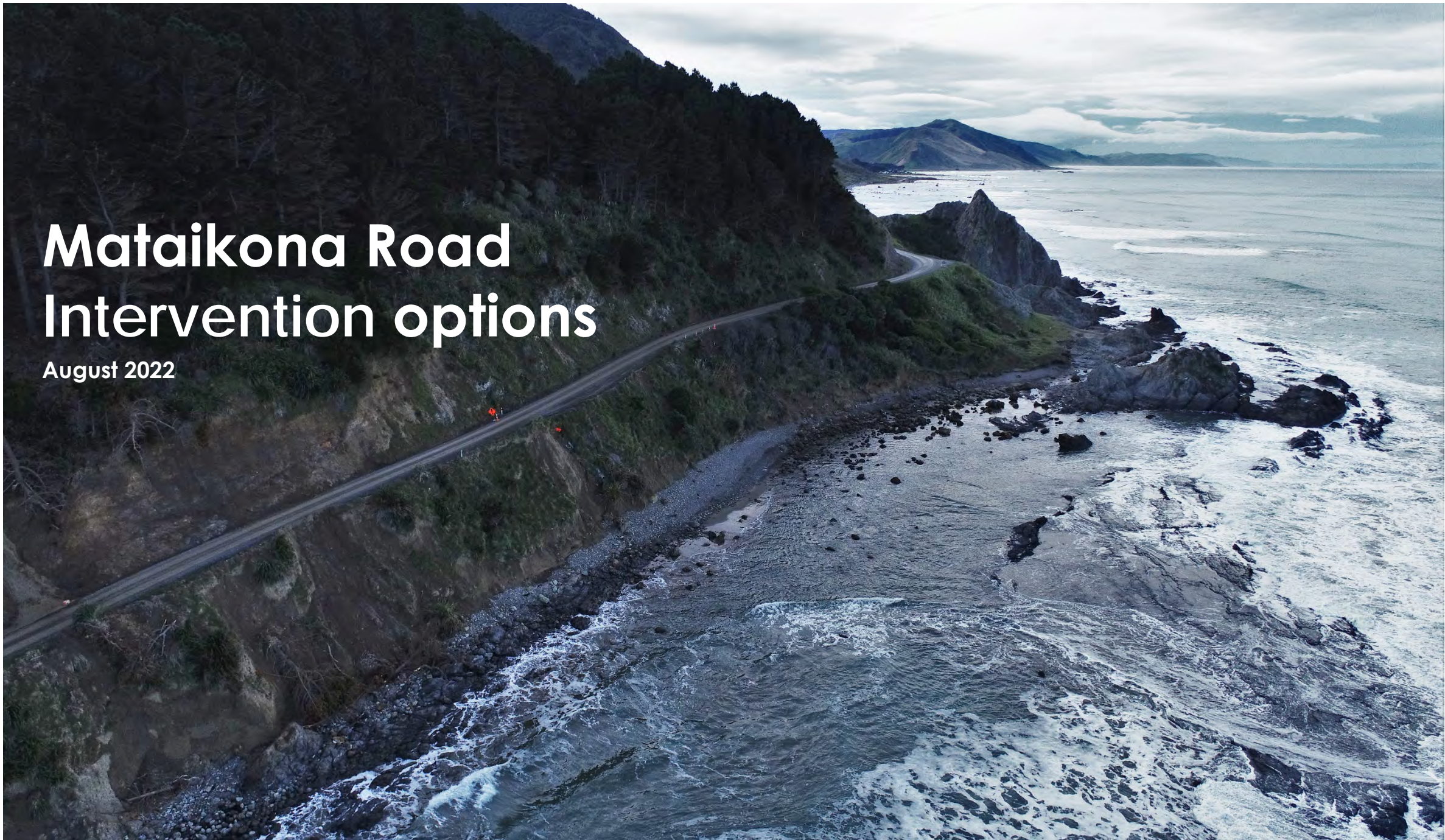




Mataikona Road Intervention options

August 2022





Road Sections

- 1. Front Hill
- 2. Sandy Bay settlement
- 3. Second Hill
- 4. Second Hill to Suicide Rock
- 5. Suicide Rock
- 6. Middle settlement
- 7. South Mataikona
- 8. Mataikona
- 9. Mataikona River





