Scamander adaptation pathways

Community workshop

28 October 2025

SGS Economics and Planning acknowledges the First Nations Peoples of Australia and on whose Country we live and work.

SGS Economics and Planning acknowledges that the Aboriginal and Torres Strait Islander peoples of Australia are one of the oldest continuing living cultures on Earth, have one of the oldest continuing land tenure systems in the World, and have one of the oldest continuing land use planning and management systems in the World.

We pay our respects to the First Nations Peoples, past and present, and acknowledge their stewardship of Country over thousands of years.

Agenda

01 Introduction

02 Conceptual understanding of rivermouth

03 Adaptation pathways

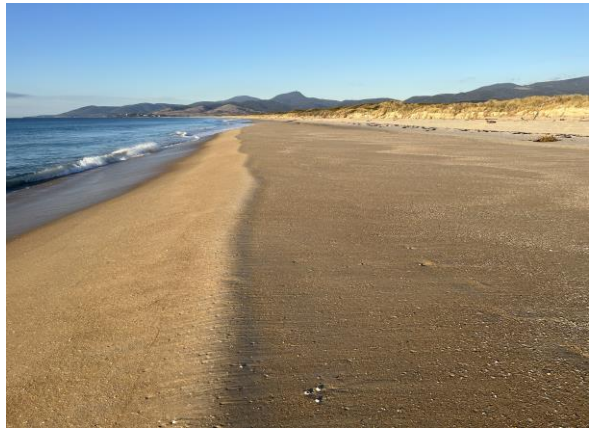
01 Introduction

Project and aims

- Better understand the coastal and estuary risks and impacts on the community
- Moffatt & Nichol look into the coastal processes and possible engineering solutions
- SGS will assess the land use planning solutions, community costs and benefits of various adaptation pathways
- The aim is to recommend on short and long term management solutions

02

Conceptual understanding of rivermouth



Key features

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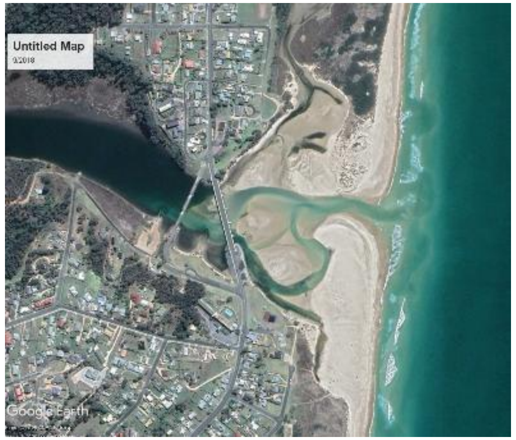
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Processes

Climate change impacts on the Scamander landscape with no further action

Rising sea level, more extreme coastal storms and more extreme rainfall events can result in the following:

Sea Level Rise could cause saltwater intrusion.

With climate change, there will be more extreme rainfall events, exacerbating flood and erosion hazards from the river (interacting with the ocean's hazards at the mouth)

With climate change, particularly sea level rise, the water table will rise and stormwater will drain more slowly (and not at all in the lowest lying areas).

Waves will increasingly overtop the beach during storms, impacting houses and infrastructure (inc. along Dune St)

Dunes retreat further landward

With SLR, the beach and dune system would likely narrow and/or move landward, resulting in a reduced buffer between the ocean and land uses and infrastructure along the coast

With SLR, the level of the barway could rise and migrate landward leading to increasing flood levels during rainfall events

Measure examples

No regret options

#	Asset	Challenge	No Regret Measure
1	**Barway**	The condition (open/closed) of the barway impacts other hazards but is managed on an ad hoc basis	Documented barway opening policy, including emergency management procedures and pre-defined (and agreed upon) triggers for barway opening.
2	**Foreshore Reserve**	Deterioration of current erosion protection measure (a rock revetment)	Restoration of the rock protection, likely including an appropriate backfill/filter layer and geotextile, as well as habitat creation through saltmarsh (or other species) planting. Planting should not limit public access to the foreshore completely.
3	**Pelican Sands Foreshore**	Foreshore continues to experience erosion, and previous protection has all but disappeared	Protection of this foreshore. The measure should incorporate as much as possible a living shoreline, to provide positive ecological outcomes and limit the use of hard infrastructure.
4	**Dune Street, Hind Dune Foreshore**	Foreshore is actively eroding and now only metres from the road	This foreshore is within the window of historical and future dynamic channel alignment, the previous foreshore comprised dunes and sandy foreshore. Restoring this habitat whilst protecting the foreshore is not considered to significantly impact other processes.

