



BUSINESS AREA: SPATIAL SERVICES

Case Study

Climate Change and Extreme Weather – Using Spatial Data for Impact & Consequence Case Studies

Spatial technologies are increasingly playing a key role in how we prepare for and minimise the consequences of climate change and extreme weather events.

Barwon Regional Partnership Councils (BRPCs) requested the support of Spatial Vision with building capacity in the application of spatial technologies to better plan for and understand the consequences of anticipated climate change and associated extreme weather events for their communities.

A series of spatial case studies were prepared that drew on the latest climate change projections prepared by CSIRO in 2019 under the Victorian Climate Projections Project. These case studies, which include the impacts of heat waves, coastal erosion and inundation, overland flooding, wildfire risk and landslips, were undertaken to assist and inform decisions concerning planning extreme weather and climate change related events. The events presented range from broad strategic evaluations through to local planning related responses.

A.S Miner Geotechnical assisted Spatial Vision in the delivery of 2 of the 6 case studies.

“This project exceeded our expectations in providing Councils with very tangible and well developed case studies demonstrating the value in using spatial data and technologies to better understand, plan for and mitigate the likely effects of climate change and extreme weather events. It also assists in communicating about such event with other stakeholders and the broader community.”

Bryan Roberts

**Project Manager, Barwon South West Region,
Department of Environment, Land, Water and Planning**

Customer Profile

www.delwp.vic.gov.au

Company

Department of Environment, Land, Water and Planning (DELWP) and the Barwon Regional Partnership Councils (City of Greater Geelong; Borough of Queenscliff; Surf Coast Shire; Colac Otway Shire)

Location

VIC

Industry

State & Local Government

Products

Impact Assessments, Case Studies, Data Collation, Consulting/Support Services

Solution

The Department of Environment, Land, Water and Planning (DELWP) and the Barwon Regional Partnership Councils engaged Spatial Vision to help build their capacity in the application of spatial technologies to better plan for and understand the consequences of anticipated climate change and associated extreme weather events for their communities.

Benefits

- Improves Council understanding and ability to use spatial technologies to incorporate likely event impacts on assets into planning and decision-making
- Project outputs can be utilised as an advocacy mechanism to influence best practice policy and resourcing

The Issue

Barwon Regional Partnership Councils (BRPCs) face some unique and some common challenges. The selected case studies ranged from those that could be applied regionally, to some viewed as site specific and unique. Events ranged from landslides and coastal erosion through to heatwaves and bushfires. The case studies needed to reflect the differing challenges and provide a pathway for understanding and mitigating their impacts.

For example, the Colac Otway Shire needed to understand the risk of landslides, if and what roads could be susceptible to landslides in the event of heavy rainfall, and where greater maintenance efforts should be focused. Spatial Vision's team, with the support of A.S Miner Geotechnical, drew upon monthly rainfall projections to arrive at six different landslide risk hazards based on scenarios of rainfall being the same, drier or wetter. The increased risk of landslides after a wildfire is of particular concern.

In the case of coastal townships, the Great Ocean Road can often be the only point of access to and from these communities. Extreme weather events causing road closures present a myriad of issues as towns face isolation and lack of access to essential services.



The Solution

Data accessibility and utilisation of spatial data for impact assessment was a key area for improvement, so the first stage of the project involved collating suitable spatial datasets, including climate data, community datasets and historical data, and determining additional extreme weather parameters, such as heat wave metrics derived from climate projection data to support asset impact assessments in later stages.

Spatial Vision then held a number of stakeholder workshops to determine extreme weather event scenarios and high priority Council assets to be incorporated in a spatially based impact assessment. The impact assessment incorporated asset profiles highlighting the impact of designated extreme weather events on these assets.

Utilising the impact assessment profiles, 'Consequence of Loss' case studies were developed for each Council, with detailed user stories to assist the Councils in better understand the implications, both to the asset itself as well as the flow on effect to the community.

The Extreme Weather project assists DELWP and the Councils in understanding, planning and mitigating for the likely effects of climate change.

It also assists in communicating about such event with other stakeholders and the broader community.

If you'd like to know more, [please get in touch.](#)

In the final stage of the project, Spatial Vision worked closely with the four Councils, mentoring and supporting individuals in training sessions to build capacity in utilising the datasets and processes for extreme weather event planning. This stage also encompassed the production of a series of map views visualising the impact of climate change projections across the Barwon Regional Partnership footprint. Spatial Vision also assisted with integration of datasets into Councils' existing GIS environments, as well providing all project outputs in a customised QGIS based spatial case study deliverable.

The Benefits

The scope of work undertaken helped DELWP and the Councils:

- ✓ Have better accessibility to the latest climate datasets (particularly related to climate change projections)
- ✓ Recognise how spatial data can be used to better understand the impact of extreme weather events and associated consequences (i.e. flow-through impacts)
- ✓ Improve understanding and ability to incorporate likely event impacts on assets into planning
- ✓ Support lessons learnt from past events through the collation and presentation of previous weather data
- ✓ Aid both short and long-term planning (i.e. social vulnerabilities, financial implications, etc.)
- ✓ Utilise project outputs as an advocacy mechanism to influence best practice policy and resourcing

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