REPORT 1

# SUPPORTING MATERIAL FOR THE CONSIDERATION OF ALTERNATIVES

DECEMBER 2016

NZ TRANSPORT AGENCY WAKA KOTAHI

East West Link

| Quality Assurance Statement | |
|---|---|
| Approved for release |  <br>Patrick Kelly (EWL Alliance Manager) |

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# Report 1 Assessment of Alternatives

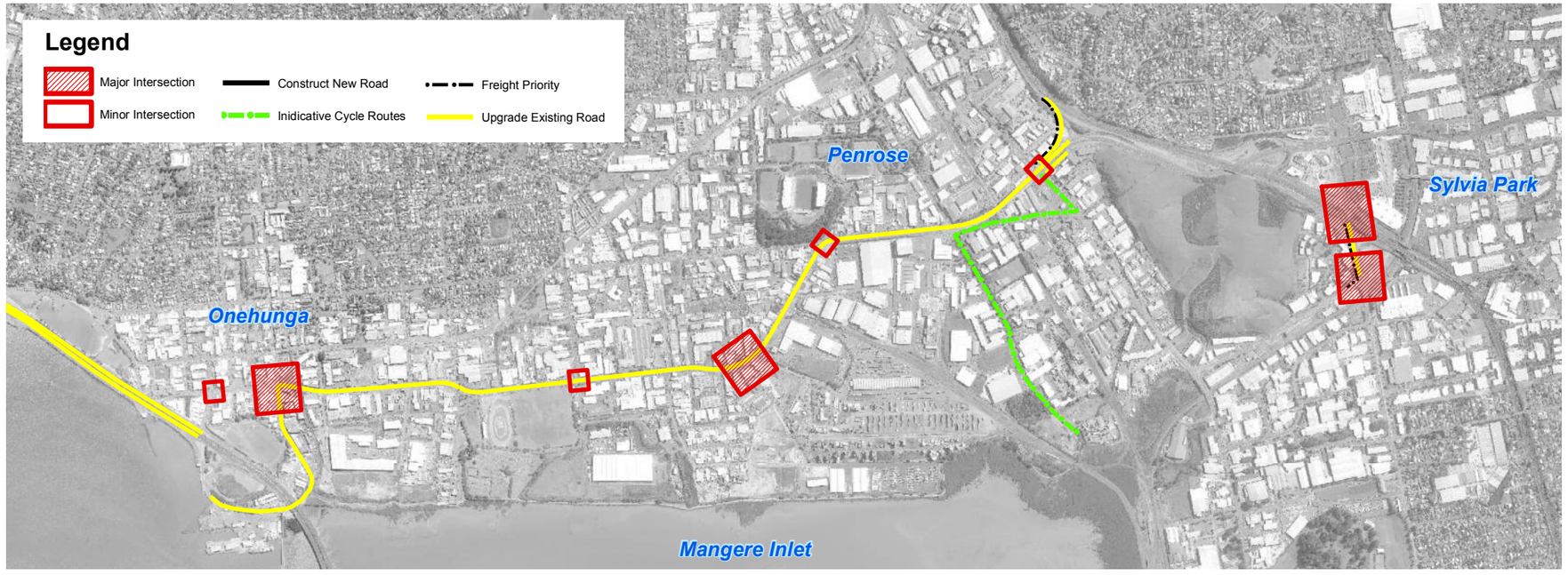
The appendices that follow support the assessment in *Section 8: Consideration of Alternatives* in the Assessment of Effects on the Environment (Volume 1)

Appendix A

# Long List Individual Option Assessment

# OPTION 1

## ONEHUNGA/PENROSE AREA
### EXISTING ROUTE UPGRADE WITH FREIGHT LANES



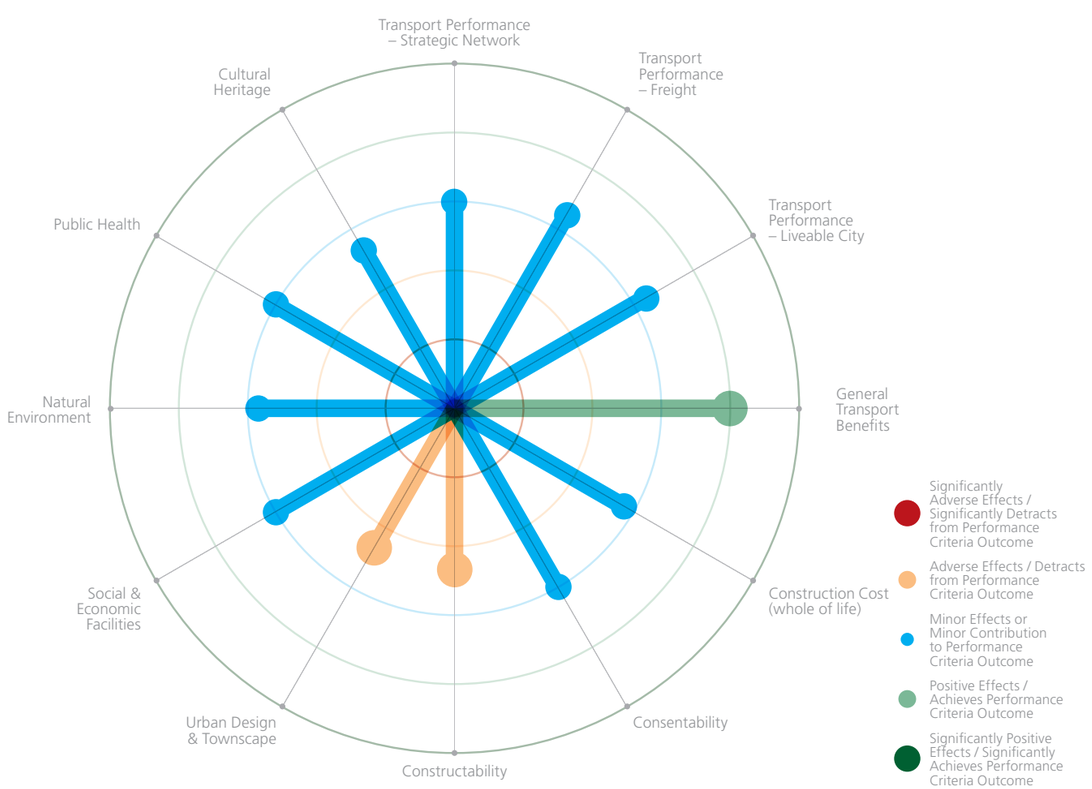

### Description

- Capacity improvements on SH20 from Queenstown Rd to Onehunga
- Improvements to Onehunga Mall / Neilson St intersection (some land take at Onehunga Harbour Rd and Neilson St)
- 4-laning of Neilson St
- Freight priority on SEART northbound to SH1 and Mt Wellington south bound to SH1
- Cycle link from Waikaraka to Sylvia Park through upgrades on existing Rd network.

### Assessment Outcome

✓ Option to **proceed to Short-list**

This option is considered a low investment option using existing corridors, with some transport performance benefits (particularly general traffic and to SH20). It has comparatively low impacts. Key potential issue include impacts on Onehunga Lagoon / Foreshore (SH20) and transport / pedestrian conflicts in Onehunga town centre and pedestrian linkage at Onehunga Harbour Rd, as well as degree to which this option addresses the problems identified for the Onehunga Penrose area. These will need to be considered further in the short-list assessment.




### Transport Performance

Contributes little to transport performance criteria connecting to SH1, but improvements for connections to and on SH20. Conflicts between through traffic and access traffic on Neilson /Church Sts. Congestion / conflict with freight Ln / general traffic at Mt Wellington and Sylvia Park.

### Construction (technical)

Widening works on existing Rd network will have minor adverse impacts on business and traffic.

### Consentability

Consenting will be relatively straightforward subject to impacts on the Hopua tuff ring and adjacent coastal marine area.

### Cost (design, property and construction)

Comparatively low cost with works limited to Rd upgrades and limited property / land requirement.

### Public / Stakeholder Issues

Avoids many features valued by the community but does not address transport issues identified by stakeholders, particularly for businesses

### Urban Design & Townscape

Reinforces existing fragmentation of Onehunga town centre through heavy traffic flows and impacts with Onehunga Harbour Rd / Neilson St intersection upgrade. Other adverse impacts similar to existing environment.