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3

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Values at risk – summary table

Value	Quantity at risk	$'000 Value	Description
Property	36 private dwellings (1 shed, 2 empty plots)	$21,700	*Total adjusted capital value (ACV)*
	2 commercial premises	$ 1,300	*ACV*
	4 multi-room visitor accommodation	$20,000	*ACV*
	5.2 km roads	$ 2,600	*Total value of $/metre*
	Council assets	$ 3,100	*ACV*
	Community facilities (Scamander SLSC)	$ 470	*ACV*
Visitation	~427 visitor capacity	$13,000	*Estimated spend annually*
Recreation	• 111,610 sqm foreshore park • 1,352,656 sqm beach	$ 17 $ 1,200	*Estimated total value of $/household* *Estimated value of a visit to a beach per visit per household*
Habitat	• 1,479,659 sqm wetland • 1,874,620 sqm dune vegetation	$ 2,120 $ 1,800	*Estimated value of ecosystem services* *Estimated total value of $/ha/household willingness to pay*
TasWater Assets	Including water mains, reservoirs, sewer mains, BPT and SPS	$ 6,200	*Replacement costs*
Total		**$ 74,000**	

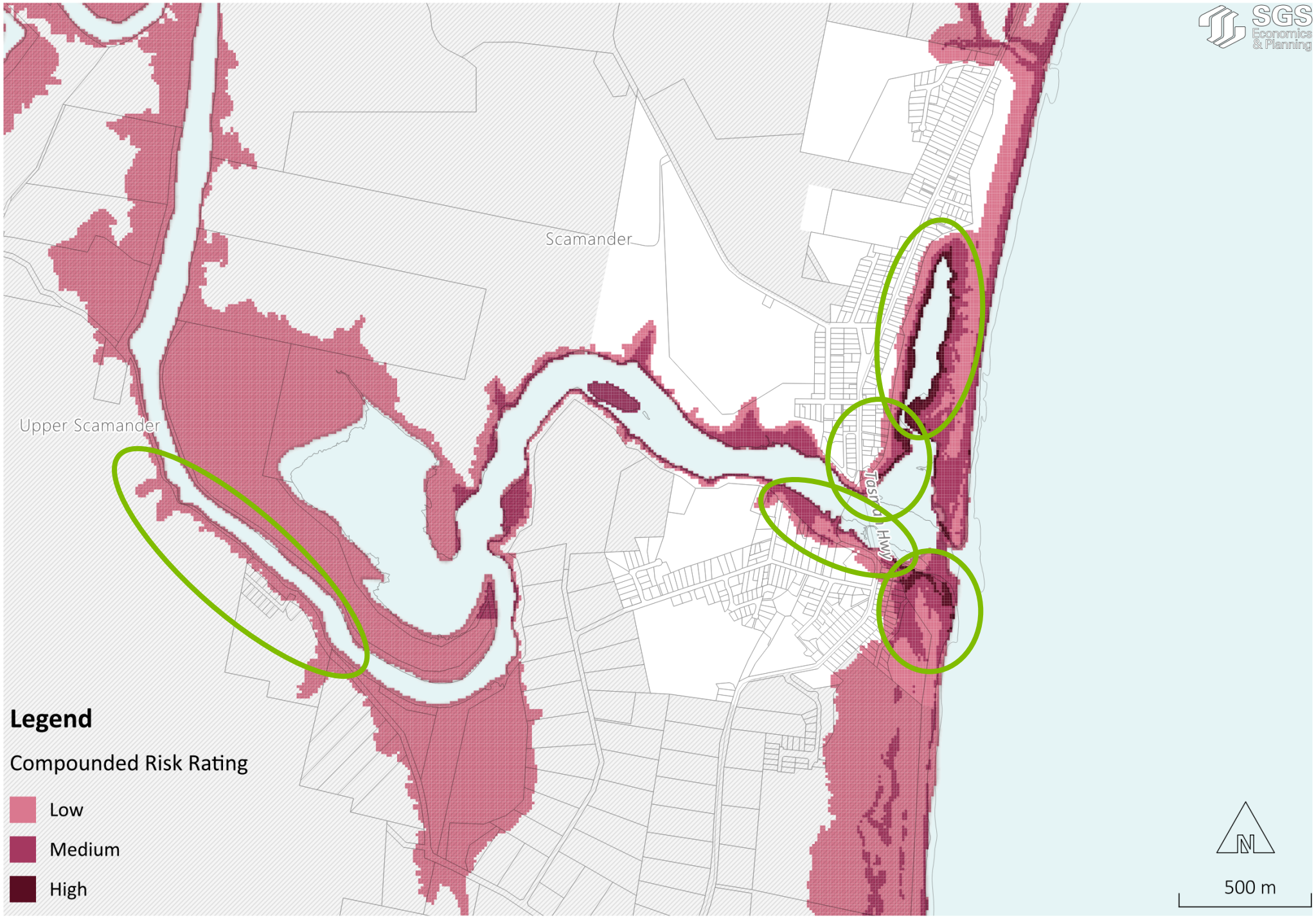
03 Adaptation pathways

Adaptation pathways

- Not predictions
- Not recommendations
- Not plans

- Possibilities – choices of direction and their outcomes

- Trade-offs: each with their own costs and benefits


SGS
Economics
& Planning
Scamander
Upper Scamander
Tasman Hwy
Legend
Compounded Risk Rating
Low
Medium
High
N
500 m

