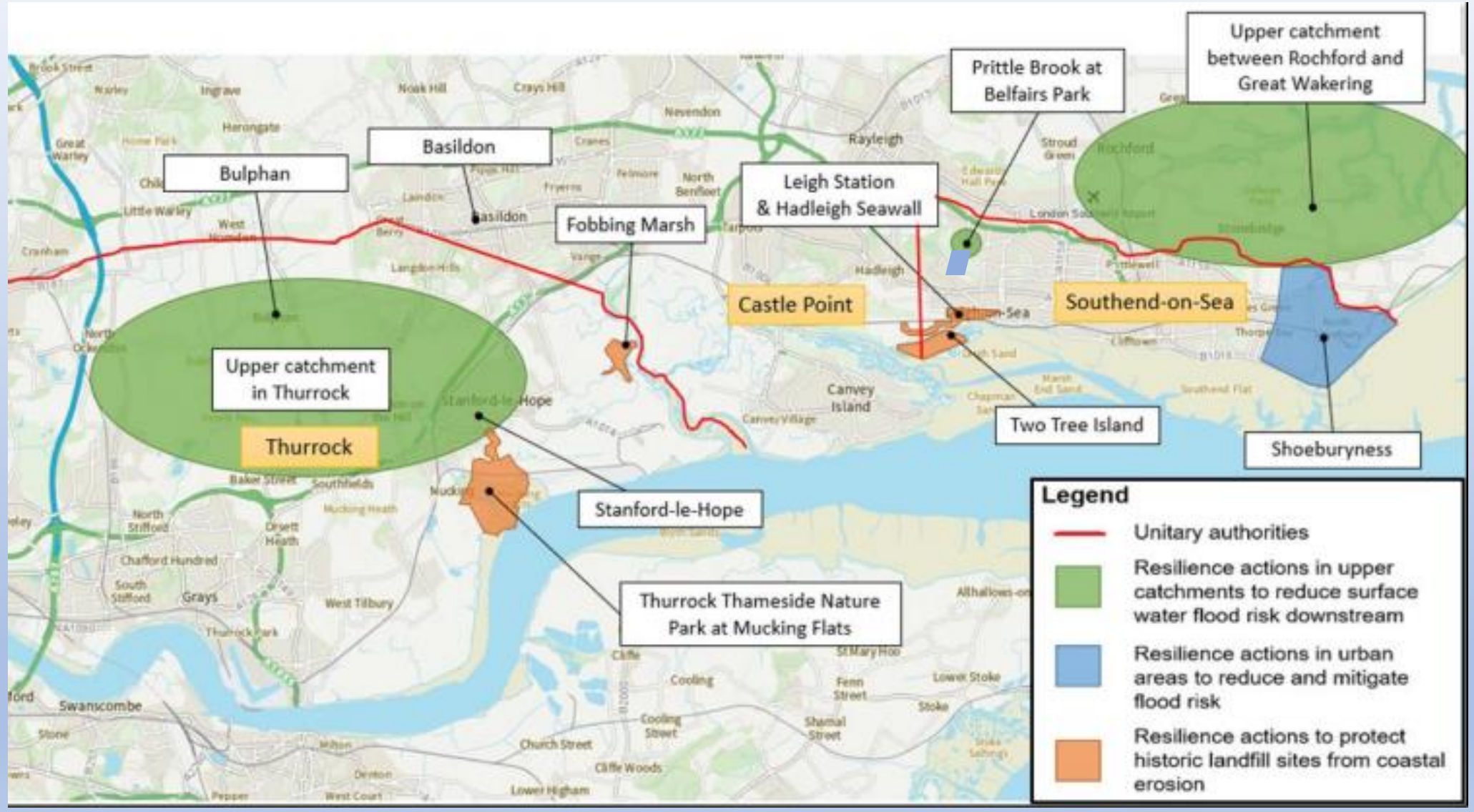
- Implement retrofit SuDS within mid catchment areas, including measures to facilitate water storage and re-use. Link with planning policy to promote SuDS and water re-use

- investigate the management and protection of historic coastal landfill sites using innovative NFM techniques. (Difficult to justify funding)

- develop a visual surface water flood warning system will be undertaken to warn those living in high-risk areas who do not subscribe to the national flood warnings service.

- offer PhD research opportunities - trialling of innovative techniques to improve flood and erosion resilience and the use of smart tools for monitoring and evaluation.

Study sites in the Catchment to Coast Project

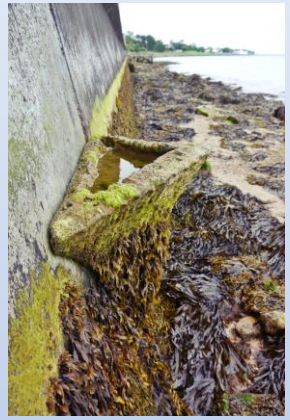


The Catchment to Coast project takes a *strategic* approach across the whole catchment