### Social and Economic Facilities

Adverse impacts of works on SH20 (common to all options) and impacts in the vicinity of the Gloucester Park (interchange). As works largely on existing Rds, other impacts minor.

### Public Health

Largely avoids sensitive receptors, and as route on existing corridors only minor changes from existing environment.

### Natural Environment

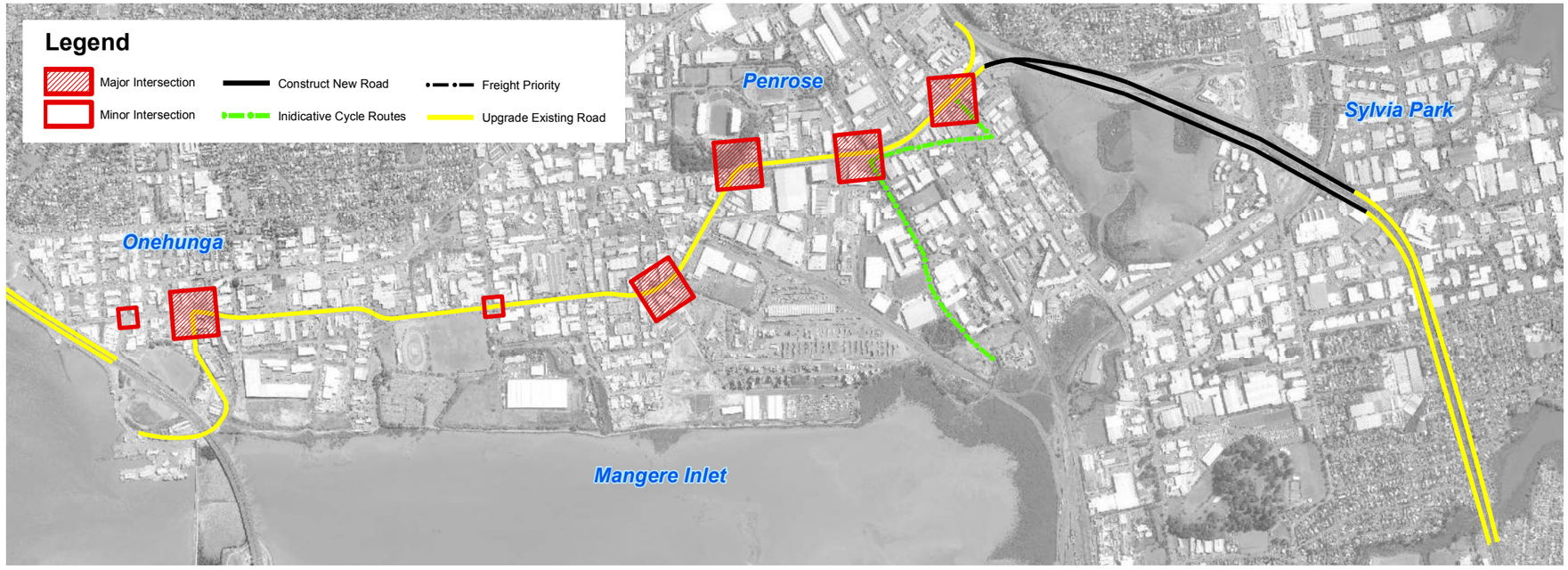
Adverse impacts of works on SH20 (common to all options) and potential for effects on Hopua tuff ring.

### Culture / Heritage

Potential for effects on Te Hopua. No known archaeological or heritage sites affected.

# OPTION 2

## ONEHUNGA/PENROSE AREA
### EXISTING ROUTE UPGRADE WITH NEW SH1 RAMPS AT SEART



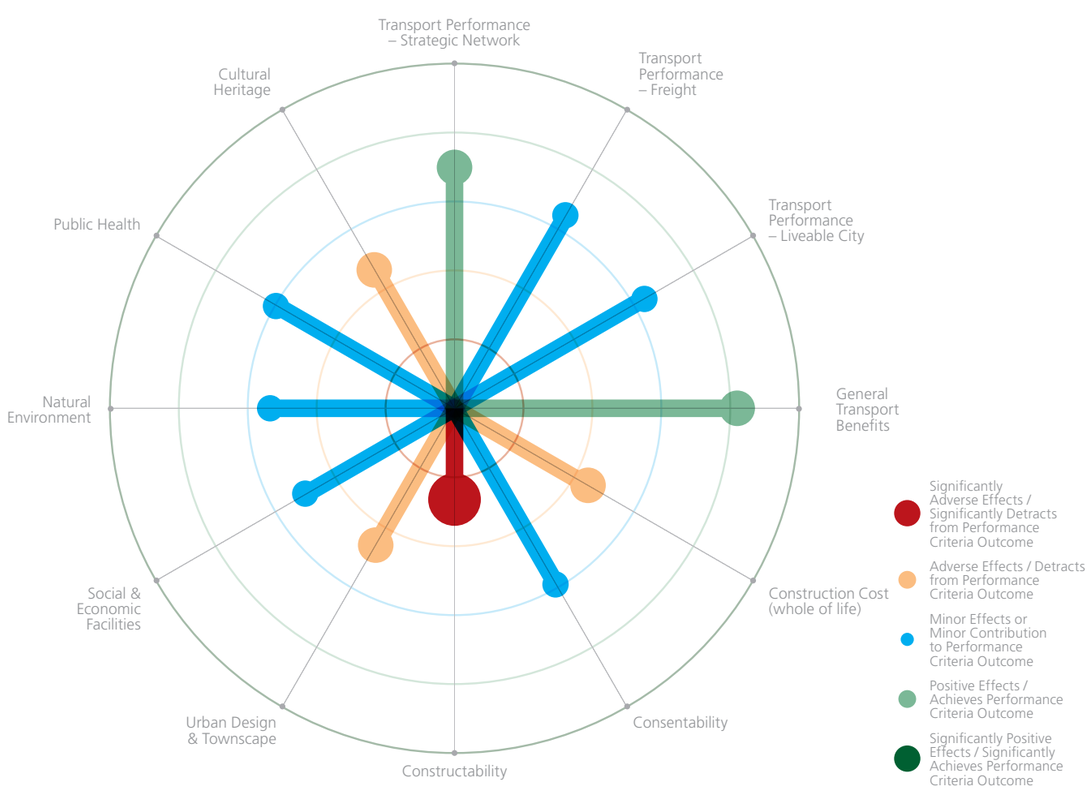

### Description

- Capacity improvements to SH20 and improvements to Onehunga Mall / Neilson St intersection (some land take at Onehunga Harbour Rd and Neilson St)
- 4-laning of Neilson St
- Freight priority on Southeastern Highway northbound to SH1
- New ramps at Southeastern Highway / SH1 interchange for traffic to/ from south (land take required along SH1 alongside and potentially including Hamlins Hill land)
- Cycle link from Waikaraka to Sylvia Park through upgrades on existing Rd network.

### Assessment Outcome

✓ Option to **proceed to Short-list**

This option is considered a low to moderate investment option in existing corridors, with improved transport connections to both SH20 and SH1. However, the extra traffic attracted to Church/Neilson St causes congestion and conflict with access traffic. Methods to address some o fthe induced congestion on Church St will need to be considered. It has comparatively low impact (similar to Option 1). Key potential issues include the impacts on Onehunga Lagoon / Foreshore (SH20), Onehunga town centre, and the extent and complexity of construction works at Hamlins Hill / SH1 interchange. These will need to be considered further in the short-list assessment.




### Transport Performance

Provides improved strategic connections to both SH20 and SH1, but attracted traffic results in increased congestion on Church St and conflicts with access traffic on Neilson St .

### Construction (technical)

Construction of ramps over Mt Wellington Highway is complex. Challenges for construction of rail over.

### Consentability

Moderate consenting challenges are likely to be able to be managed. Degree of impact on the Hopua tuff ring and the coastal environment will need to be managed.

### Cost (design, property and construction)

Moderate cost option, given the complexity of the ramp connection at SH1 (SEART). Some property acquisition, but comparatively minor.

### Public / Stakeholder Issues

Western portion uses mainly existing routes and follows existing pattern of development. Impacts on Hamlins Hill will be of particular interest to some in the community. Does not address transport issues identified by stakeholders, particularly for businesses

### Urban Design & Townscape

Conflicts at the intersection of Onehunga Mall and Nielson St with town centre. Compatible with the industrial land uses in the area but some acquisitions will be needed.