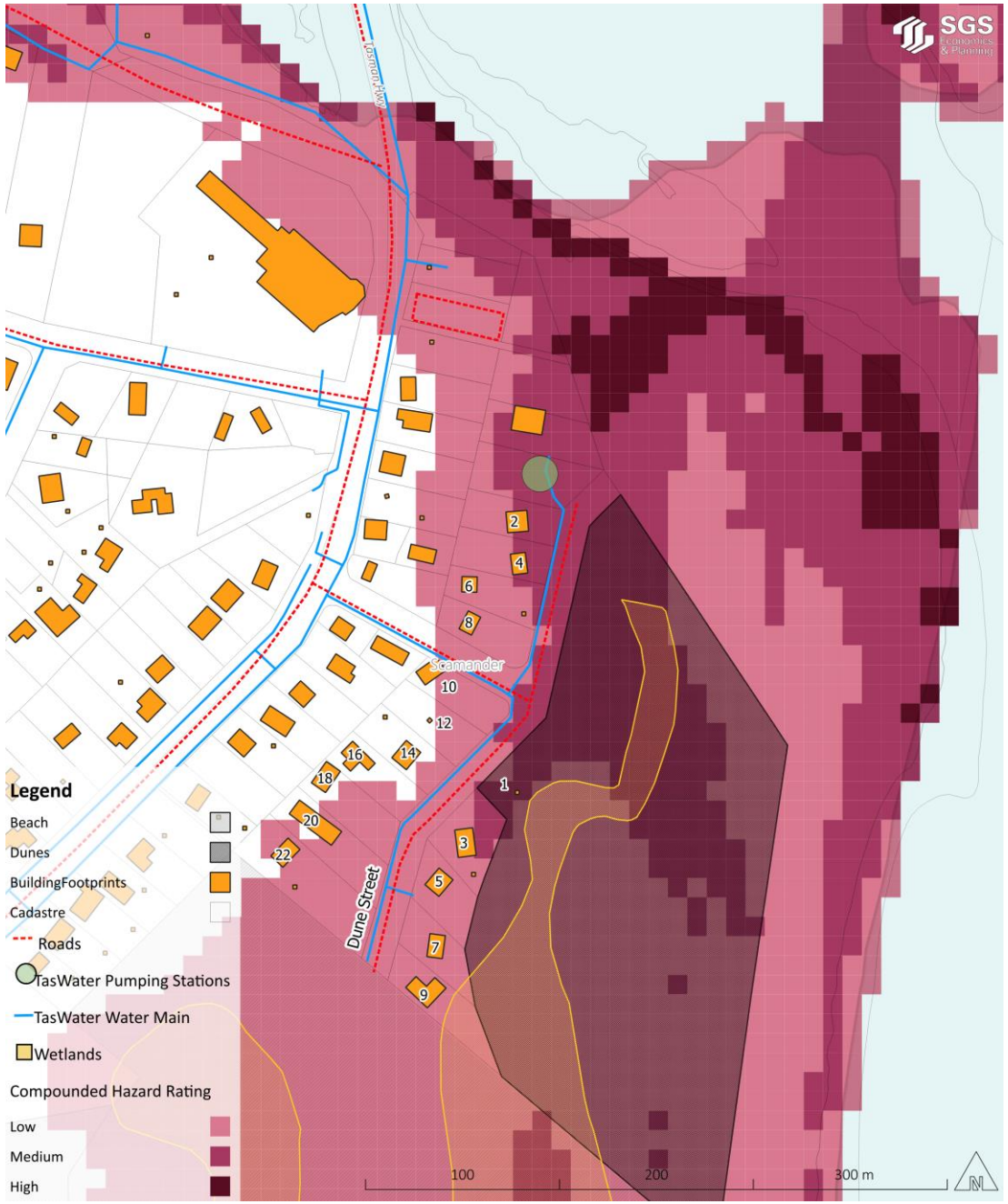
Dune Street

Hazards

Hazards are complex and overlapping, though primarily reflect erosion compounded by coastal inundation and flooding. Erosion reflected in a foreshore that moves consistently landward over time, with heightened inundation risk during high tides, big swells, storms or heavy rainfall. A very large event (consistent with 1% AEP) would present severe risks to property and people on Dune St.

Values at risk

- 16 private properties on Dune St. $6 million total value.
- Community infrastructure including Scamander SLSC, beach and foreshore park.
- Infrastructure including Dune St roadway and pathways, TasWater mains and pumping station. Pumping station particularly at risk from inundation.
- Extensive dunes and beach, with some wetlands. All are threatened by erosion and/or inundation and could become inaccessible.



Adaptation pathway: managed retreat following foreshore erosion management

How will the area change if nothing is done?

Erosion and inundation, with properties at Dune St experiencing poor access during and after events. Without foreshore hardening, the shoreline will continue to move landward undermining the road, walkways and some properties. Over time, preparation for and clean-up after events becomes an almost constant activity. The Scamander skate park and recreation area, may also suffer from erosion and inundation in the medium to long term. Council may repair assets repeatedly until it becomes too costly and the road may permanently be destroyed leaving properties inaccessible. Some assets may be relocated, such as the SLSC or play equipment. Property owners may no longer fix and maintain their properties as the hazards increase, and some properties may be vacated before the end of their economic life. As a result Dune Street will feel 'emptier'.

In the short term, the impacts can be alleviated, while in the long term residential uses should retreat.

In the short term, there is a need to implement **no regret** options that will slow down the process of erosion and inundation, but not indefinitely. No regret options consist of primarily consisting of hardening and vegetation management. Significant storms will continue to overtop the foreshore management works. From a planning perspective, further development and subdivision in the Dune St area is discouraged.

