

MCDA CRITERIA – RAA EFFECTIVELY MANAGES THE RISKS OF COASTAL EROSION

Management Unit	Pathway	Pathway Description			Effectively Manages the Risks of Coastal Erosion	
		Short term	Medium term	Long term	Score	Notes
Management Unit 9A: Raumati (North of Wharemauku Stream) Erosion Unit	1	Status Quo ¹ and Community Education and Emergency Management ⁴	Enhance existing protection structure ² , Community Education and Emergency Management ⁴ (Enhance)	Re-establish the line with a setback sea wall ⁹ (Retreat & Protect)	3	<ul style="list-style-type: none"> • Potentially may not completely manage the erosion risk in the short-medium term due to the projected high erosion along this section of coast impacting properties. • Medium term option may need to be brought forward in time if existing structures fail earlier in the short term. • Enhancing existing structures over the medium term will still result in a piece-meal approach which may not effectively manage the hazard relative to a coordinated approach. • Re-establishment of the line in the long term will manage the risks by retreat of most at-risk properties and giving the shoreline space to move. • Likely to not be proportionate to the nature and scale of risk over the short-medium term, but will be over the long term. • It is a sensible progression of options, however re-establishment of the line could be triggered earlier than the long term if tracking on higher SLR scenario. • Potential for some end effects at the north and at the Wharemauku mouth. • Short-medium term would not be considered best-practice as it continues to employ a piecemeal approach, however setback with a wall would be informed by a specified design.
	2	Enhance existing protection structure ² , Community Education and Emergency Management ⁴ (Enhance)	Sea wall ¹² (Protect – Hard Engineering)	Re-establish the line with a setback sea wall ⁹ (Retreat & Protect)	4	<ul style="list-style-type: none"> • Likely to manage the risk to coastal erosion over time. • Medium term option may need to be brought forward in time if existing structures fail earlier in the short term. • Enhancing existing structures over the short term will still result in a piece-meal approach which may not effectively manage the hazard relative to a coordinated approach in the medium-long term. • A new sea wall in the medium term is proportionate to the scale of the hazard. Re-establishment of the line in the long term will manage the risks by retreat of most at-risk properties and giving the shoreline space to move. • There is the potential for mal-adaptation of constructing a seawall in its current alignment if SLR is tracking at a higher SLR scenario. • Potential for some end effects at the north and Wharemauku Stream across all timeframes. • Establishment of a coordinated approach over the medium-long term would be considered best practice, relative to the uncoordinated approach in the short term.
	3	Enhance existing protection structure ² , Community Education and Emergency Management ⁴ (Enhance)	Re-establish the line with a setback sea wall ⁹ (Retreat & Protect)	Enhance Sea wall ¹² (Protect – Hard Engineering)	5	<ul style="list-style-type: none"> • Likely to manage the risk to coastal erosion over time. • Medium term option may need to be brought forward in time if existing structures fail earlier in the short term. • Enhancing existing structures over the short term will still result in a piece-meal approach which may not effectively manage the hazard relative to a coordinated approach in the medium-long term. • A setback seawall being built following the retreat of some properties in the medium term will allow for more room on the beach, and less risk to the properties behind. • The progression of options from the short to the medium term is sensible if SLR is tracking at a high SLR scenario, and proportionate to the scale of risk. • Potential for some end effects at the north and at Wharemauku Stream across all timeframes • Establishment of a coordinated approach over the medium-long term would be considered best practice, relative to the uncoordinated approach in the short term.