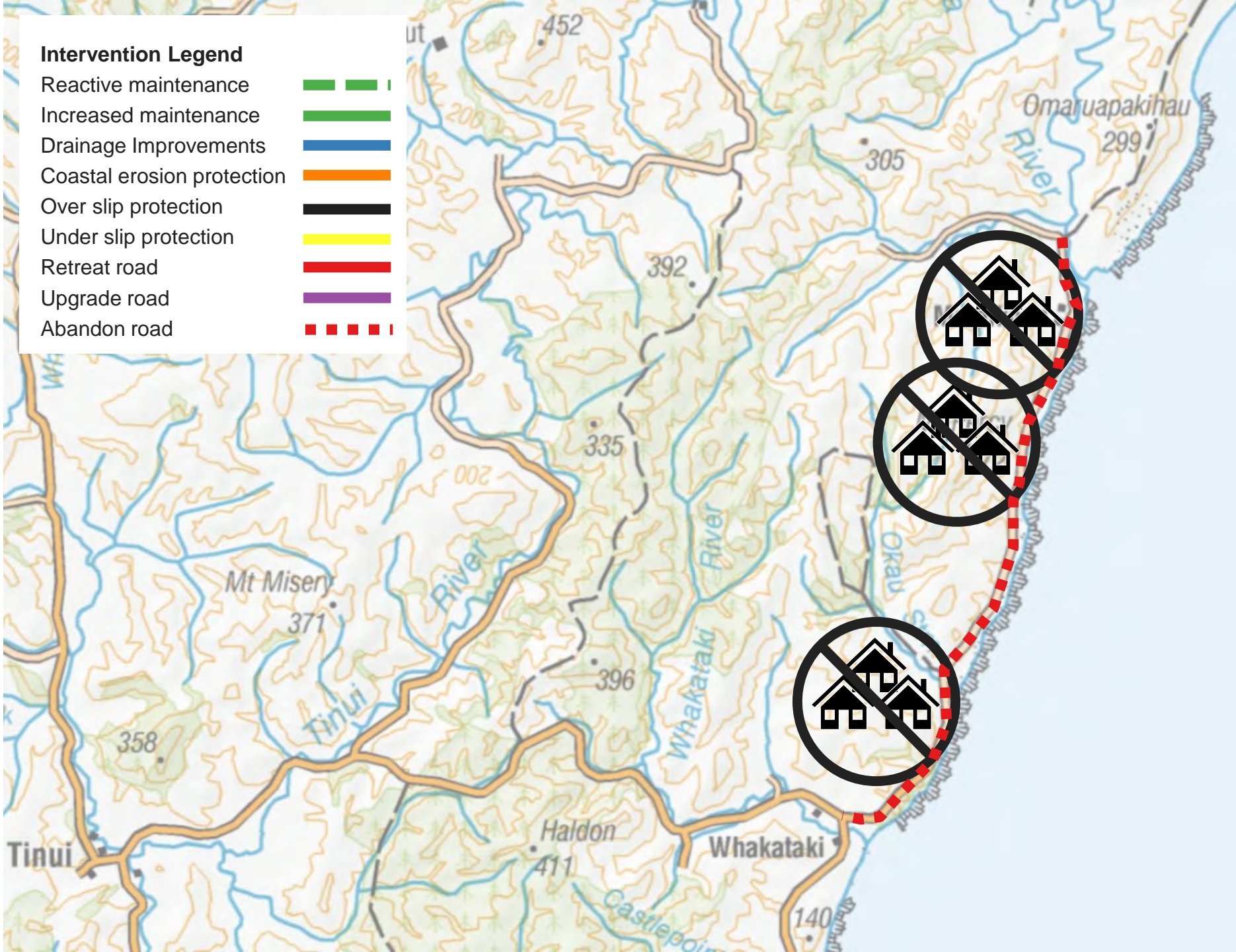
Packages

Package	Description
1. Do Nothing	Plan to monitor the risk until an agreed threshold where the road is abandoned.
2. Do Minimum	Continue with reactive maintenance.
3. Minor Improvements	Preventative maintenance, and proactively rock armor a small number of key sites.
4. Retreat	Retreat the road inland where there is space to do so. Maintain the remainder of the road with reactive maintenance.
5. Strengthen	Address all problem areas along Mataikona Road with long term solutions
6. Optimised (low cost)	A tailored programme of low-cost interventions that best address the problems in each section of Mataikona Road in the medium term.
7. Optimised (high cost)	A tailored programme of high-cost interventions that best address the problems in each section of Mataikona Road in the long term.
8. Alternate Route 1	Upgrade Pack Spur Road and strengthen the Mataikona River section. Abandon Mataikona Road between Sandy Bay and Middle settlement.
9. Alternate Route 2	Upgrade Pack Spur Road and strengthen the Mataikona River section. Abandon Mataikona Road between Sandy Bay and Mataikona. Access to the middle settlement is lost.
10. Alternate Route 3	Upgrade Pack Spur Road and strengthen the Mataikona River section. Abandon Mataikona Road south of Mataikona



Do Nothing

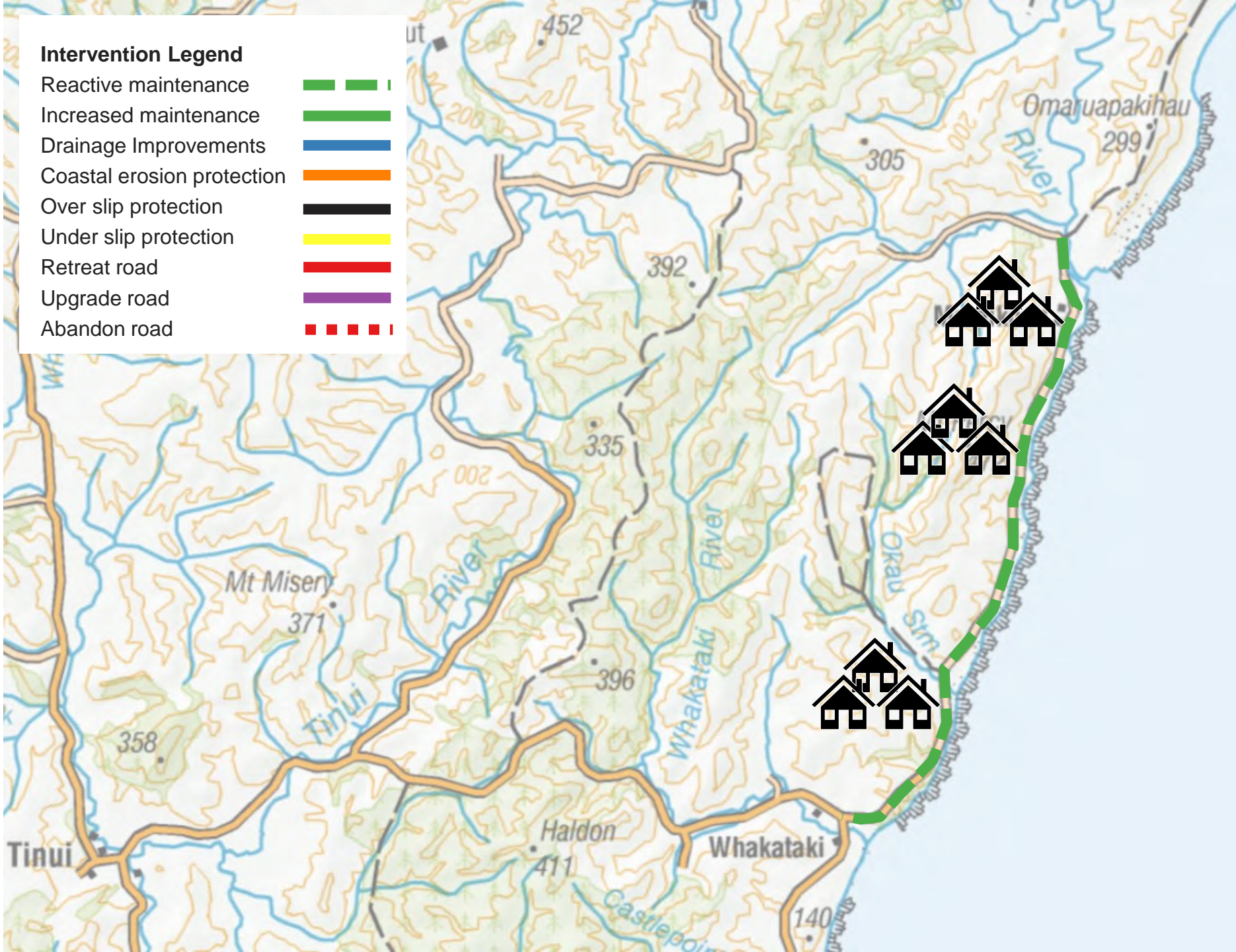
Acceptance that key sections of the corridor cannot be protected against natural hazards, and access can no longer be guaranteed. Plan to monitor the risk until an agreed threshold where the road is abandoned.