### Social and Economic Facilities

Adverse impacts of works on SH20 (common to all options) and impacts in the vicinity of the Gloucester Park (interchange). Potential adverse impacts dependent on scale of impact at Hamlins Hill. Remaining works largely on existing Rds (minor impacts).

### Public Health

Largely avoids sensitive receptors. Further clarity around effects on residential neighbours adjacent to SH1 would improve certainty.

### Natural Environment

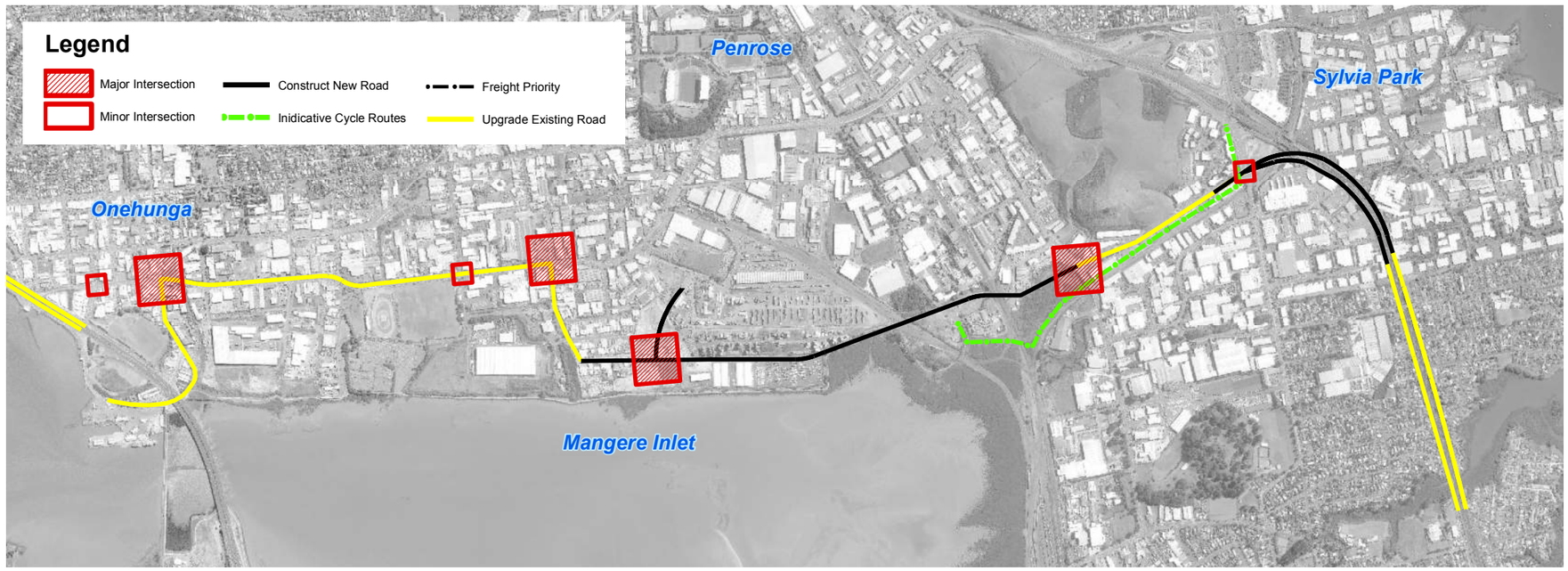
Potential for effects on Hopua tuff ring through widening of roads.

### Culture / Heritage

The option cuts into the edge of Hamlins Hill. Site of cultural value. It is uncertain how it may affect known archaeological sites.

# OPTION 3

## ONEHUNGA/PENROSE AREA
### EXISTING ROUTE UPGRADE TO SH20 WITH NEW INLAND ROUTE TO NEW SH1 RAMPS AT MT WELLINGTON



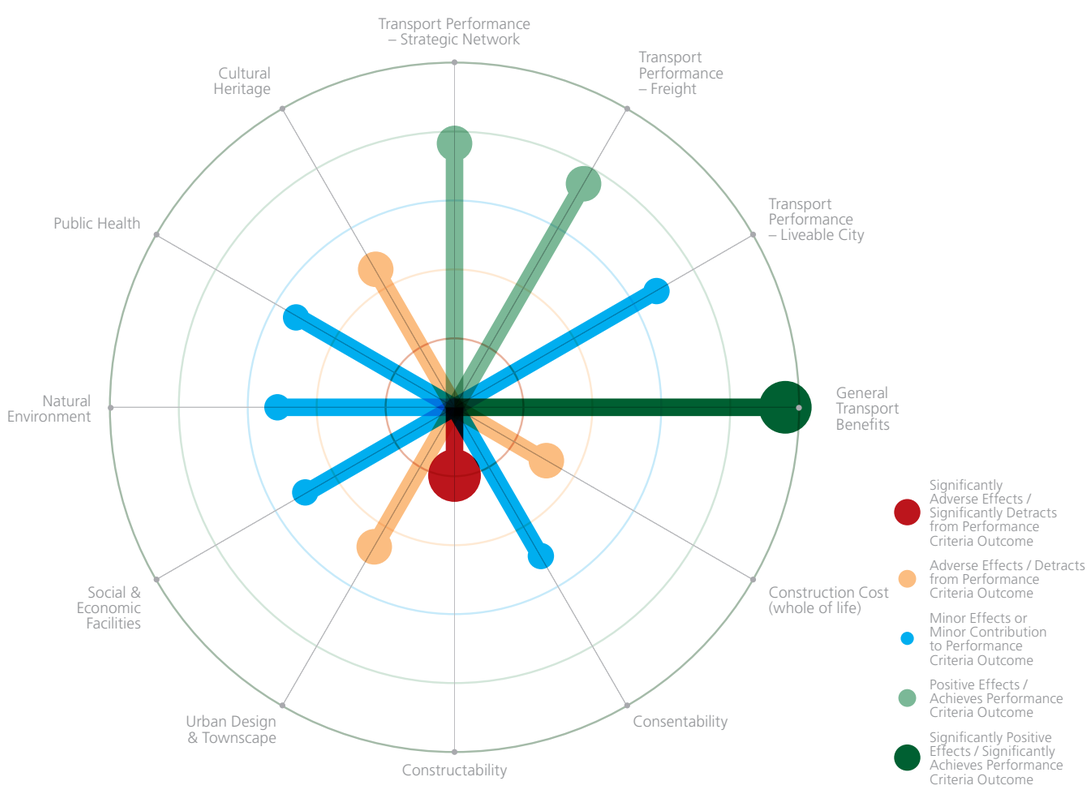

## Description

- Capacity improvements on SH20 from Queenstown Rd to Onehunga
- Improvements to Onehunga Mall / Neilson St intersection
- 4-laning of Neilson St
- New inland route from Southdown to Sylvia Park Rd, with new grade separated connection from Sylvia Park Rd for traffic to/from south at SH1 (with land take)
- Requires relocation to Transpower towers
- Cycle link from Waikaraka to Sylvia Park Rd as new link from Southdown to Sylvia Park.

## Assessment Outcome

× Option **not to proceed** beyond Long List

This option is considered a high level of investment, with some transport performance benefits (improved access to SH1 for traffic to/from the south) and some freight improvements but limited 'liveability' improvements (issues at Onehunga Mall and Onehunga Harbour Rd not addressed). It has potential impacts in a number of areas. Key potential issues include impacts on Onehunga Lagoon / Foreshore (SH20), works on or near Anns Creek and conflict with the Transpower and property access on Onehunga Harbour Rd.




## Transport Performance

Provides improved strategic and freight transport connections to both SH1 and SH20 and diverts traffic form Church St and the eastern end of Neilson St. The required capacity upgrades on Onehunga Harbour Rd would conflict with the access and parking requirements of the adjacent land uses. This option retains conflict between strategic, local, buses and cyclists on Onehunga Harbour Rd.

## Construction (technical)

Construction of ramps over Mt Wellington Highway is complex. Risk that works on Onehunga Harbour Rd will require land take from commercial properties (to achieve appropriate design standards). Challenges at interface with Transpower towers and construction of rail over.

## Consentability

Low to moderate consenting challenges are likely to be able to be managed. SH20 capacity improvements and some impact on the Hopua tuff ring. Degree of foreshore structure and impacts at or near Anns Creek will add complexity. Some complexity where close to Transpower towers and rail (impacts on existing designations).

