Oyster River/Saratoga Beach
Flood Risk Assessment

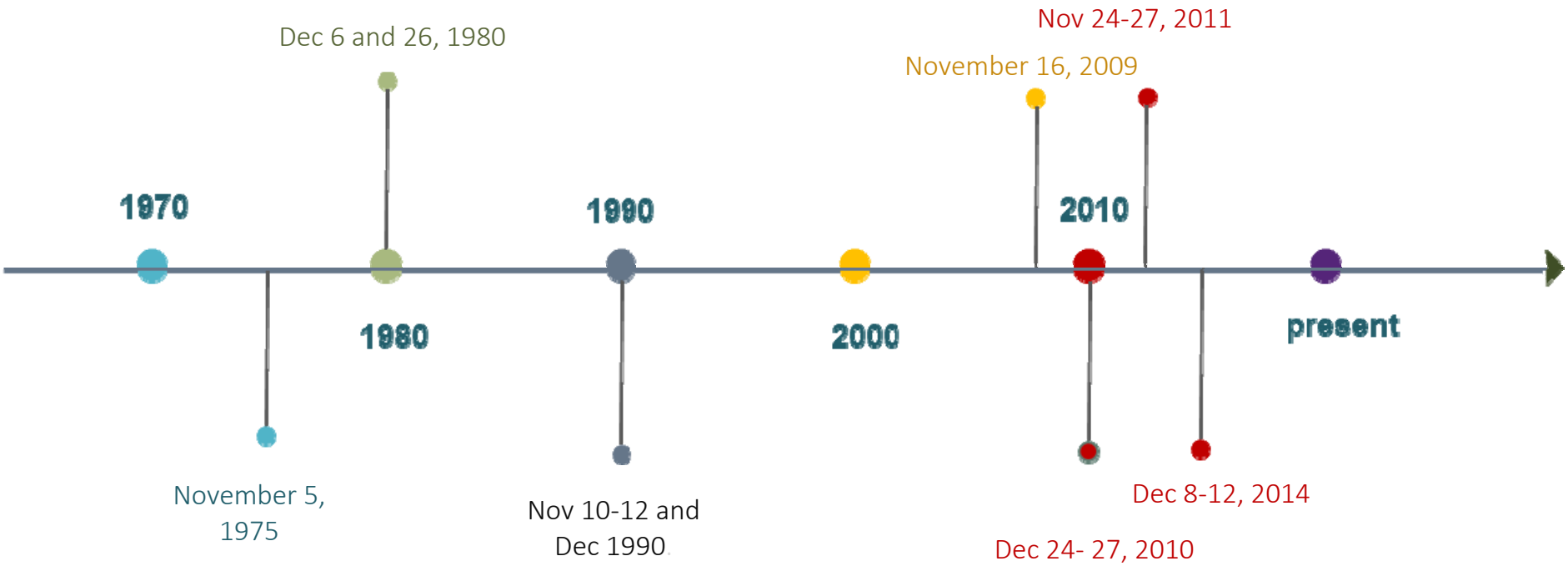
EASC Presentation – 14th May, 2018

Tamsin Lyle, P.Eng | Principal | Ebbwater Consulting

ebbwater CONSULTING
THOUGHTFUL FLOOD MANAGEMENT

Flooding in Oyster River/Saratoga Beach

Something you've seen before



ebbwater CONSULTING
THOUGHTFUL FLOOD MANAGEMENT

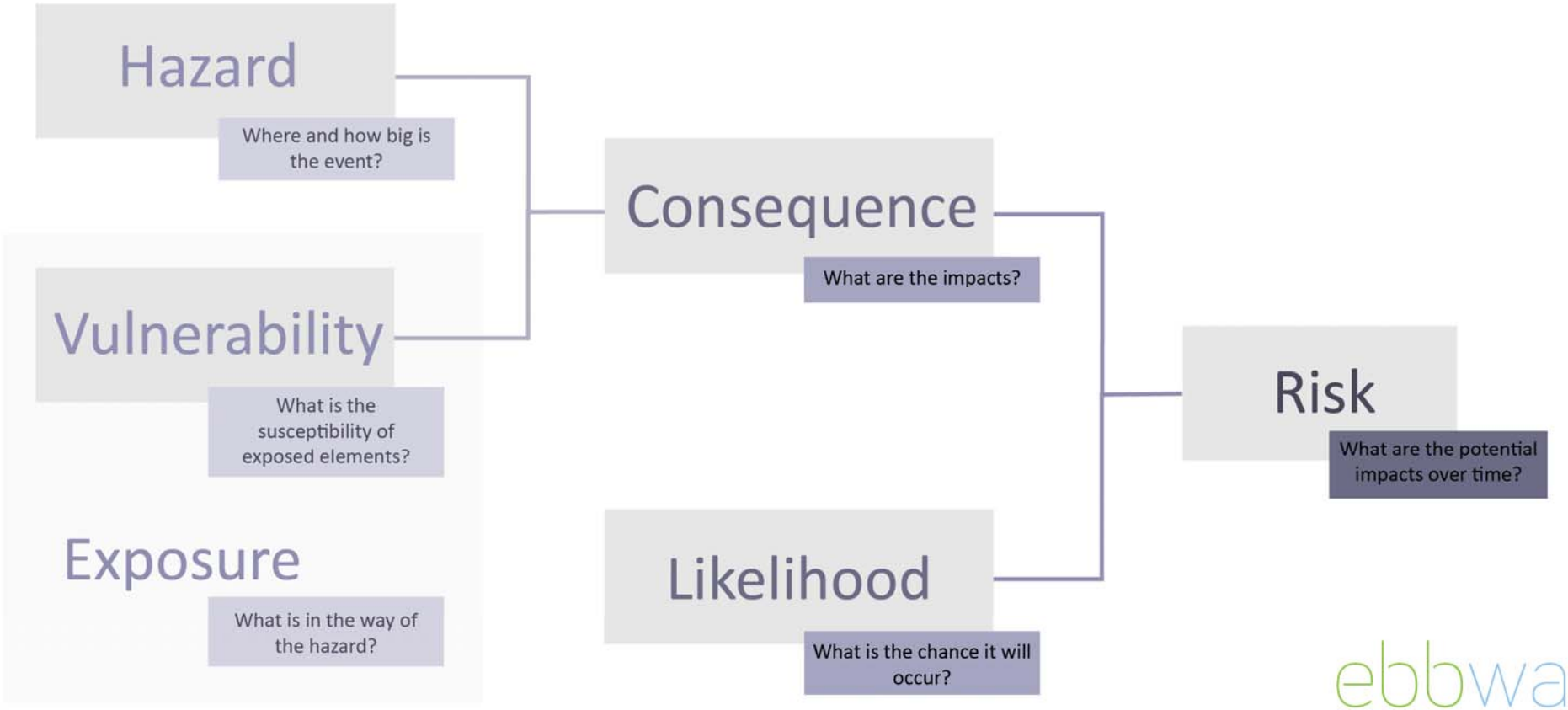
National Disaster Mitigation Program

ebbwater CONSULTING
THOUGHTFUL FLOOD MANAGEMENT

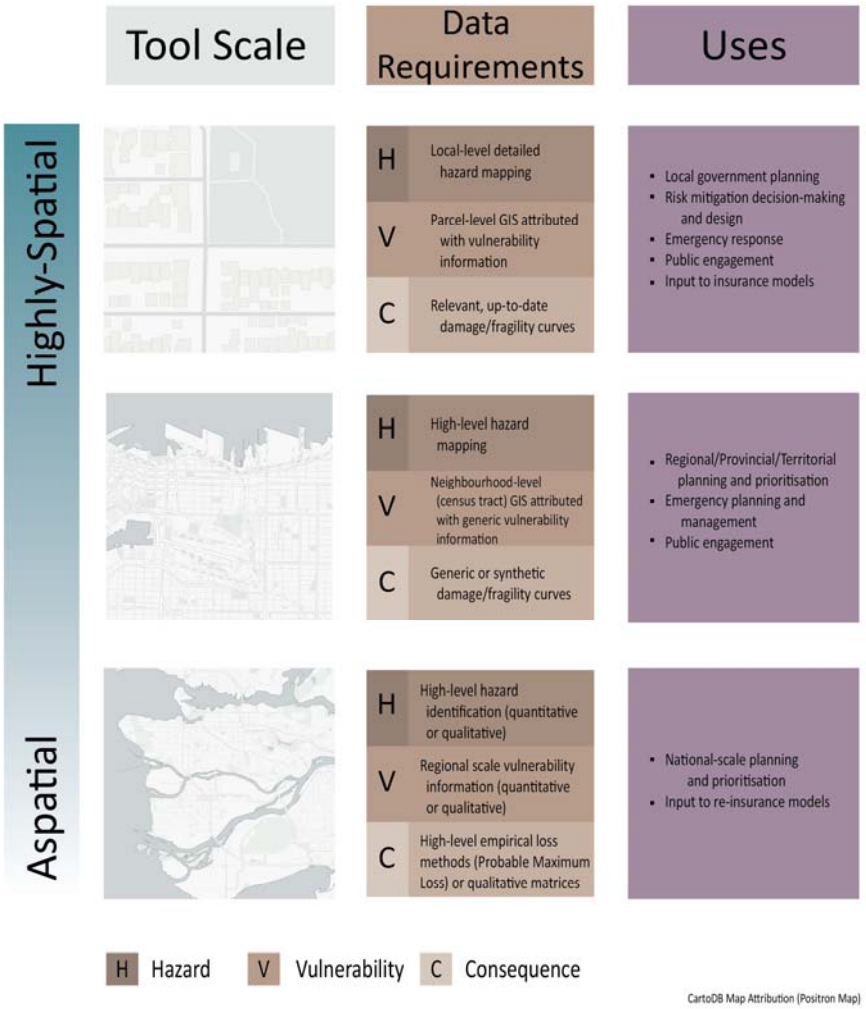
National Disaster Mitigation Program

ebbwater CONSULTING
THOUGHTFUL FLOOD MANAGEMENT

Natural Hazard Risk



ebbwater CONSULTING
THOUGHTFUL FLOOD MANAGEMENT



Project Objectives

What the community needs for planning → this project created the building blocks for a future analysis.

What the funder needs for planning → this project produced paperwork to support future grant applications

ebbwater CONSULTING
THOUGHTFUL FLOOD MANAGEMENT

Project caveats

This project is about understanding risk….