Management Unit 9A: Raumati (North of Wharemauku Stream) Erosion Unit	4	Enhance existing protection structure ² , Community Education and Emergency Management ⁴ (Enhance)	Re-establish the line with a setback sea wall ⁹ & Dune reconstruction ¹¹ (Retreat & Protect)	Beach renourishment ¹⁰ (Protect – Soft Engineering)	4	<ul style="list-style-type: none"> •Enhancing existing structures over the short term will still result in a piece-meal approach which may not effectively manage the hazard relative to a coordinated approach in the medium-long term. •Medium term option may need to be brought forward in time if existing structures fail earlier in the short term. • Likely to manage the risk to coastal erosion over the medium term, however uncertainty about maintaining the reconstructed dune in the long term under high SLR scenarios in a sediment-starved environment. • There is likely to be large costs in maintaining beach renourishment in the long term. •A setback seawall being built following the retreat of some properties in the medium term will allow for more room on the beach, and less risk to the properties behind. Dune reconstruction will provide additional protection in front of the seawall. •Unlikely to exacerbate the risks to the adjacent shoreline. •Establishment of a coordinated approach over the medium-long term would be considered best practice, relative to the uncoordinated approach in the short term.
	5	Sea wall ¹² (Protect – Hard Engineering)	Enhance sea wall ¹² (Protect – Hard Engineering)	Enhance sea wall ¹² (Protect – Hard Engineering)	4	<ul style="list-style-type: none"> • Likely to manage the risk to coastal erosion over time. • A coordinated approach is best practice for managing the risks to erosion. •Enhancement of the seawall in the same location over time may not be effective over longer timeframes in high SLR scenarios, as beach lowering and narrowing could undermine the structure. •The progression of options is sensible if the seawall remains in good condition and the toe is sufficiently buried. •Potential for some end effects at the north and at Wharemauku Stream across all timeframes.
	6	Sea wall ¹² (Protect – Hard Engineering)	Re-establish the line with a setback sea wall ⁹ (Retreat & Protect)	Enhance sea wall ¹² (Protect – Hard Engineering)	5	<ul style="list-style-type: none"> • Likely to manage the risk to coastal erosion over all timeframes through a coordinated approach. •A coordinated approach is best practice for managing the risks to erosion. •A setback seawall being built following the retreat of some properties in the medium term will allow for more room on the beach, and less risk to the properties behind. •The progression of options from the short to the medium term may be dis-proportionate to the scale of risk - as building a new wall would be a large investment prior to undertaking re-establishment of the line with a new sea wall, potentially leading to some mal-adaptation. •Potential for some end effects at the north and Wharemauku Stream across all timeframes

