

Report

Kingston District Council Coastal Adaptation Strategy
Update 2026

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Howman, Zachary						
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				Discipline Lead	Functional Manager	Client

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Acronyms

Acronym	Meaning
AEP	Annual Exceedance Probability
AHD	Australian Height Datum
AGS	Australian Geomechanics Society
AMP	Asset Management Plans
ARI	Average Recurrence Interval
AS / AS3962	Australian Standard / Australian Standard 3962 (Marinas)
BDA	Benefit Distribution Analysis
BR50	Bruun Rule (Bruun Factor, upper limiting value ≈ 50)
CBA	Cost Benefit Analysis
CD	Chart Datum
CAS	Coastal Adaptation Strategy
CHAP	Coastal Hazard Adaptation Planning
CPB	South Australian Coast Protection Board
CDM	Coastal Digital Model (implied in some mapping tools; appears as DEM/CD)
CRC	Climate Ready Coasts (SA Program)
DEM	Digital Elevation Model
DEW	Department for Environment and Water (South Australia)
FFL	Finished Floor Level
GSC	Geotextile Sand Container
HSD	Horizontal Setback Datum
IPCC	Intergovernmental Panel on Climate Change
LAT	Lowest Astronomical Tide
LiDAR	Light Detection and Ranging
LCLGA	Limestone Coast Local Government Association
LTFP	Long-term Financial Plans
MCA	Multi Criteria Assessment
MHHW	Mean Higher High Water
mAHD	metres above Australian Height Datum
MSL	Mean Sea Level
RFI	Request for Information
SLR	Sea Level Rise
S1	Storm Erosion Allowance (SBEACH model result)
S2	Long-term Shoreline Recession or Accretion Allowance
S3	Sea Level Rise Recession Allowance (Bruun Rule-based)
SALGA	South Australian Local Government Association
SABFAC	South Australian Boating Facilities Advisory Committee
SBEACH	Storm-induced BEACH Change (erosion model)
SSP	Shared Socioeconomic Pathway (climate scenario)

Acronym	Meaning
UKC	Under Keel Clearance
VLM	Vertical Land Motion
WRL	Water Research Laboratory (UNSW)
ZR	Zone of Recession
ZWI	Zone of Wave Impact

Executive Summary

Kingston District Council (KDC) adopted its first Coastal Adaptation Strategy (CAS) in 2021, establishing baseline erosion and inundation hazards and adaptation pathways for six coastal sections from Cape Jaffa to Blackford Drain. Consistent with the Strategy's recommendation to update coastal hazard mapping every five years, KDC commissioned this 2026 desktop review to reassess where key assumptions require refinement in light of new evidence, monitoring results, and on-ground changes.

Since 2021, several significant developments have occurred that influence local hazard behaviour. At Wyomi Beach, multiple nourishment campaigns and completion of the Stage 2 seawall extensions in early 2025 have altered shoreline alignment and reduced immediate erosion pressure, although downdrift erosion north of the structure remains a key consideration. At Rosetown, a series of storm-tide events during winter 2025 produced overbank flooding from Maria Creek, causing shallow inundation of adjacent roadways and residential streets. These events raised community concern and provided valuable observations to validate the original CAS inundation assumptions.

This Update retains the technical frameworks used in 2021, including CPB extreme sea-level values, S1/S2/S3 erosion components, and qualitative likelihood–consequence risk matrices, confirming that these remain appropriate and conservative for strategy-level planning. A whole-of-coast hazard review found the 2021 CAS remains robust, and only two segments warranted targeted updates under the agreed scope:

- (i) Wyomi Beach (erosion hazard and risk), and
- (ii) Rosetown (inundation risk).

For Wyomi, updated hazard mapping incorporates the as-constructed Stage 2 seawall, recent nourishment records, and available DEW profile data. While immediate erosion risk has reduced, long-term recession risk persists, especially north of the newly completed structures. The erosion hazard lines therefore remain broadly consistent with the 2021 approach, with local adjustments to reflect the modified shoreline position and ongoing downdrift effects.

For Rosetown, screening-level inundation mapping was refined using a bathtub method with connectivity check, improving on the 2021 approach by removing isolated 'ponding' artefacts and depicting only areas physically reachable by storm-tide water. These updated layers correlate strongly with the 2025 flood observations and confirm that flood behaviour is dominated by Maria Creek tailwater pathways. CPB-based design water levels remain valid, as observed 2025 peaks (1.6–1.8 m AHD) remained below the present-day 1% AEP benchmark.

Based on updated risk insights and community expectations, the prioritisation of adaptation actions has been refreshed. Rosetown is elevated to Priority 1, with emphasis on early, low-regret measures such as road-crest raising, targeted cresting of the shared-path corridor, stormwater backflow controls, and investigation of the Dowdy Street wetland/pump-down concept. Wyomi shifts to Priority 2, focusing on monitoring, integration of newly constructed works into long-term pathways, and managing downdrift effects. All other coastal sections remain broadly aligned with the 2021 CAS pathways, maintaining their existing sequence of monitoring, planning controls, and long-term adaptation planning.

This 2026 Update does not replace the 2021 CAS but strengthens it through updated evidence, hazard verification, and refined adaptation priorities. A future full CAS revision, should Council choose to pursue it, could incorporate CHAP 2025 methodologies, updated sea-level rise projections, and broader hazard screening to provide a fully contemporary, CHAP-compliant adaptation framework across all coastal sections.

Clarification on Inundation Mapping:

The connectivity-screened inundation layers included in this report were prepared by Hatch for internal technical verification and risk screening only, to support interpretation of observed 2025 flood behaviour within the CAS Update.

These outputs do not constitute Council-approved flood hazard mapping, were not commissioned as stand-alone inundation studies, and must not be relied upon for statutory planning, development assessment, design, insurance or property-level decision-making.

1. Introduction

1.1 Background

Kingston District Council (KDC) adopted its first Coastal Adaptation Strategy (CAS) in 2021. That strategy provided a comprehensive assessment of coastal hazards, including erosion, inundation, and sea level rise, across the coastline from Cape Jaffa to Blackford Drain, separated into six coastal sections (see Figure 1-1) based on geomorphology, drainage outlets and coastal development patterns. The 2021 CAS established erosion and inundation hazard lines for present-day, 2050 and 2100 scenarios, profiled risks to both public and private assets, and identified adaptation pathways for each coastal section.

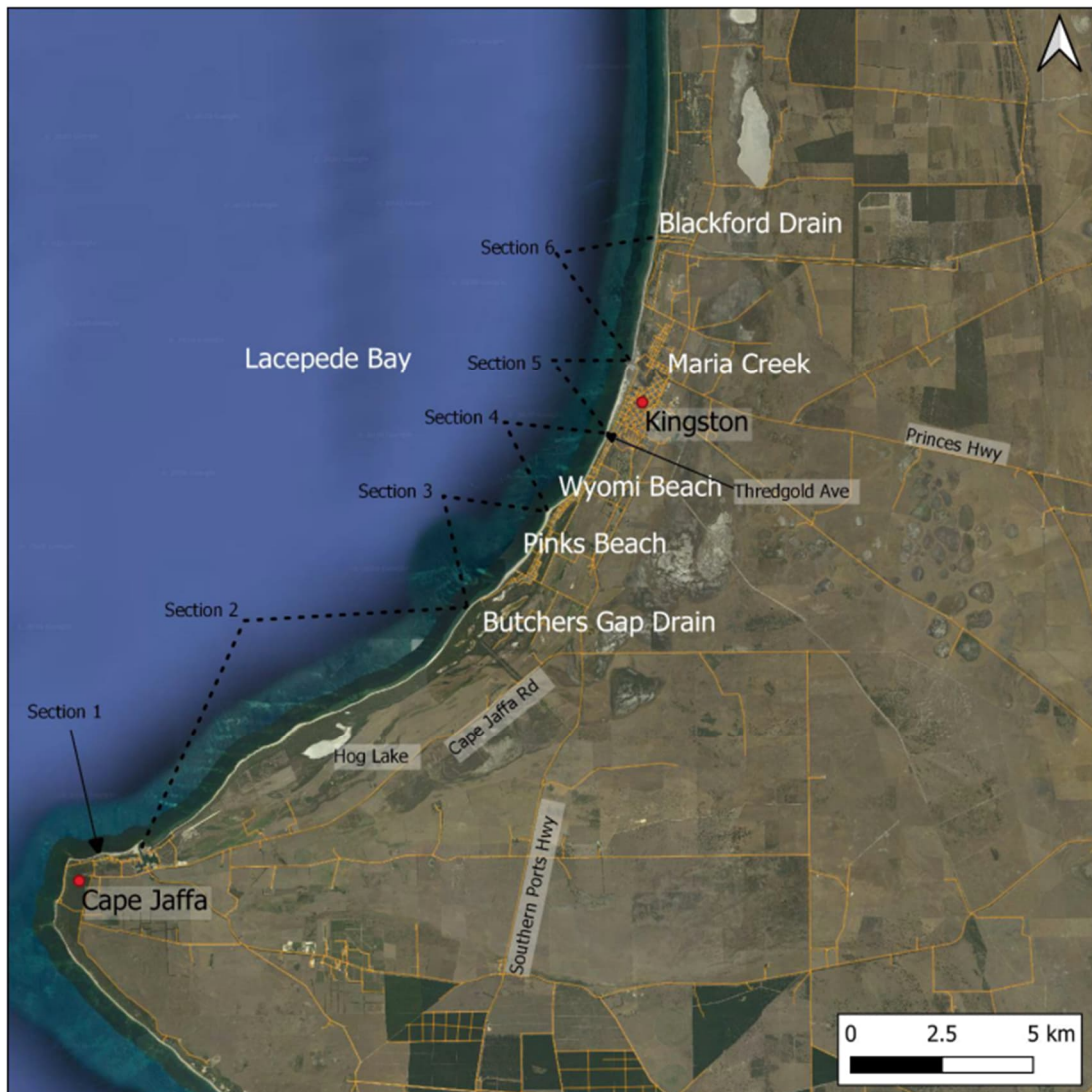


Figure 1-1: Definition of Coastal Sections

Since 2021, several major coastal changes and management interventions have occurred, including:

- Multiple sand nourishment campaigns at Wyomi Beach (2021, 2022, 2024)
- Completion of the Wyomi Stage 2 rock seawall, the highest-priority action identified in the 2021 CAS
- A significant storm surge flooding event at Rosetown in winter 2025
- Continued Cape Jaffa marina dredging and sand bypassing operations.

These changes have altered shoreline conditions, dune states and flood behaviour in several locations. As recommended in the original CAS, coastal hazard maps are to be updated every five years and monitoring results used to refine adaptation planning, KDC commissioned this 2026 desktop update to determine how recent evidence affects the 2021 strategy.

1.2 Purpose of the 2026 Update

The purpose of the 2026 CAS Update is to provide a targeted, evidence-based review of how erosion and inundation hazards have evolved since the 2021 CAS, and to update the Strategy where necessary to reflect:

- New beach profile data (post-2021 DEW monitoring)
- Observed shoreline movement and storm impacts
- Updated management actions (seawalls, nourishment, bypassing)
- Recent flood behaviour at Rosetown.

Importantly, this update is not a full rewrite of the 2021 CAS. As defined in the proposal, the update is designed to focus on the key changes since the original CAS and refresh hazard understanding, risk profiles and adaptation priorities only where material changes have occurred.

1.3 Scope and Limitations

This update is a desktop-only review, undertaken within the allowances and exclusions agreed with Council. Key elements include:

Hazard Review: Reviewing all Erosion & Inundation Areas, including:

- Review DEW beach profile data collected after 2021
- Compare observed shoreline behaviour against 2021 CAS assumptions
- Review 2025 Rosetown flood photos, water levels and event severity
- Compare observed inundation extents with 2021 CAS inundation mapping.

Hold Point with KDC to:

- Discuss findings of the entire-coast hazard review
- Identify specific coastal segments where updates are warranted.

Targeted Hazard & Risk Updates: Following the HOLD POINT, and subject to KDC direction, the project includes:

- Updating one erosion hazard map (e.g., Wyomi)
- Updating two risk assessments (one erosion and one inundation segment, e.g., Wyomi & Rosetown).

No new flood mapping is initially included, unless significant discrepancies are identified and subsequently agreed with KDC.

Adaptation Options & Priorities (Selected Segments Only)

- Refresh adaptation pathways for the two key segments above
- Update prioritisation and sequencing of actions where risk has changed.

Reporting: A concise standalone report will:

- Summarise key changes since 2021
- Present updated hazard and risk insights
- Outline refined adaptation priorities
- Identify gaps relative to the 2025 SALGA CAS Guidelines.

The report will not reproduce or rewrite the 2021 CAS.

Remarks & Caveats

- The connectivity-screened inundation layers included in this report have been prepared by Hatch for internal technical verification and risk screening only, to support interpretation of observed 2025 flood behaviour within the CAS Update.
- These outputs do not constitute Council-approved flood hazard mapping, were not commissioned as stand-alone inundation studies, and must not be relied upon for statutory planning, development assessment, design, insurance, or property-level decision-making.
- All inundation maps, figures and asset risk ratings presented in this Update are indicative, screening-level and static representations prepared solely for strategic review. They do not represent real-time flood behaviour, system performance or design-grade assessments, and must not be used beyond the purpose of this CAS Update.

2. Methodology

2.1 Gap Analysis

A review of the 2021 Coastal Adaptation Strategy (CAS) against the updated 2025 SALGA Coastal Hazard Adaptation Planning (CHAP) Guidelines was conducted to identify key methodological gaps that would need to be addressed in any future full update.

Overall, the 2021 CAS remains a sound and defensible foundation: it applied accepted South Australian practice for erosion and inundation assessment, adopted CPB policy sea-level allowances current at the time, and translated those technical findings into practical adaptation directions for Kingston SE. Importantly, much of the original approach is consistent in spirit with the 2025 CHAP Guidelines, for example, using clear planning horizons (present day, 2050, 2100), mapping hazard exposure to inform risk, and presenting adaptation pathways for decision-making.

In this 2026 update, we retain that fit-for-purpose foundation and, as agreed with Council, focus our effort on two priority segments (Wyomi erosion and Rosetown inundation) using a desktop review of new evidence (profiles, nourishment/seawall works, and the 2025 flood observations), rather than re-writing the entire strategy.

With that background context, several methodological enhancements now expected under CHAP 2025 are noted for a future full CAS revision:

- CHAP introduces a more explicit governance/process framework (five stages, defined hold points and Terms of Reference) that was not required when the original CAS was prepared.
- While erosion and inundation remain the core hazards for Kingston SE, CHAP guidelines encourage broader screening of additional hazards (saline intrusion, coastal acid sulfate soils, sand drift, and estuary dynamics) and consideration of compound flooding (catchment–coastal interactions). These hazard types are now part of SALGA's minimum or leading-practice expectations but were outside the methodology adopted in 2021.
- CHAP guidelines align with IPCC AR6 sea level rise scenarios, updated planning horizons (2050, 2070, 2100, and >2100), recommend using regionalised sea-level projections and, where feasible, Vertical Land Motion (VLM) to reflect relative sea-level change, an evolution from the earlier CPB allowances applied in 2021.
- CHAP framework adopts ISO 31000 as minimum standards and recommends ISO 14091 approaches for risk and vulnerability assessment, including explicit assessment of vulnerability through exposure, sensitivity, and adaptive capacity, alongside a formal risk register and risk tolerability categories. Future updates could build on the existing CAS conventional risk matrix and incorporate this expanded vulnerability methodology.

- In terms of adaptation planning, the 2025 CHAP Guidelines expect structured use of the adaptation hierarchy (Avoid, Retreat, Accommodate, Protect), transparent multi-criteria analysis, proportionate economic evaluation (including benefit distribution), and pathways with clearly defined triggers. This is largely aligned with the 2021 CAS, albeit being more structured with detailed appraisal and economic evaluation.
- The 2025 CHAP guidelines call for measurable triggers, integration with councils' asset management and financial plans, and a more structured monitoring and review cycle, which were not part of the earlier methodology.

These improvements in expectation reflect statewide standardisation and the progression of best practice since the original work. Consistent with our agreed scope, we do not implement those broader changes in this interim update; instead, we acknowledge where they would add value and park them together with recommended next steps for a future, full CAS update should Council wish to undertake a full CHAP-compliant rewrite of the Kingston CAS across the whole coastline in future.



Figure 2-1: SA's Coastal Hazard Adaptation Planning Stages (2025 CHAP Guidelines)

From our gap analysis, the updated CHAP Guidelines retain 2050 and 2100 as the standard planning horizons for coastal hazard exposure, consistent with CPB Policy. Although five years have passed since the original CAS was prepared, these timeframes remain the appropriate benchmarks for this limited 2026 review. “Present day” conditions have been updated to reflect 2021–2025 data; however, the planning horizons of 2050 and 2100 remain unchanged, meeting CHAP’s minimum standard. A future full CAS revision could incorporate additional sensitivity horizons (e.g., medium term of 2070 or sensitivity testing scenario beyond year 2100) in line with CHAP 2025 leading practice.

As of now, the guidelines do not recommend revising planning horizons every 5 years, the whole point is to ensure the state remains aligned with CPB policy and IPCC-consistent horizons.

Table 2-1: 2025 CHAP Guidelines’ Recommended Planning Horizons

Min standard/ Leading practice	Time Period/horizon	Indicative date	Sea level rise
Minimum standard	Base line	Present day	MSL*
Minimum Standards	Short Term	2050	0.3m**
Leading practice	Medium Term	2070	0.5m*
Minimum Standards	Long term	2100	1.0m **
Leading practice	Sensitivity testing	Beyond 2100	1.2m
	Examples		1.4m

*SLR in South Australia has risen on average 4.3mm per year since 1993 benchmarking, regional benchmarking can be applied (BoM,2011)

** In line with CPB Policy

2.2 Review Coastal Changes Since 2021

2.2.1 Changes in Management Actions

Since the adoption of KDC’s CAS (2021), several coastal management interventions, storm events and sediment system changes have occurred along the Kingston SE coastline. These updates provide important context for reviewing the 2021 hazard assumptions and identifying priority segments for potential hazard and risk reassessment. Key changes since 2021 include:

- Repeated sand nourishment at Wyomi Beach
- Continued sand removal and bypassing at Cape Jaffa Marina
- Progressive seawall upgrades and extensions at Wyomi
- Emergency works following the Winter 2025 storm and Rosetown flooding
- Ongoing sediment accumulation and bypassing requirements at Cape Jaffa.

Table 2-2 summarises KDC's sand management, nourishment and structural works since 2014, including post-2021 interventions that are most relevant to this update (based on Council records provided by KDC, including sand movement logs, nourishment campaigns and seawall construction records). These activities reflect Council's ongoing commitment to managing localised erosion hotspots while responding to emerging coastal changes. They collectively frame where the 2021 hazard assumptions most likely need refinement in this 2026 desktop review.

Table 2-2: Summary of Coastal Management Activities in Recent Years

Date	Activity	Location	Volume (m ³)	Description
Sept/Oct 2014	Sand removal	Western beach – Cape Jaffa Anchorage	27,300	Excavator & truck
		Entrance channel	4,985	
April 2015	Sand removal	Western beach – Cape Jaffa Anchorage	4,930	Excavator & truck
Aug/Sept 2016	Sand removal	Western beach – Cape Jaffa Anchorage	121,240	Excavator & truck
April – May 2018	Coastal protection structure	Wyomi Beach		Stage 1 seawall constructed (395m)
Mid 2018	Coastal protection structure	Wyomi Beach		North ad hoc rock seawall constructed (22m)
Aug 2018 – Oct 2019	Sand removal	Western beach – Cape Jaffa Anchorage	33,361	Excavator & truck
		Entrance channel	~100,000	Dredge
April 2019	Coastal protection structure	Wyomi Beach		North 2.5m ³ GSC seawall constructed (72m)
				South 2.5m ³ GSC seawall constructed (72m)
				South 0.75m ³ GSC seawall upgraded with a top row of 2.5m ³ GSCs (28m)
May/June 2020	Sand nourishment	Wyomi rock seawall	13,000	Placed north and south of seawall
May – July 2021	Sand nourishment	Wyomi rock seawall	11,000	Placed north and south of seawall
Late April 2022	Sand nourishment	Wyomi rock seawall	11,000	Placed north and south of seawall
Jan – May 2024	Sand removal	Western beach – Cape Jaffa Anchorage	92,500	Dredge
		Entrance channel		
May 2024	Emergency sand nourishment	Wyomi Beach rock seawall	6,000	Placed south of stage 1 seawall to protect exposed flank over winter
			3,100	Placed north of stage 1 seawall to protect exposed flank over winter
Oct 2024	Emergency sand removal	Western beach – Cape Jaffa Anchorage	98,927	Dredge – emergency works following siltation of marina post storm event
		Entrance channel		
Jan 2025	Coastal protection structure	Wyomi Beach seawall		175m southern extension of rock seawall (stage 2 works)
March 2025	Coastal protection structure	Wyomi Beach seawall		100m northern extension of rock seawall (stage 2 works)

2.2.2 Observed Coastal Process Changes

Overview:

- Cape Jaffa's annual longshore transport can exceed 100,000 m³/yr in energetic years; 2024 delivered >110,000 m³ into the marina region and forced emergency dredging in Oct 2024. The plan now targets 70,000–100,000 m³ in typical years, scaling to 150k m³ after extreme events, with triggers tied to trap fill depth, spit formation at the breakwater tip, and entrance depth.
- Rosetown storm surge in May–July 2025 reached ~1.78 m AHD (Robe gauge conversion), with overbank flow via Maria Creek and prolonged ponding in low areas; Tonkin outline a levee/shared path raise to ~2.3 m AHD plus local drainage (wetland, swales, pumps).
- Maria Creek rehabilitation concepts introduce boat-ramp re-orientation (≈60°), narrowed channel widths (~18–21 m), tidal weir ~124 m from the entrance, and berm/training walls to prioritise maintenance efficiency and reduce wrack accumulation; capital dredging (≈8,300–24,900 m³ for 1–3 m depths) is required up-front.