And lays the foundation for reducing risk…

BUT

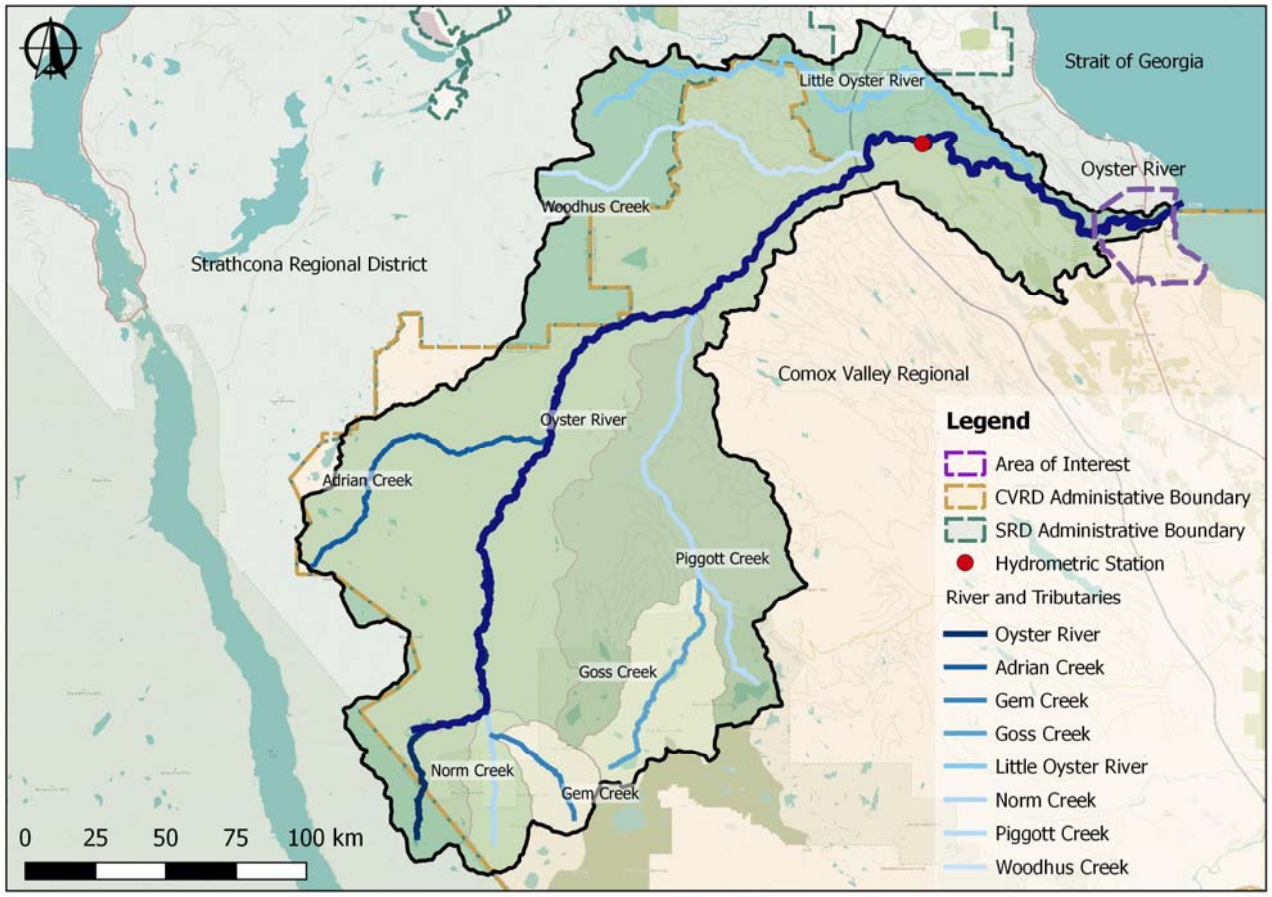
It is high-level; it bounds the problem

It is not suitable for detailed planning or engineering design

ebbwater CONSULTING
THOUGHTFUL FLOOD MANAGEMENT

Hazard Summary

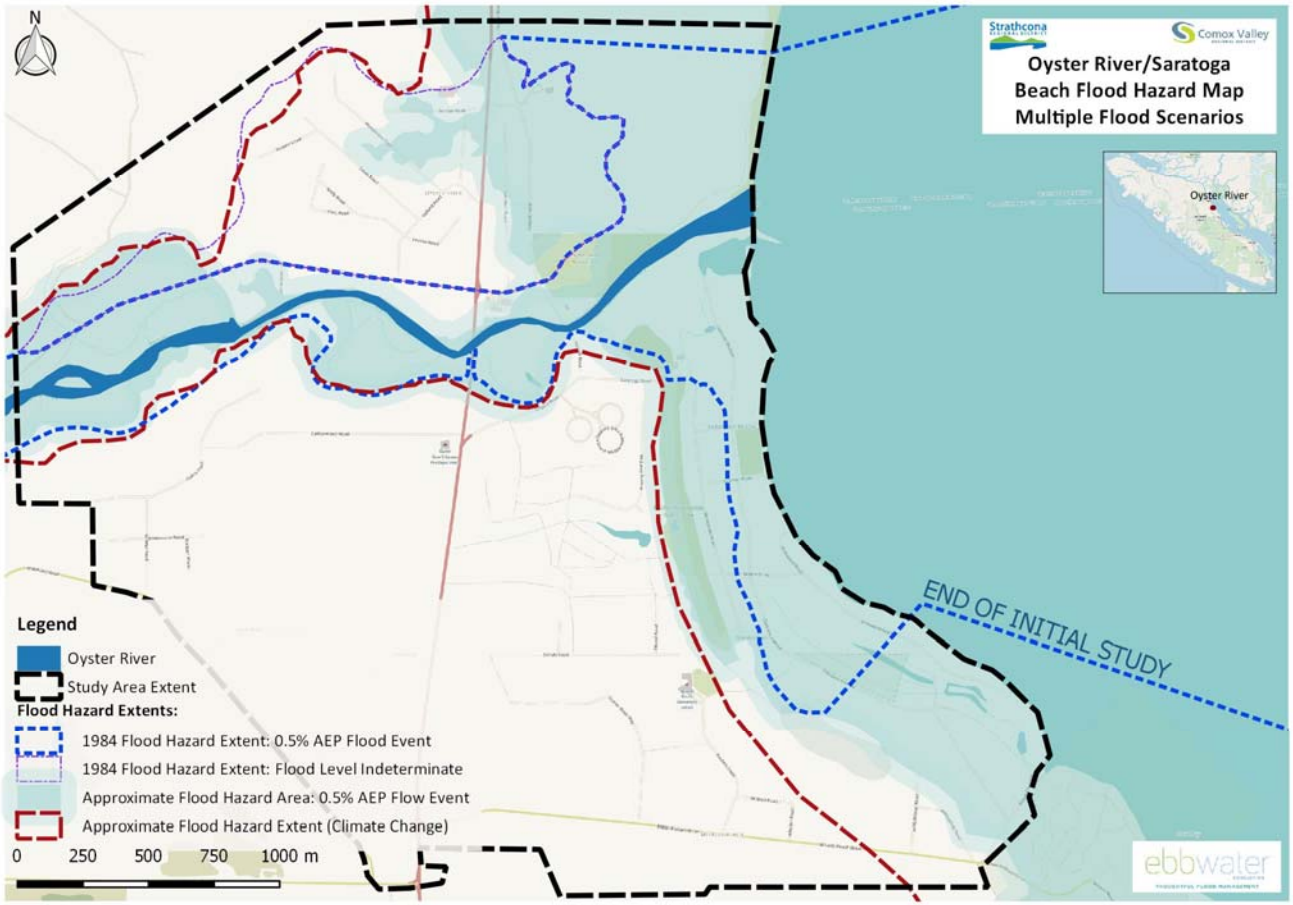
Drivers of flood are river flows AND coastal water levels