Over time, a training wall, engineered to withstand the coastal forces in the area, could be considered, but will be of substantial size (similar to a breakwater) at a cost of approximately $20,000 per linear meter. It may be beyond the community's capacity to afford and may not receive permission from Parks as the land manager. Inundation could be reduced, at least for some time, via a small bund along Dune St, and private property owners will likely install flood protection to their assets for instance through flood skirts or by lifting their houses. The SLSC would likely seek to relocate as the end of the asset's life is nearing and/or inundation becomes too frequent.

In the long term however, retreat from this area is required. This will be initiated by an extreme event, essential infrastructure no longer being maintained, when buildings reach the end of their economic life and/or when the risk is deemed unacceptable by property owners or emergency services. Short-term uses will be disallowed as a means to support gradual retreat.

Key questions on pathways

- What do you think of the interventions proposed?
- What are the triggers for the next stage of intervention and who decides?
- What support is needed from Council and others?

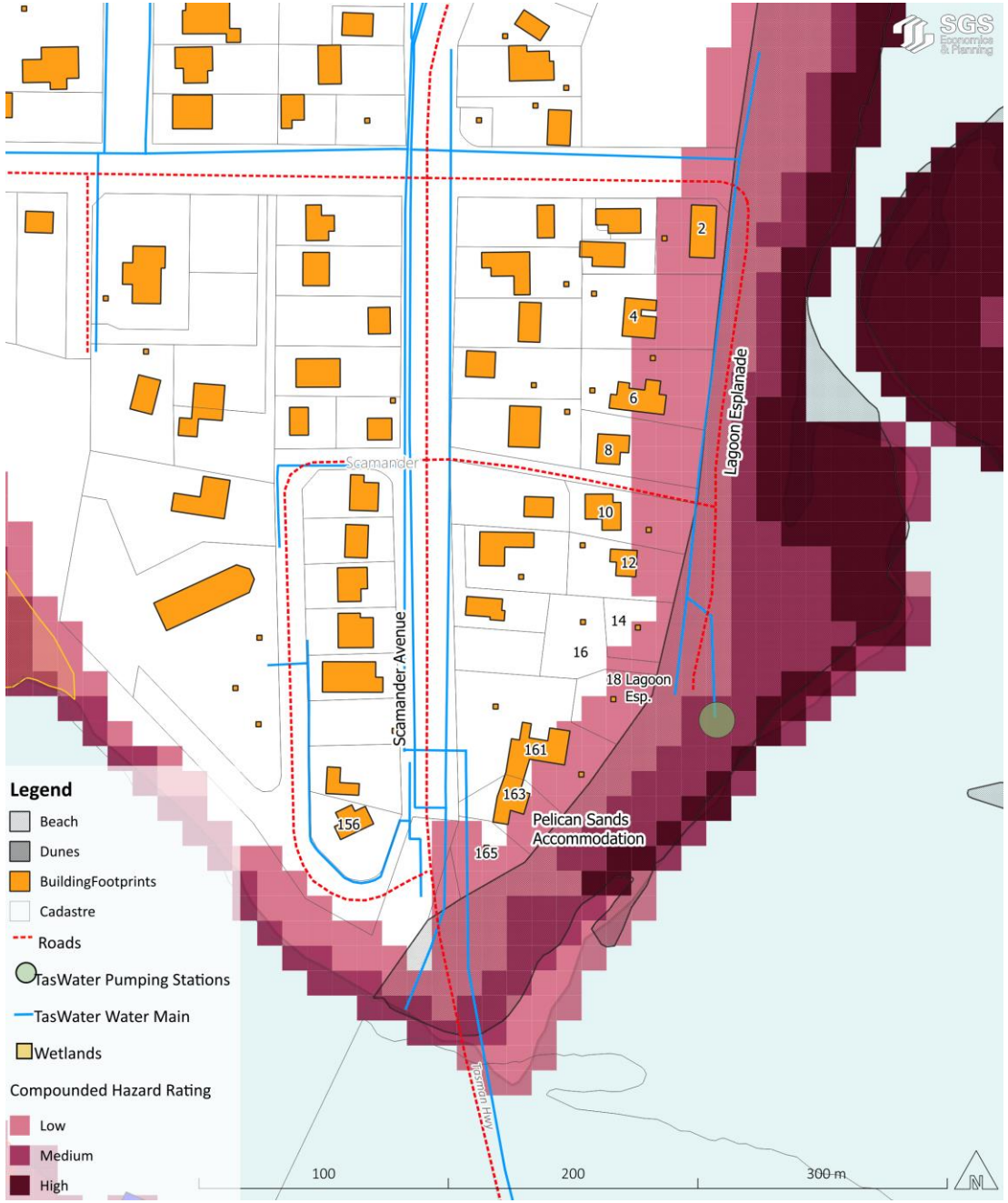
Pelican Sands

Hazards

Similar balance of hazards to Dune Street, with all three major hazards present. Inundation and erosion are significant risks, especially when the barway is closed or when the rivermouth is further north than is currently the case. Wave run-up is a significant issue that will get worse in the future. Hazards are exacerbated by thin foreshore vegetation, which is not resilient to coastal processes.