Do Minimum

Plan for periodic disruption and trigger reactive response to natural hazards through emergency spend funding to maintain access along the corridor.



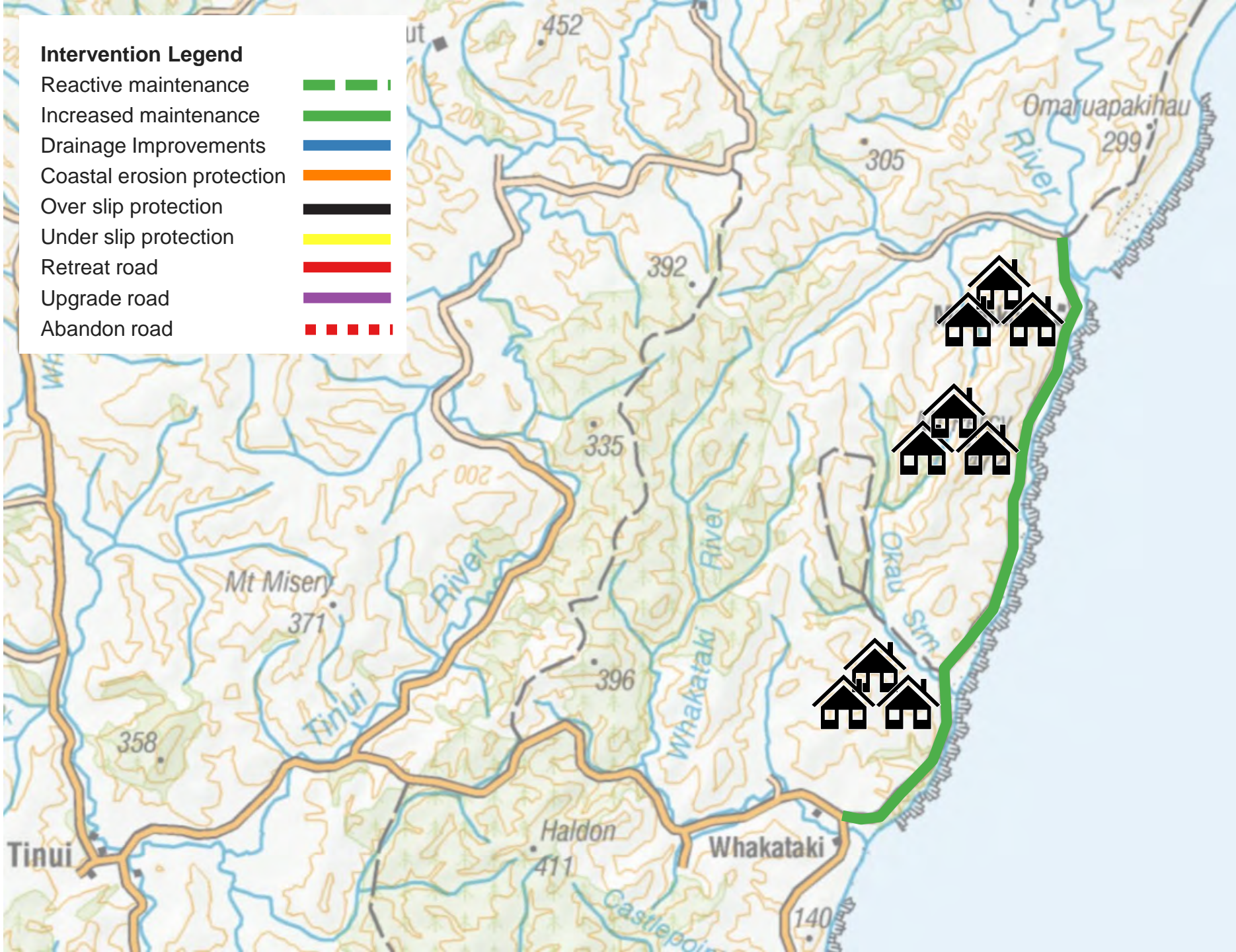


Minor Improvements

Increase preventative maintenance along Mataikona Road (drainage improvements, clean out culverts prior to storm events, etc).