Table 2-3: Summary of Deduced Accretion & Erosion from DEW Profiles

Section	2021 CAS S2 rate (m/year)	Profile	Average erosion/accretion rate since 2018 (m/year)	Reference datum (mAHD)	Remarks
6	0	715011	--	--	Profile data stops at 2005
		715019	--	--	Profile data stops at 2005
		715024	--	--	Profile data stops at 2005
		715003	--	--	Profile data stops at 2012
5	0	715004	--	--	Profile data stops at 2012
		715030	7.39 6.50	0 +1.5	
4	-1	715008	0.84 1.23	0 +2.0	Intersects central seawall
		715009	-0.49 -0.04	0 +2.0	Intersects stage 2 southern extension
3	0	715001	1.35 2.10	0 +2.0	
		715035	--	--	Profile data stops at 2005
		715043	--	--	Profile data stops at 2005
2	-2.7	715053	-1.16 -2.43	0 +2.5	Evidence of nourishment less obvious
		715052	0.62 -1.23	0 +2.5	Receives nourishment

Section	2021 CAS S2 rate (m/year)	Profile	Average erosion/accretion rate since 2018 (m/year)	Reference datum (mAHD)	Remarks
1	0	715051	4.35	0	Receives nourishment
			0.20	+2.5	
		715002	50.36	0	Data available for 2024 & 2025 only
			-4.77	+2.0	
		715050	1.83	0	
			-2.4	+2.0	
		715054	2.70	0	
			4.56	+2.0	
		715049	5.25	0	
			4.24	+2.0	

Wyomi Beach: Wyomi remains a high-priority erosion hotspot. Post-2021, three nourishment campaigns (2021–2024) and Stage-2 seawall extensions (Jan & Mar 2025; ~275 m total) have materially changed boundary conditions (foundation toe exposure, end-effects, and alignment). Emergency nourishment in May 2024 (total ~17,000 m³) responded to storm-related toe risks—evidence of localised exceedance relative to 2021 assumptions. These interventions likely warrant updating the Wyomi erosion hazard mapping (our scope allows one erosion segment update).

Cape Jaffa Marina: The 2025 sand & dredge management plan (Magryn) and PCS numerical modelling reveal:

- Energetic 2024: modelled peak offshore Hs ≈ 4.5 m with ~175 hours above 2.5 m; duration (not just magnitude) drove exceptional longshore transport and rapid sand return, closing the entrance within months of the early-2024 maintenance campaign.
- Modelled longshore transport (10-yr): typical ~70–120k m³/yr within ~500 m west of the breakwater; within ~150 m of the entrance ~50–70k m³/yr, exceeding 100k m³ in extreme years. Over 10 years, ~720k m³ is expected to accumulate within 150 m of the breakwater without proactive management.
- Plan triggers & targets: keep a -2.0 m AHD trap; dredge when trap in-fill reaches -0.5 m AHD, when a spit forms at the breakwater tip, or when entrance depth shoals below target; reuse sand to nourish the eastern beach (30–40k m³/yr typical capacity, up to 50–70k m³ post-erosion).

The east-of-marina erosion and west-side accumulation trends assumed in 2021 are confirmed and amplified by the 2024–2025 sequence and modelling. For this CAS review, the post-2021 DEW profiles could be verified and confirm whether 2021 erosion hazard lines in Sections 1–2 (near the marina) remain fit-for-purpose or require targeted risk profile updates.

Rosetown: Tonkin’s Rosetown Stormwater Investigation documents three storm surge episodes (26–27 May, 24–25 Jun, 21–23 Jul 2025). With Robe gauge data converted to AHD, June 2025 peaked at ~1.78 m AHD, producing mapped inundation paths consistent with site observations (overbank via Maria Creek, flow routing to local depressions, weeks-long ponding). The study proposes:

- A storm-surge levee/shared-path raise to ~2.3 m AHD (1% AEP + 0.3 m freeboard), tying to existing ridgelines and extending to protect the western heritage area; order-of-cost ≈ \$0.87 M (excl. complex tidal section allowances).
- Local drainage upgrades (Dowdy St wetland ~8,000–9,000 m³, culverts/pumps, roadside swales) to reduce residence time and provide an operational buffer (pre-emptive drawdown before forecast events).

We will compare observed 2025 extents with the 2021 bathtub-based flood mapping and tide-level assumptions, focusing on connectivity corrections in Rosetown; per proposal, an inundation mapping update is not included, but a Rosetown risk profile update is in scope if a material discrepancy is confirmed.

2.2.3 **Changes in Coastal Assets**

An RFI has been issued to KDC seeking confirmation of any changes to coastal assets since the 2021 CAS. No advice of changes has been received to date; therefore, the current assessment assumes the 2021 asset baseline remains valid, except for known Wyomi seawall extensions (2025).

2.3 **Erosion Hazard**

The 2021 CAS established a clear, fit-for-purpose erosion assessment framework for Kingston SE. It combined local data, standard South Australian practice, and widely accepted coastal engineering methods to define present-day conditions, project future hazard extents, and link these to risk and adaptation pathways. The same foundation underpins this 2026 CAS update.

For the review of erosion hazard, this update retains the CAS methodology and uses post-2021 DEW profiles, recent nourishment records, and the Wyomi Beach Stage 2 seawall as-constructed extents to check the reasonableness of prior S1/S2/S3 assumptions and the resulting hazard envelopes. Any methodological enhancements now encouraged under CHAP 2025 (e.g., ISO-style vulnerability layers, MCA with quantified weights, or AR6/VLM refinements) are acknowledged but, in line with the agreed scope, are parked for a future full CAS update rather than implemented here.

2.3.1 **Erosion Hazard Exposure**

The CAS collated the available coastal datasets for Kingston SE, including DEW beach profile records, shoreline position evidence from aerial imagery, and local management information (e.g., Wyomi nourishment volumes and placement areas, and the Wyomi Seawall footprint). This supported a site-specific conceptual model of nearshore processes and sediment pathways.

Event (storm) erosion allowance (S1): Short-term storm bite was previously quantified using numerical storm erosion modelling (SBEACH) for representative design storm conditions along the open coast. Model outputs were cross-checked against observed post-storm beach condition and profile behavior to confirm storm cut magnitudes and dune response were reasonable for the local exposure.

Consistent with CAS 2021, short-term storm erosion is represented using the same SBEACH-based design storm approach to quantify storm bite and dune response for the open coast. For Wyomi, the only local DEW profile control points within the assessment reach are 715008 and 715009 (see Figure 2-2), both are materially influenced by the presence and construction staging of the Wyomi seawall (Stage 1) and the recent extension (Stage 2), which alters nearshore beach level and planform immediately in front of the structure and at the tie-ins. Because these structural effects mask true unconstrained storm cut in the measured sections, they are not suitable for recalibrating or downtuning the original open-coast S1 estimate. Retaining the previously adopted S1 values therefore preserves methodological consistency with the original CAS (which used a design-storm, process-based method intended for open coasts rather than profile-matching at armored frontages) for wider shorelines beyond the seawalls, and aligns with standard SA practice where local monitoring is structurally perturbed and may not reflect representative storm bite for the broader segment. This approach is consistent with the CHAP Compendium's SALGA 2025b) framing of short-term storm erosion as an event allowance derived from design conditions and process response.



Figure 2-2: Existing DEW Profiles (Green Lines), Seawall Stage 1 (Orange Lines) and Stage 2 as-Constructed Seawall Extension (Pink Lines) at Wyomi Beach

Historical trend allowance (S2): Longer-term shoreline movement was estimated from multi-year trends in DEW cross-shore profiles and planform change evident in historical imagery. Where a net recession trend was present, a linear extrapolation over the relevant planning horizon was adopted to represent background sediment deficit and alongshore transport imbalance.

As in CAS 2021, longer-term shoreline movement is based on analysis of DEW cross-shore profiles and planform evidence from historical imagery. In this update we cross-check those trends against latest DEW's profile, as-constructed seawall drawings and documented nourishment works (2021–2025) to identify any localised trend moderation or hotspot behaviour near structure ends and placement cells. Where the compiled evidence indicates no material segment-scale departure from the original trend assumption, the S2 rate is retained for consistency; any local nuances (e.g., minor end-effects adjacent to the wall, short-term post-placement variability within nourishment cells) are noted for comparison. This approach keeps the focus on segment-scale hazard while recognising the operational signals of recent works.

Sea-level-rise allowance (S3): Consistent with CAS 2021 and CHAP 2025 Guidelines, long-term shoreline movement is represented using a Bruun-type response applied to the CPB policy sea-level allowances (0.3 m by 2050; 1.0 m by 2100 – see also Table 2-1). This maintains comparability with the adopted erosion envelopes while acknowledging that the 2025 CHAP now recommend further AR6-consistent scenarios and potential VLM considerations as leading practices. For this focused update, we keep S3 unchanged and revision to erosion setback mapping will be done considering the latest shoreline management measures in place.

Total erosion hazard: As per CAS 2021 and CHAP 2025, for each coastline segment the total horizontal erosion allowance was the sum:

$$S_{TOTAL}=S1+S2+S3$$

For the selected section, this was mapped as:

- Immediate zone of wave impact (ZWI), which reflects storm impact line (S1)
- Almost-certain zone of recession (ZR), calculated as S1+S2 for each future time frame
- Possible ZR, calculated as S1+S2+S3 for each future time frame.

Mapping was prepared in GIS using the most recent available DEM and cadastral layers and presented at a scale suitable for asset screening and planning use (not cadastral-title precision). Assumptions, data metadata and mapping tolerances remain unchanged unless otherwise indicated.

Table 2-4: Summary of Setback Allowances for 2019, 2050, 2100 (CAS 2021)

Location	Present Erosion setback (m) S1	Future erosion setback (m)			
		2050 Scenario		2100 Scenario	
		S1 + S2	S1 + S2 + S3 (BR50)	S1 + S2	S1 + S2 + S3 (BR50)
Section 1	6	6	21	6	56
Section 2	6	88	103	224	274
Section 3	15	15	30	15	65
Section 4	16	46	61	96	146
Section 5	27	27	42	27	77
Section 6	8	8	23	8	58

Horizontal Setback Datum (HSD)

The HSD is the vegetation line on a stable or accreting sandy shore or the equivalent indicator of the landward limit of annual active beach behaviour on receding shorelines. The initial HSD was estimated for each of the SBEACH profiles through the use of aerial photographs and LiDAR data (LCLGA, 2018). In the lack of any later LiDAR data and quality aerial photographs (the study area not covered by both Nearmap and Metromap), available satellite images (2019/2023) were used for checking previously adopted S2 rates and establishing the 2025/2026 baseline.

2.3.2 Vulnerability & Risk Review

Consistent with CAS 2021, risk is evaluated using a likelihood × consequence framework across planning horizons. Likelihood is inferred from asset proximity to the ZWI/2050/2100 envelopes and the expected timing/frequency of interaction (e.g., present-day storm scarp encroachment vs. progressive recession by 2050/2100), while consequence considers service continuity, public safety, repair cost, environmental/cultural sensitivities, and recovery practicality (consistent with SA guidance to align hazard exposure with clear risk communication).

Asset and Value Inventory

The CAS had identified public and private assets potentially intersecting the mapped hazard envelopes (e.g., sections of Marine Parade, shared paths, carparks, community facilities, and private allotments) and noted critical network dependencies. An asset and infrastructure database for the Segment 2 (Wyomi Beach) using the cadastral map and information provided by KDC is presented in Appendix A, including asset descriptions in terms of ownership information and asset values provided by the KDC.

Risk Rating

Consistent with CAS 2021 and aligned with 2025 CHAP guidelines, the same qualitative approach was used to assess the magnitude of the risks associated with erosion. The CAS assigned risk levels to each asset class for the relevant horizons depends on:

- Likelihood derived from the mapped proximity to erosion hazard lines and expected timing/horizons of impact
- Consequence considered service disruption, safety, damage cost, environmental/cultural values, and recovery practicality.

The product of these two produced risk heat-maps/tables highlighting where current or future risk bands (e.g., High/Very High) warranted near-term management or monitoring.

Likelihood

The assessment of likelihood in this CAS update follows the overall intent and structure of the 2021 Coastal Adaptation Strategy, while providing clearer explanation of how likelihood is derived for the updated planning horizons of 2050 and 2100. To maintain consistency with the existing hazard mapping and avoid unnecessary reinterpretation for stakeholders, the naming of hazard lines ("Immediate ZWI", "Almost Certain ZR", and "Possible ZR") has been retained, although the underlying timeframes have been updated.

The 2021 Strategy adopted qualitative likelihood descriptors from the Australian Geomechanics Society (AGS, 2007), which defines standard terms such as Almost Certain, Likely, Possible, Unlikely and Rare, along with their corresponding indicative annual exceedance probabilities and cumulative probabilities over a nominal 60-year design life. These descriptors are widely used in natural hazard risk management and continue to provide an appropriate qualitative framework for communicating erosion likelihoods in this update.

Erosion Hazard Lines: In line with the 2021 approach, and to avoid renaming hazard lines in this interim update:

- The Immediate Zone of Wave Impact (ZWI) remains linked to the modelled 1% AEP (100-year ARI) design storm event, consistent with the original SBEACH storm-erosion assessment. This event frequency remains unchanged from the previous study.
- The "Almost Certain" Zone of Recession (ZR) continues to represent the combined influence of S1 (storm erosion) and S2 (long-term shoreline trend). In the original study, the descriptor Almost Certain was adopted from AGS to reflect a very high qualitative likelihood of shoreline retreat under ongoing long-term processes. This CAS update retains this naming convention for continuity, while acknowledging that the 2050 and 2100 horizons now represent approximately 25-year and 75-year futures respectively (relative to the 2025 baseline), rather than the original 32- and 82-year windows (relative to the original 2019 baseline).

- The “Possible” Zone of Recession (ZR) continues to incorporate S3 (projected SLR-driven recession) using the upper-bound Bruun factor applied in 2021. The descriptor Possible remains appropriate to communicate that this line represents a plausible, but more uncertain, upper-range recession envelope. The updated timeframes do not materially alter the conceptual function of this zone.

Table 2-5: Probability of Hazard Event Occurrence

ARI (years)	AEP (%)	Length of Period (years)						
		1	5	10	25	50	75	100
1	100%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
5	20%	20.00%	67.23%	89.26%	99.62%	100.00%	100.00%	100.00%
10	10%	10.00%	40.95%	65.13%	92.82%	99.48%	99.96%	100.00%
25	5%	5.00%	22.62%	40.13%	72.26%	92.31%	97.87%	99.41%
50	2%	2.00%	9.61%	18.29%	39.65%	63.58%	78.02%	86.74%
75	1.33%	1.33%	6.49%	12.56%	28.51%	48.89%	63.46%	73.88%
100	1.00%	1.00%	4.90%	9.56%	22.22%	39.50%	52.94%	63.40%

Table 2-6: Risk Likelihood Rating

Descriptor	Probability Range	Qualitative Meaning
Almost Certain	>90%	Risk is expected to occur
Likely	60–89%	Strong possibility the risk will occur
Possible	20–59%	There is potential for the risk to occur
Unlikely	5–19%	Slight possibility the risk may occur
Rare	<5%	Extremely unlikely risk will occur

Consequence

CPB (1992) did not prescribe a method for evaluating the level of risk with regard to erosion where loss of land may occur separately from loss of buildings, with varying financial implications. However, in most erosion cases, total loss of land and assets will be the eventual outcome. Consistent with CAS 2021, the approach adopted was to continue using the extent (%) of damage prescribed in Table 2-7 from the consequence descriptor to determine the risk. The CAS assessment of consequences was based on a “Do Nothing” scenario and adopting the local government framework for coastal risk assessments in Australia developed for damage to infrastructure and services and the environment (Hatch 2021).

Table 2-7: Consequence Descriptors (Wainwright, D. et al, 2016)

Descriptor	Approximate quantum of damage (cost)	Asset and Infrastructure - Description	Environment - Description
Catastrophic	>100%	Significant permanent damage and/or complete loss of the infrastructure and the infrastructure service. Loss of infrastructure support and translocation of services to other sites.	Very significant loss to the environment. May include localised loss of species, habitats or ecosystems. Extensive remedial action essential to prevent further degradation. Restoration likely to be required.
Major	40 to 100%	Extensive infrastructure damage requiring major repair. Major loss of infrastructure service.	Significant effect on the environment and local ecosystems. Remedial action likely to be required.
Medium	10 to 40%	Limited infrastructure damage and loss of service. Damage recoverable by maintenance and minor repair.	Some damage to the environment, including local ecosystems. Some remedial action may be required.
Minor	1 to 10%	Localised infrastructure service disruption. No permanent damage with some minor restoration work required.	Minimal effects on the natural environment.
Insignificant	<1%	No infrastructure damage with little change to service.	No adverse effects on the natural environment.

Risk Rating Matrix

The subsequent likelihood versus consequence risk matrix is presented in Table 2-8 below.

Table 2-8: Likelihood/Consequence Matrix

Likelihood	Consequence				
	Catastrophic	Major	Medium	Minor	Insignificant
Almost Certain	Very High	Very High	Very High	High	Medium
Likely	Very High	Very High	High	Medium	Low
Possible	Very High	High	Medium	Medium	Very Low
Unlikely	High	Medium	Low	Low	Very Low
Rare	Medium	Low	Low	Very Low	Very Low
Barely Credible	Low	Very Low	Very Low	Very Low	Very Low

For Wyomi, we update the evidence base that informs likelihood categories using post-2021 beach profiles, observed performance of Stage 2 seawall, and 2021/2022/2024 nourishment behaviour. Where this points to localised adjustments (e.g., near tie-ins) rather than segment-scale changes, we record these observations and suggested monitoring triggers within the risk commentary while preserving the 2021 risk structure and bands. Updated results are presented in Appendix A.

2.3.3 **Adaptation Actions & Pathways** **Adaptation Planning**

The developed risk profiles are used to identify priority areas to inform the CAS. Assets and infrastructure at risk to either coastal erosion or flooding for the given planning scenarios were identified using the hazard maps established in Section 2.3.1.

Consistent with CAS 2021, adaptation planning considers a balanced suite of measures: protect (seawall staging/refinement, targeted nourishment), accommodate (path/setback adjustments, dune rehabilitation), and retreat (where appropriate for non-critical assets), arranged into sequenced, trigger-aware pathways. This remains consistent with CHAP's emphasis on transparent pathways linked to monitoring and decision points.

A High or Very High risk is considered unacceptable, requiring adaptation responses to be implemented prior to this risk level occurring. Given the large number of assets at risk from coastal hazards, summary risk tables have been prepared for assets with a High or Very High risk to 2100, as presented in Appendix A. This gives an indication of the assets requiring adaptation responses. State owned assets such as telecommunication and power lines are not included in the assessment.

The original Wyomi adaptation logic was tested against the observed performance of the Stage 2 seawall and the recent nourishment campaigns, commenting on practical refinements such as: focus of nourishment cells, armour tie-in detailing to manage end-effects, and priorities for maintenance/monitoring. The original options framing was maintained rather than introducing new appraisal tools beyond scope; instead, we present concise, operational recommendations that reflect current conditions and recent works.