Values at risk

- 9 private dwellings. Value $6 million.
- Major tourist assets core to local visitor economy, especially accommodation. Value $1.5 million.
- TasWater pumping station is at risk of inundation.
- 900m of road. Value $600,000.
- Environmental assets including dunes and wetlands, which are threatened by inundation and erosion.



Adaptation pathway: managed retreat following foreshore hardening

How will the area change if nothing is done?

Hazards will become more intense over time, especially erosion and inundation. This will particularly impact the tourist accommodation on-site, potentially making it more expensive due to adaptation and clean-up costs or less attractive due to more frequent and intense coastal hazards. As a result, visitation and tourist spending may be more volatile, and may become unviable due to increased costs and decreased visitation. The foreshore park will be more regularly inundated, and significant parts may wash away, particularly during major storms, floods and king tides. The gradual movement of the shoreline landwards will reduce the area of the park available for use, and eventually will reach the property line. Accommodation buildings may need to be protected, decommissioned or relocated.

In the short term hazards can be managed and the area continued to be used, but longer term retreat may be necessary.

In the short term a number of **no regrets** options can help manage erosion and inundation risk. Coastal hardening can proceed from where the foreshore joins the road abutment, as this is a strong, existing structure that will be maintained. This will protect against erosion. Revegetation of existing lawns with more resilient, native vegetation such as mangroves is also advised, as this will protect foreshore and increase ecological values by improving habitat. Bunds could also be considered to protect against inundation as extensive foreshore will help manage drainage.

These interventions will protect current uses in the short term, particularly recreation and tourism.

In the long term however, retreat of intensive land uses is advised. This is not as urgent as Dune Street; however, inundation and erosion risk cannot be managed forever without extensive, expensive, aesthetically displeasing infrastructural interventions. Eventually, a large event or succession of smaller, compounding events may produce intolerable clean-up, reconstruction and remediation costs.

Current tourist accommodation is most impacted by hazards and may become unviable more quickly; private dwellings will be able to remain for longer. All structures will eventually be threatened by inundation and erosion as the shoreline retreats landward and the severity and frequency of events increases. Short-term uses will be disallowed as a means to support gradual retreat.

Key questions on pathways

- What do you think of the interventions proposed?
- What are the triggers for the next stage of intervention and who decides?
- What support is needed from Council and others?