## Cost (design, property and construction)

Moderate cost option. Land take costs uncertain with potential for increased land take requirements of port land (Metroport area).

## Public / Stakeholder Issues

Western portion uses mainly existing routes and follows existing pattern of development. May not address transport issues identified by stakeholders, particularly for businesses. Business impacts resulting from land requirements on industrial / port areas uncertain.

## Urban Design & Townscape

Conflicts at the intersection of Onehunga Mall and Nielson St, impacts on liveable city / centre outcomes.. Compatible with the industrial land uses in the area but some acquisitions will be needed.

## Social and Economic Facilities

Moderate impacts with SH20 / Gloucester Park works (common to all options) and interface at Waikaraka walkway. Scale of land requirements in Onehunga / Onehunga Harbour Rd to be confirmed.

## Public Health

May involve traversing some contaminated sites. Avoids sensitive receptors.

## Natural Environment

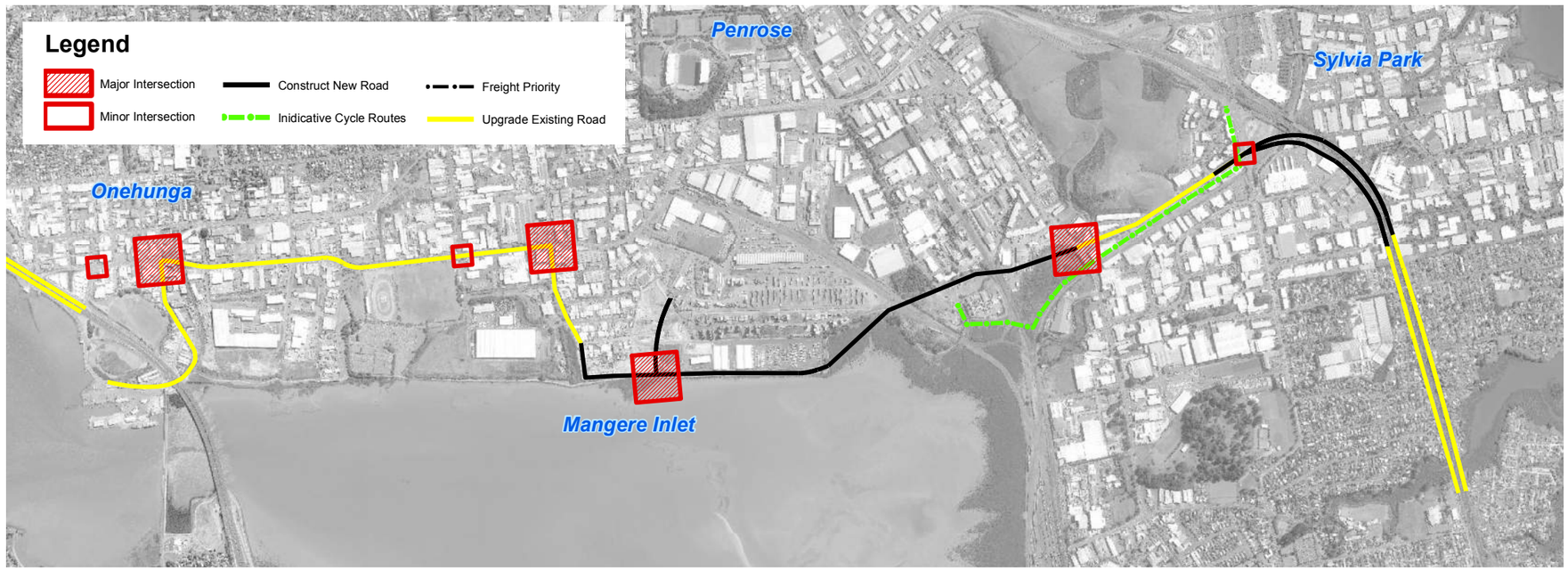
Potential for effects on Hopua tuff ring and Anns Creek landscape and natural environment features (for portion to the east of the Co-Gen site).

## Culture / Heritage

Option affects the foreshore at the western end and will require some degree of reclamation or structure. The option does not affect known archaeological sites.

# OPTION 4

## ONEHUNGA/PENROSE AREA
### EXISTING ROUTE UPGRADE TO SH20 WITH NEW FORESHORE ROUTE TO NEW SH1 RAMPS AT MT WELLINGTON



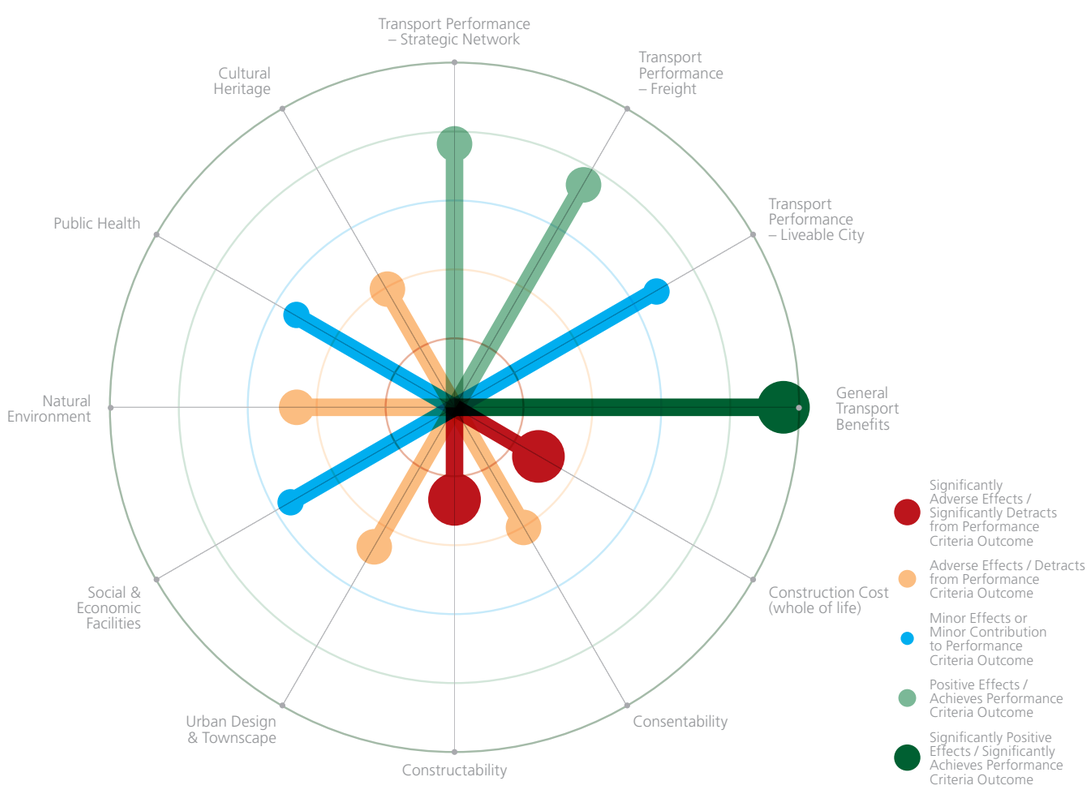

### Description

- Capacity improvements on SH20 from Queenstown Rd to Onehunga and use of Onehunga Harbour Rd onto Neilson St
- 4-laning of Neilson St
- New coastal / foreshore route from Southdown traversing inland to Sylvia Park Rd, with new grade separated connection from Sylvia Park Rd for traffic to/from south at SH1 (with land take)
- Requires relocation to Transpower towers
- Cycle link from Waikaraka to Sylvia Park Rd as new link from Southdown to Sylvia Park.

### Assessment Outcome

× Option **not to proceed** beyond Long List

This option is considered a high level of investment, with some transport performance benefits (improved access to SH1 for traffic to/ from the south) and some freight improvements but limited 'liveability' improvements (issues at Onehunga Mall and Onehunga Harbour Rd not addressed). It has potential impacts in a number of areas. Key potential issues include impacts on Onehunga Lagoon / Foreshore (SH20), the extent of foreshore reclamation and works on or near Anns Creek and some remaining conflict with the Transpower lines and property access on Onehunga Harbour Rd.