2.4 **Flooding Hazard**

2.4.1 **Coastal Inundation Hazard Exposure** **Baseline Method:**

The original CAS inundation mapping for Kingston SE was prepared using the University of Adelaide's flood modelling products that were current at the time. Those results provided settlement-scale screening of coastal inundation extents for the standard planning horizons and were adopted by Council for strategy-level risk and adaptation planning. As per our proposal to KDC, the methodology will largely be retained and remain fit for purpose.

2025 Rosetown Event – Consolidated Desktop Review:

Council's drainage consultant Tonkin undertook a targeted review of the winter 2025 Rosetown inundation, collating site photographs, observations from a post-event inspection, and council staff inputs on local drainage behaviour and access constraints. Their findings indicate that flooding was driven primarily by elevated coastal water levels in the Maria Creek vicinity acting as tailwater to the local drainage network, which reduced discharge capacity at several outfalls and low points adjacent to the creek corridor. The imagery record and on-ground observations point to shallow, areal ponding behind road crowns and along the foot of dune/berm features, with overtopping pathways concentrated at known low spots; these patterns are broadly consistent with the strategy-scale static mapping for present-day conditions when interpreted with hydraulic connectivity in mind (Tonkin, 2025; KDC, 2025).

In consolidating Tonkin's review with our CAS update scope, we used their event insights to sanity-check the Rosetown screening map produced for this update (bathtub with connectivity, using the revised design water level). The photographic time-stamps, indicative peak marks, and council field notes corroborate the general extent and pathways shown by the screening layer, while also highlighting local sensitivities not captured by static methods, namely culvert performance, outfall backwater effects, and short-duration flow restrictions at driveway crossovers and verge transitions. In keeping with the planning-scale purpose of this update, we have not re-modelled the event dynamically; rather, we document these locations as priority checkpoints for future survey and (if required) fit-for-purpose hydraulic modelling at implementation stage (Tonkin, 2025; KDC event records, 2025).

Approach Applied in This 2026 Update:

Under the accepted scope for this desktop update, no allowance was made for a wholesale remapping of inundation hazards. However, to improve confidence specifically in Rosetown (Section 6) following the winter 2025 flood observations, we have prepared a targeted, static inundation map using a bathtub method with hydraulic connectivity enforced. This mapping applies the revised design water level adopted for this update and is intended solely to verify whether observed pooling and flood pathways are broadly consistent with the strategy-scale envelopes and to support scenario planning in this report. The procedure ensures that water only fills areas reachable via a continuous low pathway from the coast (i.e., isolated depressions without a hydraulic connection are not shown as flooded), improving realism compared with simple level-filling.

The Rosetown inundation layer produced for this update is a first-pass, planning-scale screening output to support the reassessment of flood hazard for the CAS update only. It is not a detailed hydraulic model, does not incorporate time-varying hydrodynamics, wave set-up/run-up, culvert hydraulics, creek backwater dynamics, drainage capacity, or joint rainfall–runoff interactions, and it relies on the vertical accuracy and currency of the underlying DEM. Accordingly, this mapping must not be used for development assessment, detailed design, asset-level decision-making, or emergency management planning. Any application beyond the intended purpose of scenario testing within this CAS

update would require fit-for-purpose hydraulic modelling, updated survey, and targeted sensitivity testing commissioned separately by Council.

2.4.2 ***Vulnerability & Risk Review***

Consistent with CAS 2021, inundation risk is evaluated using a likelihood × consequence framework applied to assets and values intersecting the mapped flood extents for each horizon/likelihood band. Likelihood is linked to event frequency proxies (e.g., MHWS/HAT; 10%; 1%; 0.2% AEP bands where used for communication), while consequence considers safety, service continuity, damage cost, environmental/cultural receptors, access/egress, and recovery practicality in low-lying areas adjacent to Maria Creek. This aligns with the CHAP 2025 structure which encourages presenting hazard exposure clearly first, then translating exposure to risk using council-compatible definitions.

We incorporate the 2025 Rosetown flood observations to sense-check the likelihood categorisation for exposed assets (local roads, drainage outfalls, nearby community facilities and private lots), paying particular attention to nuisance/regular inundation hot spots and storm-tide pathways indicated by the photographs and reported peak water levels. Where the evidence corroborates the 2021 risk bands, we retain them; where it suggests minor localised adjustments (e.g., frequently ponded sections behind road crowns or culvert choke points), we document those in the commentary and tie them to monitoring/operational actions rather than restructuring the risk framework, consistent with the desktop verification scope.

2.4.3 ***Adaptation Actions & Pathways***

Consistent with CAS 2021, adaptation planning for inundation considers a practical mix of measures framed across the familiar hierarchy Avoid/Accommodate/Protect/Retreat and expressed through sequenced pathways supported by monitoring and decision points. For Rosetown, the prior CAS considered measures such as:

- Accommodate/Protect: targeted road raising at low points, strategic non-return valves or tidal flap-gates at stormwater outfalls where appropriate, local levee/berm segments to reduce overtopping pathways, and culvert improvements to manage tailwater constraints
- Planning/controls: floor level guidance, access/egress considerations, and operational flood response planning near Maria Creek
- Nature-based opportunities: where feasible, foreshore berm/dune maintenance and vegetation to slow overland conveyance of shallow flows (noting site-specific constraints).

This qualitative options framing remains aligned with CHAP 2025, which encourages clear pathways and trigger logic at strategy scale, reserving detailed hydraulic design and full economic appraisal for implementation phases.

We further assess how the 2025 flood observations interact with the existing pathways, e.g., whether observed ponding/overtopping points coincide with earlier candidate road-raise locations, whether outfall backwater was evident (supporting consideration of tidal devices/operational checks), and whether access routes behaved as anticipated. We then provide concise, operations-ready refinements that are proportionate to a desktop strategy update.

3. Erosion Hazard Review and Update

3.1 Erosion Hazard Review (Whole Study Area)

A summary of erosion setback allowances from the proceeding information is presented in Table 2-1. The following coastal hazard lines were mapped for present day conditions, 2050 and 2100. The immediate ZWI hazard line was positioned based on the potential storm erosion (S1), relative to the Horizontal Setback Datum (HSD). The future hazard lines for the 2050 and 2100 scenarios were estimated by taking the immediate ZWI hazard line (S1 component) and adding the underlying long-term recession (S2) and recession due to sea level rise (S3):

- Immediate zone of wave impact (ZWI) (S1)
- Almost certain zone of recession (ZR) (S1+ S2)
- Possible ZR (S1+S2+S3 (BR50)); change to BR 50.

Table 3-1: Summary of Setback Allowances for Present Day, 2050 and 2100

Location	Present erosion setback (m) S1	Future erosion setback (m)			
		2050 Scenario		2100 Scenario	
		Almost Certain (S1+S2)	Possible (S1+S2+S3(BR50))	Almost Certain (S1+S2)	Possible (S1+S2+S3(BR50))
Section 1	6	6	21	6	56
Section 2	6	67	88	182	232
Section 3	15	15	30	15	65
Section 4	16	28	43	53	103
Section 5	27	27	42	27	77
Section 6	8	8	23	8	58

Long term erosion rates (S2) were calculated based on recent available profile data since 2018 (Table 3-2).

Table 3-2: Profile Data Available for S2 Erosion Rate Review

Section	Location	Available DEW profile data
1	Between Cape Jaffa and Cape Jaffa Marina	2018, 22, 23, 24, 25
2	Northeast of Cape Jaffa Marina to Butchers Drain	2018, 22, 23, 24, 25
3	Butchers Drain to the north end of Pinks Beach	2018, 21, 22, 23, 24
4	Wyomi Beach south to approx. Thredgold Ave	2018, 21, 22, 23, 24
5	Between Thredgold Ave and Maria Creek Drain	2018, 21, 22, 23, 24
6	North of Maria Creek Drain to south of Blackford Drain	Not analysed - most recent profile data was 2012

Because DEW profiles 715008 and 715009 sit within the influence of the existing and extended Wyomi seawall, they record beach level and planform behaviour that is partly governed by the structure itself (toe interactions, reflection/armour effects, construction staging) rather than natural, unconstrained storm response. Using these disturbed profiles to reduce or recalibrate the design-storm S1 would risk under-representing open-coast storm bite at the segment scale. Retaining the original, process-based S1 is therefore the most defensible and conservative choice for this interim review, consistent with the original CAS method and with the CHAP Compendium principle that event-based erosion allowances should be grounded in design storm/process response and site setting, supplemented (but not overridden) by monitoring where local data are structurally perturbed.

3.2 Segments Requiring Update (HOLD POINT Summary)

As proposed, allowance has been made to update the erosion hazard mapping for one segment along the Kingston coastline. Section 4 encompasses the area from Wyomi Beach south to Thredgold Ave and was highlighted in the 2021 CAS as an area at high risk of erosion. As recommended by the CAS, a further study was conducted to assess the viability of a managed retreat pathway against a staged seawall (defend) approach to manage erosion risks. After community feedback, the City chose to adopt the defend pathway and construction of the stage 2 seawall was completed in March 2025. The increased length of armoured coastline will likely reduce erosion rates and subsequent risk for several assets but may increase erosion rates at the ends of the structure due to scour – particularly at the toe. Additionally, as mentioned in previous sections of this report, Wyomi beach has undergone multiple nourishment campaigns since the previous CAS. Updated hazard mapping for this section would not only include the presence of the stage 2 seawall extensions but also provide insights into the effectiveness of management activities.

3.3 Updated Erosion Hazard Mapping – Wyomi Beach

- Average erosion rates (S2) since 2018 calculated from DEW beach profiles.
- Erosion rates compared with 2021 CAS.
- Polygons of ASCON surveys for Wyomi stage 2 seawall extensions imported into QGIS.

- Projected 2050 and 2100 hazard lines calculated using the same formula as 2021 CAS.
- Almost certain zone of recession (ZR) = S1 + S2
- Possible ZR = S1 + S2 + S3 (Bruun 50)
- Base shoreline calculated to 2025 position.
- New hazard lines mapped from 2025 baseline using new erosion rates.

Table 3-3: Parameters for Wyomi (Section 4) Used in S3 Erosion Rates

Active Slope V:H	Year	Estimated Sea Level Rise (m)	Shoreline setback (Bruun factor 50)
1:40	2050	0.3	15
	2100	1	50

3.3.1 Updated Hazard Lines and Interpretation

The 2021 erosion hazard map is shown in Figure 3-1. The updated 2026 hazard map, which includes stage 2 seawall extensions and reviewed long term erosion rates, is shown in Figure 3-2.

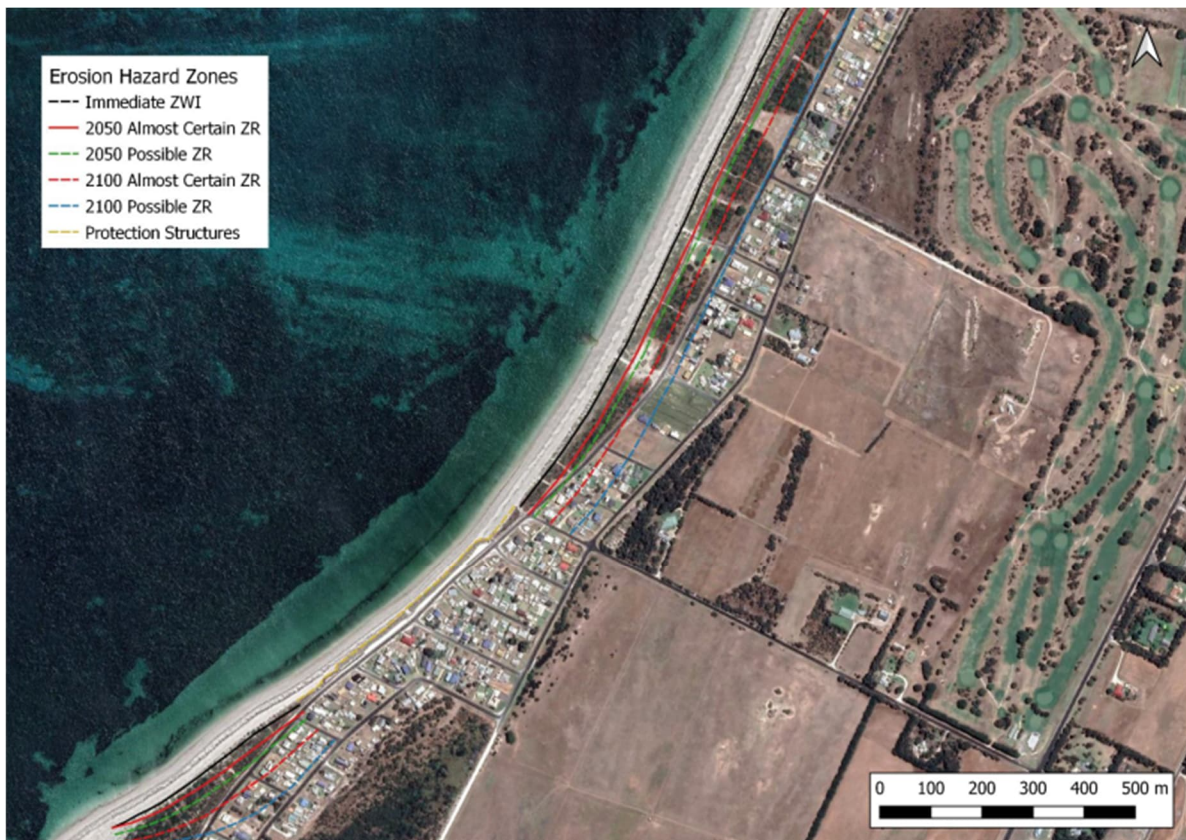


Figure 3-1: 2021 Coastal Erosion Hazard Lines: Wyomi (Section 4)



Figure 3-2: 2025 Coastal Erosion Hazard Lines: Wyomi (Section 4)

4. Inundation Hazard Review

4.1 Extreme Sea Level Review

This section summarises our review of extreme sea levels relevant to Kingston District Council's coastal inundation context. The aim is to ensure that the water levels used in the CAS (2021) remain appropriate for hazard mapping and that any refinements reflect contemporary data, new observations from 2025 storms, and local guidance, while remaining consistent with the scope of this CAS Update, which does not involve new hydraulic modelling or engineering design.

The review draws on:

- The 2021 Coastal Adaptation Strategy (CAS) extreme water levels (SA Coast Protection Board baseline inputs)
- Tonkin's Rosetown Stormwater Investigation (2025) and associated tidal data review
- Recent BOM tide data from Victor Harbor supplied to Hatch (QC-validated by BOM to Aug 2025), and
- SA Coast Protection Board (CPB) SLR allowances and extreme sea level frameworks, as also referenced in the Victor Harbor adaptation study (2021).

This assessment focuses on whether a change to the adopted present-day 1% AEP/100-yr ARI water levels is warranted, and whether updated SLR increments should influence the 2050 and 2100 design horizons used for policy-level inundation mapping (not infrastructure design).

4.1.1 **Original CAS (2021)**

The original CAS used SA Coast Protection Board (CPB) water levels and allowances for Cape Jaffa and Kingston, derived from the State's standard framework for coastal inundation mapping. These included:

- Present-day 1% AEP storm-tide levels based on CPB's statewide hazard datasets.
- SLR allowances:
 - ◆ +0.30 m by 2050
 - ◆ +1.00 m by 2100

compared to 1990 levels—aligned with SA policy and consistent with IPCC projections (RCP8.5 at that time).

Assessment of Validity:

The 2021 CPB levels were appropriate and conservative relative to available data. They also provide a State-endorsed and planning-aligned basis for inundation mapping. Our review finds no evidence that these values are inconsistent with observations from 2025 or that the CAS mapping requires recalculation.

4.1.2 **Tonkin (2025) Rosetown Drainage Study**

Tonkin undertook a review of tide data availability for the June–July 2025 Rosetown inundation events. Key points include:

- Nearest active tidal gauge: Robe (Lake Butler Marina)
- Former gauges at Kingston and Cape Jaffa are no longer operational
- Peak recorded tides (converted to AHD) as shown in Table 4-1:
 - ◆ May 2025: 1.63 m AHD (approx. 10% AEP)
 - ◆ June 2025: 1.78 m AHD (approx. 4% AEP – largest event)
 - ◆ July 2025: 1.57 m AHD (approx. 17% AEP).
- Tonkin's adopted 1% AEP tide: 1.97 m AHD, derived via Canute3 under older scenario framing.
- DEW advised that while Robe data is the best available, local tide behaviour may differ, but the gauge remains the most appropriate indicator for the region.

Assessment of Validity:

Tonkin's dataset and conversions are sound. Their peak 2025 events fall very closely with the CPB present-day 1% AEP level (after adjusting for the change from 2019 to 2025). This reinforces, not challenges, the previous CAS's conservative water levels.

Table 4-1: Maximum Recorded Tide Heights at Robe Tide Gauge in 2025 Winter (Tonkin 2025)

Date range	Maximum tide height above chart datum	Maximum tide height as meters AHD	Estimated AEP for tide height*
25 th to 27 th May 2025	2.27	1.63	~10%
24 th to 26 th June 2025	2.42	1.78	~4%
21 st to 23 rd July 2025	2.21	1.57	~17%
-	-	1.97	1%

Estimation of AEP for various tide levels are based on estimated tide levels from Canute3 for the SSP2-4.5 2025-time horizon

4.1.3

BOM Tide Data

Hatch obtained BOM-QA tidal data from Victor Harbor for the period from 2021 to end 2025. Although Victor Harbor is farther from Kingston SE than Robe, it is the nearest BOM tide station available in the vicinity of Kingston, and the data has been QC'ed to August 2025.

Key observations:

- 2025 water levels show a cluster of elevated events consistent with Tonkin's Robe findings (i.e., 1.6 – 1.8 m AHD range).
- Patterns confirm exceptionally stormy year in 2025, consistent with Hatch's review of long-term sea level monitoring data at SA's Outer Harbour, which suggested that the winter of 2025 was among the stormiest ones in the available record.
- Extreme levels at Victor Harbor do not exceed CPB's conservative 1% AEP benchmarks. Also do not exceed the 1% AEP for Victor Harbour of approximately 1.75m AHD (value taken from City of Victor Harbour's CAS report, 2021).
- Victor Harbor's SLR projections and extreme sea level analysis (from the Integrated Coasts 2021 study) use CPB's +0.3 m / +1 m allowances, reaffirming statewide policy consistency.

Assessment of Validity:

Victor Harbor data adds regional confirmation that:

- Peak 2025 sea levels remain significantly below CPB 1% AEP levels, and
- Recent observations do not indicate a need to adjust CPB's adopted water levels for mapping.