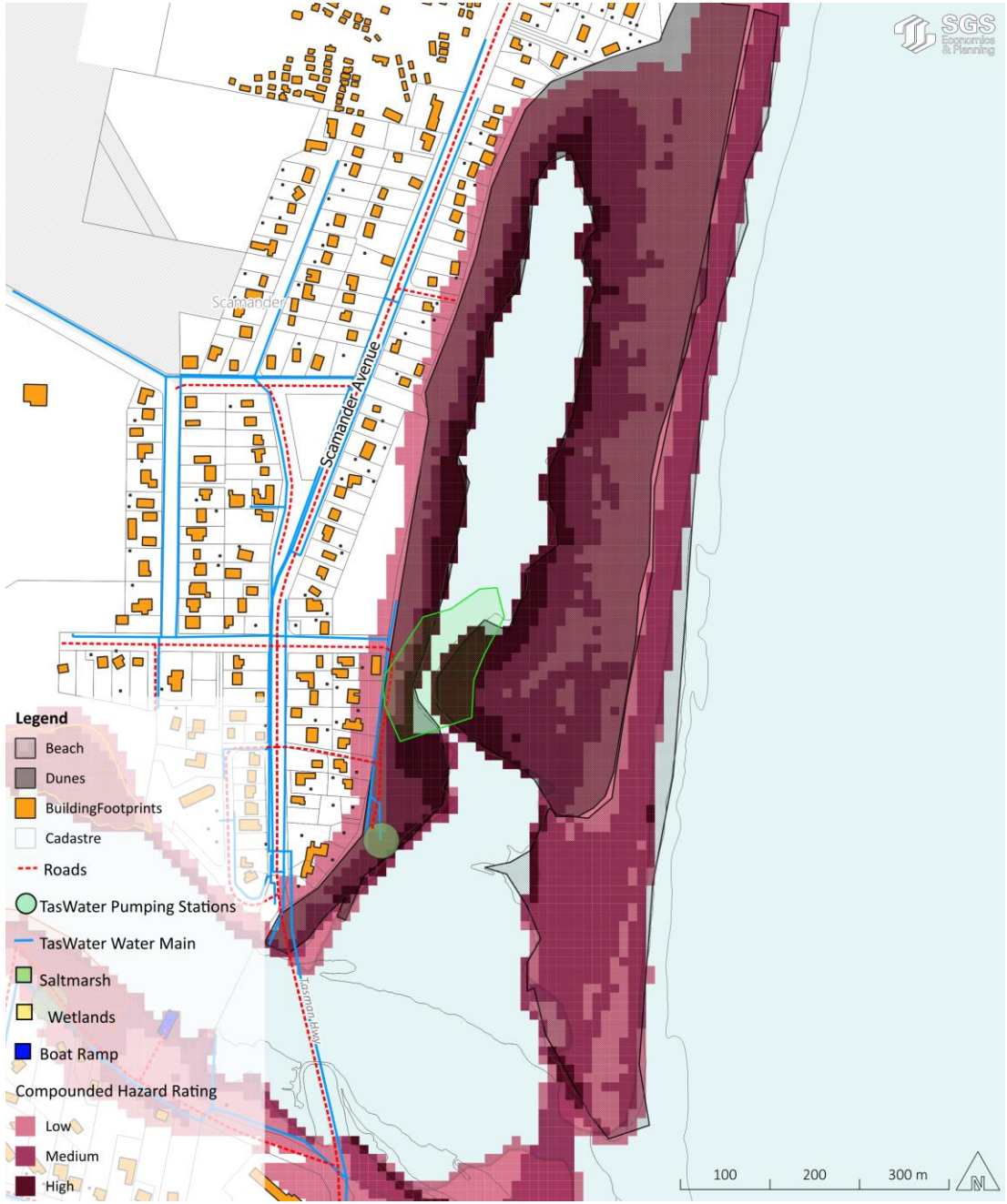
Northern estuary

Hazards

Lower hazard level than elsewhere in town. Some erosion and inundation but properties largely protected by thick vegetation and beach. Mapped hazard bands are misleading due to modelling methodology not accounting for thick vegetation.

Values at risk

- No dwellings at immediate risk. Some potential impact on Lagoon Esplanade.
- Major assets are environmental. It is difficult to accurately value these assets, but based on an 'ecosystem services' approach reflecting their contribution to commercial fisheries, Costanza (2014) calculated a value of $17,000 per ha of wetlands per year. On this approach the entire Scamander estuary is worth over $2 million per year. For northern estuary:
    - Dunes: $48,000 – WTP for protection of dunes in 2017 choice modelling study.
    - Saltmarsh: $24,000 – Costanza (2017)
    - Beach: $22,000 – WTP to visit a beach in 2012 study – travel cost method



Adaptation pathway: let nature take its course

How will the area change if nothing is done?

Current hazards are minimal compared to elsewhere in town. Inundation will increase in severity and frequency, which may impact properties over the very long term. Existing habitats – dune, estuary and foreshore vegetation and associated species, such as sea birds – will move landwards over time, potentially increasing the quality and extent of ecological values. Improved ecological quality may generate new opportunities, such as eco-tourism or scientific research; however these should be managed alongside the risks presented by intensified development and use of the area. More regular inundation may negatively impact some species that are sensitive to salt water, or have broader ecological impacts if water quality is persistently reduced. In the very long term habitats may come into contact with dwellings, but it is unclear if this will have significant impacts. Lagoon Esplanade will be exposed to coastal hazards, with clean-up after large events becoming more frequent and expensive.

Ecological values should be monitored and managed, but existing land uses are not overly threatened.

In the short term clean-up and repair costs on Lagoon Esplanade should be managed, but will benefit from adaptation actions taken further south at Pelican Sands, which will further limit destructive forces in the area. Minimal adaptation action is generally recommended or required for this site given the balance of coastal hazards.

Over time habitats should be encouraged to move landwards, with ecological impacts – for instance on species sensitive to salt water – identified and monitored as they evolve. Actions and opportunities related to increases in the extent and quality of habitat in the area should be identified and actively pursued where this will not present other risks, such as to tourists accessing the site or fragile natural habitats.

If risks emerge or intensify – for instance ecological values are significantly reduced or properties begin to experience more regular, severe impacts from weather events – this pathway should be revised and adapted to account for these risks.

Key questions on pathways

- What do you think of the interventions proposed?
- What are the triggers for the next stage of intervention and who decides?
- What support is needed from Council and others?