### Transport Performance

Provides improved strategic and freight transport connections to both SH1 and SH20 and diverts traffic form Church St and the eastern end of Neilson St. The required capacity upgrades on Onehunga Harbour Rd would conflict with the access and parking requirements of the adjacent land uses.Conceptually the same as Option 3. This option retains conflict between strategic, local, buses and cyclists on Onehunga Harbour Rd.

### Construction (technical)

Construction of ramps over Mt Wellington Highway is complex. Risk that works on Onehunga Harbour Rd will require land take from commercial properties (to achieve appropriate design standards). Challenges at interface with Transpower towers and construction of rail over (close to Main Trunk and eastern line turnouts).

### Consentability

Moderate consenting challenges are likely to be able to be managed. SH20 capacity improvements and some impact on the Hopua tuff ring. Degree of foreshore reclamation will add complexity as will impacts at Anns Creek. Some complexity where close to Transpower towers and rail (impacts on existing designations).

### Cost (design, property and construction)

High cost option due to extent of coastal / reclamation works. Land take costs somewhat uncertain with potential for increased land take requirements at Onehunga Harbour Rd (dependent on extent of upgrading required on this Rd for interchange).

### Public / Stakeholder Issues

Western portion uses mainly existing routes and follows existing pattern of development. May not fully address transport issues identified by stakeholders, particularly business / freight.

### Urban Design & Townscape

Conflicts at the intersection of Onehunga Mall and Nielson St, impacts on liveable city / centre outcomes. Compatible with the industrial land uses in the area but some acquisitions will be needed.

### Social and Economic Facilities

Moderate impacts with SH20 / Gloucester Park works (common to all options) and interface at Waikaraka walkway. Scale of land requirements in Onehunga / Onehunga Harbour Rd to be confirmed.

### Public Health

May involve traversing some contaminated sites. Avoids sensitive receptors.

### Natural Environment

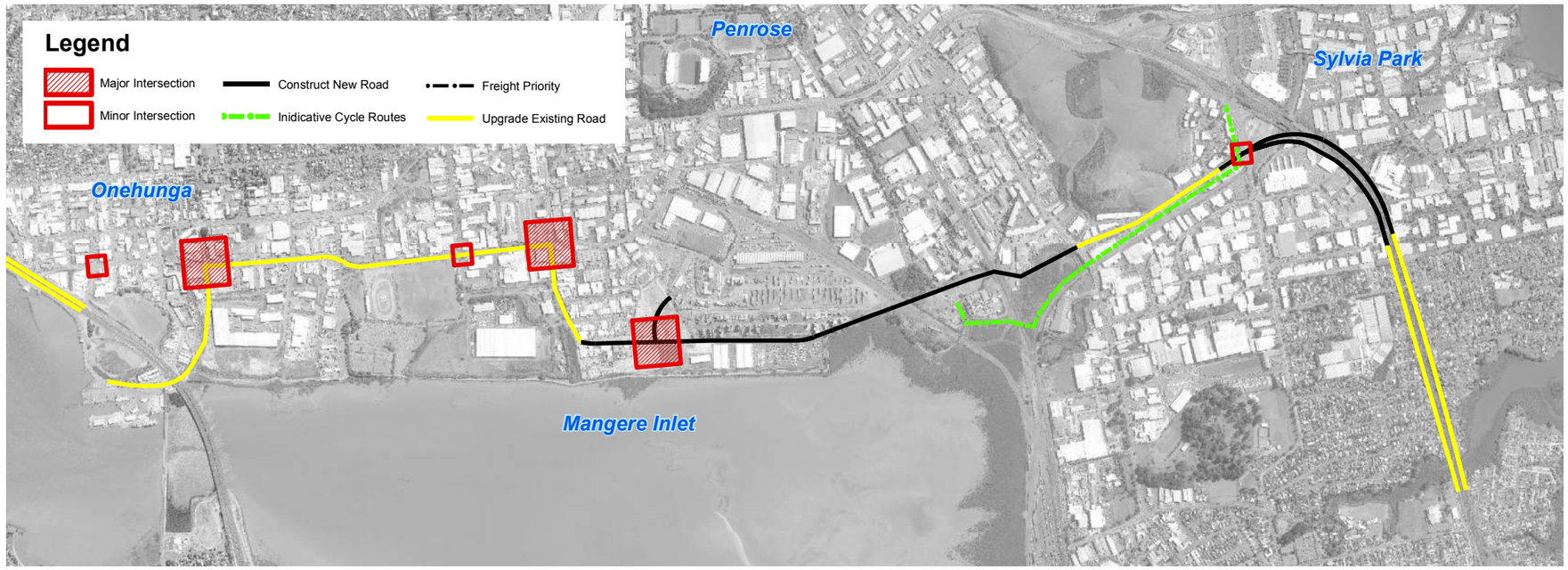
Potential for effects on Hopua tuff ring and significant impacts on Anns Creek area (ecological values) and natural environment features (for portion to the south and surrounds of the Co-Gen site).

### Culture / Heritage

Option affects the foreshore from Angle St and will require some degree of reclamation and scale of impacts on Anns Creek. The option does not affect known archaeological sites but Anns Creek is identified as area of value.

# OPTION 5

## ONEHUNGA/PENROSE AREA
### GALWAY ST TO SH20 WITH NEW INLAND ROUTE TO NEW SH1 RAMPS AT MT WELLINGTON



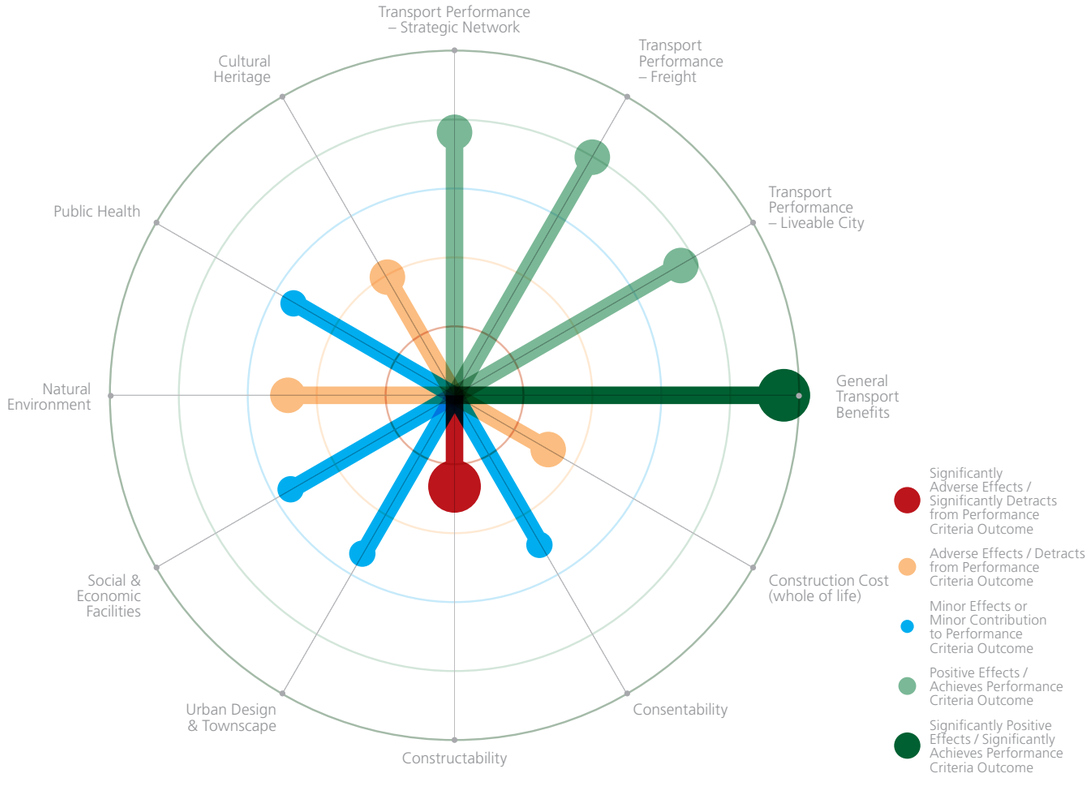

## Description

- Capacity improvements on SH20 from Queenstown Rd to Onehunga and use of Onehunga Harbour Rd with new link on Galway St to Neilson St
- 4-laning of Neilson St
- New inland route from Southdown to Sylvia Park Rd, with new grade separated connection from Sylvia Park Rd for traffic to/from south at SH1 (with land take)
- Requires relocation to Transpower towers
- Cycle link from Waikaraka to Sylvia Park Rd as new link from Southdown to Sylvia Park.