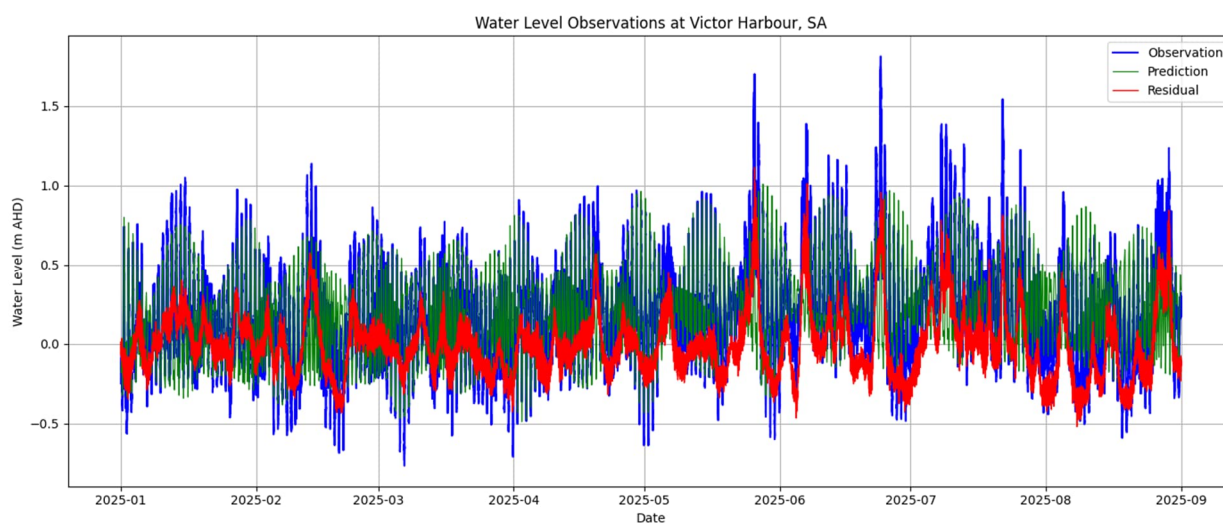


Figure 4-1: Victor Harbour Sea Levels in 2025 (BOM)

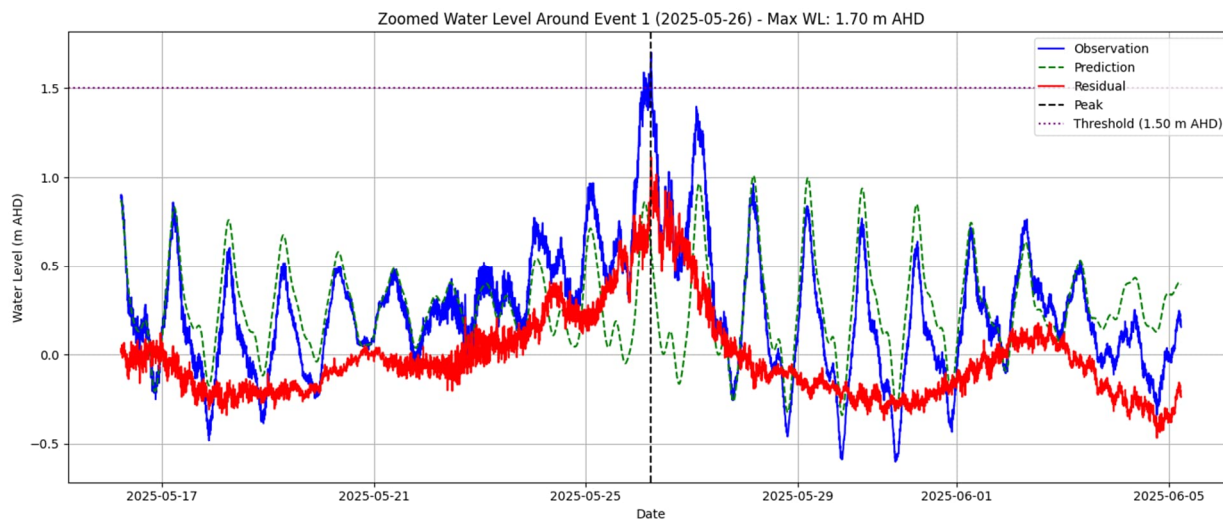


Figure 4-2: Victor Harbour 1st Extreme Sea Levels Event (Winter 2025, BOM)

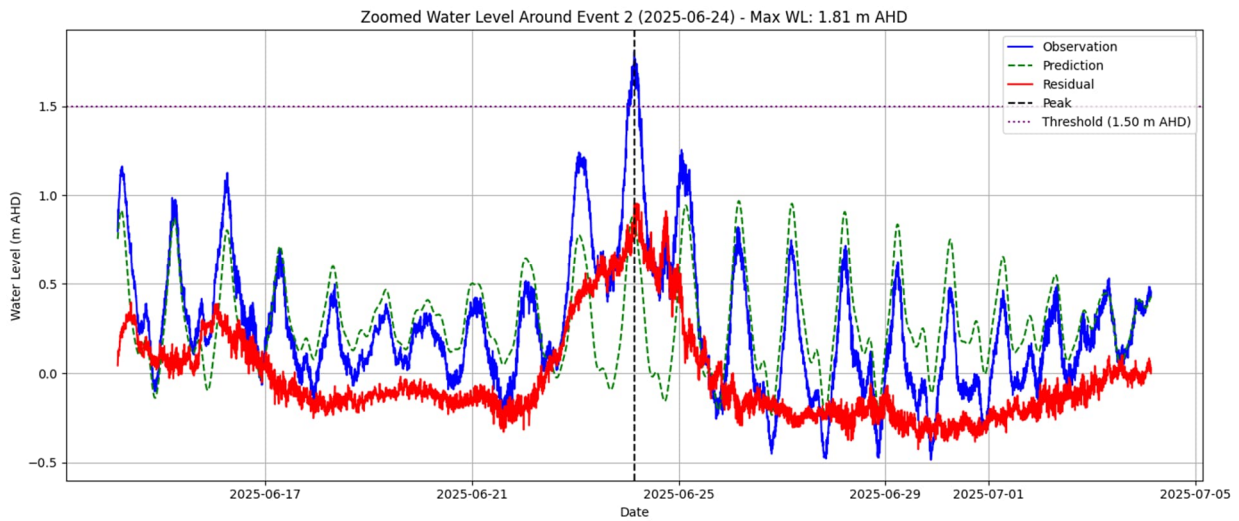


Figure 4-3: Victor Harbour 2nd Extreme Sea Levels Event (Winter 2025, BOM)

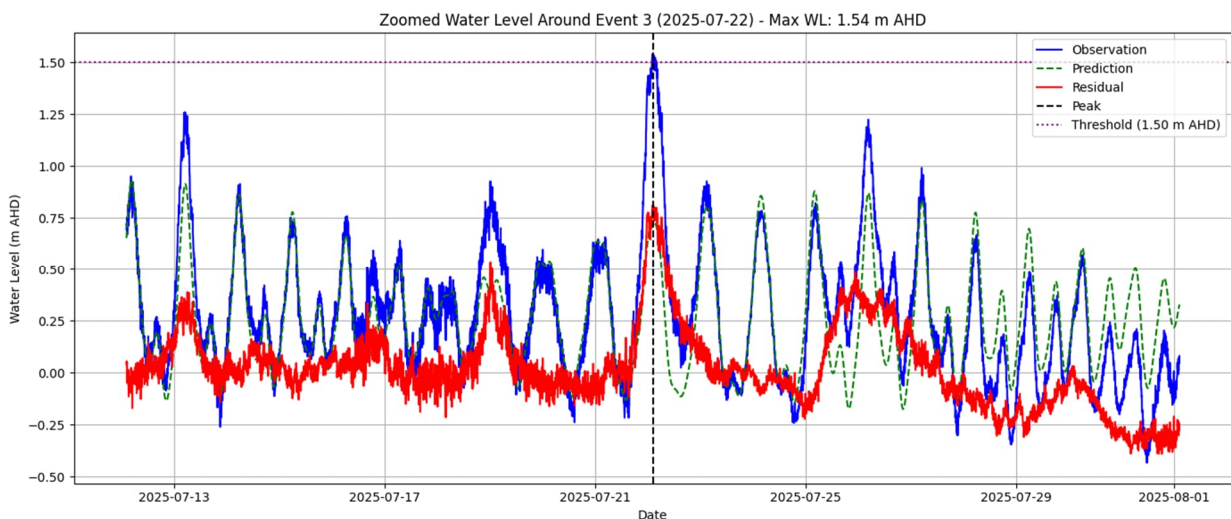


Figure 4-4: Victor Harbour 3rd Extreme Sea Levels Event (Winter 2025, BOM)

4.1.4 Reconciling Extreme Sea Levels for Coastal Inundation Assessment Summary

The above observations are summarized in Table 4-2. All available evidence – Tonkin’s 2025 analysis, Victor Harbor’s 2025 tidal record, and prior CPB datasets – remains aligned. There is no material basis to revise the extreme sea levels used in the CAS mapping, except to adjust for 2025 Scenario from 2019. The “Present-day scenario” of 2025 was rounded to remain as 1.9m after offsetting observed recent SLR rates for Australia (latest observation ~3.1 mm/year in the decades leading to 2009).

Table 4-2: Review of Extreme Sea Levels in the Neighbourhood of Kingston SE

Dataset / Source	Observed / Adopted Value	Remarks
SA CPB total sea level adopted (CAS, 2021)	1% AEP $\approx$ 1.9 m AHD (2019)	Basis for CAS 2021
Robe tide gauge (Tonkin, 2025)	Peak 2025 = 1.78 m AHD	Below CPB 1% AEP
Tonkin 1% AEP estimate	1.97 m AHD (from Canute3)	Effectively comparable to CPB's
Victor Harbor tide gauge (BOM, 2025)	Similar 1.6–1.8 m AHD storm peaks	Regionally consistent with the same 3 events observed from Robe

Sea Level Rise Allowances

CPB's long-established SLR allowances remain:

- +0.30 m by 2050
- +1.00 m by 2100.

These values are still appropriate for inundation mapping since:

- They align with South Australia's planning system and Design Code policy
- They remain within the range of the latest national AR6 SSP projections
- They provide consistency across Kingston's broader planning and hazard frameworks
- They preserve continuity with the CAS 2021 and avoid unnecessary remodelling that falls outside this update's scope.

4.2 Inundation Hazard Assessment & Segment Requiring Update

This section summarises the recommended approach for updating the Rosetown coastal flood hazard assessment. It draws on:

- the latest scientific evidence and national/state guidance on sea-level rise (SLR)
- the Tonkin (2025) Rosetown Stormwater Investigation and DEW tidal data
- the review of BOM tidal data (2025) and longer-term tide records in SA
- the 2021 Coastal Adaptation Strategy (CAS), and
- Hatch's agreed scope of work, noting that this study does not include detailed hydraulic modelling or the engineering design of protection structures.

Our objective is to ensure that the updated CAS correctly reflects contemporary hazard information while providing realistic, actionable recommendations for the next stage of Council planning.

4.2.1 ***Inundation Hazard Review***

The inundation mapping included in the 2021 Coastal Adaptation Strategy was prepared by the University of Adelaide (2019) using a simple bathtub method. As noted in the original CAS technical appendix, this approach applied water levels directly to the 2018 DEM without enforcing hydraulic connectivity to the sea, resulting in the appearance of several isolated inundation patches or “ponded” areas across Sections 1–6. These areas do not necessarily reflect true storm-tide pathways, particularly where natural dunes, berms, drainage lines, or engineered features interrupt flow.

For this 2026 CAS Update, and consistent with our proposal scope, which includes review but no allowance for new flood hazard mapping, no allowance has been made for inundation modeling. However, to assist in validating the previous hazard extents and to support the Rosetown flood risk assessment, Hatch has generated connectivity-screened flood maps for each planning timeframe (present-2025, 2050, 2100). This involved filtering out isolated depressions that are not connected to the coast for the given scenario water level, providing a more realistic representation of where storm-tide inundation is physically plausible.

Based on a review of the available tide gauge information from Robe and Victor Harbor, the recent 2025 storm events, and the South Australian Coast Protection Board's established extreme sea level datasets, the extreme water levels adopted in the original 2021 CAS remain appropriate for use in this Update.

Observed 2025 extreme water levels (1.6 – 1.8 m AHD) are notably below the CPB's present-day 1% AEP benchmark (~1.9 – 2.1 m AHD), supporting continued reliance on CPB values for inundation mapping and risk assessment.

Consistent with State policy and planning frameworks, CPB sea-level rise allowances (+0.30 m by 2050, +1.00 m by 2100) should continue to be used for future scenario mapping and risk assessment. While newer AR6-based projections are acknowledged, they do not materially change the hazard assessment for Rosetown at this stage.

This CAS Update does not generate new flood hazard maps or revised design levels. It confirms that the existing CPB-based water levels remain valid and appropriate for guiding Council's policy-level adaptation considerations.

Clarification on Inundation Mapping

The connectivity-screened inundation layers included in this report were prepared by Hatch for internal technical verification and risk screening only, to support interpretation of observed 2025 flood behaviour within the CAS Update.

These outputs do not constitute Council-approved flood hazard mapping, were not commissioned as stand-alone inundation studies, and must not be relied upon for statutory planning, development assessment, design, insurance or property-level decision-making.

4.2.2 Recommendations for Future Inundation Hazard Mapping Allowance for Local Effects

While this CAS Update continues to rely on CPB still-water levels for inundation mapping, it is noted that Tonkin's 2025 site observations recorded minor localised overtopping in Rosetown, even when crest levels were nominally sufficient, as appeared from the same DEM we analysed. Similar studies, such as the Victor Harbor Coastal Adaptation Study (City of Victor Harbour, 2021) incorporated wave setup and wave run-up allowances to reflect these short-duration, site-specific effects.

Given that the 2021 CAS tables did not include wave run-up, it is suggested that any future full CAS review may consider whether location-specific run-up allowances should be incorporated into extreme water level assessments. This would support more detailed design or mitigation planning for each Section of the Study area, while remaining beyond the scope of the current high-level Update.

Table 4-3: Coastal Inundation Parameters for Kingston (m AHD)

Parameter	2025 Scenario	2050 Scenario	2100 Scenario
100yr ARI Storm WL	1.6	1.6	1.6
Wave Set-up	0.3	0.3	0.3
Wave Run-up & Local effects	Not included	Not included	Not included
Sea Level Rise	–	0.3	1.0
TOTAL	1.9	2.2	2.9

Table 4-4: Coastal Inundation Parameters for Cape Jaffa (m AHD)

Parameter	2025 Scenario	2050 Scenario	2100 Scenario
100yr ARI Storm WL	1.8	1.8	1.8
Wave Set-up	0.3	0.3	0.3
Wave Run-up & Local effects	Not included	Not included	Not included
Sea Level Rise	–	0.3	1.0
TOTAL	2.1	2.4	3.1

Buffer for Sea Level Rise:

The current CAS (2021) applies the SA Coast Protection Board (CPB) policy allowances of +0.3 m by 2050 and +1.0 m by 2100 (relative to a 1990 baseline), consistent with long-standing State planning requirements and also adopted in other South Australian studies such as the Victor Harbor Coastal Adaptation Study.

As we are now in 2025/26, these fixed increments from a 1990 baseline are becoming less representative of the latest national projections, which show continuing acceleration of sea-level rise through the 21st century. For policy consistency, and also aligning with LGA's CHAP 2025 Guidelines, it remains appropriate for this CAS Update to retain CPB allowances, but it is suggested that a future full CAS review re-examine SLR settings by:

- Considering any updated CPB or State Government guidance
- Ensuring alignment with emerging LGA CHAP coastal hazard planning frameworks updates, and
- Reviewing contemporary regional SLR projections used in more recent adaptation studies across SA.

This would allow Kingston District Council to maintain a policy-aligned and evidence-based approach while ensuring SLR buffers remain appropriate for long-term planning.

4.3 Inundation Hazard Update

Clarification on Inundation Mapping

The connectivity-screened inundation layers included in this report were prepared by Hatch for internal technical verification and risk screening only, to support interpretation of observed 2025 flood behaviour within the CAS Update.

These outputs do not constitute Council-approved flood hazard mapping, were not commissioned as stand-alone inundation studies, and must not be relied upon for statutory planning, development assessment, design, insurance or property-level decision-making.

The connectivity-screened indicative flood maps for Sections 1–6 are included in this report for reference. These maps are provided to support interpretation and risk assessment only; they do not replace the formally adopted CPB-based inundation mapping and should not be used for design or statutory planning. Any future full CAS review may consider development of fit-for-purpose flood modelling should Council require a more detailed understanding of inundation behaviour.

The inundation extents were cross-checked against 2021 CAS flood maps, the observed 2025 events (photos as provided in Rosetown Drainage Study report), BOM Victor Harbor QC'd data (both datasets showed peaks broadly below CPB present-day 1% AEP levels), and confirmation by KDC's representative on the flood extent observed during 2025 winter flood.

The 2026 inundation outputs included herein were prepared by Hatch to support risk verification within the CAS Update. They were generated using bathtub + hydraulic connectivity methods and CPB-consistent still-water scenarios with SLR allowances. These results are not a substitute for hydrodynamic modelling, do not supersede the CPB-based inundation mapping used for policy, and must not be used for detailed design or statutory planning decisions.

If Council wishes to progress to design-grade solutions (e.g., levees, road cresting, weir operation rules), project-specific flood modelling and overtopping analyses should be commissioned.

The flood extents shown in this report represent maximum potential inundation areas driven by extreme sea levels alone, applied over the 2018 LiDAR DEM. They do not account for the time required for sea water to propagate inland through connected low-lying areas. In reality, storm-tide peaks typically persist for only a few hours before receding with the falling tide, and some inland areas may require multiple high-tide cycles to fill (if they fill at all) depending on local ground levels and connectivity. Each severe storm surge event typically last over a few high tide cycle, the behaviour is evident in the Victor Harbor 2025 water-level time series (Figure 4-2 to Figure 4-4), which shows repeated but short-duration peaks associated with successive high tides.

Accordingly, the mapped flood extents should be interpreted as a conservative upper-bound representation of where inundation could occur under static peak water levels, rather than a depiction of how flooding would evolve dynamically over time. The mapping also does not include compound flooding from rainfall, catchment runoff, infiltration, or stormwater system interactions, which may either increase or decrease local water levels depending on event timing. These factors should be assessed separately in future detailed hydrodynamic or design-stage studies, if required.

5. Updated Risk Assessment (2 Segments)

5.1 Wyomi Erosion Risk Assessment

5.1.1 Hazard Exposure

It was highlighted in the 2021 CAS that Wyomi was at high risk of erosion hazards and potential asset loss if no action was taken. Since the previous report, additional coastal protection structures have been constructed, and ongoing sand nourishment campaigns have been undertaken. To assess current hazard exposure, long-term erosion rates were reviewed using data from annual beach profiles provided by DEW (Table 3-2). These new (S2) rates were cross referenced with the 2021 CAS results and incorporated into 2050 and 2100 projection scenarios to aid risk assessment and coastal planning.

5.1.2 Risk Assessment

The erosion risk assessment for Wyomi was undertaken using the same qualitative approach as the previous CAS which is deemed suitable for planning purposes. The approach used the extent (%) of damage to determine the consequence descriptor. It was considered on a case-by-case basis that small areas of eroded land such as property frontages may carry lower risk than erosion at structural foundations. Updated risk due to erosion hazards and the likelihood descriptors used are presented for individual assts in Appendix A.

5.1.3 *Present day (2025) Scenario*

The following assets are at a High risk to erosion hazards under present day conditions:

- Small section of the shared path north of the stage 2 seawall extension
- The Wyomi Beach rock seawall is at risk of erosion at the toe
- The Wyomi Beach rock seawall access staircase.

Short-term Scenario (2050) scenario.

The following assets would be at High to Very High risk of erosion in the short term (2050) scenario if a “Do Nothing” approach was taken (Figure 5-1).

5.1.3.1 *Council Assets*

- All protection structures at Wyomi Beach are at risk from erosion at the toe and overtopping
- Approximately 1 km of the shared path north of the seawall and 30 m south
- Approximately 200 m of Marine Parade north of the seawall
- The Sailing Club.

5.1.3.2 *Private Assets*

- 7 properties along Marine Parade.

5.1.3.3 *State Assets*

- Dune vegetation on coastal crown land.



Figure 5-1: Assets Affected by Erosion – Wyomi 2050 Scenario

5.1.4 **Long-term Scenario (2100) Scenario**

The following assets would be at High to Very High risk of erosion for the long term (2100) scenario if a “Do Nothing” approach was taken.

5.1.4.1 *Council Assets*

- All protection structures are at risk from erosion at the toe along with overtopping damage to the crest and adjacent land due to wave overtopping
- All areas of the shared path north of the seawall to Thredgold Ave, and approximately 240 m south of the seawall
- Sections of Marine Parade, Huntingdale Ave, Johnstone Ave, Goode Ave, Scown Ave, Gurney Ave, David Ave, Stanley Ave
- The Thredgold Ave playground/recreation area
- The CWMS pump station opposite 68 Marine Parade and 412 m long section of CWMS line along Marine Parade starting at 68 Marine Parade
- The Sailing Club.

5.1.4.2 *Private Assets*

- 45 properties along Marine Parade
- 2 properties along Bellevue Drive
- 7 properties along Cooke Street
- 1 property along Golflinks Road
- 1 property along Huntingdale Ave.

5.1.4.3 *State Assets*

- Further areas of vegetated dune on coastal crown land.



Figure 5-2: Assets Affected by Erosion – Wyomi 2100 Scenario

5.1.5 Overall Assessment & Caveats

Key Observations:

- Review of profiles since the 2021 CAS suggests average segment-wide erosion rates largely agree with those published previously.
- Observed localised variation in erosion rates north of the rock seawall. Higher average erosion rates around the structure footprint consistent with downdrift effects.

Planning Outlook:

- Present-day: The shared path, particularly the section that diverts towards the coast and is located just north of the seawall could be at risk of erosion if a 100-year ARI storm event occurred.
- 2050: Erosion extends landward with coastal facing residential properties at risk. Additionally, almost all the shared path and areas of the Sailing Club are at risk of erosion (Figure 5-1).
- 2100: Further properties along Marine Parade move into Very High risk bands with sections of intersecting roads also at risk. Erosion footprint extended northward (Figure 5-2).