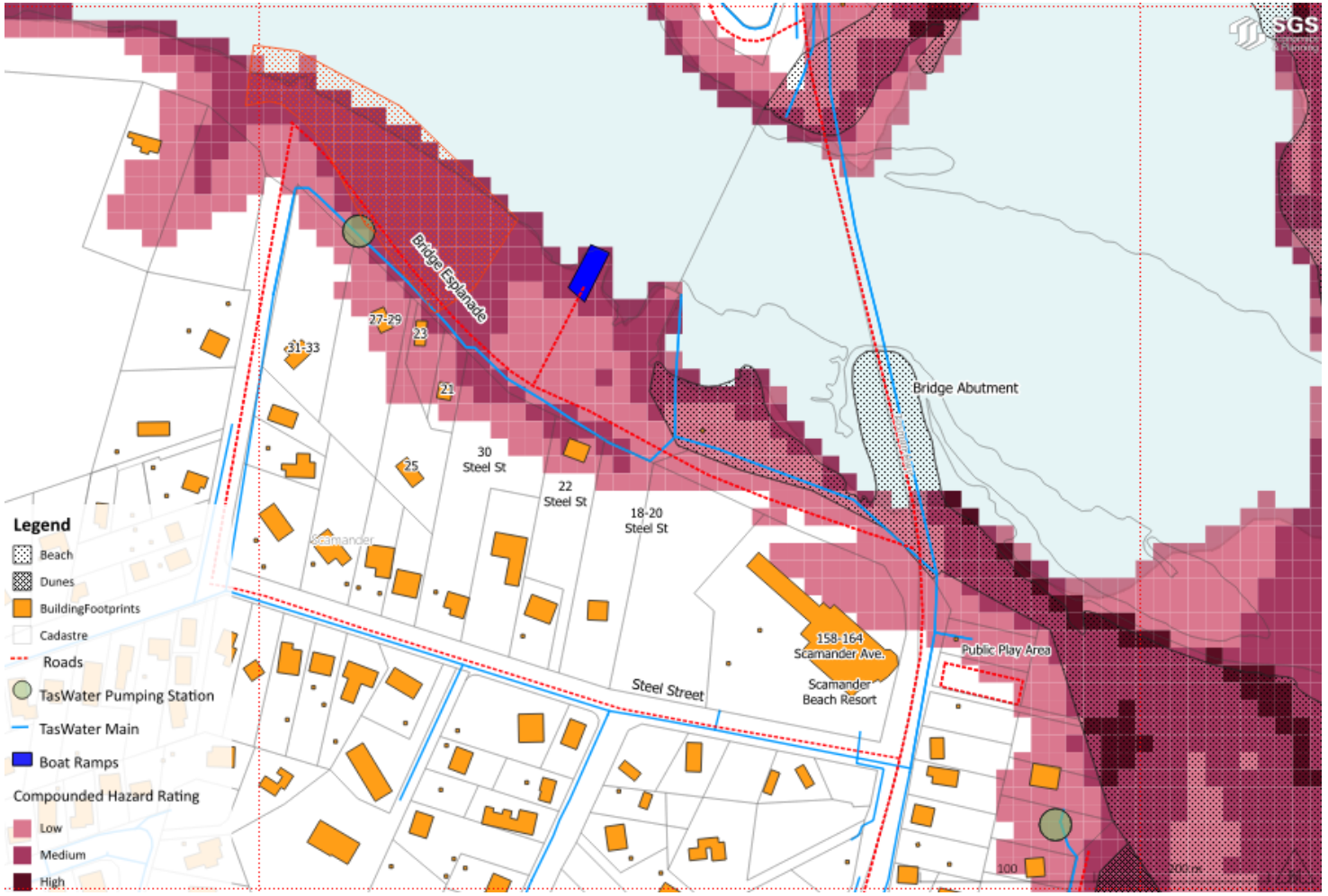
Bridge Esplanade

Hazards

Coastal and riverine flooding are major issues, particularly north of the road. Velocity of water is relatively low, meaning low destructive forces. Some indundation of properties south of road.

Values at risk

- 8 private dwellings. Value $4 million.
- Recreation area between road and river is at most risk of inundation.
- TasWater pumping station is at risk of inundation.
- Bridge abutment experiences erosion and inundation, but is well-protected as part of state road network.



Adaptation pathway: accommodate coastal risks

How will the area change if nothing is done?

Inundation will become more regular over time, especially north of the road. Assets on the shoreline, such as the foreshore park and the boat ramp, will become harder to access during and after regular events. Properties on the south side of the road will be exposed to inundation more frequently, and for extended periods, necessitating private works and adaptation planning.

Inundation can be accommodated while the area can continue to be used, and densification is avoided.

In the **short term**, to reduce the impacts of inundation, no regret option would be implemented. This involves revegetation and some foreshore hardening. Further development and subdivision in the hazard area are discouraged, to limit the number of people exposed to hazards and the costs thereof.

Over time, inundation will increase and properties can adapt through raising and flood-proofing to manage at-times prolonged exposure to floodwaters. This cost will be borne by property owners. TasWater assets can also adapt to accommodate inundation. Inundation will be most intense on the park north of road, limiting accessibility during floods and necessitating clean-up afterwards.

The bridge abutment is part of essential infrastructure, which needs further maintenance and protection to withstand erosion. However, there is expected to be significant appetite to repair and maintain the abutment by the State Government, to ensure the ongoing functioning of the asset.

Aggressive protection measures on the riverbank area not advised due to the cost and adverse effects. An effective seawall would approach two metres in height and integrate with bridge abutment, causing drainage issues on the road, recreation reserve and potentially properties during high rainfall.

Key questions on pathways

- What do you think of the interventions proposed?
- What are the triggers for the next stage of intervention and who decides?
- What support is needed from Council and others?