## Assessment Outcome

✓ Option to **proceed to Short-list**

This option is considered a high level of investment, with some transport performance benefits (improved access to SH20 and to SH1 for traffic to/from the south) and both freight improvements but 'liveability' improvements (addressing traffic impacts at Onehunga Mall and Onehunga Harbour Rd). It has potential impacts in a number of areas. Key potential issues include impacts on Onehunga Lagoon / Foreshore (SH20), inland port land impacts and works on or near Anns Creek and conflict with the Transpower towers.




## Transport Performance

Provides improved strategic and freight transport connections to both SH1 and SH20 and diverts traffic form Church St and the eastern end of Neilson St. The Galway St link reduces traffic and conflicts on Onehunga Mall and Onehunga Harbour Rd.

## Construction (technical)

Construction of ramps over Mt Wellington Highway is complex. Risk that works on Onehunga Harbour Rd will require land take from commercial properties (to achieve appropriate design standards). Challenges at interface with Transpower towers and construction of rail over.

## Consentability

Low to moderate consenting challenges are likely to be able to be managed. SH20 capacity improvements with some impact on the Hopua tuff ring. Degree of foreshore structure and impacts at or near Anns Creek will add complexity. Some complexity where close to Transpower towers and rail (impacts on existing designations).

## Cost (design, property and construction)

Moderate cost option. Port land impacts (Metroport area) uncertain and some (limited) property requirement at Galway St link.

## Public / Stakeholder Issues

Western portion uses new link (Galway St) and existing routes (Neilson St) and follows existing pattern of development. Business impacts resulting from land requirements on industrial / port areas uncertain.

## Urban Design & Townscape

Compatible with the industrial land uses in the area but some acquisitions will be needed (Galway St).

## Social and Economic Facilities

Moderate impacts with SH20 / Gloucester Park works (common to all options) and interface at Waikaraka walkway (at Port area).

## Public Health

May involve traversing some contaminated sites. Avoids sensitive receptors.

## Natural Environment

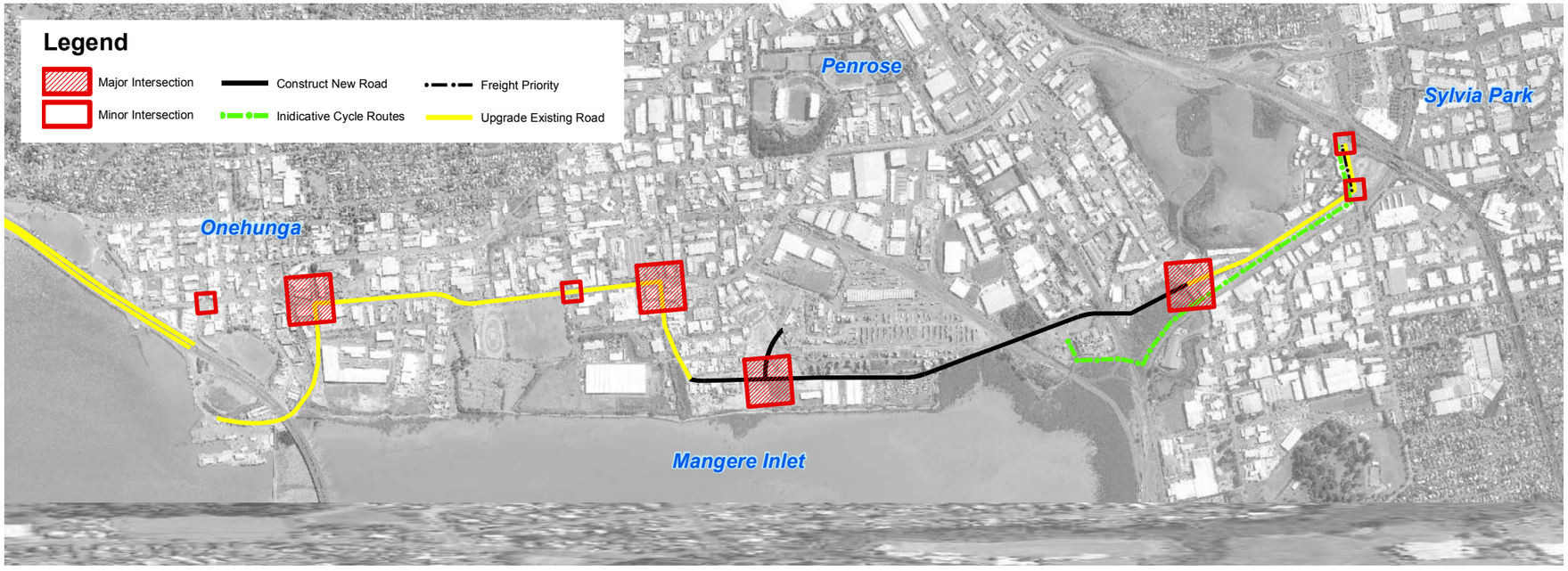
Potential for effects on Hopua tuff ring and Anns Creek environment and natural environment features (for portion to the east of the Co-Gen site).

## Culture / Heritage

Option affects the foreshore at the western end and will require some degree of reclamation or structure including Te Hopua. The option does not affect known archaeological sites.

# OPTION 6

## ONEHUNGA/PENROSE AREA
### GALWAY ST LINK TO SH20 WITH NEW INLAND ROUTE TO EXISTING SH1 RAMPS AT MT WELLINGTON



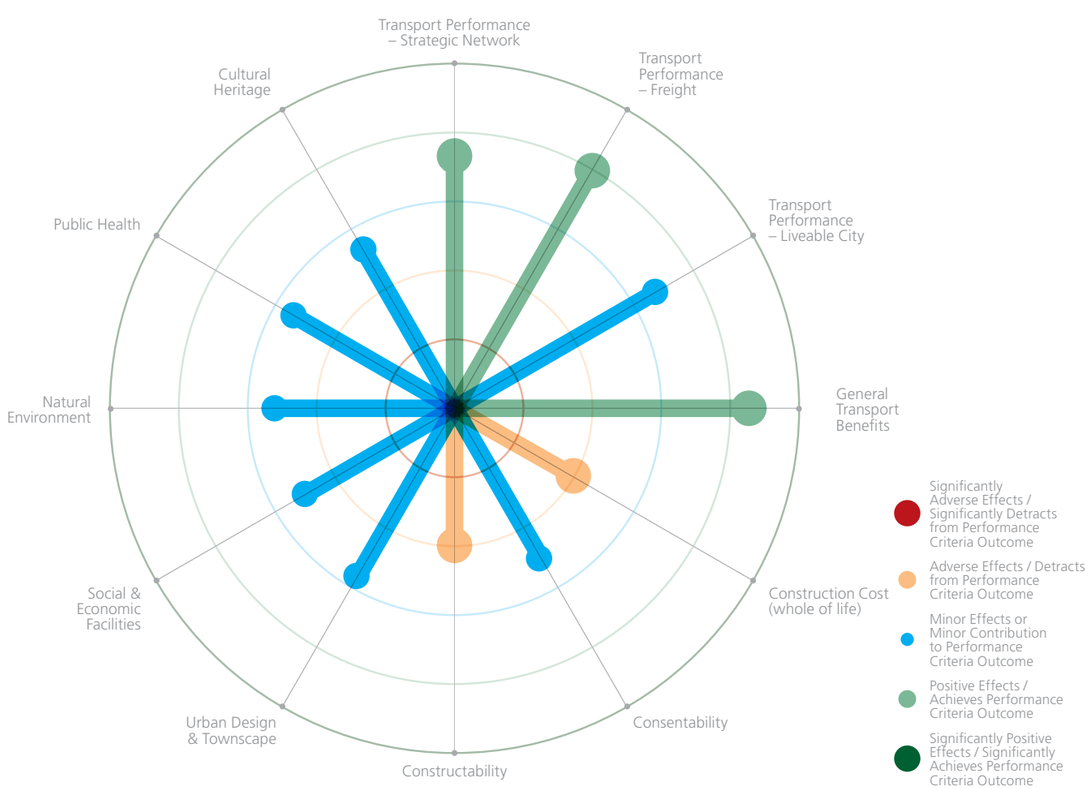

### Description

- Capacity improvements on SH20 from Queenstown Rd to Onehunga and use of Onehunga Harbour Rd with new link on Galway St to Neilson St
- 4-laning of Neilson St
- New inland route from Southdown to Sylvia Park Rd, using Sylvia Park Rd and freight lane priority at Mt Wellington interchange
- Requires works around and impacts on Transpower towers
- Cycle link from Waikaraka to Sylvia Park Rd as new link from Southdown to Sylvia Park Rd, with on-Rd upgrades from Sylvia Park Rd to Sylvia Park.