ebbwater CONSULTING
THOUGHTFUL FLOOD MANAGEMENT

Hazard Summary

Bounding Flood Extents

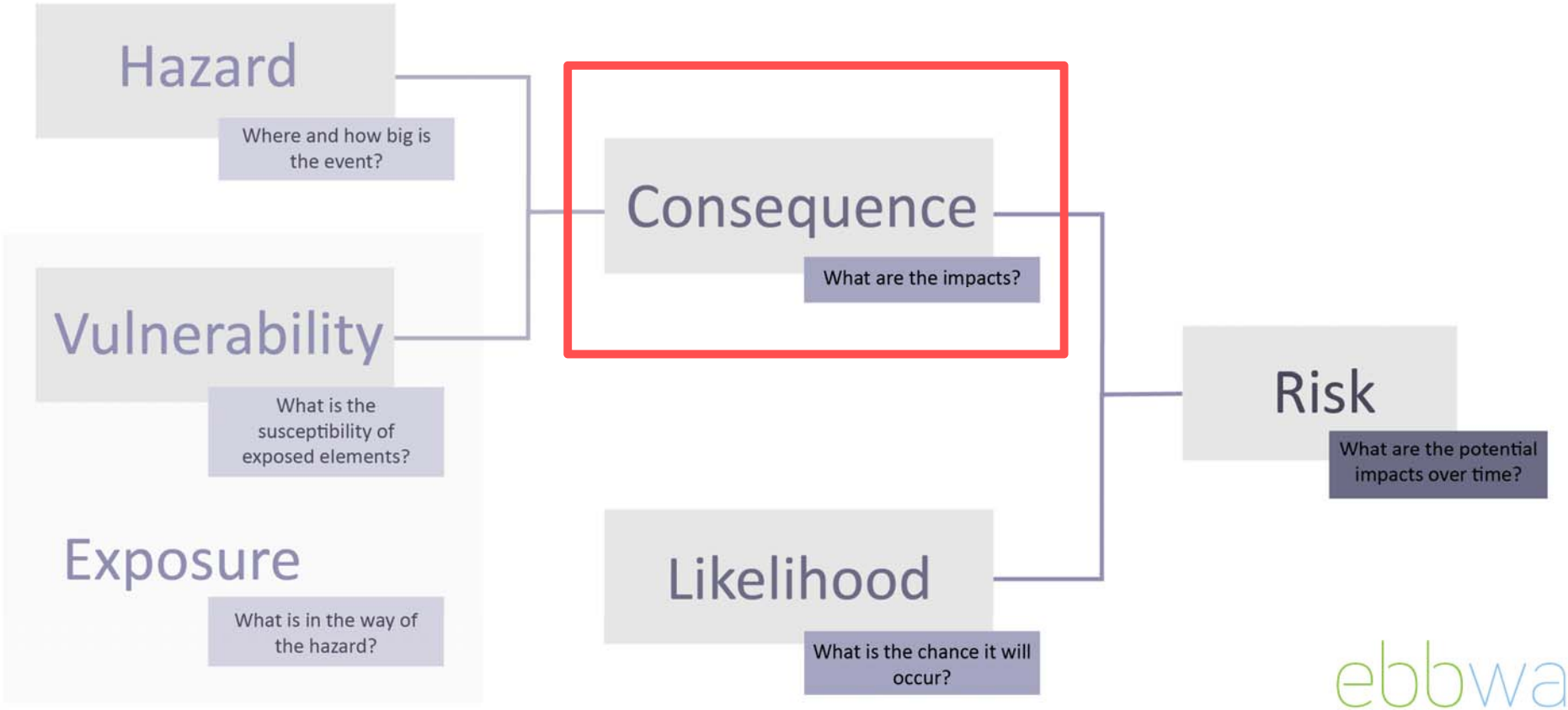


The mapping is for discussion only. It is not suitable for detailed planning or engineering design.

Extreme scenarios are presented in order to bound the problem and capture a full exposure dataset.