Small fund for targeted rock armoring (or other appropriate strengthening works)

Intervention Legend	
Reactive maintenance	
Increased maintenance	
Drainage Improvements	
Coastal erosion protection	
Over slip protection	
Under slip protection	
Retreat road	
Upgrade road	
Abandon road	





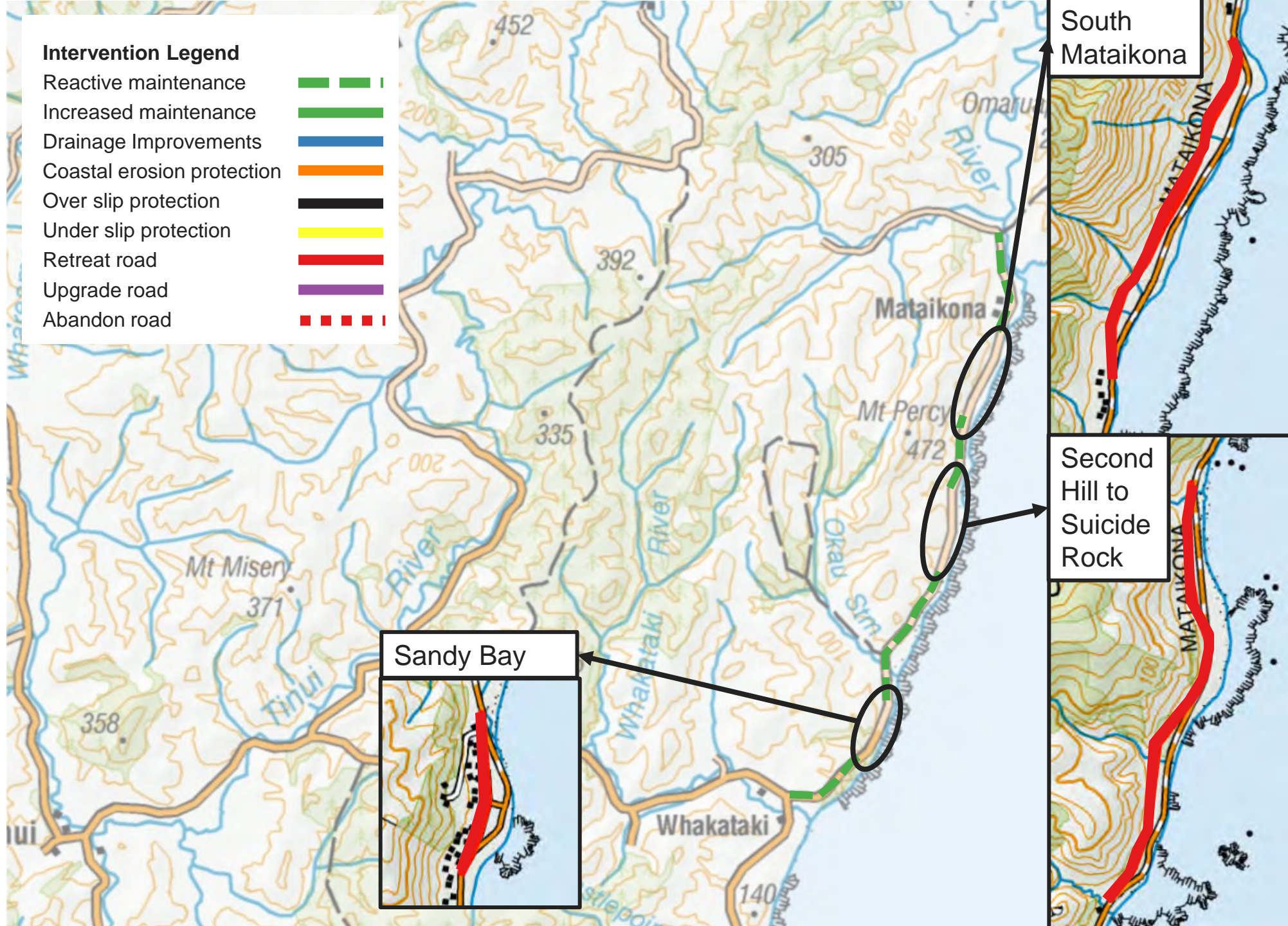
Retreat

Retreat the road inland where there is space to do so but maintain the alignment in front of the three settlements. Maintain the remainder of the road as per the Do Minimum.

Retreat Road at:

- Sandy Bay,
- Second Hill to Suicide Rock and
- South Mataikona

Intervention Legend	
Reactive maintenance	
Increased maintenance	
Drainage Improvements	
Coastal erosion protection	
Over slip protection	
Under slip protection	
Retreat road	
Upgrade road	
Abandon road	