### Assessment Outcome

× Option **not to proceed** to Short List

This option is considered a moderate level of investment, with some transport performance benefits (more direct route to SH1 for traffic to/from the south) and both freight improvements but 'liveability' improvements (addressing traffic impacts at Onehunga Mall and Onehunga Harbour Rd). It has potential impacts in a number of areas. Key potential issues include impacts on Onehunga Lagoon / Foreshore (SH20), inland port land impacts and works on or near Anns Creek and conflict with the Transpower.




### Transport Performance

Provides improved access to SH20 and a more direct route to SH1. Complexity and conflicts of freight priority at Mt Wellington Interchange limit transport performance outcomes for connection at SH1.

### Construction (technical)

Moderate complexity (low) with challenges mainly at interface with Transpower towers and construction of rail over.

### Consentability

Low to moderate consenting challenges are likely to be able to be managed. SH20 capacity improvements with some impact on the Hopua tuff ring. Degree of foreshore structure and impacts at or near Anns Creek will add complexity. Some complexity where close to Transpower towers and rail (impacts on existing designations), but limited due to reduced scale of works.

### Cost (design, property and construction)

Moderate cost option. Port land impacts (Metroport area) uncertain and some (limited) property requirement at Galway St link.

### Public / Stakeholder Issues

Western portion uses new link (Galway St) and existing routes (Neilson St) and follows existing pattern of development. Business impacts resulting from land requirements on industrial / port areas uncertain.

### Urban Design & Townscape

Compatible with the industrial land uses in the area but some acquisitions will be needed (Galway St).

### Social and Economic Facilities

Moderate impacts with SH20 / Gloucester Park works (common to all options) and interface at Waikaraka walkway (at Port area). Lesser business land requirement impacts (at Sylvia Park Rd), but scale of works required uncertain.

### Public Health

May involve traversing some contaminated sites. Avoids sensitive receptors.

### Natural Environment

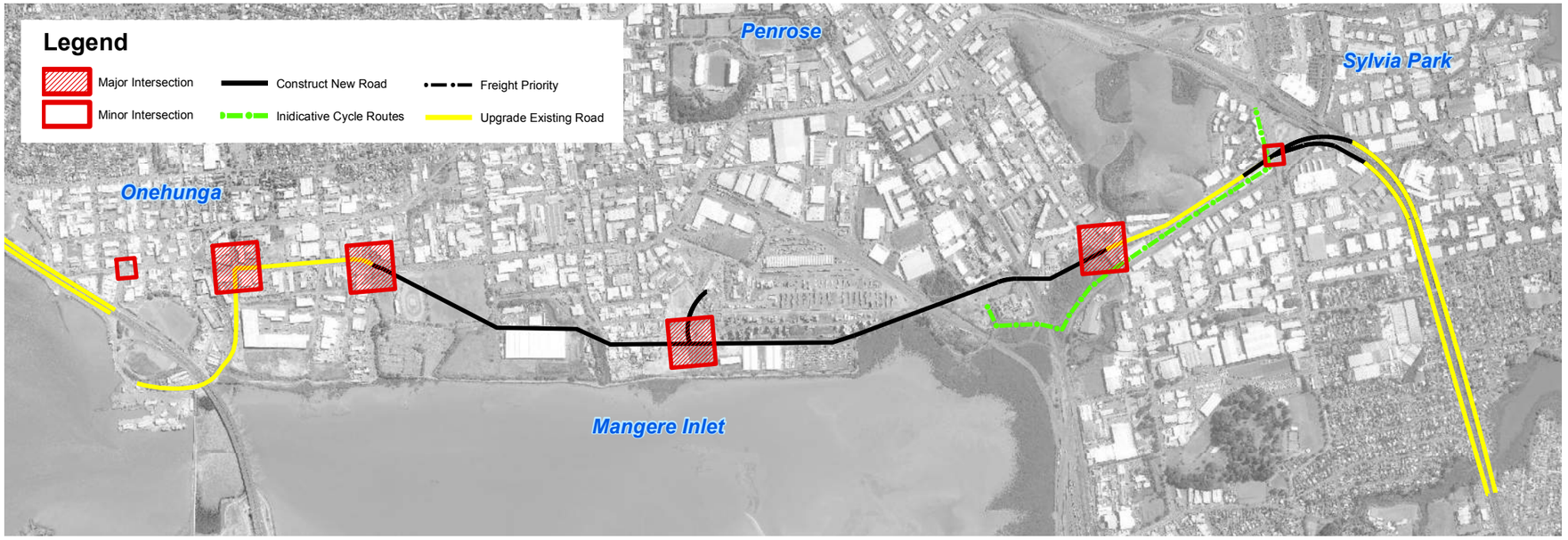
Potential for effects on Hopua tuff ring and Anns Creek environment and natural environment features (for portion to the east of the Co-Gen site).

### Culture / Heritage

Option affects the foreshore at the western end and will require some degree of reclamation or structure. Area includes Te Hopua (volcanic heritage). The option does not affect known archaeological sites.

# OPTION 7

## ONEHUNGA/PENROSE AREA
### GALWAY ST LINK TO SH20 TO NEW WAIKARAKA / INLAND ROUTE TO NEW SH1 RAMPS AT MT WELLINGTON



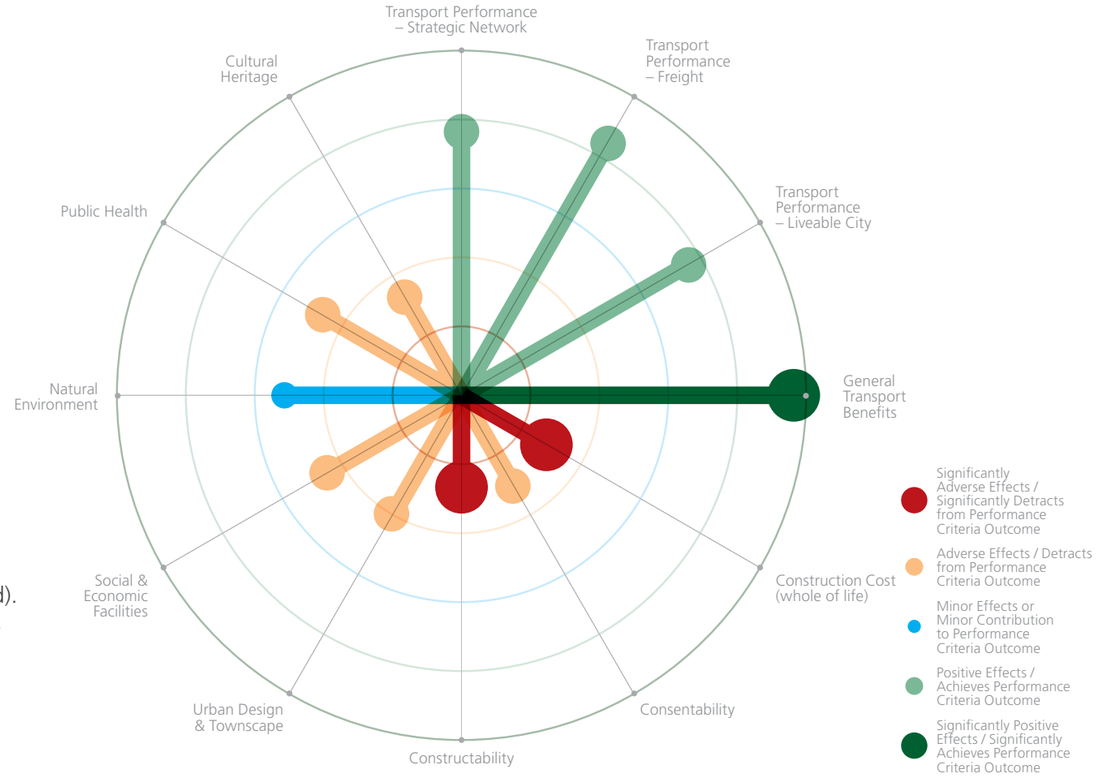

## Description

- Capacity improvements on SH20 from Queenstown Rd to Onehunga and use of Onehunga Harbour Rd and Neilson St, with new link on Galway St to Neilson St
- 4-laning of Neilson St
- New link from Neilson St across Waikara Park to inland route from Southdown to Sylvia Park Rd
- New grade separated connection from Sylvia Park Rd for traffic to/ from south at SH1 (land take)
- Requires relocation to Transpower towers
- Cycle link from Waikaraka to Sylvia Park Rd as new link from Southdown to Sylvia Park.