Management Unit 10A: Raumati (South of Wharemauku Stream) Erosion Unit	1	Status Quo ¹ (Current new seawall as outlined in LTP) and Community Education and Emergency Management ⁴	Enhance existing protection structure ² , Community Education and Emergency Management ⁴ (Enhance)	Sea wall ¹² (Protect – Hard Engineering)	4	<ul style="list-style-type: none"> • Likely to manage the risk to coastal erosion over time. • A coordinated approach is best practise for managing the risks to erosion. • The progression of options throughout time is sensible and provides for the ability to adapt the existing structures for as long as possible. • Under the higher SLR scenario, in order for the seawall to be effective over the long term, the design of the wall will likely need to have a significant toe depth and increased crest elevation to deal with the changes associated with SLR. The design of this may not be practical, or may have undesirable consequences across other criteria. • Potential for some end effects at the north (Wharemauku Stream) and south (QE Park) across all timeframes.
	2	Status Quo ¹ (Current new seawall as outlined in LTP) and Community Education and Emergency Management ⁴	Enhance existing protection structure ² , Community Education and Emergency Management ⁴ (Enhance)	Re-establish the line with a setback sea wall ⁹ & Dune reconstruction ¹¹ (Retreat & Protect)	5	<ul style="list-style-type: none"> • Likely to manage the risk to coastal erosion over time. • A coordinated approach is best practice for managing the risks to erosion. • The progression of options throughout time is sensible and provides for the ability to adapt the existing structures for as long as possible before retreating and re-establishing the line further landward. • Dune reconstruction in front of the wall will be effective in providing additional protection to the setback seawall, as well as provide for values in other criteria. • Under the higher SLR scenario, a greater amount of retreat will need to occur to re-establish the line and allow the dune reconstruction to be effective and reduce the continued maintenance required of it, or alternatively, higher maintenance will be required of the dune.
	3	Status Quo ¹ (Current new seawall as outlined in LTP) and Community Education and Emergency Management ⁴	Sea wall ¹² (Protect – Hard Engineering)	Enhance sea wall ¹² (Protect – Hard Engineering)	4	<ul style="list-style-type: none"> • Likely to manage the risk to coastal erosion over time. • A coordinated approach is best practice for managing the risks to erosion. • The progression of options throughout time is sensible. • Under the higher SLR scenario, in order for the seawall to be effective over the long term, the design of the wall will likely need to have a significant toe depth and increased crest elevation to deal with the changes associated with SLR. The design of this may not be practical, or may have undesirable consequences across other criteria. • Potential for some end effects at the north (Wharemauku Stream) and south (QE Park) across all timeframes.
	4	Status Quo ¹ (Current new seawall as outlined in LTP) and Community Education and Emergency Management ⁴	Re-establish the line with a setback sea wall ⁹ (Retreat & Protect)	Enhance sea wall ¹² (Protect – Hard Engineering)	5	<ul style="list-style-type: none"> • Likely to manage the risk to coastal erosion over time. • A coordinated approach is best practice for managing the risks to erosion. • A setback seawall being built following the retreat of some properties in the medium term will allow for more room on the beach, and less risk to the properties behind. • The progression of options from the short to the medium term is likely to be proportionate to the scale of the hazard over the medium-long term. • Under the higher SLR scenario, in order for the seawall to be effective over the long term, the design of the wall will likely need to have a significant toe depth and increased crest elevation to deal with the changes associated with SLR. The design of this may not be practical, or may have undesirable consequences across other criteria. • Potential for some end effects at the north (Wharemauku Stream) and south (QE Park) across all timeframes
	5	Status Quo ¹ (Current new seawall as outlined in LTP) and Community Education and Emergency Management ⁴	Re-establish the line with a setback sea wall ⁹ & Dune reconstruction ¹¹ (Retreat & Protect)	Beach renourishment ¹⁰ (Protect – Soft Engineering)	4	<ul style="list-style-type: none"> • Likely to manage the risk to coastal erosion over the medium term, however uncertainty about maintaining the reconstructed dune in the long term under high SLR scenarios in a sediment-starved environment. • There is likely to be large costs in maintaining beach renourishment in the long term. • A setback seawall being built following the retreat of some properties in the medium term will allow for more room on the beach, and less risk to the properties behind. Dune reconstruction will provide additional protection in front of the seawall. • Unlikely to exacerbate the risks to the adjacent shoreline. • Establishment of a coordinated approach over the medium-long term would be considered best practice, relative to the uncoordinated approach in the short term.

Management Unit	Pathway	Pathway Description			Effectively Manages the Risks of Coastal Erosion	
		Short term	Medium term	Long term	Score	Notes
Management Unit 9B: Raumati AA	1	Status Quo ¹ and Community Education and Emergency Management ⁴	Enhance Existing Inundation Protection ³ and Community Education and Emergency Management ⁴ (Enhance)	Additional Hard Protection (e.g. Stopbanks ¹³ , Culverts ¹⁴ , Pumpstations ¹⁵) (Protect)	1	•Pathway not designed to deal with the erosion hazard, and is unlikely to have any co-benefits to reduce risk to erosion.
	2	Status Quo ¹ and Community Education and Emergency Management ⁴	Enhance Existing Inundation Protection ³ and Community Education and Emergency Management ⁴ (Enhance)	Flood proofing buildings and infrastructure ⁵ and/or Elevate floor levels of buildings ⁷ (Accommodate)	1	•Pathway not designed to deal with the erosion hazard, and is unlikely to have any benefits to reduce risk to erosion.
	3	Status Quo ¹ and Community Education and Emergency Management ⁴	Additional Hard Protection (e.g. Stopbanks ¹³ , Culverts ¹⁴ , Pumpstations ¹⁵) (Protect)	Enhance New Inundation Protection ³ (Enhance)	1	•Pathway not designed to deal with the erosion hazard, and is unlikely to have any benefits to reduce risk to erosion.