ebbwater CONSULTING
THOUGHTFUL FLOOD MANAGEMENT

Natural Hazard Risk



ebbwater CONSULTING
THOUGHTFUL FLOOD MANAGEMENT

Impact/Consequence Methods

Mortality & Missing

Affected People

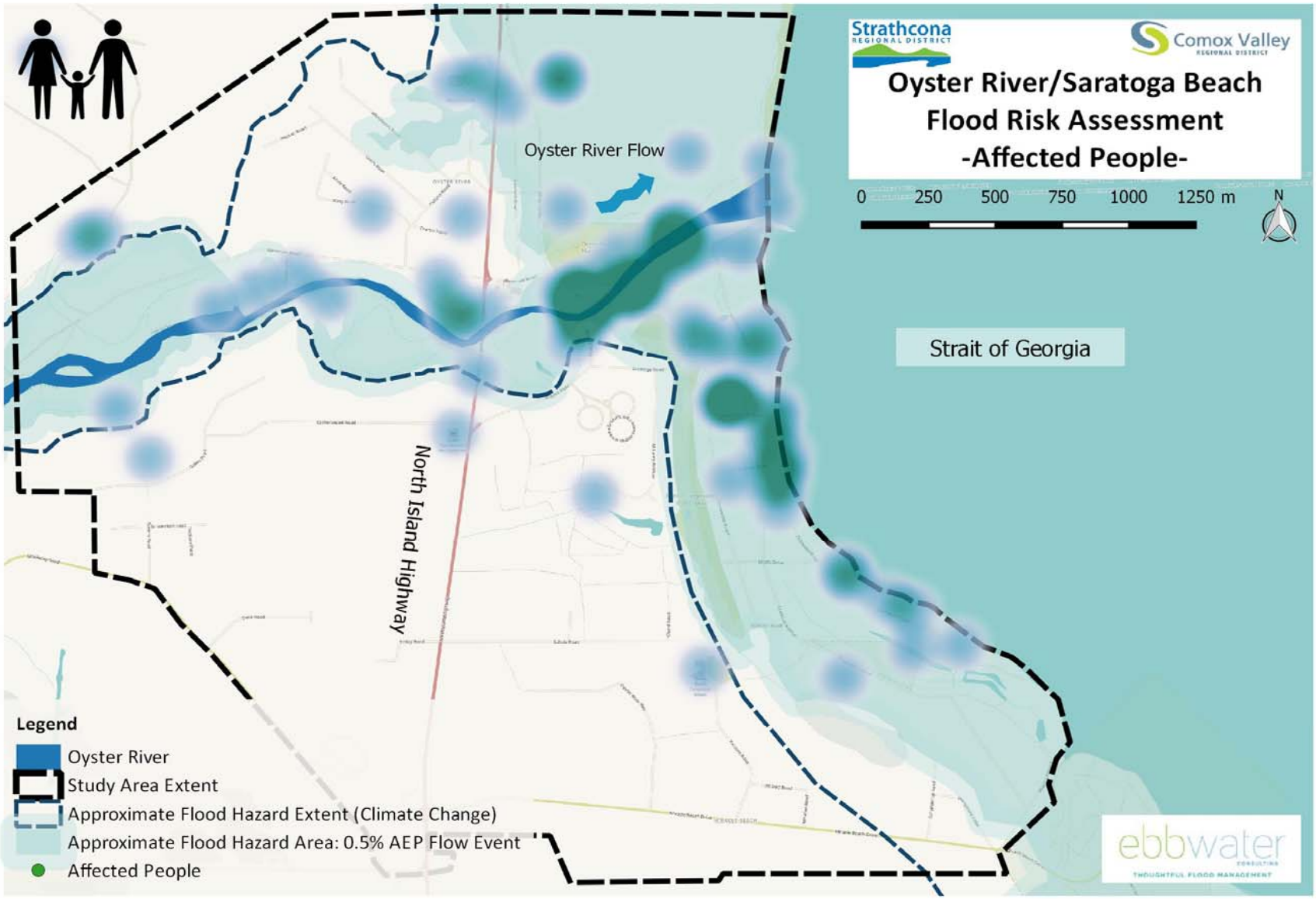
Economic

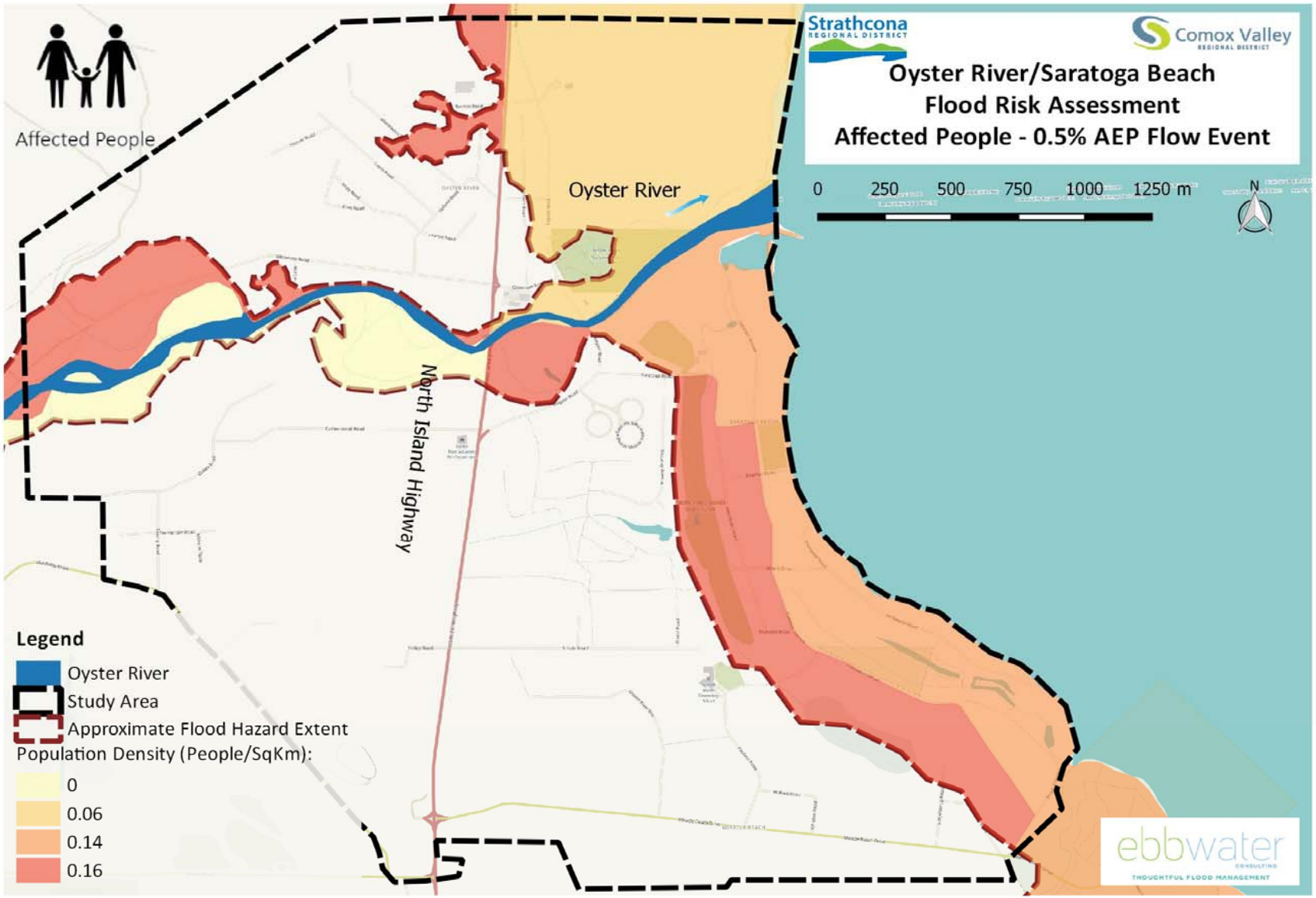
Disruption

Environment

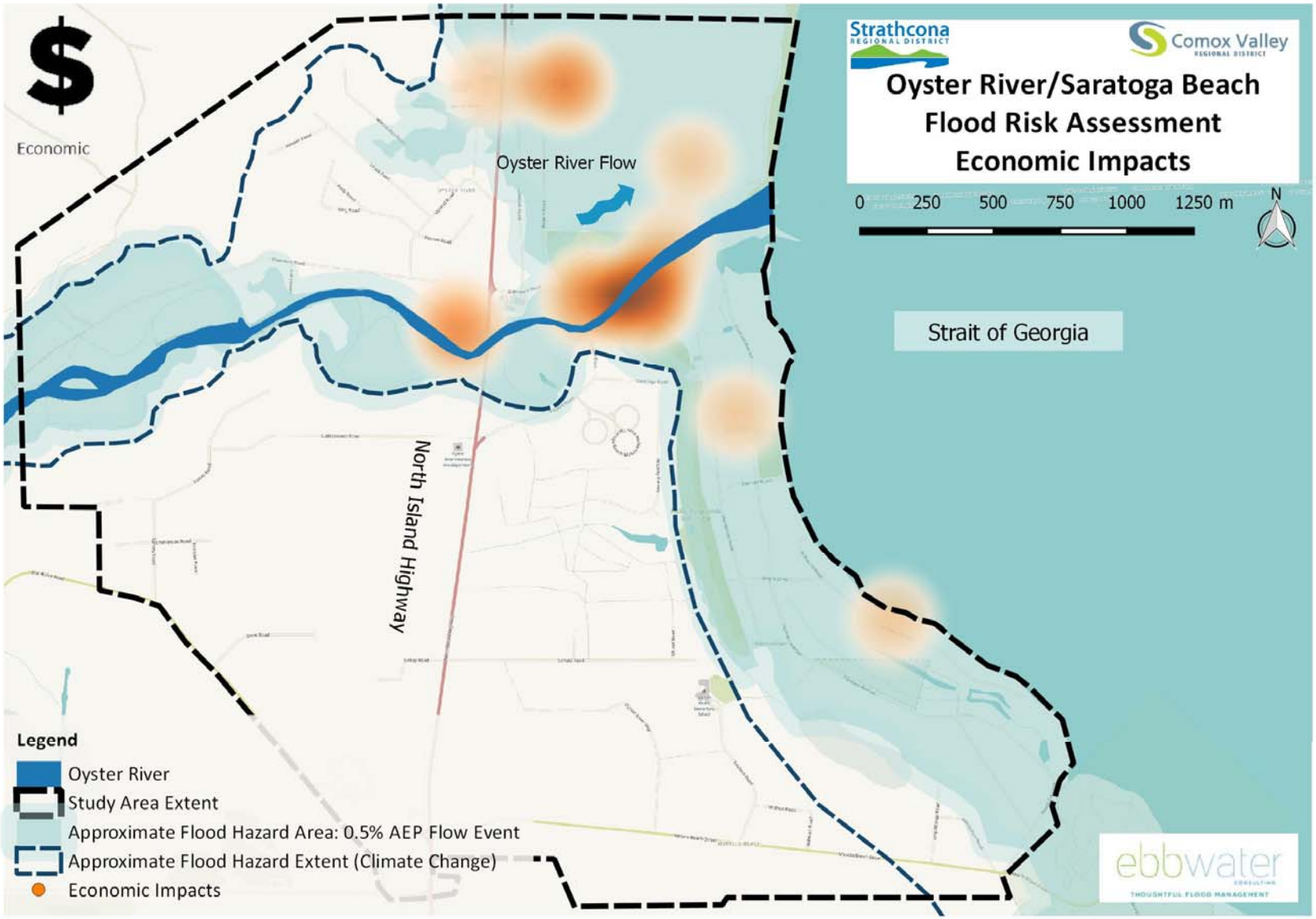
Cultural

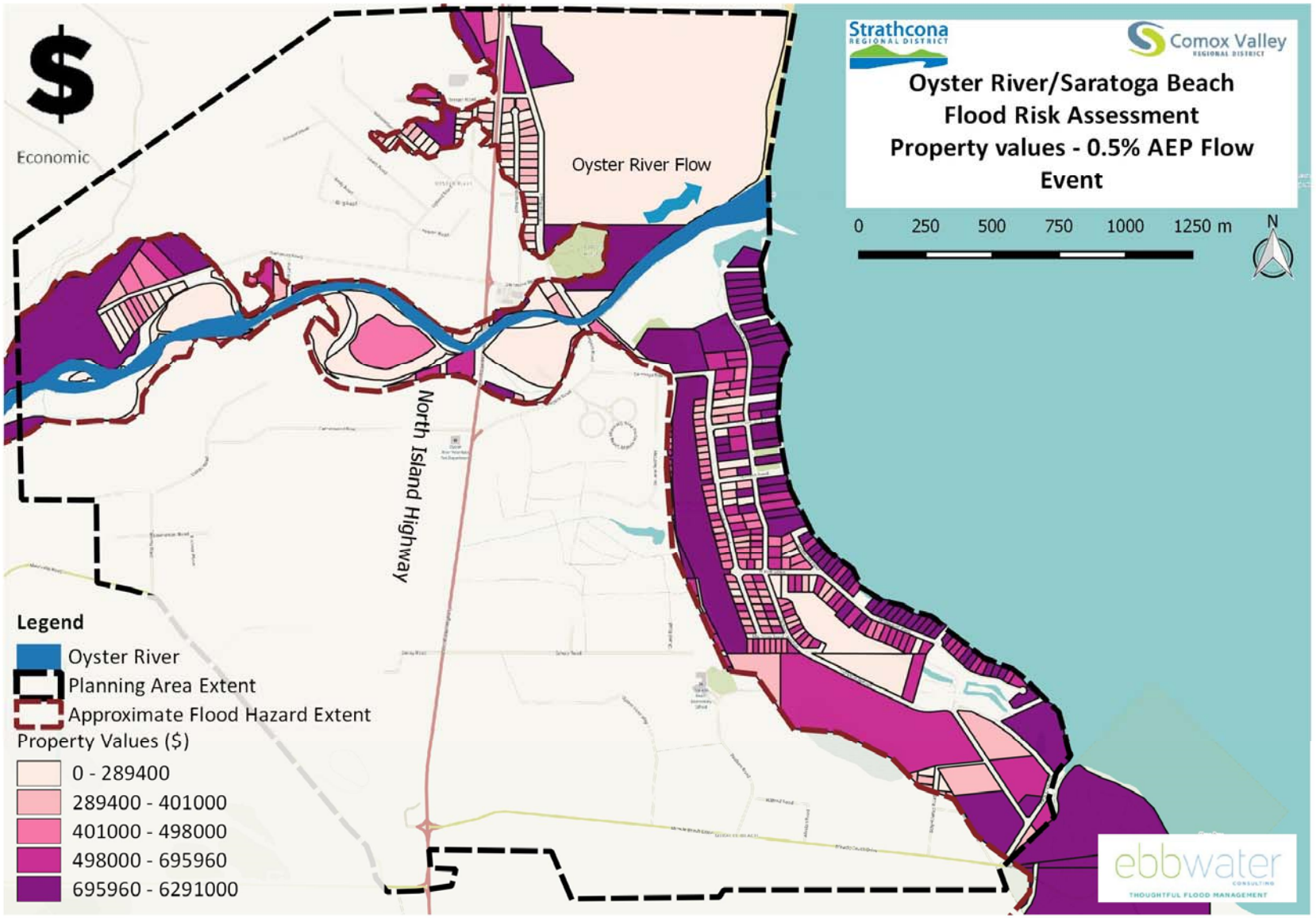
ebbwater CONSULTING
THOUGHTFUL FLOOD MANAGEMENT


Strathcona
Regional District
Comox Valley
Regional District
Oyster River/Saratoga Beach
Flood Risk Assessment
-Affected People-
0 250 500 750 1000 1250 m
N
Oyster River Flow
Strait of Georgia
North Island Highway
Legend
Oyster River
Study Area Extent
Approximate Flood Hazard Extent (Climate Change)
Approximate Flood Hazard Area: 0.5% AEP Flow Event
Affected People
ebbwater
CONSULTING
THOUGHTFUL FLOOD MANAGEMENT