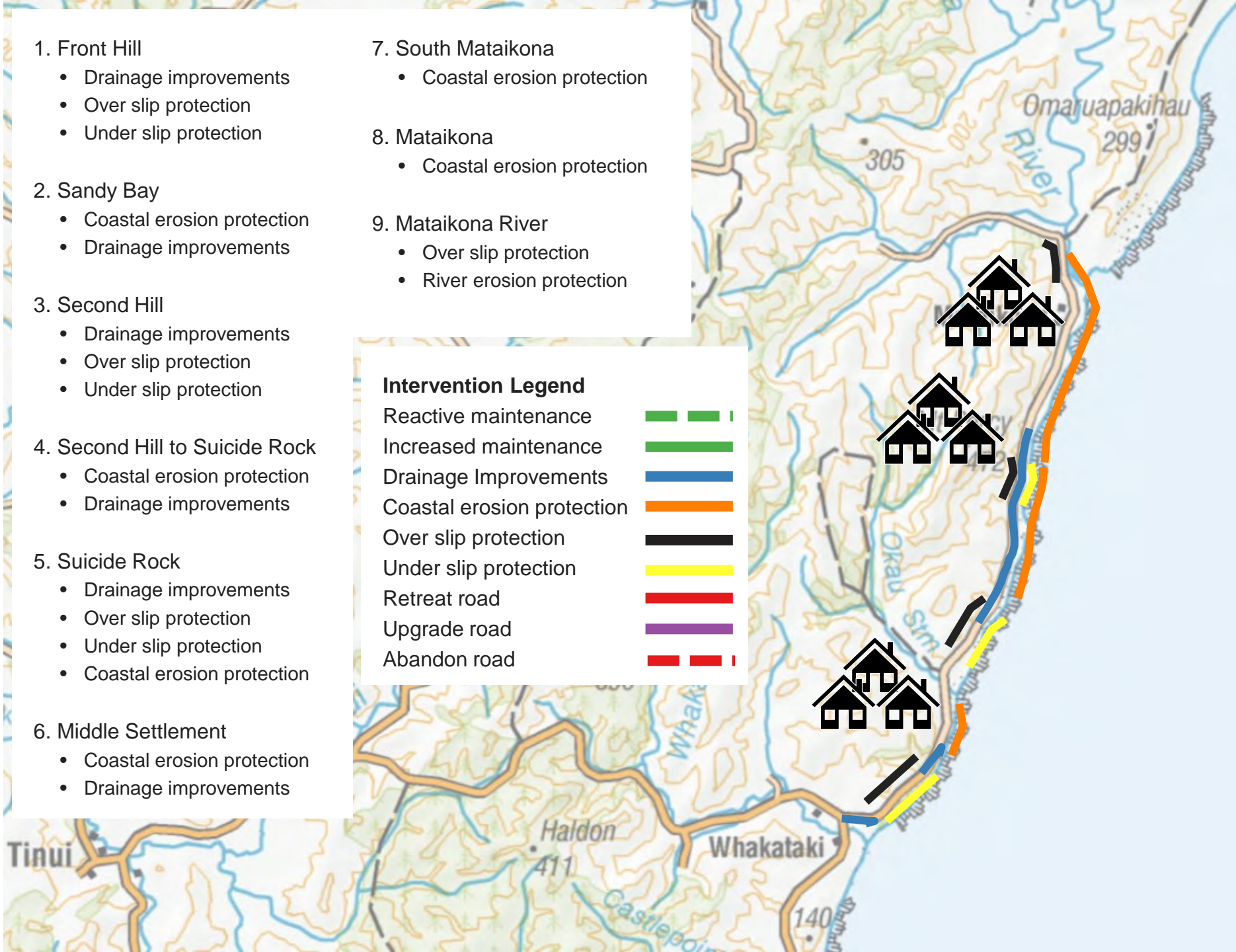
Strengthen

Complete longer-term repairs for over slips, under slips and coastal erosion in all areas of concern along the length of Mataikona Road.

1. Front Hill
 - Drainage improvements
 - Over slip protection
 - Under slip protection
2. Sandy Bay
 - Coastal erosion protection
 - Drainage improvements
3. Second Hill
 - Drainage improvements
 - Over slip protection
 - Under slip protection
4. Second Hill to Suicide Rock
 - Coastal erosion protection
 - Drainage improvements
5. Suicide Rock
 - Drainage improvements
 - Over slip protection
 - Under slip protection
 - Coastal erosion protection
6. Middle Settlement
 - Coastal erosion protection
 - Drainage improvements
7. South Mataikona
 - Coastal erosion protection
8. Mataikona
 - Coastal erosion protection
9. Mataikona River
 - Over slip protection
 - River erosion protection

Intervention Legend

Reactive maintenance	
Increased maintenance	
Drainage Improvements	
Coastal erosion protection	
Over slip protection	
Under slip protection	
Retreat road	
Upgrade road	
Abandon road	





Optimised (low cost)