Caveats:

The 2026 erosion rates for Wyomi were calculated using the two profiles (175008, 175009) that were available at the time of assessment. Ongoing nourishment and seawall interaction may confound long-term average trends in shoreline movements. Hatch has presented these interim results to support the findings of the 2021 CAS and are not appropriate for use in detailed design or statutory planning.

5.2 Rosetown Inundation Risk Assessment

5.2.1 Hazard Exposure

To support this CAS Update's risk verification, particularly for Rosetown, Hatch undertook a targeted inundation modelling exercise in 2026. This work was designed as an interim, fit-for-purpose check to test the plausibility of flood pathways identified in the 2021 CAS (which used bathtub mapping without explicit hydraulic connectivity filtering); and provide connectivity-screened inundation extents for present-day (2025), 2050 and 2100 scenarios to aid risk assessment and near-term adaptation planning. Hatch applied a regional inundation model to cater for potential flooding caused by sea water entering from the sea front, laterally from the creeks, as well as East/Southeast directions due to water following flooded low land stretches behind. The bathtub + hydraulic connectivity approach was applied across Sections 1–6 for three timeframes, using CPB-consistent still-water scenarios and SLR allowances as detailed in Table 4-3 and Table 4-4. These interim results are complementary to the previously adopted inundation mapping used in the 2021 CAS and cross-checked in this Update for policy alignment and consistency.

The modelling outputs help validate risk hotspots, remove obvious “isolated pond” artefacts, and prioritise practical next steps (e.g., where crest raises or micro-bunds could be effective in Rosetown). Consistent with our proposal, this Update does not include new hydrodynamic modelling or the engineering design of protection works. Any flood modelling for design purposes (e.g., 2D/1D–2D hydrodynamics, wave run-up/overtopping) should be commissioned separately, if Council seeks to refine levels, structure crests, or operational rules (e.g., for Maria Creek weir operations).

The inundation extents were checked against:

- 2025 event observations compiled by Tonkin (peak 1.78 m AHD at Robe for the June event; photo-verified overtops near Maria Creek and prolonged ponding in local lows)
- BOM Victor Harbor sea level timeseries to Aug 2025 showing repeated short-duration peaks (~1.6–1.8 m AHD), consistent with a stormy winter but below CPB 1% AEP levels.

5.2.2 Risk Assessment

The flood risk assessment undertaken for Rosetown in this Update is subject to several data limitations, including the absence of building footprint datasets, limited detail on current land-uses, and the retirement of nationally accessible depth-damage tools (e.g., NEXIS and the former AEIP portal). In line with the agreed desktop scope, the 2026 Update therefore retains the qualitative risk assessment framework used in the 2021 CAS, which remains suitable for strategy-level planning.

Consequence estimation is based on the same elements applied in the 2021 CAS, namely:

- The percentage of each cadastral lot area potentially inundated (Figure 5-4, Figure 5-6, Figure 5-8), and
- The indicative depth–damage relationships referenced in the original CAS, applied at an approximately 0.3 m interval.

These inputs allow assets and land parcels to be slotted into the Consequence categories shown in Appendix A (Catastrophic → Insignificant).

Likelihood estimation is similarly consistent with the CAS 2021 method. Likelihood is inferred from the event AEP (%) and planning timeframe (2025/2070/2100). This aligns with the Likelihood descriptors (Section 2.4) provides an appropriate mechanism for expressing future inundation likelihoods at strategy scale.

Risk rating is then determined using the same approach adopted in the 2021 CAS using the qualitative matrix in Table 2-8 (Very High → Very Low). Assets are therefore classified according to the overlap of their likely frequency of impact and the severity of potential damage, acknowledging that these are planning-level, not design-level, estimates.

This combined framework, while simplified due to dataset constraints, remains a fit-for-purpose method for strategic risk screening within a desktop update. Any future detailed assessment (e.g., for design of levees, road-raises, drainage improvements, or land-use planning controls) may require:

- Updated building footprint and land-use information
- Parcel-scale exposure data
- And renewed depth–damage curves appropriate for south australian coastal flooding.

5.2.3 Present-day (2025) Scenario

Figure 5-3 shows the inundation extent, indicating where storm-tide water could realistically penetrate Rosetown given the 2025 design level. This mapping removes isolated “ponds” that occurred in the 2021 CAS bathtub outputs and highlights the primary Maria Creek overtopping pathways and low-lying back-areas susceptible to filling via continuous coastal pathways. Cadastral lots are shown in purple shade, with affected lots highlighted in yellow.

Figure 5-4 shows the percentage of cadastral lot inundation, helping to identify which properties are most affected by shallow–moderate flooding.

The 2025 results correlate closely with photographs and peak marks documented by Tonkin for the June 2025 event (~1.78 m AHD at Robe) and the QC-validated peaks (~1.6–1.8 m AHD) seen in the BOM Victor Harbor dataset.

However, these outputs remain screening-level only:

- They are not hydrodynamic models and do not incorporate flow timing, drainage system dynamics, wave run-up or coincident rainfall
- They rely on the 2018 LiDAR DEM, noting that time-varying water levels fill inland areas only instantaneously in the model (real-world filling may require multiple tidal cycles)
- They therefore represent a conservative upper-bound envelope of potential inundation under static peak sea levels
- These caveats are shown and reiterated in Section 4.3.

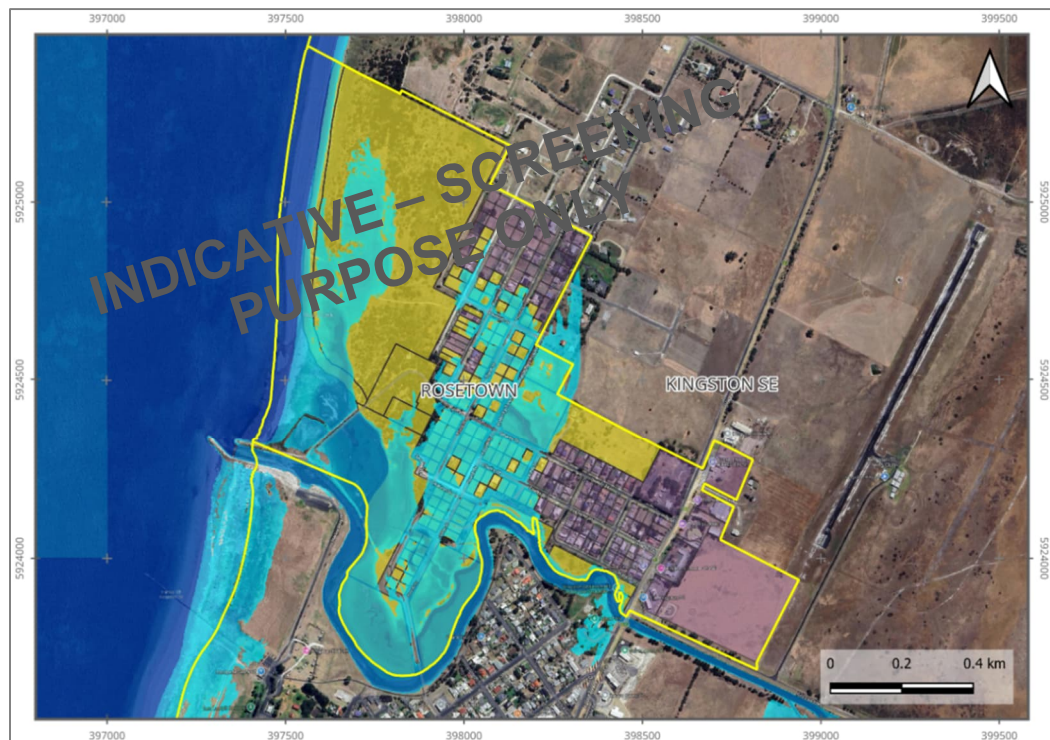


Figure 5-3: Potential Inundation Extent and Affected Cadastral Lots – Rosetown 2025 Scenario
(Not Council-approved. Not for statutory planning, design or development assessment)

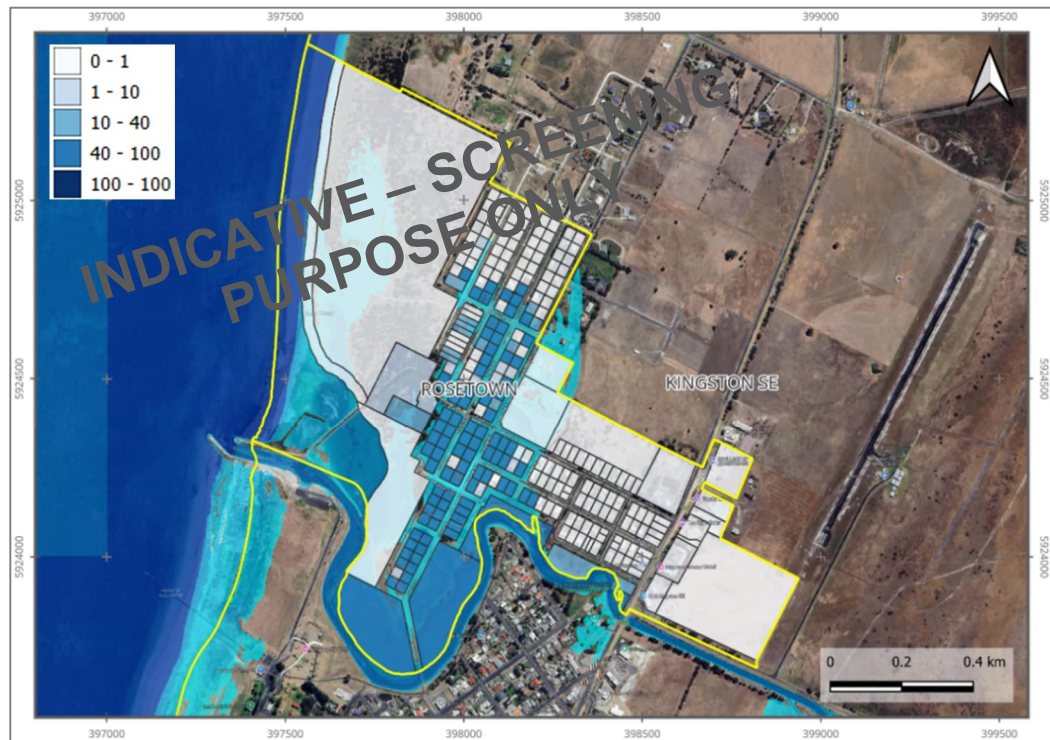


Figure 5-4: Potential Inundation Percentage of Cadastral Lots – Rosetown 2025 Scenario
(Not Council-approved. Not for statutory planning, design or development assessment)

5.2.4 Short-term (2050) Scenario

Figure 5-5 and Figure 5-6 represent inundation scenario with +0.30 m SLR, consistent with CPB's 2050 allowance. These results show a modest expansion of flood extents relative to 2025, mostly in areas already identified as sensitive during the 2025 event.

Several streets and lots experience an increase in both areal extent and depth of potential flooding due to higher water level in Maria Creek and reduced freeboard at the key overland flow sills. Refer to Appendix A for details.

These figures help establish which assets move from Low to Medium, and Medium toward High risk in the not-too-far 2050 horizon, reinforcing the need for incorporating early mitigation measures such as raising crest level of levee/shared roads and at overtopping sills, as well as any tidal gates and backflow control at stormwater outfalls.

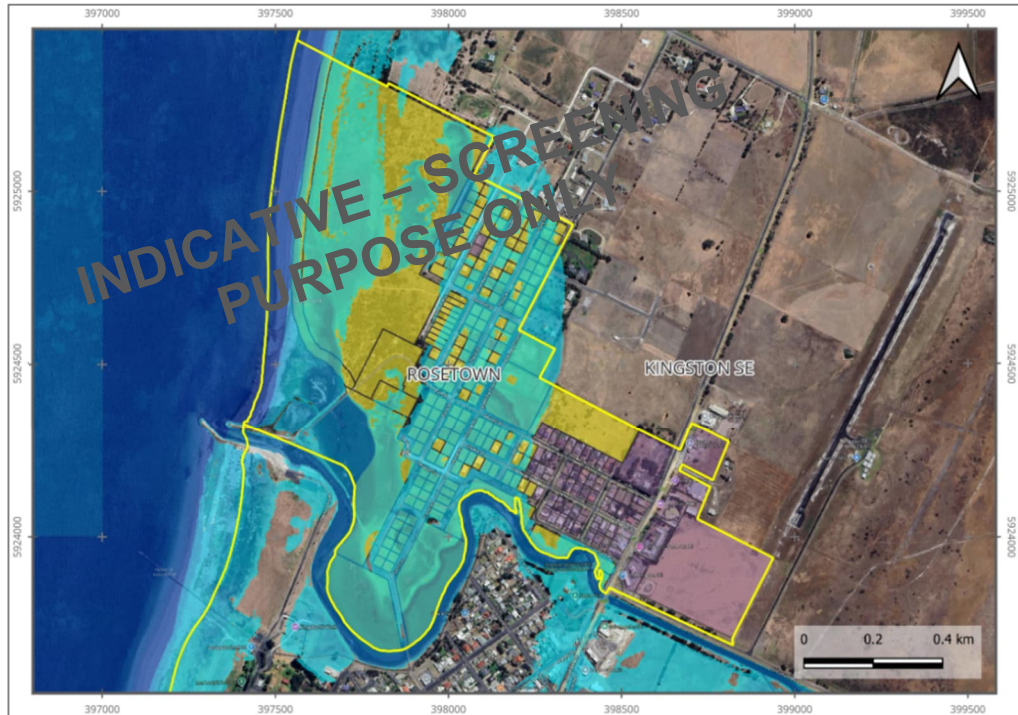


Figure 5-5: Potential Inundation Extent and Affected Cadastral Lots – Rosetown 2050 Scenario
(Not Council-approved. Not for statutory planning, design or development assessment)

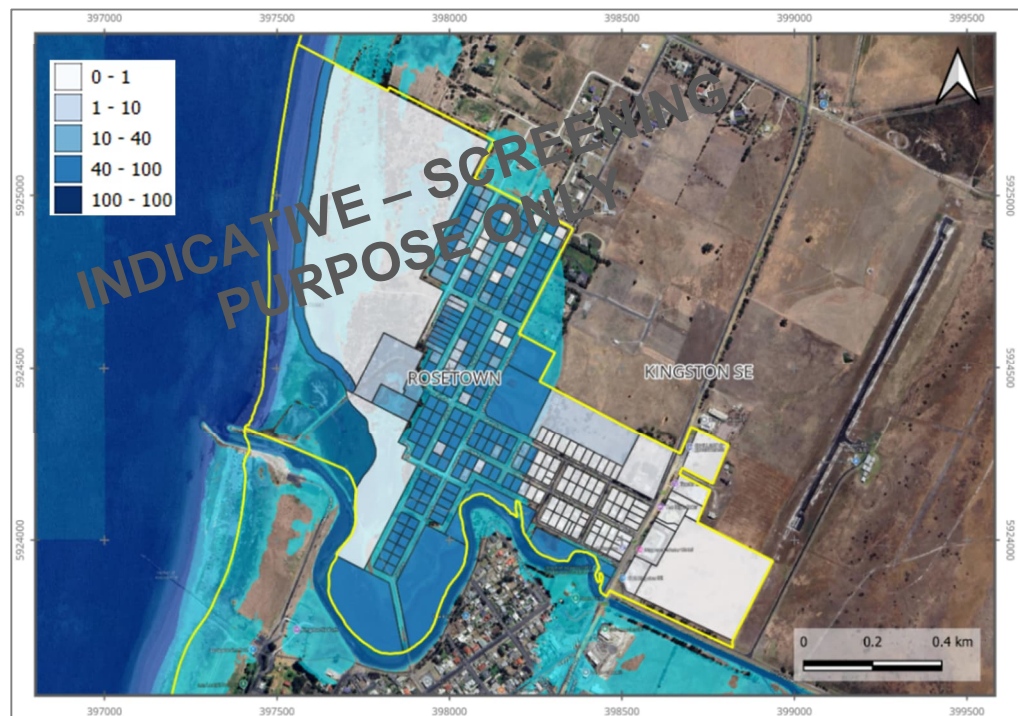


Figure 5-6: Potential Inundation Percentage of Cadastral Lots – Rosetown 2050 Scenario
(Not Council-approved. Not for statutory planning, design or development assessment)

5.2.5 Long-term (2100) Scenario

Under +1.0 m SLR (CPB 2100 allowance), Figure 5-7 shows material growth of flood-prone areas along the Maria Creek interface and inland low points, revealing deeper inundation pockets and confirming that 2100 conditions would significantly increase the scale and persistence of tidal tailwater flooding in the area.

Figure 5-8 (lot inundation %) clearly identifies the proportion of residential parcels that transition into High or Very High risk under a “no further action” scenario.

These maps highlight where long-term adaptation options, notably levee/crest raising pathways, targeted drainage upgrades, and long-term land-use planning measures, become increasingly more relevant and important.



Figure 5-7: Potential Inundation Extent and Affected Cadastral Lots – Rosetown 2100 Scenario
(Not Council-approved. Not for statutory planning, design or development assessment)

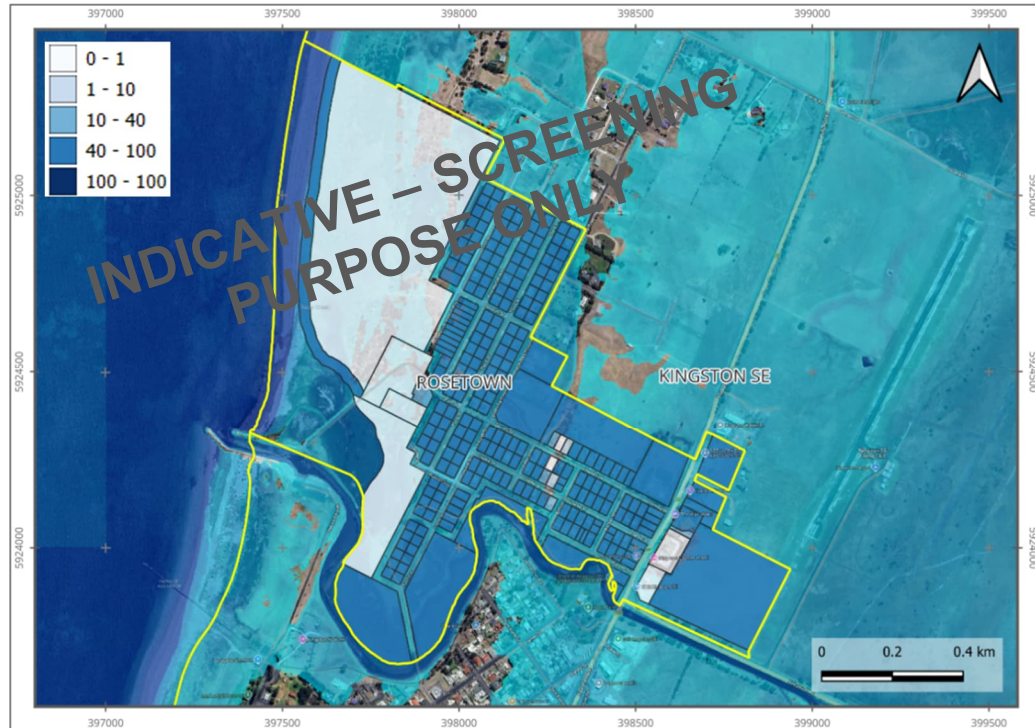


Figure 5-8: Potential Inundation Percentage of Cadastral Lots – Rosetown 2100 Scenario
(Not Council-approved. Not for statutory planning, design or development assessment)

5.2.6 Overall Assessment & Caveats

Key Observations:

- The inundation modelling verifies realistic flood pathways across all three time-horizons and aligns with both the 2021 CAS strategy-scale envelopes and observed 2025 event behaviour. It successfully removes false positives created by bathtub-only methods and helps identify priority local assets for management intervention.
- Hazard envelope: The 2026 connectivity-screened layers corroborate where Rosetown is most exposed to storm-tide inundation via Maria Creek tailwater and local low-lying pathways, while removing obvious isolated “pond” artefacts from simple level-fill.
- Likelihood (present day): Observed 2025 peaks remained below the CPB present-day 1% AEP benchmark for Kingston; thus CPB levels remain appropriate for strategy-level risk bands.
- Consequence hotspots: Mapping highlights repeated nuisance ponding at known low points behind road crowns (such as the corner of Dowdy St and Bullocky Town Rd) and at outfalls/culverts with tailwater constraints along Maria Creek. Also there is currently no local drainage system that is able to drain the water away after such extreme sea level events. These locations align with Tonkin’s photographs and field notes and are flagged for survey and maintenance checks (Tonkin 2025).