Catchment to Coast Project - Innovation

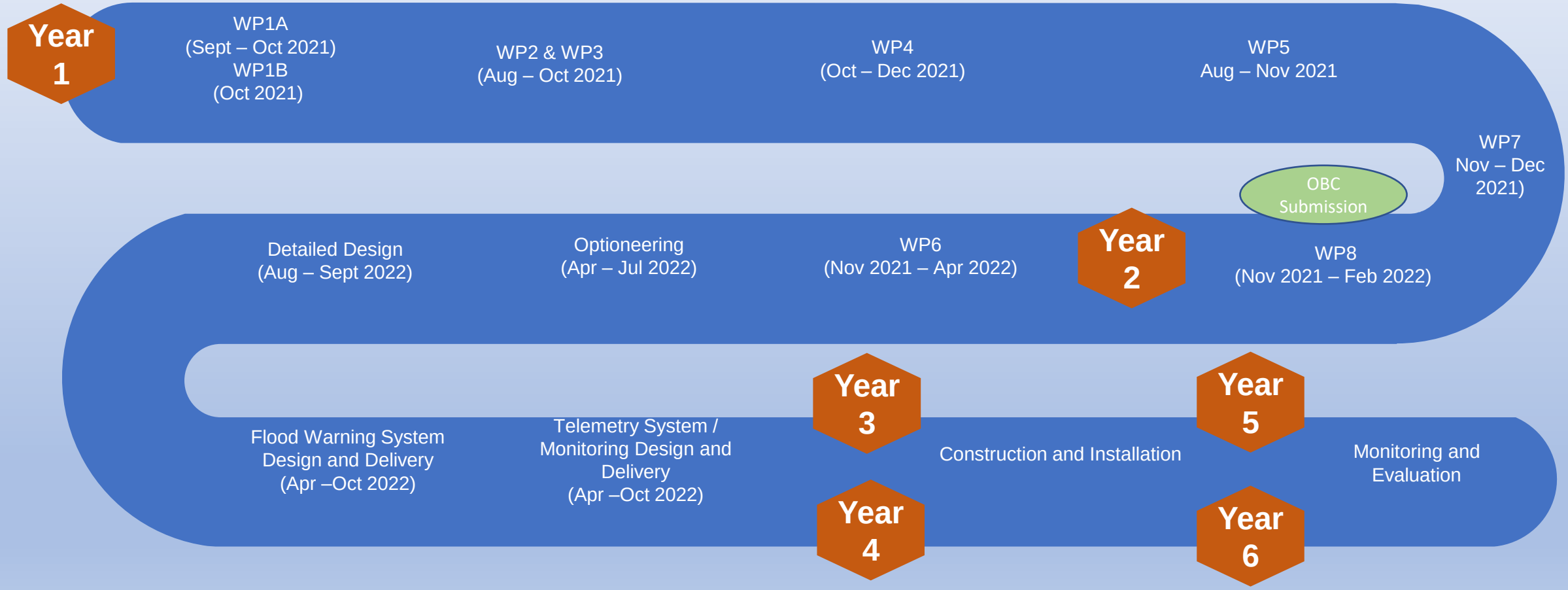
The project will help to overcome surface water flooding in upper & mid catchments & coastal erosion in lower catchment

Installing integrated water management solutions	Upper catchment	• NFM to reduce and control runoff e.g. creating offline flood storage areas • Contour bunding • Intercept flow paths and divert the runoff to ponds before channelling it to ditches • Create interconnected wetland systems
	Mid catchment	• Rainwater harvesting at individual homes and other key areas, especially near pinch-points in the sewer system • Recycling/re-use of harvested rainwater for individual and community – community urban water butts for allotments, parks, schools etc
Installing nature-based solutions and land management practices	Upper catchment	• Changes to agricultural practices to reduce polluted runoff • Planting trees and vegetation on flood flow routes and slopes • Leaky dams • Reintroduce meanders to rivers and remove silt in cut-off meanders to attenuate flow by slowing and storing floodwater • Create offline storage areas to provide temporary flood storage which can reduce peak flow • Create weir structures using NFM techniques
	Lower catchment / coastal	• Biotiles or Bioblocks for patch and repair works to maintain or improve the existing standard protection and increase biodiversity • Natural or hybrid enhancements to encourage natural biological succession, reduce the water velocities at foreshore level and reduce the wave action/energy • Beneficial dredgings to enhance the establishment of saltmarshes in the estuary • Coir structures to aid saltmarsh regeneration
Installing local monitoring and early warning systems	Mid catchment	• Local telemetry system to observe flow data in the catchment and the sewer network • Visual warning system for surface water flooding using light beacons at high-risk locations



Catchment to Coast Project Timeline

Public engagement is ongoing throughout all stages



Summary

- The Catchment to Coast IRF Project will deliver interventions to reduce flood risk to catchments in Southend and Thurrock along with reducing coastal erosion to historic landfill sites in Southend, Thurrock and Castle Point

- Focus on taking a whole-catchment approach to flood risk mitigation with monitorring to determine impacts

- Focus on using innovative techniques and measures and combining these in new way, such as using SuDS for water capture and re-use, flood warning beacons

- Focus on quantifying the impacts of interventions and the learning from these so that knowledge can be shared, links with PhD students and low-cost monitoring equipment

- Currently in year 1q of 6, developing a high-level OBC. Year 2 will involve optioneering and detailed designs, 3-4 delivery, 5-6 monitorring and learning

- Project will lay groundwork for future intervention projects

- Focus on Southend and Thurrock areas but will be benefits to wider South Essex area due to the catchments and historic landfill sites, will also create links to other projects (ie BRIC on Canvey, EFI for tree planting in upper catchments)

Thank you and Questions

Tom Palmer
Senior Engineer – Southend-on-Sea Borough Council
Civil Engineering Team
tompalmer@southend.gov.uk