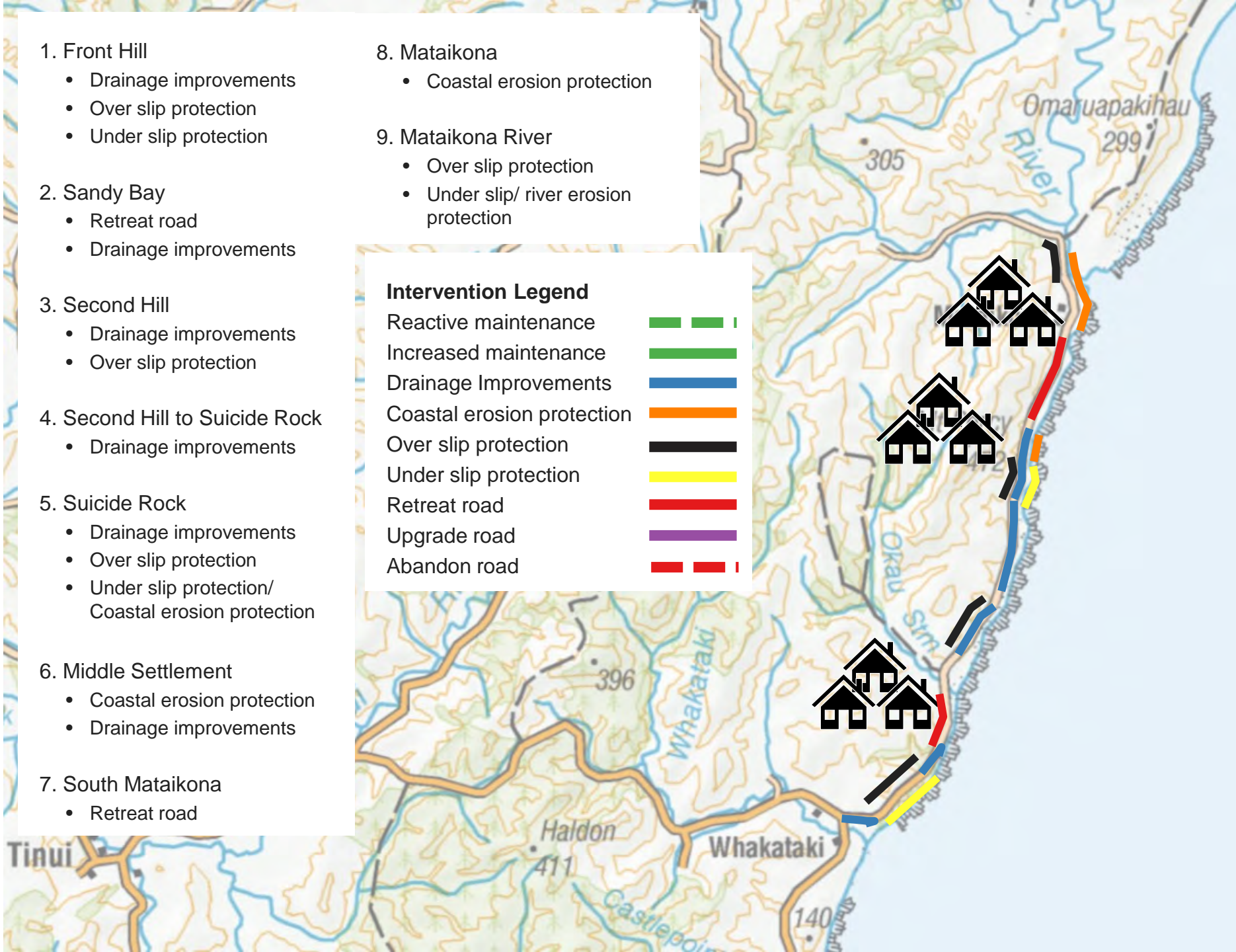
A tailored programme of low-cost interventions that best address the problems in each section of Mataikona Road in the medium term

1. Front Hill
 - Drainage improvements
 - Over slip protection
 - Under slip protection
2. Sandy Bay
 - Retreat road
 - Drainage improvements
3. Second Hill
 - Drainage improvements
 - Over slip protection
4. Second Hill to Suicide Rock
 - Drainage improvements
5. Suicide Rock
 - Drainage improvements
 - Over slip protection
 - Under slip protection/ Coastal erosion protection
6. Middle Settlement
 - Coastal erosion protection
 - Drainage improvements
7. South Mataikona
 - Retreat road

8. Mataikona
 - Coastal erosion protection
9. Mataikona River
 - Over slip protection
 - Under slip/ river erosion protection

Intervention Legend

Reactive maintenance	
Increased maintenance	
Drainage Improvements	
Coastal erosion protection	
Over slip protection	
Under slip protection	
Retreat road	
Upgrade road	
Abandon road	





Optimised (high cost)

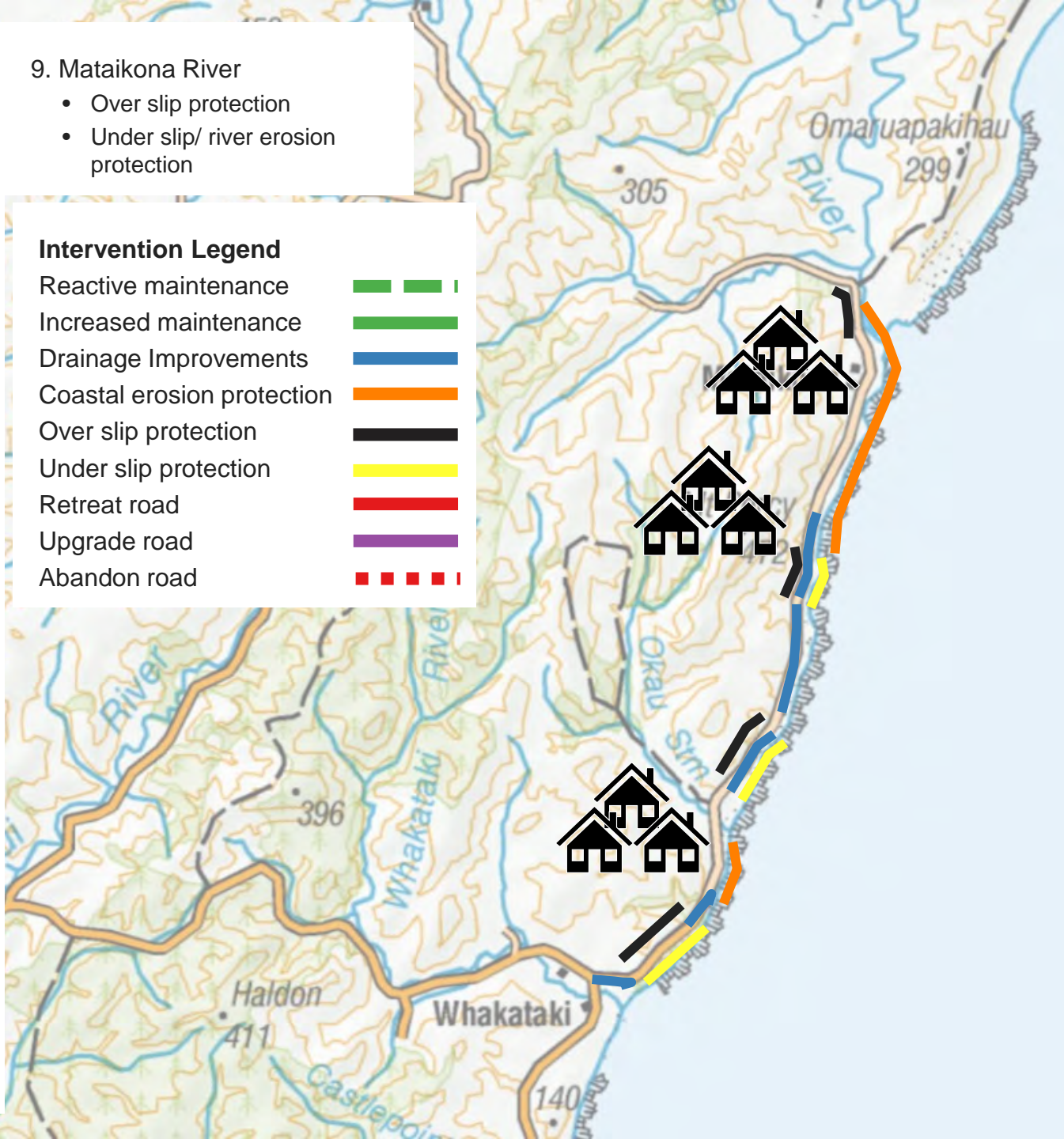
A tailored programme of high-cost interventions that best address the problems in each section of Mataikona Road in the long term.