Planning Outlook:

- Present-day: Local roads, outfalls and selected low-lying lots adjacent to Maria Creek are susceptible to short-duration inundation during storm-tide peaks, with lingering ponding where surface drainage is marginal (Figure 5-3 to Figure 5-4). The actual flood duration could last much longer depending on the drainage upgrade works, and on whether there is any compound flooding caused by rainfall-runoff – should heavy rains occur concurrently.
- 2050: With +0.3 m SLR (policy allowance), the frequency and areal extent of tailwater-driven inundation increase, expanding the set of lots/road segments entering Medium–High bands absent mitigation (Figure 5-5 to Figure 5-6).
- 2100: With +1.0 m SLR, several additional residential streets and open spaces move into High/Very High risk bands under a “do nothing” case, primarily from compound pathway growth rather than dramatic new breaches (Figure 5-7 to Figure 5-8).

Implications for Near-term Actions:

- Targeted road-crest raising at first overtopping sills
- Outfall backflow control/maintenance (tidal flap checks, debris)
- Dowdy Street wetland concept with pre-storm pump-down to cut ponding duration
- Integration with Maria Creek rehabilitation so weir operation rules do not impound tailwater during storm-tide events. (All items remain within strategy-level recommendation scope; design to follow if commissioned).

Caveats:

The 2026 inundation outputs are screening-level products prepared by Hatch to support risk verification in this Update. They use bathtub + hydraulic connectivity on the 2018 LiDAR DEM with CPB-consistent scenarios and must not be used for detailed design or statutory planning.

The interim updated findings support risk screening and priority setting; they are not design deliverables and do not supersede CPB policy mapping. Time-varying hydrodynamics, wave run-up/overtopping, culvert hydraulics and coincident rainfall are not represented and will require fit-for-purpose modelling at implementation stage.



Figure 5-9: Photos from 2025 Winter Flooding Event in Rosetown (Upper Panel: Looking East; Lower Panel: Looking North) – after Rosetown Drainage Study (Tonkin 2025)

6. Adaptation Options Review (2 Segments)

6.1 Previous Approach

The 2021 CAS used a two-stage approach to identify suitable adaptation options. A first pass assessment was undertaken of all possible options to screen for any that were considered unfeasible and therefore would not be critically analysed. Secondly, a Multi Criteria Analysis (MCA) was completed on the feasible options that remained to identify priority pathways. For this review it is assumed that all unfeasible options that were discussed in the 2021 CAS remain as unfeasible pathways, these included:

- The Do-Nothing approach was not considered viable in relation to existing coastal structures at Wyomi Beach
- Offshore breakwaters, artificial reefs and groynes were not considered viable long-term defend options
- Sand nourishment was not considered viable as a standalone option
- A large-scale seagrass replanting campaign was considered but deemed unviable due to environmental and biological uncertainties.

6.2 Wyomi Adaptation Option & Pathway Review

6.2.1 CAS 2021 Recommendations Recap

Seawalls with targeted nourishment were considered the only viable erosion protection option for Wyomi. It was suggested that to protect all assets to the south of the existing seawalls an additional 325m of seawall was required, while to the north, approximately 1,200m would be required to protect the entire section. After further stakeholder engagement, Council approved the construction of the stage 2 seawalls which included a 175m extension to the south and a 100m northern extension. Sand nourishment was recommended annually or as required if increased erosion was observed after a storm event.

Recommended adaptation pathway:

Defend (seawalls and nourishment)

- Upgrade existing GSC and ad-hoc seawalls to same design as central seawall
- Staged extension of seawalls north and south
- Sand nourishment (annual or as required).

Triggers (planning/action):

- Immediate planning of defend (seawall) pathway
- Immediate placement of sand nourishment (6,000 m³ at north and south of existing GSC seawalls)
- Staged construction of future seawall sections as physical threat to use of Council Assets or compromised public safety is realized.

6.2.2 2025 Update

After completion of the new rock seawall, immediate erosion risk has been reduced at Wyomi. The greatest erosion risk is concentrated north of the existing seawall, which is consistent with downdrift effects, where the seawall interrupts natural longshore sediment transport and accelerates erosion on the downdrift side. As a result, the sections of coast north of the structure face elevated exposure to shoreline recession.

Current annual beach profile monitoring in the area provides limited reliability for assessing erosion trends. Profiles 175008 and 175009 both bisect the rock seawall and are confounded by sand nourishments that periodically alter slope changes making it difficult to separate natural sediment processes from nourishment influences. Despite this, profiles at the seawall should remain, to monitor any scour effects and/or toe erosion moving forward. To improve the quality of monitoring data, new profile lines should be established north of the seawall where erosion is most active. Updated long term erosion rates along this section from the new profile data would inform planning and triggers for staged extensions of the rock seawall.

Recommendations

- Coordinate with DEW to establish 2 new cross-shore profile lines along coastline north of rock seawall (e.g. 150 m & 750 m from existing seawall)
- Continue annual monitoring of existing DEW profiles
- Continue nourishment annually or as required.

Triggers (Planning/Action):

- Planning trigger (shared path north of seawall): observed erosion within 3 m of section immediately north of seawall → reroute further inland ~300 m section between Golflinks Rd and Johnstone Ave
- Planning trigger (rock seawall northward extension): Shared path is rerouted inland → 320 m northward extension of existing rock seawall to Johnstone Ave beach access.

6.3 Rosetown Adaptation Option & Pathway Review

6.3.1 CAS 2021 Recommendations Recap

Hazard focus: Coastal inundation (storm-tide tailwater from Maria Creek and, to a lesser extent, Blackford Drain); assets include residential streets north of Maria Creek, the airport precinct, and township infrastructure.

Adopted design levels for inundation mapping: CPB parameters (Kingston) of 1.9/2.2/2.9 m AHD for 2019/2050/2100, with wave set-up +0.3 m, no wave run-up, and SLR +0.3 m (2050), +1.0 m (2100).

Recommended adaptation pathways (strategy-scale):

Defend (Levees/Road Raising):

- Townside levee from Watson St to Third St to reduce Maria Creek overbanking
- Road raising on Princes Hwy and Toop St to maintain a high crest and constrain flood pathways
- Blackford Drain southern embankment crest raising (~2 km of low spots) to a consistent level; concept sections and priorities shown in CAS figures/tables.

Accommodate: Planning controls (site and floor levels), building/asset retrofits, and local flood emergency planning with SES; for existing development east of the highway, focus on flood-resilient building and operational readiness.

Triggers (Planning/Action): Stage works as SLR increments are realized; coordinate with State road managers and Drainage Board for works on non-Council assets (Princes Hwy, Blackford Drain).

6.3.2 2025 Update

Rosetown's winter 2025 flooding was driven by elevated Maria Creek tailwater coincident with storm-tide peaks, with localised overtopping and prolonged ponding in depressions behind road crowns due to lack of capable drainage system. Hatch reviewed the winter 2025 floods (Tonkin) and BOM Victor Harbor tides: observed peaks ~1.6–1.8 m AHD (June peak ~1.78 m AHD at Robe), below CPB present-day 1% AEP levels. This review supports retaining CPB design levels and the CAS 2021 policy baseline, while focusing near-term effort on pathway management and drainage performance.

Near-term No-regrets Measures (Planning-Scale, Non-design):

- Shared-path-as-levee staging (Maria Creek north bank). To confirm priority reach and crest at ~2.3 m AHD for Stage-1 (consistent with Tonkin concept), with structural allowance (including foundation preparation and reserves for the expanded footprint) for future raising toward 2050/2100 if triggers are met (Design phase to set details).
- To test indicative road crest raising at first overtopping locations to constrain overland flow paths during peaks.
- For any drainage outfall, backflow needs to be controlled, beside O&M checks at tidal interfaces. Pre-storm inspection check and maintenance activities are desired (debris removal, flap gate function check). In the case of high-probability combined event (extreme sea level outside and heavy rainfall inside), consider early closing tidal gate and pre-draining the Maria Creek to provide further storage buffer before the next high tide.
- Dowdy Street wetland + pump-down concept (Tonkin 2025) to reduce ponding persistence and provide operational storage; include a pre-event draw-down protocol to create capacity ahead of forecast surges/rainfalls.

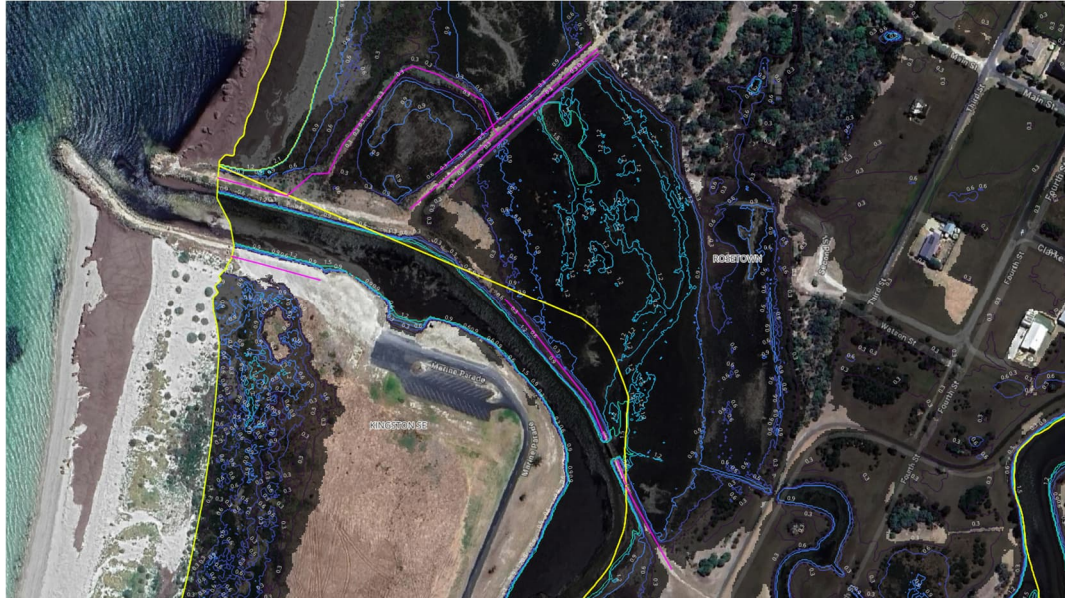


Figure 6-1: Levee Banks and Weak Links – Rosetown 2025 Scenario

Triggers & Monitoring (Strategy Level)

- Action trigger (roads): First observed overtop or <0.15 m freeboard at a nominated crest sill → raise at next works season (nominal min crest height of ~ 2.3 m AHD for Stage-1).
- Action trigger (Apex Park/levee reach): Documented inundation at or below 2050 level (2.2 m AHD) → proceed with Stage-1 cresting. Option to integrate simple earth bund with landscape design to cut off flood flow from Maria Creek towards the park amenities.
- Planning trigger (SLR tracking/nuisance flooding): Repeated nuisance ponding (≥ 2 events in 5 years) or measured local SLR approaching $+0.3$ m → extend cresting or shared paths/levees/earth-bunds on the north bank of Maria Creek as programmed.

These are consistent with the mitigation concepts in Tonkin's Rosetown Stormwater Investigation (2025), which identified stormsurge-driven flooding, two primary overtopping points, and recommended a combined levee/crest path with local drainage measures (incl. a Dowdy Street wetland and operational draw-down). Our connectivity-screened mapping (2026) more or less aligned with Tonkin's pathways and observed 2025 behaviour, while confirming that CPB present-day 1% AEP levels remain appropriate for policy-scale framing.

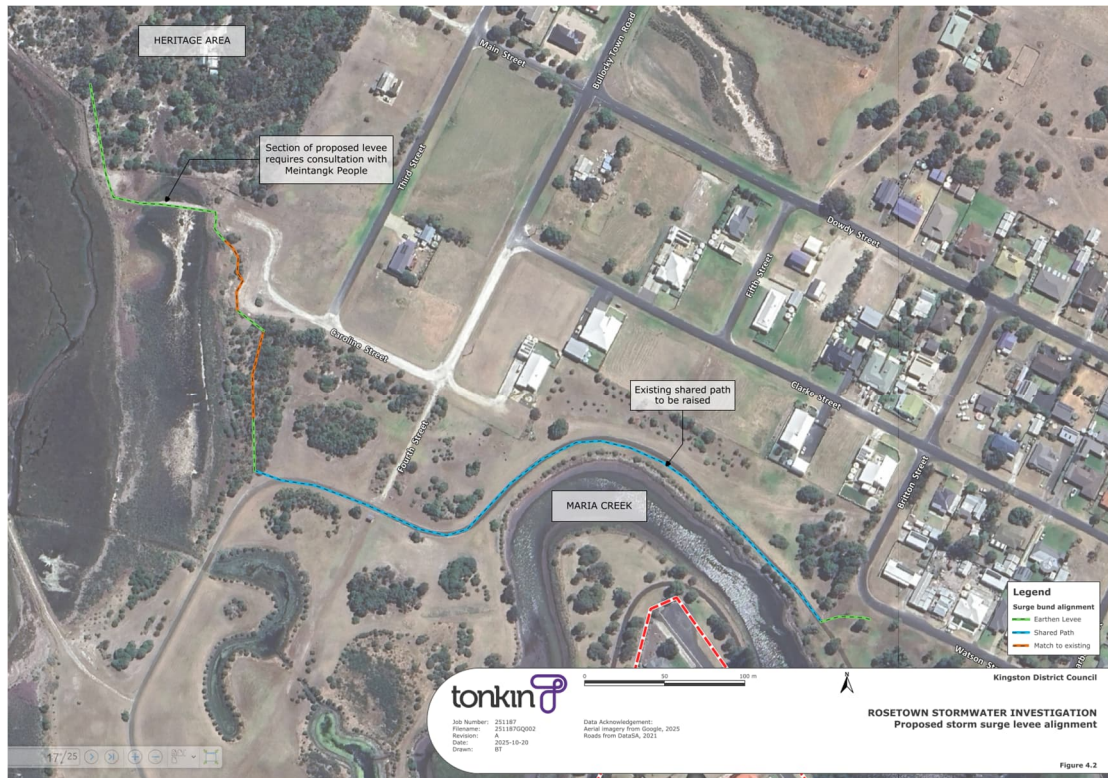


Figure 6-2: Rosetown Drainage Study 2025 Recommendations (Tonkin 2025)

Alternative option: Tidal-control Gate & Pumping Station at the Proposed Weir

We note the tidal weir/channel concept now in development (Maria Creek Rehabilitation Design, WGA 2025, see Figure 6-3). In parallel with Maria Creek Rehabilitation concepts (boat-ramp re-orientation, narrowed channel, tidal weir ~124 m from the entrance), Council may consider (option only) integrating a tidal-control gate at the weir structure to reduce storm-tide tailwater during peak events and to improve operational flexibility. The concept would be to hold the gate open under normal conditions and pre-emptively close on surge warnings/rising stages so that the extent of levee/shared-path/dike raising further inland from the tidal gate can be greatly reduced. The operating procedure for the tidal gate would need to be optimized considering dual function of flood control and seagrass wrack flushing. Detailed design, environmental approvals, hydraulics, ecology and sedimentation assessments are out of scope for this Update.

On planning scale, ideally the crest level of tidal gate should be designed such that it meets the designed water level plus allowances for local conditions (including wave set-up and overtopping). To manage coastal inundation risk at Rosetown in the present day (2025) and near-term (2050), we recommend a simple operation rule (e.g., gates closed on surge warnings/rising stages) and Maria Creek bank/levee crest/tie-ins so to cut off the sea water flow path through Maria Creek. Induced risk of water level build-up upstream of the gate due to concurrent rainfall in the Rosetown & Kingston SE catchment should be studied to provide input for sizing the pumping capacity required to discharge excess water runoff, avoid causing secondary flooding due to the tidal gate closing.

The likelihood of combined rainfall and extreme sea level event will need to be investigated separately. These are subjects for further investigation at the design stage of these structures.



Figure 6-3: Concept Design Options (WGA 2025)

Indicative Crest Target (Non-design):

Considering the typical design life of coastal structures, and any potential cost associated with staged-raising of tidal gate crest, it is recommend to set the top-of-gate crest no lower than the 2100 design still-water for Kingston ($2.9 \text{ m AHD} = 1.6 + 0.3 \text{ (setup)} + 1.0 \text{ SLR}$), plus a site-specific allowance for local effects (e.g., short-duration wave run-up/overtopping and wind setup in the creek), to be verified in detailed design. This maintains consistency with the CPB framework adopted in both the 2021 CAS and this Update; note that explicit run-up is not included in the policy tables and would require project-specific derivation if a gate option proceeds.

Planning-stage Triggers & Operating Intent:

- Trigger to confirm detailed business case/design: repeated nuisance ponding or first observed overtop at/near current sills with measured SLR approaching $+0.3 \text{ m}$. Alternative trigger could tie to the observed rate of sea level rise, to be reviewed every 5 to 10 years.

- Operating rule (principle): Gate open during forecast storm-tide rise and peak; do not hold levels that increase Rosetown tailwater.
- Integration: Align with road-crest raising, shared-path cresting and outfall O&M, and ensure the gate/weir alignment and tie-ins do not reduce conveyance during peaks.

Dependencies & checks for a future design phase (outside this CAS Update) include but not limited to:

- Hydraulic modelling (1D/2D) of surge propagation, tailwater, and gate operations
- Sediment & wrack dynamics (risk of shoaling upstream/downstream of the gate)
- Fish passage & ecology (gate type, sill levels, operational windows)
- Floodplain compatibility with CPB design levels and CHAP expectations
- Whole-of-life O&M and fail-safe/backup power.

6.4 Updated Adaptation Prioritisation

Recent developments since the 2021 Coastal Adaptation Strategy, namely the completion of new seawall extensions at Wyomi Beach (Section 4) and the emerging flood impacts experienced in Rosetown during Winter 2025, have shifted community expectations and altered the relative urgency of adaptation actions across the Kingston District.

This CAS Update therefore provides a refreshed strategic prioritisation that reconciles (i) the actions and pathways proposed in the original 2021 Strategy, (ii) the new evidence obtained through the 2026 connectivity-screened inundation mapping for 2025/2050/2100, and (iii) on-ground changes and community sentiment.

6.4.1 *Wyomi Beach (Section 4): Shift from Immediate Protection to Staged Long-Term Planning*

CAS 2021 identified Wyomi Beach as a critical erosion hotspot requiring short-term works, including upgrades to the GSC seawalls and ad-hoc rock sections, noting their deficiencies in crest levels and toe condition.

Since then, the recent construction of new/extended seawall sections at Wyomi has addressed the most acute short-term erosion threats. As a result, the focus for this section now shifts toward:

- Ensuring the new structures are integrated into a long-term pathway (defend or retreat) consistent with CAS 2021 Section 4 recommendations
- Monitoring the terminal ends of protection and dune condition to detect any downdrift effects
- Clarifying how future realignment or extensions would intersect with triggers defined in the 2021 pathway (e.g., 2050 Almost Certain ZR).

Given that erosion risk remains high beyond 2050, but the immediate threat has reduced due to new construction, Wyomi Beach now becomes a medium-priority planning focus rather than an urgent short-term works focus.

6.4.2 **Rosetown (Section 6): New Priority Driven by 2025 Flood Observations**

In the 2021 CAS, Rosetown's principal hazard was coastal flooding driven by overbank flows from Maria Creek and Blackford Drain, with recommended pathways including staged levees, road-raising (Princes Highway, Toop St) and raising low spots along the Blackford Drain southern embankment for the long-term risk (2100).

The Winter 2025 event, although still below CPB's present-day 1% AEP design height (1.9 m AHD), caused measurable flooding of streets within Rosetown. This intensified community concern and validated the need to bring forward certain aspects of the 2021 adaptation pathway.

Our 2026 connectivity-screened inundation mapping supports this shift by:

- Confirming that the primary inundation pathways for 2025-2050 are channel-based, particularly via Maria Creek, rather than direct coastal overtopping
- Identifying localised overtopping sills
- Highlighting where small, targeted, no-regrets raising could materially reduce nuisance flooding under 2025 and 2050 scenarios.

Rosetown therefore moves from a medium-priority (2021) to a high-priority area in this 2026 Update due to both observed impacts and the heightened community expectations for action.