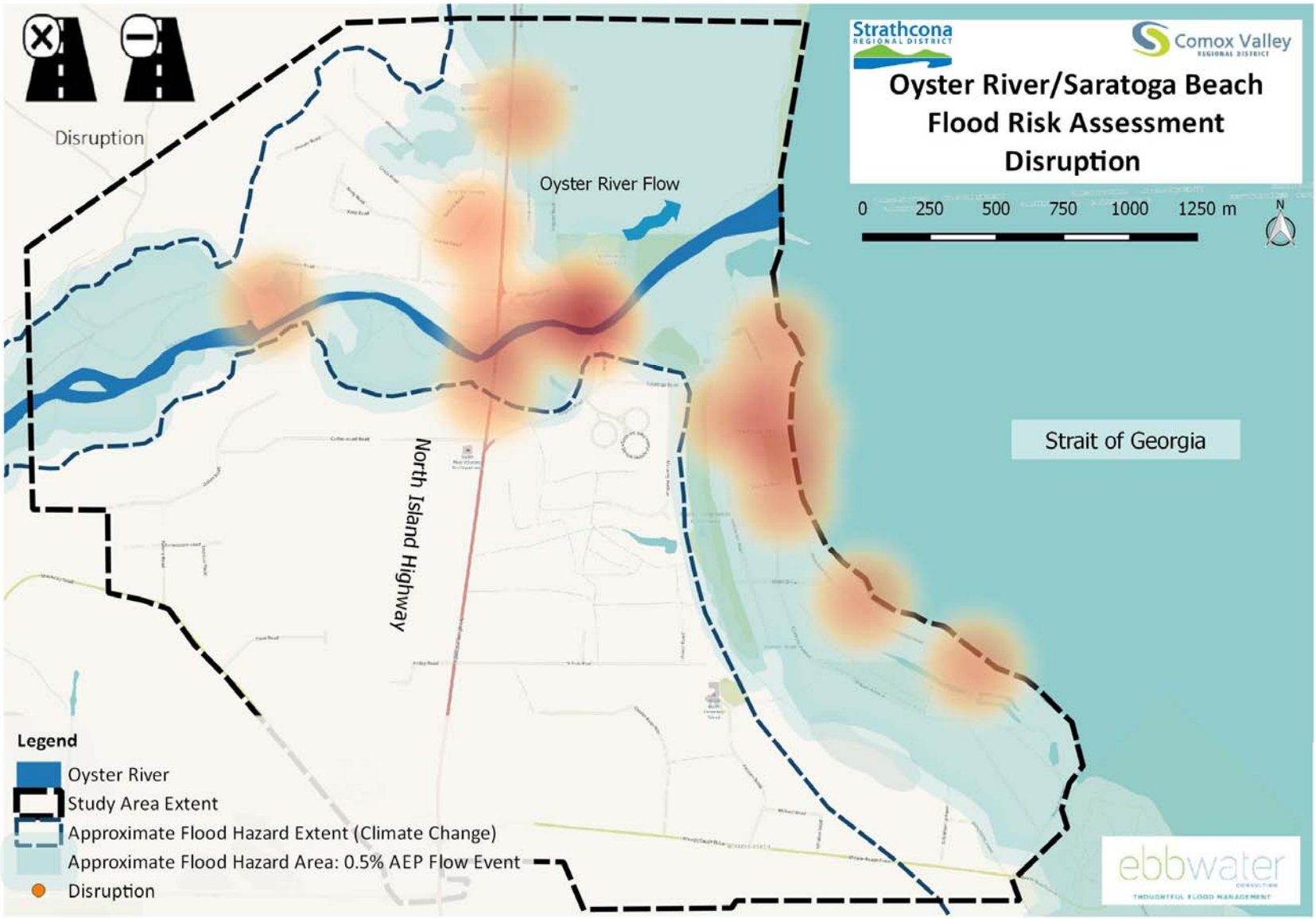


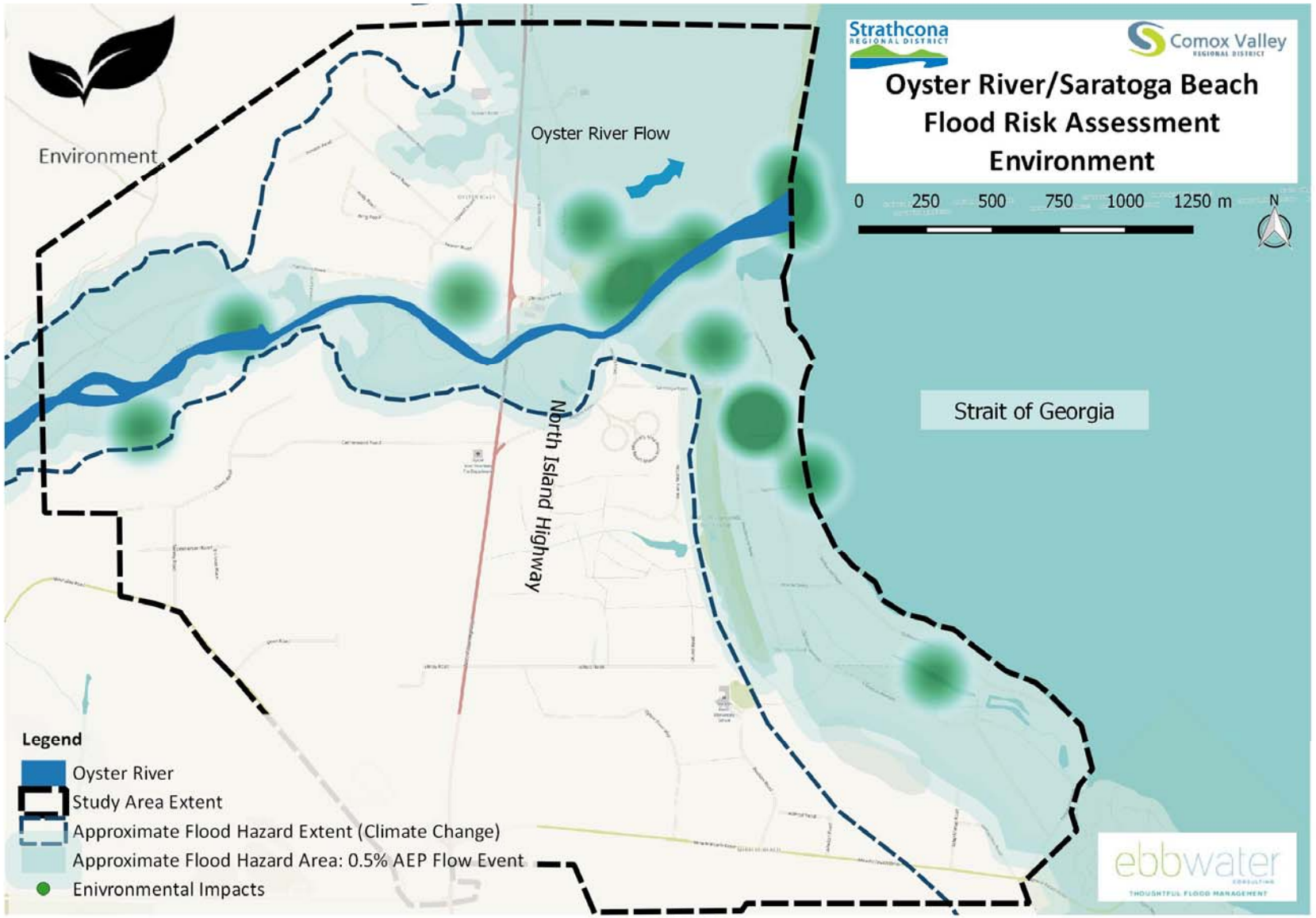
Approx. **550 People** live in the hazard area


$
Economic
Strathcona
REGIONAL DISTRICT
Comox Valley
REGIONAL DISTRICT
Oyster River/Saratoga Beach
Flood Risk Assessment
Economic Impacts
0 250 500 750 1000 1250 m
N
Oyster River Flow
Strait of Georgia
North Island Highway
Legend
Oyster River
Study Area Extent
Approximate Flood Hazard Area: 0.5% AEP Flow Event
Approximate Flood Hazard Extent (Climate Change)
Economic Impacts
ebbwater
THOUGHTFUL FLOOD MANAGEMENT