1. Front Hill
 - Drainage improvements
 - Over slip protection
 - Under slip protection
2. Sandy Bay
 - Coastal erosion protection
3. Second Hill
 - Drainage improvements
 - Over slip protection
 - Under slip protection
4. Second Hill to Suicide Rock
 - Drainage improvements
5. Suicide Rock
 - Drainage improvements
 - Over slip protection
 - Under slip protection/ Coastal erosion protection
6. Middle Settlement
 - Coastal erosion protection
 - Drainage improvements
7. South Mataikona
 - Coastal erosion protection
8. Mataikona
 - Coastal erosion protection

9. Mataikona River
 - Over slip protection
 - Under slip/ river erosion protection

Intervention Legend

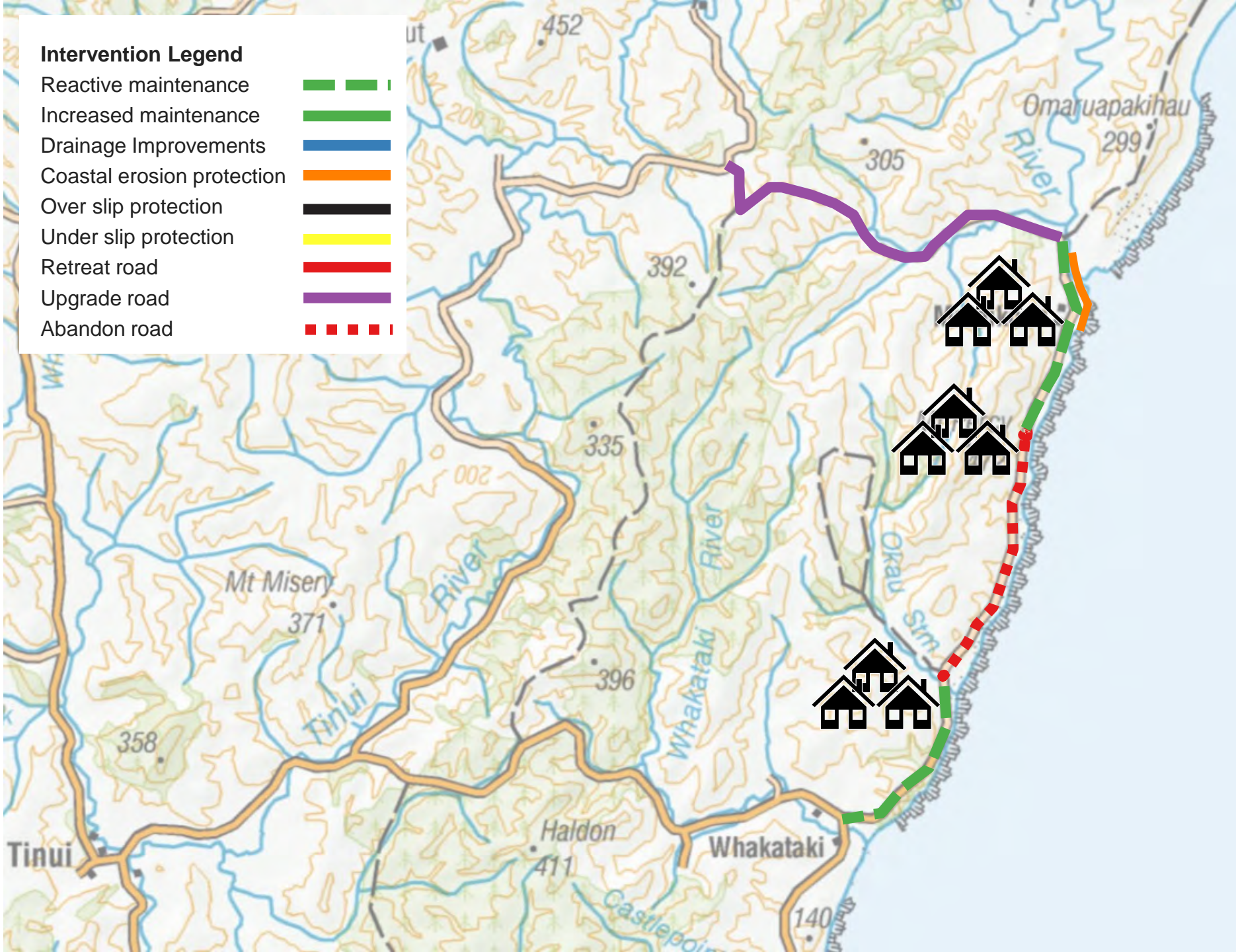
Reactive maintenance	
Increased maintenance	
Drainage Improvements	
Coastal erosion protection	
Over slip protection	
Under slip protection	
Retreat road	
Upgrade road	
Abandon road	





Alternative Route 1

Retain access for light vehicles on Mataikona Road to Sandy Bay, however access to Mataikona and the middle settlement is via Pack Spur Road (upgraded so it is passable in most weather conditions). Protect Mataikona River section from erosion. Investment on the remaining corridor is per Do Minimum (reactive maintenance). This package results in the loss of access between Sandy Bay and the middle settlement.