The long-term risk needs a regional approach and what was recommended by CAS 2021 could be improved in light of the new opportunity arising from Maria Creek Channel Rehabilitation Project. There was an alternative pathway for introducing mechanically-controlled tidal gate at the proposed weir location, combined with crest raising, which could potentially reduce the extent of necessary levee/dike/shared-path upgrading greatly.

6.4.3 **Recommended Prioritisation for 2026–2030**

Priority 1: Rosetown (Section 6): Early Flood-mitigation and No-regrets Works

Consistent with CAS 2021's defend/accommodate pathway for Section 6, the following actions are now elevated to Priority 1:

- Targeted road-crest raising at critical overtopping points and shared-path/levee building (Tonkin 2025), aligning with 2021 recommendations for staged road-raising along key transport corridors. In particular, shared-path crest raising/informal levee construction along Maria Creek north bank, and landscape/multipurpose earth bund at Apex Park on the South bank, all designed to be compatible with the 2050 level with staging to be upgraded to 2100 level, triggered by monitored rate of SLR.
- Initiation of concept-validation of the Dowdy Street wetland + pump-down concept to reduce ponding duration (not a design commitment; strategic scoping only).

- Alignment of Rosetown actions with future Maria Creek Rehabilitation works to ensure new structures serve flood control function do not inadvertently worsen tailwater behaviour (2021 recommendations emphasise cross-agency coordination).
- Stormwater backflow prevention and maintenance programs, consistent with 2021 accommodate measures (asset retrofitting, emergency plans).
- Community and stakeholder engagement, public education campaigns for raising awareness. Particularly focusing on the designed protection standard and managing residual risk. Given the fact that the risks of inundation and flooding can never be fully eliminated by protective structures no matter how large or sturdy those structures may be, there will always be a residual risk. And there are non-structural measures to manage these risks, including but not limited to early warning system, emergency evacuation plan, maintaining access to critical infrastructure (e.g., hospital), and flood insurance.

These Priority 1 actions are relatively low-cost, reversible, and improve confidence while leaving room for longer-term levee/road-raising decisions as SLR increments are realised.

Priority 2: Wyomi Beach (Section 4): Consolidation and Monitoring Following Seawall Construction

Following the recent seawall extensions, the immediate erosion risk at Wyomi Beach has substantially reduced. Prioritisation therefore shifts to:

- Regular monitoring of erosion at terminal ends of the new structures, aligned with CAS 2021's short-term monitoring and nourishment recommendations
- Integration of the newly completed seawalls into the long-term adaptation pathway (defend or managed retreat), as required in CAS 2021 (Section 4 MCA outcomes and pathway maps)
- Assessment of whether small sections of foreshore reserve can still be allowed to retreat naturally in line with CAS 2021 planning triggers, or whether future continuous cresting would be preferred.

Given the scale and investment already made, Wyomi's next steps revolve around planning certainty and lifecycle management, not immediate capital works.

Priority 3: Cape Jaffa, Pinks Beach & Kingston (Sections 1–5): Continue with CAS 2021 pathways

For other sections, priorities remain substantially unchanged from the 2021 CAS. This includes:

- Ongoing monitoring, sand bypassing near Cape Jaffa (47,000 m³/yr as noted in CAS 2021)
- Planning controls, building floor levels, and flood-resilient design (CAS 2021 planning recommendations)

- Longer-term investigations into Butchers Gap levees and road raising at Pinks Beach consistent with the 2021 defend/accommodate pathways for Section 3
- Future review of jetty access pathways at Kingston and Cape Jaffa (erosion retreat vs defend options).

7. Conclusions & Recommendations

This 2026 CAS Update confirms that the foundations of the 2021 Strategy remain technically sound and fit-for-purpose at a strategy-planning scale. CPB water levels, erosion hazard components (S1/S2/S3), and the qualitative risk framework continue to provide a robust and conservative basis for coastal hazard assessment across the Kingston district. However, recent changes, particularly the 2025 Rosetown flooding and completion of Wyomi's Stage 2 seawall, have shifted localised hazard conditions, warranting targeted updates.

7.1.1 Key Conclusions

Wyomi Beach Erosion Hazard Has Changed Locally but Not Fundamentally

The Stage 2 seawall extensions and recent nourishment have reduced immediate exposure at the structure footprint. Nevertheless, recession risk persists north of the structure, and long-term hazard lines remain substantively consistent with 2021 results. Updated monitoring and adaptive pathway integration are now the highest priorities for this segment.

Rosetown's Winter 2025 Flooding Is Consistent with CPB-based Hazard Assumptions

Although the 2025 storm-tide peaks remained below the 1% AEP benchmark, the observed tailwater flooding and prolonged ponding reinforce the need for focused adaptation, maintenance, and pathway management in Rosetown. Connectivity-screened mapping confirms channel-driven inundation pathways and identifies practical hotspots for early mitigation.

CPB Extreme Sea Levels and SLR Allowances Remain Appropriate For Policy-level Mapping

Updated tide observations from Robe and Victor Harbor indicate no need to revise the CPB values for present-day, 2050, or 2100 hazard framing.

Two Coastal Segments Merit Near-term Action and Pathway Refinement

Rosetown (inundation) and Wyomi (erosion) remain the most dynamic sections under current conditions, requiring targeted measures and close integration with ongoing coastal works and stormwater management planning.

7.1.2

Recommendations

Priority 1 – Rosetown (Section 6)

- Implement early, low-regrets measures such as:
 - ◆ Road-crest raising at overtopping locations
 - ◆ Shared-path cresting/levee staging along Maria Creek
 - ◆ Backflow prevention and improved stormwater o&m
 - ◆ Concept-level investigation of the Dowdy Street wetland/pump-down option.
- Consider alternative option of tidal gate and pumping station, to be integrated with the Maria Creek Rehabilitation project, ensuring future structures serve dual purpose (seagrass flushing & flood control) and do not aggravate tailwater constraints during storm-tide events.

Priority 2 – Wyomi Beach (Section 4)

- Undertake regular monitoring at seawall tie-ins and downdrift locations
- Incorporate the as-constructed seawall lengths into long-term defend/retreat pathways
- Continue targeted nourishment and dune management where required, guided by updated hazard mapping.

Priority 3 – All Other Coastal Sections (Sections 1–5)

- Continue with CAS 2021 pathways: monitoring, sand bypassing at Cape Jaffa, planning controls, flood-resilient development, and long-term investigations into Butchers Gap and Kingston township flood mitigation.

Future Full CAS Review (Optional)

Should Council wish to complete a full CHAP-compliant rewrite, the next iteration could incorporate:

- AR6-consistent sea-level rise scenarios and possible VLM adjustments
- Broader hazard types expected under CHAP (compound flooding, saline intrusion, estuary dynamics)
- Structured ISO-based vulnerability assessment
- Enhanced economic assessment and benefit distribution
- Full inundation modelling and risk assessment for Kingston and Rosetown.

8. References

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Appendix A

Risk Tables

Remarks:

Asset risk ratings are indicative, screening-level estimates prepared for CAS review only.

All inundation figures, maps and risk tables in this CAS Update are screening-level, static representations prepared for strategy review only. They do not represent real-time flood behaviour, system performance, or design-grade assessments, and must not be used beyond the purpose of this CAS Update.

A.1 Wyomi

Table A.1-1: Risk Profiles for Council and State-Owned Assets - Wyomi

Asset	Coastal Hazard	Present Day	2050	2100
Shared Path (sealed)	Erosion	Low	Very High	Very High
Marine Pde	Erosion	No	Very High	Very High
94 Marine Pde (Sailing Club)	Erosion	No	No	Very High
Thredgold St Playground	Erosion	No	No	Very High
Huntingdale Rd	Erosion	No	High	Very High
Johnson Ave	Erosion	No	No	Very High
Goode Ave	Erosion	No	No	Very High
Scown Ave	Erosion	No	No	Very High
Sewer along Marine Pde	Erosion	No	No	Very High
David Ave	Erosion	No	No	Very High
Stanley Ave	Erosion	No	No	High
Wyomi Beach Rock Seawall	Erosion	Medium	High	High
Wyomi Beach Rock Seawall Staircase	Erosion	Low	Medium	High
Crown Land	Erosion	Medium	High	Very High

Table A.1-2: Risk Profiles for Private Assets - Wyomi

Asset	Coastal Hazard	Present Day	2050	2100
Properties along Marine Parade	Erosion	No	Very High	Very High
Properties along Bellevue Drive	Erosion	No	No	Very High
Properties along Golflinks Road	Erosion	No	No	Very High
Properties along Cooke Street	Erosion	No	No	Very High

Table A.1-3: Asset Register for Wyomi Showing Updated Erosion Risk for Individual Assets

Asset Information			Erosion				
Asset ID	Asset	Description	Present Day - Zone of Wave Impact Almost Certain	2050 Almost Certain	2050 Possible	2100 Almost Certain	2100 Possible
Councils Assets and Infrastructure							
1	Thredgold St	Sealed road					
2	Marine Parade	Sealed road		Catastrophic (Very High)	Catastrophic (Very High)	Catastrophic (Very High)	Catastrophic (Very High)
3	Shared Path	Sealed pathway	Minor (HIGH)	Major (Very High)	Major (Very High)	Catastrophic (Very High)	Catastrophic (Very High)
4	Huntingdale Ave	Sealed road				Catastrophic (Very High)	Catastrophic (Very High)
5	Johnstone Ave	Sealed road					Catastrophic (Very High)
6	Goode Ave	Sealed road					Catastrophic (Very High)
7	Scown Ave	Sealed road					Catastrophic (Very High)
8	Thredgold St Playground	Playground					Catastrophic (Very High)
9	CWMS	CWMS pump station and sewer from 68 Marine Parade north					Catastrophic (Very High)
10	David Ave	Sealed road					Catastrophic (Very High)
12	Stanley Ave	Sealed road					Catastrophic (Very High)
13	Bellevue Drive	Sealed road					
14	Peter Ave	Sealed road					
15	94 Marine Parade	Sailing Club			Catastrophic (Very High)	Catastrophic (Very High)	Catastrophic (Very High)
16	Cooke St	Unsealed Road					
17	Jaffa St	Sealed road					
18	Wyomi Beach Rock Seawall	Protection Structure	Minor (HIGH)	Medium (HIGH)	Medium (HIGH)	Catastrophic (Very High)	Catastrophic (Very High)

Asset Information			Erosion				
19	Wyomi Beach Rock Seawall - Staircase	Access Staircase	Minor (HIGH)	Medium (HIGH)	Medium (HIGH)	Catastrophic (Very High)	Catastrophic (Very High)
Asset Information			Erosion				
Asset ID	Asset	Description	Present Day - Zone of Wave Impact Almost Certain	2050 Almost Certain	2050 Possible	2100 Almost Certain	2100 Possible
Private Assets and Infrastructure							
1	161 Marine Parade	Private Dwelling					Catastrophic (Very High)
2	160 Marine Parade	Private Property					Catastrophic (Very High)
3	159 Marine Parade	Private Dwelling					Catastrophic (Very High)
4	158 Marine Parade	Private Dwelling					Catastrophic (Very High)
5	157 Marine Parade	Private Dwelling					Catastrophic (Very High)
6	156 Marine Parade	Private Dwelling					Catastrophic (Very High)
7	155 Marine Parade	Private Dwelling					Catastrophic (Very High)
8	154 Marine Parade	Private Dwelling					Catastrophic (Very High)
9	153 Marine Parade	Private Dwelling					Catastrophic (Very High)
10	152 Marine Parade	Private Dwelling					
11	151 Marine Parade	Private Dwelling					
12	142 Marine Parade	Private Dwelling					
13	141 Marine Parade	Private Dwelling					
14	140 Marine Parade	Private Dwelling					
15	139 Marine Parade	Private Dwelling					
16	138 Marine Parade	Private Dwelling					
17	137 Marine Parade	Private Dwelling					
18	125 Marine Parade	Private Property		Major (Very High)	Major (High)	Catastrophic (Very High)	Catastrophic (Very High)
19	124 Marine Parade	Private Property		Major (Very High)	Catastrophic (Very High)	Catastrophic (Very High)	Catastrophic (Very High)

Asset Information			Erosion				
20	123 Marine Parade	Private Property		Major (Very High)	Catastrophic (Very High)	Catastrophic (Very High)	Catastrophic (Very High)
21	122 Marine Parade	Private Dwelling		Medium (High)	Catastrophic (Very High)	Catastrophic (Very High)	Catastrophic (Very High)
22	121 Marine Parade	Private Dwelling			Catastrophic (Very High)	Catastrophic (Very High)	Catastrophic (Very High)
23	120 Marine Parade	Private Dwelling			Catastrophic (Very High)	Catastrophic (Very High)	Catastrophic (Very High)
24	119 Marine Parade	Private Property			Medium (High)	Catastrophic (Very High)	Catastrophic (Very High)
25	118 Marine Parade	Private Dwelling				Catastrophic (Very High)	Catastrophic (Very High)
26	117 Marine Parade	Private Dwelling					Catastrophic (Very High)
27	116 Marine Parade	Private Property					Catastrophic (Very High)
28	115 Marine Parade	Private Property					Catastrophic (Very High)
29	114 Marine Parade	Private Property					Catastrophic (Very High)
30	113 Marine Parade	Private Property					Catastrophic (Very High)
31	112 Marine Parade	Private Dwelling					Catastrophic (Very High)
32	111 Marine Parade	Private Property					Catastrophic (Very High)
33	110 Marine Parade	Private Property					Catastrophic (Very High)
34	109 Marine Parade	Private Property					Catastrophic (Very High)
35	108 Marine Parade	Private Property					Catastrophic (Very High)
36	107 Marine Parade	Private Dwelling					Catastrophic (Very High)
37	106 Marine Parade	Private Dwelling					Catastrophic (Very High)
38	104-105 Marine Parade	Private Dwelling					Catastrophic (Very High)
39	102 Marine Parade	Private Dwelling					Catastrophic (Very High)
40	101 Marine Parade	Private Dwelling					Catastrophic (Very High)
41	100 Marine Parade	Private Dwelling					Catastrophic (Very High)
42	99 Marine Parade	Private Property					Catastrophic (Very High)
43	98 Marine Parade	Private Property					Catastrophic (Very High)

Asset Information			Erosion				
44	97 Marine Parade	Private Property					Catastrophic (Very High)
45	96 Marine Parade	Private Property					Catastrophic (Very High)
46	95 Marine Parade	Private Property					Catastrophic (Very High)
47	93 Marine Parade	Private Property					Catastrophic (Very High)
48	92 Marine Parade	Private Property					Catastrophic (Very High)
49	91 Marine Parade	Private Dwelling					Catastrophic (Very High)
50	90 Marine Parade	Private Property					Catastrophic (Very High)
51	88 Marine Parade	Private Property					Catastrophic (Very High)
52	87 Marine Parade	Private Property					Catastrophic (Very High)
53	86 Marine Parade	Private Property					Catastrophic (Very High)
54	Lot 247 Bellvue Drive	Private Property					
55	98 Bellvue Drive	Private Property					
56	94 Bellvue Drive	Private Dwelling					
57	92 Bellvue Drive	Private Property					
58	90 Bellvue Drive	Private Property					
59	88 Bellvue Drive	Private Property					
60	86 Bellvue Drive	Private Property					
61	84 Bellvue Ave	Private Dwelling					
62	75 Bellvue Drive	Private Dwelling					
63	73 Bellvue Drive	Private Dwelling					
64	71 Bellvue Drive	Private Dwelling					
65	69 Bellvue Drive	Private Dwelling					
66	67 Bellvue Drive	Private Dwelling					
67	65 Bellvue Drive	Private Dwelling					

Asset Information			Erosion				
68	63 Bellvue Drive	Private Dwelling					
69	61 Bellvue Drive	Private Dwelling					
70	59 Bellvue Drive	Private Dwelling					
71	64 Bellvue Drive	Private Dwelling					
72	62 Bellvue Drive	Private Property					
73	60 Bellvue Drive	Private Property					
74	58 Bellvue Drive	Private Dwelling					
75	56 Bellvue Drive	Private Property					
76	54 Bellvue Drive	Private Dwelling					
77	53 Bellvue Rd	Private Dwelling					
78	52 Bellvue Drive	Private Dwelling					
79	48 Bellvue Rd	Private Dwelling					Catastrophic (Very High)
80	46 Bellvue Rd	Private Dwelling					Catastrophic (Very High)
81	44 Bellvue Rd	Private Dwelling					
82	43 Bellvue Rd	Private Dwelling					
83	40 Bellvue Rd	Private Dwelling					
84	36 Bellvue Rd	Private Dwelling					
85	34 Bellvue Rd	Private Dwelling					
86	32 Bellvue Rd	Private Dwelling					
87	30 Bellvue Rd	Private Dwelling					
88	30 Bellvue Rd	Private Dwelling					
89	28 Bellvue Rd	Private Dwelling					
90	24 Bellvue Ave	Private Dwelling					
91	22 Bellvue Ave	Private Dwelling					

Asset Information			Erosion				
92	20 Bellvue Ave	Private Dwelling					
93	18 Bellvue Ave	Private Dwelling					
94	16 Bellvue Ave	Private Dwelling					
95	15 Bellvue Rd	Private Dwelling					
96	14 Bellvue Ave	Private Dwelling					
97	13 Bellvue Rd	Private Dwelling					
98	12 Bellvue Ave	Private Dwelling					
99	15 Jaffa St	Private Dwelling					
100	13 Jaffa St	Private Dwelling					
101	11 Jaffa St	Private Dwelling					
102	9 Jaffa St	Private Dwelling					
103	7 Jaffa St	Private Dwelling					
104	14 Jaffa St	Private Dwelling					
105	12 Jaffa St	Private Dwelling					
106	10 Jaffa St	Private Dwelling					
107	8 Jaffa St	Private Dwelling					
108	6 Jaffa St	Private Dwelling					
109	4 Jaffa St	Private Dwelling					
110	13 Stief St	Private Dwelling					
111	11 Stief St	Private Dwelling					
112	9 Steif St	Private Dwelling					
113	7 Stief St	Private Dwelling					
114	5 Stief St	Private Dwelling					
115	12 Stief St	Private Dwelling					

Asset Information			Erosion				
116	10 Stief St	Private Dwelling					
117	8 Stief St	Private Dwelling					
118	6 Stief St	Private Dwelling					
119	4 Stief St	Private Dwelling					
120	9 Lacepede Ave	Private Dwelling					
121	7 Lacepede Ave	Private Dwelling					
122	5 Lacepede Ave	Private Dwelling					
123	3 Lacepede Ave	Private Dwelling					
124	2 Lacepede Ave	Private Dwelling					
125	4 Lacepede Ave	Private Dwelling					
126	6 Lacepede Ave	Private Dwelling					
127	29 Golf Links Rd	Private Dwelling					
128	5 Golflinks Rd	Private Dwelling					
129	3 Golflinks Rd	Private Dwelling					
130	2 Golflinks Road	Private Property					Catastrophic (Very High)
131	1 Golflinks Rd	Private Dwelling					
132	412 Southern Ports Highway	Private Property					
133	647 Southern Ports Highway	Private Property					
134	269 Cooke St	Private Property					Catastrophic (Very High)
135	267 Cooke St	Private Property					Catastrophic (Very High)
136	265 Cooke St	Private Property					Catastrophic (Very High)
137	263 Cooke St	Private Dwelling					Catastrophic (Very High)
138	261 Cooke St	Private Property					Catastrophic (Very High)
139	259 Cooke St	Private Dwelling					Catastrophic (Very High)

Asset Information			Erosion				
140	257 Cooke St	Private Property					Catastrophic (Very High)
141	255 Cooke St	Private Dwelling					
142	253 Cooke St	Private Dwelling					
143	Shedding at boat ramp car park	Asset					
State Government Asset and Infrastructure							
1	Crown Land	including dune vegetation communities	Minor (Low)	Major (High)	Major (High)	Catastrophic (Very High)	Catastrophic (Very High)

A.2 Rosetown

Table A.2-1: Risk Profiles for Council and State-owned Assets - Rosetown

Asset	Coastal Hazard	Present Day Unlikely	2050 Likely	2100 Almost Certain
Main Street	Flooding	Low	Medium	Very High
Fourth Street	Flooding	Low	Medium	High
Third Street	Flooding	Low	Medium	High
Clarke Street	Flooding	Low	Medium	Very High
Fifth Street	Flooding	Low	Medium	Very High
Bullocky Town Road	Flooding	Low	Medium	Very High
Eleventh Street	Flooding	Low	Medium	High
First Street	Flooding	Low	Medium	High
Bonney Terrace	Flooding	Low	Medium	Very High
Second Street	Flooding	Low	Medium	High
CWMS Pumping Station	Flooding	No	Medium	High
Crown Land	Flooding	Low	Medium	High