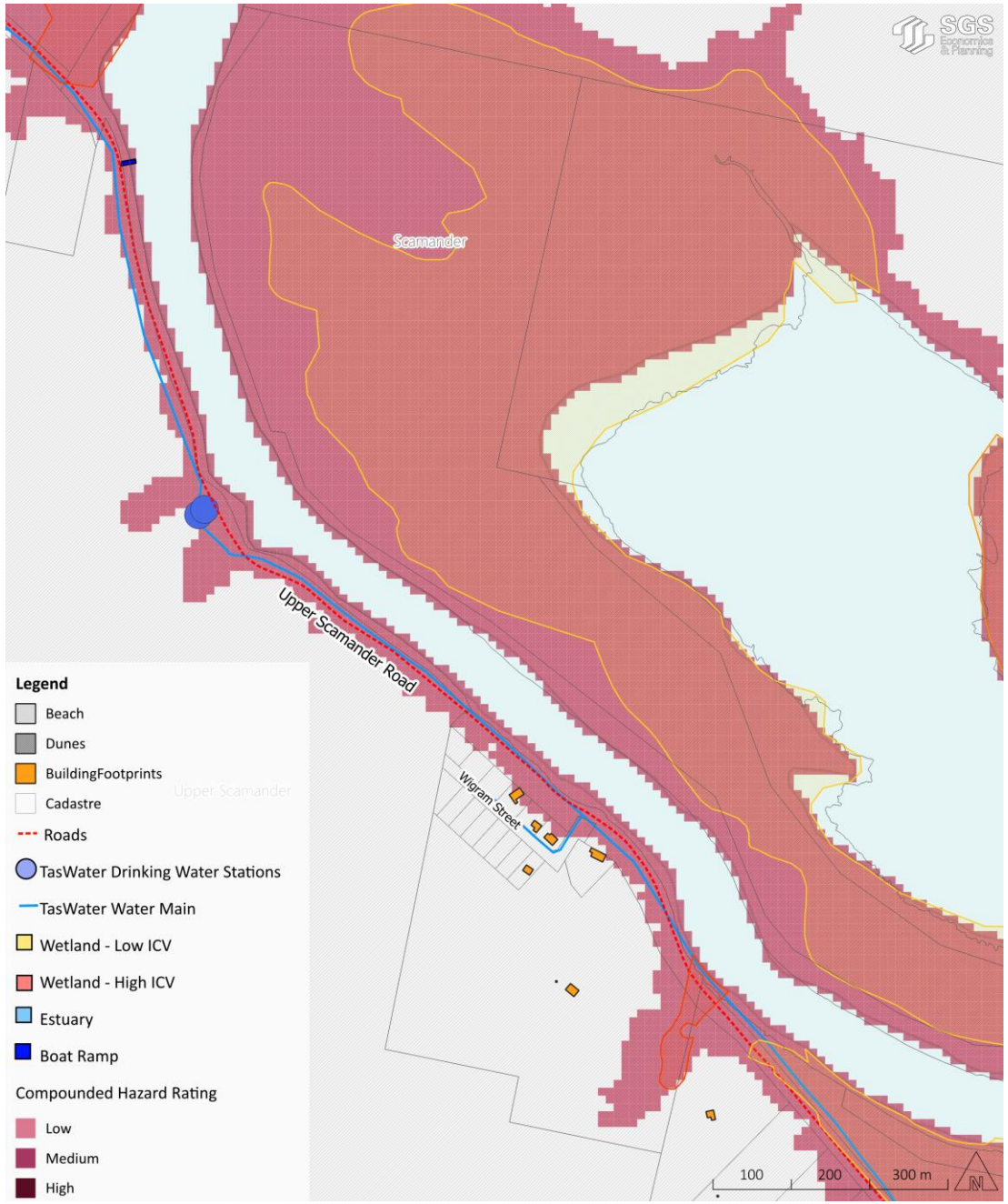
Upper Scamander Road

Hazards

Hazards mainly relate to inundation of Upper Scamander Road where it runs very close to Scamander River. The river experiences rapid flows, especially during periods of high rainfall. Erosion is also an issue where this could compromise the riverbank on which the road sits.

Values at risk

- Large stretch of Upper Scamander Road, which is exposed to both erosion and inundation. Value $1.5 million.
- TasWater reservoir and break pressure tank exposed to erosion and inundation, which affects functioning. Replacement cost $2.3 million.
- Both high and low conservation value wetlands in area. Value $40,000 following Constanza (2014).
- No properties significantly impacted.



Adaptation pathway: manage erosion and adapt to inundation

How will the area change if nothing is done?

More severe and frequent rainfall in the catchment will increase inundation and erosion hazards. The road will be inundated increasingly frequently, causing travel delays as this is the major route to the west of town. Locals and companies dependent on the road may need to accept lower reliability and take adaptive measures; for instance stockpiling supplies when inundation is expected and taking precautions for emergencies that occur while the road is impassable. Over the long term erosion will threaten the structure of the road, and may necessitate reconstruction or defensive measures to be taken to ensure it remains in service.

Erosion should be managed, and inundation planned for.

In the short term erosion should be actively managed, including by sealing the road surface, hardening the riverbank and strengthening the road foundations to ensure its structural integrity. TasWater assets in the area are at risk and should be moved elsewhere, especially if sensitive to inundation.

Over time inundation will become more frequent and severe, and will need to be planned for in order to ensure the disruptive impacts are minimised. Inundation is likely to be too expensive to actively manage, either by constructing a large seawall, raising or wholly rerouting the road. Instead, actions should focus on adaptations that will allow the road and its users to coexist with more frequent inundation. Sealing will make the road more resilient to use during wet weather and flooding, limiting damage and minimising clean-up and repair costs following the initial outlay. Enhanced early warning of inundation will allow those impacted by inaccessibility to prepare and minimise negative consequences; for instance by making alternate travel arrangements or stockpiling essential goods such as food and medicine.

Key questions on pathways

- What do you think of the interventions proposed?
- What are the triggers for the next stage of intervention and who decides?
- What support is needed from Council and others?

Questions?