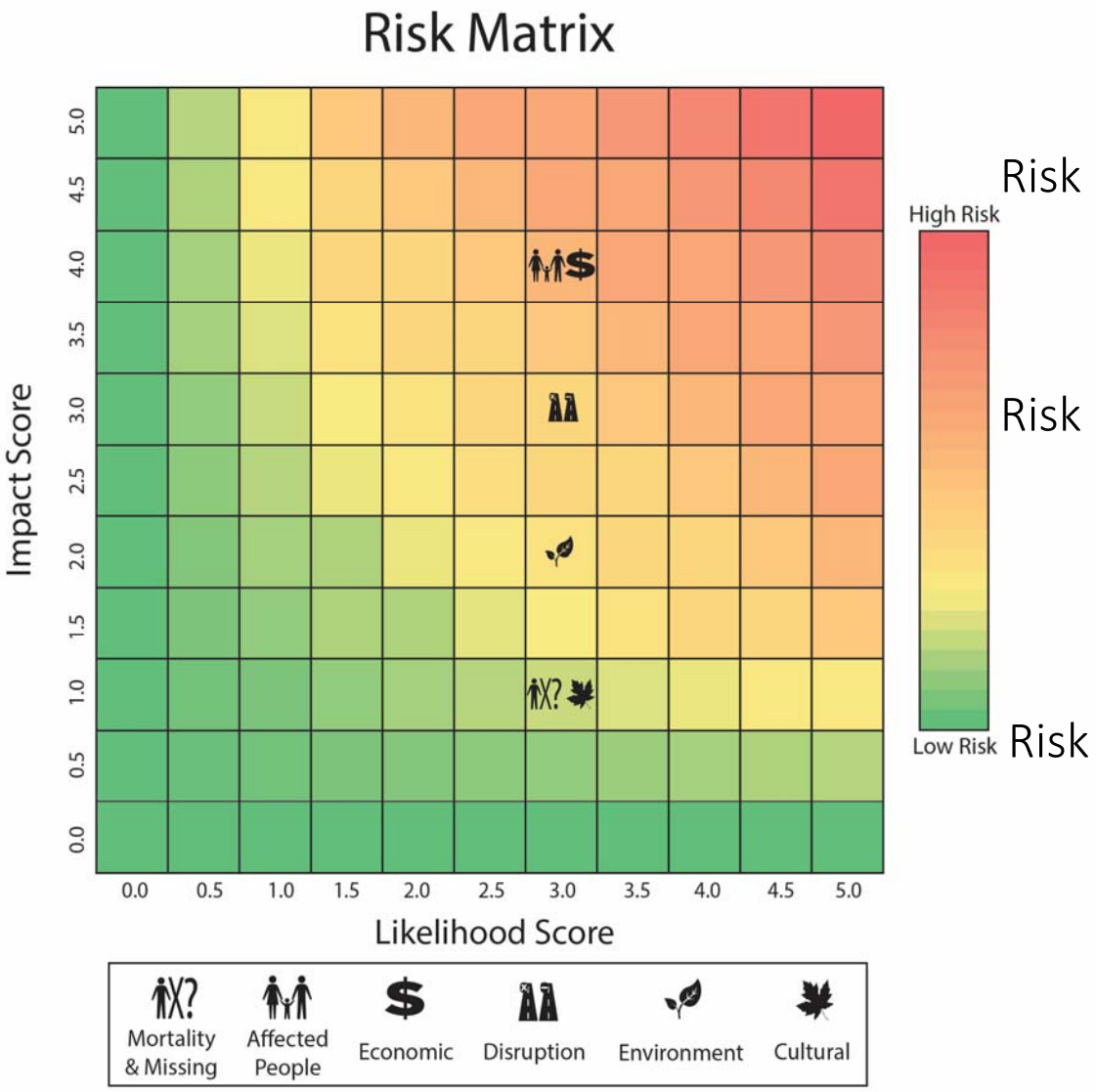
$226 M exposed property in the hazard area


Strathcona
REGIONAL DISTRICT
Comox Valley
REGIONAL DISTRICT
Oyster River/Saratoga Beach
Flood Risk Assessment
Disruption
0 250 500 750 1000 1250 m
N
Disruption
Oyster River Flow
North Island Highway
Strait of Georgia
Legend
Oyster River
Study Area Extent
Approximate Flood Hazard Extent (Climate Change)
Approximate Flood Hazard Area: 0.5% AEP Flow Event
Disruption
ebbwater


Strathcona
REGIONAL DISTRICT
Comox Valley
REGIONAL DISTRICT
Oyster River/Saratoga Beach
Flood Risk Assessment
Environment
0 250 500 750 1000 1250 m
N
Environment
Oyster River Flow
North Island Highway
Strait of Georgia
Legend
Oyster River
Study Area Extent
Approximate Flood Hazard Extent (Climate Change)
Approximate Flood Hazard Area: 0.5% AEP Flow Event
Enivronmental Impacts
ebbwater
THOUGHTFUL FLOOD MANAGEMENT

Risk Methods (Example – People)

Level	Score	Measure
Mortality: Number of deaths and missing persons attributed to disasters, per 100,000 population		
Catastrophic	5	Deaths greater than 100 per 100,000
Major	4	Deaths greater than 10 but less than 100 per 100,000
Moderate	3	Deaths greater than 1 but less than 10 per 100,000
Minor	2	Deaths greater than 0.1 but less than 1 per 100,000
Limited	1	Deaths less than 0.1 per 100,000



Risk is HIGH for Affected People and Economy

Risk is MODERATE for Disruption

Risk is LOW for Risk-to-Life and Culture

ebbwater CONSULTING
THOUGHTFUL FLOOD MANAGEMENT

Key Recommendations

1. Pursue additional funding (NDMP and CEPF) to develop flood map that meets current standards and guidelines (Approx. $175k)
2. With mapping in place, work with the community to develop and implement appropriate mitigation

ebbwater CONSULTING
THOUGHTFUL FLOOD MANAGEMENT

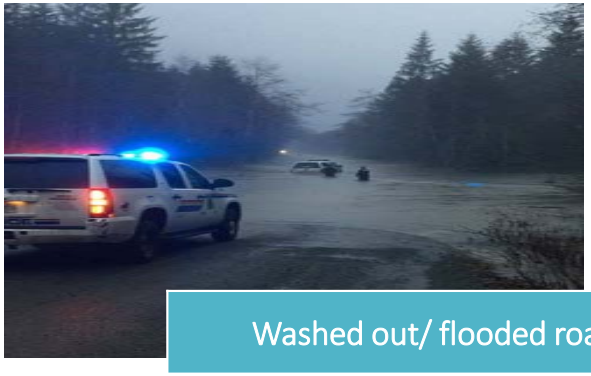
Oyster River/Saratoga Beach
Flood Risk Assessment

EASC Presentation – 14th May, 2018

Tamsin Lyle, P.Eng | Principal | Ebbwater Consulting

ebbwater CONSULTING
THOUGHTFUL FLOOD MANAGEMENT

Flood Impacts - Direct



Washed out/ flooded roads

Property Damage

Commercial Property

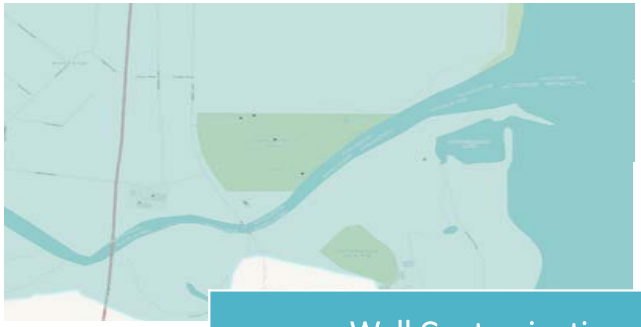
Bridge Disruption

Flood Impacts - Indirect

Loss of Education

Disrupted supplies

Loss of Recreation



Well Contamination