Table A.2-2: Risk profiles for private assets - Rosetown

Asset	Coastal Hazard	Present Day	2050	2100
Properties along Princes Hwy	Flooding	No	Low	Very High
Properties along Catherine Gibson Way	Flooding	Low	Medium	Very High
Properties along Bullocky Town Rd	Flooding	Low	Medium	Very High
Properties along Bonney Tce	Flooding	Low	Medium	Very High
Properties along Third St	Flooding	Low	Medium	Very High
Properties along Eleventh St	Flooding	Low	Medium	Very High
Properties along Dowdy St	Flooding	No	No	Very High
Properties along Clarke St	Flooding	No	Medium	Very High
Properties along Barber St	Flooding	No	No	Very High
Properties along Watson St	Flooding	No	No	Very High
Properties along Britton St	Flooding	No	No	High
Properties along Caroline St	Flooding	Low	Medium	Very High

Table A.2-3: Asset Register for Rosetown Showing Updated Inundation Risk for Individual Assets

Asset Information			Inundation		
Asset ID	Asset	Description	2025 Unlikely	2050 Likely	2100 Almost Certain
Councils Assets and Infrastructure					
1	Main Street	Sealed road	Minor (Low)	Minor (Medium)	Medium (Very High)
2	Fourth Street	Sealed road	Minor (Low)	Minor (Medium)	Minor (HIGH)
3	Third Street	Sealed road	Minor (Low)	Minor (Medium)	Minor (HIGH)
4	Clarke Street	Sealed road	Minor (Low)	Minor (Medium)	Medium (Very High)
5	Fifth Street	Sealed road	Minor (Low)	Minor (Medium)	Medium (Very High)
6	Bullocky Town Rd	Sealed road	Minor (Low)	Minor (Medium)	Medium (Very High)
7	Eleventh Street	Sealed road	Minor (Low)	Minor (Medium)	Minor (HIGH)
8	First Street	Unsealed road	Medium (Low)	Minor (Medium)	Minor (HIGH)
9	Bonney Terrace	Sealed road	Minor (Low)	Medium (Medium)	Medium (Very High)
10	Second Street	Unsealed road	Minor (Low)	Medium (Medium)	Minor (HIGH)
11	Sec 474 Bonney Terrace	Cultural Activities	Minor (Low)	Minor (Medium)	Minor (HIGH)
12	CWMS Pumping Station	CWMS Pumping Station (Building 00062)		Minor (Medium)	Minor (HIGH)

Asset Information				Inundation		
Asset ID	Asset	Description	Value	2025 Unlikely	2050 Likely	2100 Almost Certain
Private Assets and Infrastructure						
1	17 Princes Highway	Private Dwelling			Insignificant (Low)	Medium (Very High)
2	12 Princes Highway	Commercial Property / Petrol Station			Insignificant (Low)	Medium (Very High)
3	8 Princes Highway	Commercial Property			Insignificant (Low)	Medium (Very High)
4	Lot 13 Princes Highway	Commercial Property			Insignificant (Low)	Medium (Very High)
5	6 Princes Highway	Private Dwelling			Insignificant (Low)	Medium (Very High)
6	Lot 159 Princes Highway	Private Dwelling			Insignificant (Low)	Medium (Very High)
7	4 Princes Highway	Private Dwelling			Insignificant (Low)	Minor (HIGH)
8	2 Princes Highway	Commercial Property (OTR Kingston)			Insignificant (Low)	Minor (HIGH)
9	15 North Terrace	Private Property			Minor (Medium)	Medium (Very High)
10	Lot 71 First St	Private Property		Insignificant (Very Low)	Medium (High)	Major (Very High)
11	3 First St	Private Property		Medium (Low)	Medium (High)	Major (Very High)
12	5-7 First St	Private Dwelling		Insignificant (Very Low)	Minor (Medium)	Major (Very High)
13	13 First St	Private Property			Minor (Medium)	Major (Very High)
14	14 / 18 First St	Private Property			Minor (Medium)	Medium (Very High)
15	6-10 First St	Private Property			Insignificant (Low)	Medium (Very High)
16	4 First St	Private Dwelling			Insignificant (Low)	Minor (HIGH)
17	2 First St	Private Dwelling		Minor (Low)	Minor (Medium)	Major (Very High)
18	31 Bonney Terrace	Private Dwelling		Minor (Low)	Minor (Medium)	Major (Very High)

Asset Information				Inundation		
Asset ID	Asset	Description	Value	2025 Unlikely	2050 Likely	2100 Almost Certain
Private Assets and Infrastructure						
19	33 Bonney Terrace	Private Property		Minor (Low)	Medium (High)	Major (Very High)
20	35 Bonney Terrace	Private Dwelling			Minor (Medium)	Medium (Very High)
21	37 Bonney Terrace	Private Dwelling			Insignificant (Low)	Medium (Very High)
22	39 Bonney Terrace	Private Dwelling			Insignificant (Low)	Medium (Very High)
23	41 Bonney Terrace	Private Dwelling			Minor (Medium)	Medium (Very High)
24	14 First St	Private Property			Minor (Medium)	Major (Very High)
25	45 Bonney Terrace	Private Dwelling			Insignificant (Low)	Minor (HIGH)
26	47 Bonney Terrace	Private Property			Insignificant (Low)	Minor (HIGH)
27	42 Bonney Terrace	Private Property			Insignificant (Low)	Minor (HIGH)
28	40 Bonney Terrace	Private Property			Insignificant (Low)	Minor (HIGH)
29	38 Bonney Terrace	Private Property			Minor (Medium)	Medium (Very High)
30	36 Bonney Terrace	Private Dwelling			Insignificant (Low)	Minor (HIGH)
31	34 / 32 Bonney Terrace	Private Property			Minor (Medium)	Medium (Very High)
32	30 Bonney Terrace	Private Dwelling			Insignificant (Low)	Minor (HIGH)
33	28 Bonney Terrace	Private Property		Medium (Low)	Major (Very High)	Major (Very High)
34	26 Bonney Terrace	Private Dwelling		Minor (Low)	Minor (Medium)	Medium (Very High)
35	31 Third Street	Private Property		Minor (Low)	Minor (Medium)	Minor (HIGH)
36	33 Third St	Private Property		Minor (Low)	Medium (High)	Major (Very High)
37	35 Third St	Private Property		Insignificant (Very Low)	Minor (Medium)	Major (Very High)
38	37 Third St	Private Dwelling			Insignificant (Low)	Minor (HIGH)

Asset Information				Inundation		
Asset ID	Asset	Description	Value	2025 Unlikely	2050 Likely	2100 Almost Certain
Private Assets and Infrastructure						
39	39 Third St	Private Property			Minor (Medium)	Minor (HIGH)
40	41 Third St	Private Dwelling			Insignificant (Low)	Minor (HIGH)
41	43 Third St	Private Property			Insignificant (Low)	Medium (Very High)
42	45 Third St	Private Dwelling			Minor (Medium)	Medium (Very High)
43	3 North Terrace	Private Property			Insignificant (Low)	Minor (HIGH)
44	32 Bullocky Town Rd	Private Dwelling			Insignificant (Low)	Medium (Very High)
45	28-30 Bullocky Town Rd	Private Dwelling			Minor (Medium)	Major (Very High)
46	26 Bullocky Town Rd	Private Dwelling			Minor (Medium)	Major (Very High)
47	24 Bullocky Town Rd	Private Dwelling			Minor (Medium)	Major (Very High)
48	38 Third Street	Private Dwelling			Minor (Medium)	Medium (Very High)
49	36 Third Street	Private Dwelling		Insignificant (Very Low)	Minor (Medium)	Medium (Very High)
50	4 Eleventh Street	Private Dwelling		Minor (Low)	Minor (Medium)	Major (Very High)
51	2 Eleventh Street	Private Property		Minor (Low)	Minor (Medium)	Major (Very High)
52	3 Bullocky Town Rd	Private Dwelling		Minor (Low)	Minor (Medium)	Major (Very High)
53	1 Bullocky Town Rd	Private Dwelling		Minor (Low)	Minor (Medium)	Major (Very High)
54	20 Catherine Gibson Way	Private Property		Minor (Low)	Minor (Medium)	Medium (Very High)
55	24 Bonney Terrace	Private Property		Minor (Low)	Minor (Medium)	Medium (Very High)
56	22 Bonney Terrace	Private Property		Minor (Low)	Minor (Medium)	Medium (Very High)
57	29 Third Street	Private Property		Insignificant (Very Low)	Minor (Medium)	Minor (HIGH)

Asset Information				Inundation		
Asset ID	Asset	Description	Value	2025 Unlikely	2050 Likely	2100 Almost Certain
Private Assets and Infrastructure						
58	27 Third Street	Private Property		Insignificant (Very Low)	Minor (Medium)	Minor (HIGH)
59	25 Third Street	Private Property		Minor (Low)	Minor (Medium)	Major (Very High)
60	23 Third Street	Private Property		Minor (Low)	Minor (Medium)	Minor (HIGH)
61	21 Third Street	Private Property		Minor (Low)	Minor (Medium)	Minor (HIGH)
62	19 Third Street	Private Dwelling		Insignificant (Very Low)	Insignificant (Low)	Medium (Very High)
63	17 Third Street	Private Dwelling		Insignificant (Very Low)	Minor (Medium)	Medium (Very High)
64	15 Third Street	Private Dwelling		Minor (Low)	Minor (Medium)	Medium (Very High)
65	20 Bonney Terrace	Private Dwelling		Insignificant (Very Low)	Minor (Medium)	Medium (Very High)
66	18 Bonney Terrace	Private Dwelling			Insignificant (Low)	Medium (Very High)
67	16 Bonney Terrace	Private Dwelling			Insignificant (Low)	Medium (Very High)
68	14 Bonney Terrace	Private Dwelling		Insignificant (Very Low)	Insignificant (Low)	Medium (Very High)
69	12 Bonney Terrace	Private Dwelling		Insignificant (Very Low)	Minor (Medium)	Medium (Very High)
70	10 Bonney Terrace	Private Property		Minor (Low)	Minor (Medium)	Medium (Very High)
71	14 Dowdy Street	Private Dwelling				Minor (HIGH)
72	12 Dowdy Street	Private Dwelling				Minor (HIGH)
73	10 Dowdy Street	Private Dwelling				Minor (HIGH)
74	8 Dowdy Street	Private Dwelling				Minor (HIGH)
75	6 Dowdy Street	Private Dwelling				Minor (HIGH)

Asset Information				Inundation		
Asset ID	Asset	Description	Value	2025 Unlikely	2050 Likely	2100 Almost Certain
Private Assets and Infrastructure						
76	4 Dowdy Street	Private Dwelling				Minor (HIGH)
77	2 Dowdy Street	Private Dwelling				Medium (Very High)
78	1 Dowdy Street	Private Property				Major (Very High)
79	3 Dowdy Street	Private Property				Major (Very High)
80	5 Dowdy Street	Private Dwelling				Major (Very High)
81	6 Clarke Street	Private Dwelling				Medium (Very High)
82	4 Clarke Street	Private Dwelling				Medium (Very High)
83	2 Clarke Street	Private Dwelling				Major (Very High)
84	9 Princes Highway	Private Property				Major (Very High)
85	11 Princes Highway	Private Dwelling				Major (Very High)
86	3 Princes Highway	Commercial Property (Petrol Station)				Minor (HIGH)
87	6 Barber St	Private Dwelling				Medium (Very High)
88	4 Barber St	Private Dwelling				Medium (Very High)
89	3 Clarke St	Private Dwelling				Medium (Very High)
90	1 Clarke St	Private Dwelling				Medium (Very High)
91	3 Watson St	Private Dwelling				Minor (HIGH)
92	2 Watson St	Private Dwelling				Minor (HIGH)
93	1 Watson St	Private Dwelling				Minor (HIGH)
94	15 Dowdy St	Private Dwelling				Medium (Very High)
95	13 Dowdy St	Private Dwelling				Minor (HIGH)

Asset Information				Inundation		
Asset ID	Asset	Description	Value	2025 Unlikely	2050 Likely	2100 Almost Certain
Private Assets and Infrastructure						
96	11 Dowdy St	Private Dwelling				Minor (HIGH)
97	9 Dowdy St	Private Dwelling				Medium (Very High)
98	7 Dowdy St	Private Dwelling				Medium (Very High)
99	16 Clarke St	Private Dwelling				Minor (HIGH)
100	14 Clarke St	Private Dwelling				Minor (HIGH)
101	12 Clarke St	Private Dwelling				Minor (HIGH)
102	10 Clarke St	Private Dwelling				Medium (Very High)
103	8 Clarke St	Private Dwelling				Medium (Very High)
104	19 Dowdy St	Private Dwelling				Minor (HIGH)
105	17 Dowdy St	Private Dwelling				Minor (HIGH)
106	5 Britton St	Private Property				Minor (HIGH)
107	3 Britton St	Private Dwelling				Minor (HIGH)
108	25 Dowdy St	Private Property		Insignificant (Very Low)	Minor (Medium)	Medium (Very High)
109	24 Clarke St	Private Property			Medium (High)	Medium (Very High)
110	26 Clarke St	Private Dwelling		Insignificant (Very Low)	Minor (Medium)	Medium (Very High)
111	25 Clarke St	Private Property		Minor (Low)	Minor (Medium)	Major (Very High)
112	23 Clarke St	Private Property		Minor (Low)	Minor (Medium)	Major (Very High)
113	21 Clarke St	Commercial Property		Insignificant (Very Low)	Minor (Medium)	Major (Very High)
114	19 Clarke St	Private Property				Minor (HIGH)

Asset Information				Inundation		
Asset ID	Asset	Description	Value	2025 Unlikely	2050 Likely	2100 Almost Certain
Private Assets and Infrastructure						
115	17 Clarke St	Commercial Property				Minor (HIGH)
116	15 Clarke St	Private Dwelling				Medium (Very High)
117	13 Clarke St	Private Dwelling				Medium (Very High)
118	11 Clarke St	Private Dwelling				Medium (Very High)
119	9 Clarke St	Private Dwelling				Medium (Very High)
120	7 Clarke St	Private Dwelling				Medium (Very High)
121	4 Watson St	Private Dwelling				Medium (Very High)
122	5A Watson St	Private Dwelling				Medium (Very High)
123	5B Watson St	Private Dwelling				Medium (Very High)
124	6 Watson St	Commercial Property				Medium (Very High)
125	7 Watson St	Commercial Property				Medium (Very High)
126	27 Clarke St	Priave Property		Minor (Low)	Minor (Medium)	Medium (Very High)
127	29 Clarke St	Priave Property		Minor (Low)	Minor (Medium)	Medium (Very High)
128	31 Clarke St	Commercial Property		Insignifican t (Very Low)	Minor (Medium)	Medium (Very High)
129	33 Clarke St	Priave Property		Minor (Low)	Minor (Medium)	Medium (Very High)
130	Lot 262 Caroline St	Commercial Property		Insignifican t (Very Low)	Minor (Medium)	Medium (Very High)
131	Lot 263 Caroine St	Private Property		Minor (Low)	Minor (Medium)	Medium (Very High)
132	29 Dowdy St	Private Property		Minor (Low)	Minor (Medium)	Medium (Very High)
133	27 Dowdy St	Private Dwelling		Minor (Low)	Minor (Medium)	Medium (Very High)

Asset Information				Inundation		
Asset ID	Asset	Description	Value	2025 Unlikely	2050 Likely	2100 Almost Certain
Private Assets and Infrastructure						
134	31-35 Dowdy St	Private Dwelling		Minor (Low)	Minor (Medium)	Medium (Very High)
135	34 Clarke St	Priave Property		Minor (Low)	Medium (High)	Medium (Very High)
136	30 Clarke St	Private Dwelling		Minor (Low)	Medium (High)	Medium (Very High)
137	28 Clarke St	Priave Property		Minor (Low)	Medium (High)	Medium (Very High)
138	5-9 Third St	Private Dwelling		Minor (Low)	Minor (Medium)	Medium (Very High)
139	16 Dowdy St	Private Property				Insignificant (Medium)
140	18 Dowdy St	Private Property				Insignificant (Medium)
141	20 Dowdy St	Private Property				Minor (HIGH)
142	21 Dowdy St	Private Property				Insignificant (Medium)
143	23 Dowdy St	Private Property				Medium (Very High)
144	20A Clarke St	Private Property		Insignificant (Very Low)	Insignificant (Low)	Minor (HIGH)
145	20B Clarke St	Private Property		Insignificant (Very Low)	Insignificant (Low)	Minor (HIGH)
146	5 Clarke St	Private Property				Medium (Very High)
147	8 Watson St	Private Property				Minor (HIGH)
148	10 Third St	Private Property		Insignificant (Very Low)	Minor (Medium)	Medium (Very High)
149	18 Third St	Private Property		Insignificant (Very Low)	Minor (Medium)	Medium (Very High)
150	32 Third St	Private Property		Insignificant (Very Low)	Minor (Medium)	Medium (Very High)
151	47 Third St	Private Property			Insignificant (Low)	Medium (Very High)
152	1 North Terrace	Private Property			Minor (Medium)	Medium (Very High)

Asset Information				Inundation		
Asset ID	Asset	Description	Value	2025 Unlikely	2050 Likely	2100 Almost Certain
Private Assets and Infrastructure						
153	13 North Terrace	Private Property			Insignificant (Low)	Medium (Very High)
154	24-26 Third St	Private Property		Insignificant (Very Low)	Minor (Medium)	Medium (Very High)
155	10 Bullocky Town Road	Private Property		Insignificant (Very Low)	Minor (Medium)	Medium (Very High)
156	9 Bonney Terrace	Private Property		Insignificant (Very Low)	Minor (Medium)	Minor (HIGH)
157	4 Bullocky Town Road	Private Property		Minor (Low)	Minor (Medium)	Medium (Very High)
158	22 Third St	Private Property		Insignificant (Very Low)	Minor (Medium)	Medium (Very High)
159	30 Third St	Private Property		Minor (Low)	Minor (Medium)	Medium (Very High)
160	8 Catherine Gibson Way	Private Property		Insignificant (Very Low)	Insignificant (Low)	Medium (Very High)
161	10 Catherine Gibson Way	Private Property			Insignificant (Low)	Medium (Very High)
162	12 Catherine Gibson Way	Private Property			Insignificant (Low)	Medium (Very High)
163	14 Catherine Gibson Way	Private Property			Insignificant (Low)	Medium (Very High)
164	6 Catherine Gibson Way	Private Property		Minor (Low)	Minor (Medium)	Medium (Very High)
165	16 Catherine Gibson Way	Private Property		Insignificant (Very Low)	Insignificant (Low)	Medium (Very High)
166	18 Catherine Gibson Way	Private Property		Insignificant (Very Low)	Insignificant (Low)	Medium (Very High)
167	26-28 Catherine Gibson Way	Private property		Medium (Low)	Medium (High)	Medium (Very High)
168	35 Clarke St	Private Property		Medium (Low)	Medium (High)	Major (Very High)
169	7 Bonney Terrace	Private Property		Medium (Low)	Medium (High)	Major (Very High)
170	28 Bonney Terrace	Private property		Medium (Low)	Major (Very High)	Major (Very High)

Asset Information				Inundation		
Asset ID	Asset	Description	Value	2025 Unlikely	2050 Likely	2100 Almost Certain
Private Assets and Infrastructure						
171	3 First St	Private property		Major (Medium)	Medium (High)	Major (Very High)
172	2 First St	Private property		Insignificant (Very Low)	Minor (Medium)	Medium (Very High)
173	Multiple vacant lots along Fourth St	Private property		Medium (Low)	Medium (High)	Major (Very High)
174	22 Catherine Gibson Way	Private Property		Insignificant (Very Low)	Minor (Medium)	Medium (Very High)
175	24 Catherine Gibson way	Private property		Insignificant (Very Low)	Minor (Medium)	Medium (Very High)
176	22 Clarke St	Private Property			Insignificant (Low)	Minor (HIGH)

Asset Information				Inundation		
Asset ID	Asset	Description	Value	2025 Unlikely	2050 Likely	2100 Almost Certain
State Government Asset and Infrastructure						
1	Princes Highway	Sealed road			Insignificant (Low)	Insignificant (Medium)
2	Crown Land	including dune vegetation communities			Insignificant (Low)	Insignificant (Medium)