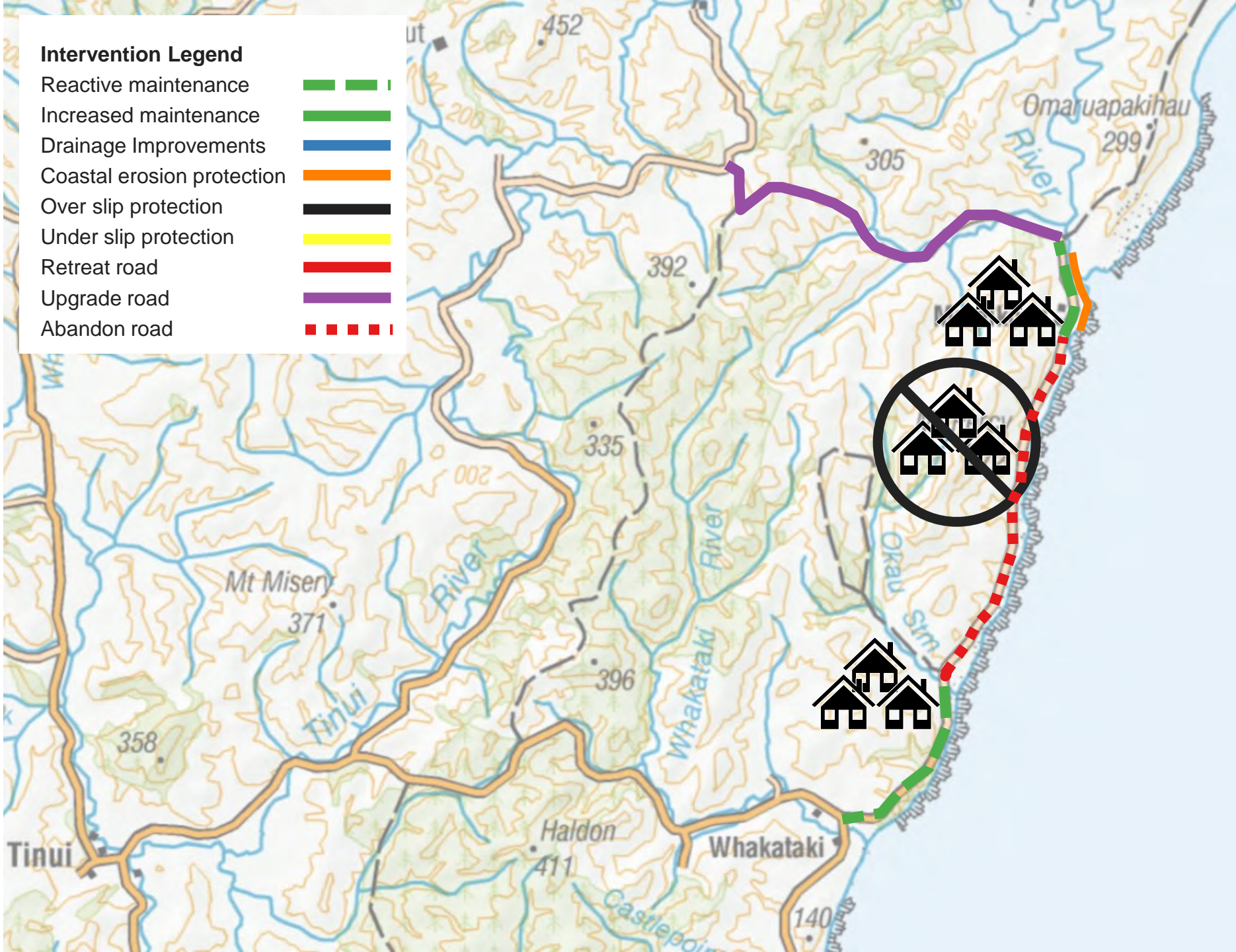
Intervention Legend	
Reactive maintenance	Green dashed line
Increased maintenance	Green solid line
Drainage Improvements	Blue solid line
Coastal erosion protection	Orange solid line
Over slip protection	Black solid line
Under slip protection	Yellow solid line
Retreat road	Red solid line
Upgrade road	Purple solid line
Abandon road	Red dashed line





Alternative Route 2

Retain access for light vehicles to Sandy Bay and Mataikona settlements, however access to Mataikona is via Pack Spur Road (upgraded so it is passable in most weather conditions). Protect Mataikona River section from erosion. Investment on the remaining corridor is per Do Minimum (reactive maintenance). This package results in the loss of access to the middle settlement (and direct access between Sandy Bay and Mataikona).





Alternative Route 3

Maintains road access for light vehicles to the Mataikona settlement, but will lose road access to all other properties, including Sandy Bay and the middle settlement.

Upgrade Pack Spur Road so it is passable in most weather conditions. Protect Mataikona River section from erosion. Abandon Mataikona Road south of Mataikona River.