## Assessment Outcome

× Option **not to proceed** to Short List

This option is considered a high level of investment, with transport performance benefits (improved access to SH1 for traffic to/from the south) and both freight improvements and 'liveability' improvements (addressing traffic impacts at Onehunga Mall and Onehunga Harbour Rd). While this option has potentially significant impacts in a number of areas including land take, recreation (Gloucester Park), impacts on Onehunga Lagoon / Foreshore (SH20), inland port land impacts and works on or near Anns Creek and conflict with the Transpower, it is considered that there are opportunities for these effects to be mitigated and design development to respond.




## Transport Performance

Provides improved strategic and freight transport connections to both SH1 and SH20 and diverts traffic form Church St and the eastern end of Neilson St. The Galway St link reduces traffic and conflicts on Onehunga Mall and Onehunga Harbour Rd

## Construction (technical)

Construction of ramps over Mt Wellington Highway is complex. Risk that works on Onehunga Harbour Rd will require land take from commercial properties (to achieve appropriate design standards). Challenges at interface with Transpower towers and construction of rail over.

## Consentability

Moderate consenting challenges with good potential to be able to be managed, though impacts on Waikaraka Park significant and may be difficult to justify extent. SH20 capacity improvements with some impact on Hopua tuff ring. Degree of foreshore structure and impacts at or near Anns Creek will add complexity. Some complexity where close to Transpower towers and rail (impacts on existing designations).

## Cost (design, property and construction)

High cost option. Port land impacts (Metroport area) uncertain and some (limited) property requirement at Galway St link. Cost implications for relocation of Transpower lines.

## Public / Stakeholder Issues

Business impacts including Galway and Sylvia Park Rd. The land requirements on industrial / port areas uncertain. Likely to be strong community sentiment regarding impact at Waikaraka Park.

## Urban Design & Townscape

Compatible with the industrial land uses in the area but some acquisitions will be needed (Galway St) and some key feature areas impacted (Waikaraka Park).

## Social and Economic Facilities

Moderate to high adverse impacts with SH20 / Gloucester Park interchange works (degree / extent common to all options) and interface at Waikaraka walkway (at Port area). Adverse impacts at Waikaraka Park location, with challenge to justify requirement for this effect.

## Public Health

May involve traversing some contaminated sites. Avoids sensitive receptors.

## Natural Environment

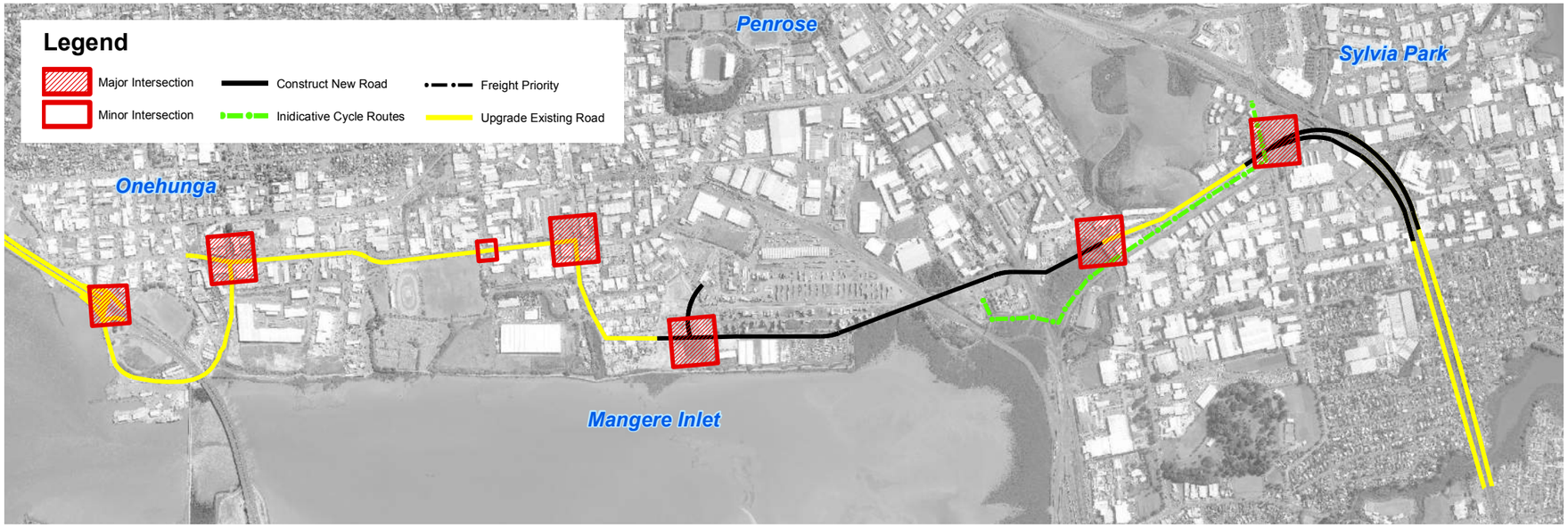
Potential for effects on Hopua tuff ring and Anns Creek environment and natural environment features (for portion to the east of the Co-Gen site).

## Culture / Heritage

Option affects the foreshore at the western end and will require some degree of reclamation or structure. The option has potential to impact on stone wall and sites around Waikaraka Park.

# OPTION 8

## ONEHUNGA/PENROSE AREA
### GALWAY ST LINK TO NEW SH20 INTERCHANGE WITH NEW SH1 RAMPS AT MT WELLINGTON




## Description

- Capacity improvements on SH20 from Queenstown Rd to Onehunga with new diamond interchange to Onehunga Harbour Rd with new link on Galway St to Neilson St
- 4-laning of Neilson St
- New inland route from Angle St, Southdown to Sylvia Park Rd, with new grade separated connection from Sylvia Park Rd for traffic to/from south at SH1 (with land take)
- Requires relocation to Transpower towers
- New cycle link from Waikaraka from Southdown to Sylvia Park (along new link section).

## Assessment Outcome

✓ Option **to proceed** to Short List

This option is considered a high level of investment, with good transport performance benefits (improved access to SH1 for traffic to/from the south) and both freight and 'liveability' improvements (addressing traffic impacts at Onehunga Mall and Onehunga Harbour Rd). Local access to Onehunga centre is made less direct, so options to address this will need to be considered. It has potential impacts in a number of areas. Key potential issues include impacts on Onehunga Lagoon / Foreshore (SH20) through to foreshore at Onehunga Harbour Rd, inland port land impacts, Gloucester Park, works on or near Anns Creek and conflict with the Transpower towers. Opportunities for design development and mitigation of impacts identified.


## Transport Performance

Provides improved connections to SH20 and SH1 for industrial area, however access for local traffic to Onehunga centre is reduced. Good performance for 'liveability' transport outcomes due to separation of traffic flows in Onehunga Town Centre, but some increases to trip length for traffic from Onehunga.

## Construction (technical)

Construction of ramps over Mt Wellington Highway is complex. Challenges at interface with Transpower towers and construction of rail over.

## Consentability

Moderate consenting challenges are likely to be able to be managed. SH20 capacity improvements and Gloucester Park interchange issues. Degree of foreshore structure and impacts at or near Anns Creek will add complexity. Some complexity where close to Transpower towers and rail (impacts on existing designations).

## Cost (design, property and construction)

Higher cost option. Port land impacts (Metroport area) uncertain and some (limited) property requirement at Galway St link.

## Public / Stakeholder Issues

Western portion uses new link (Galway St) and existing routes (Neilson St) and follows existing pattern of development. Business impacts resulting from land requirements on industrial / port areas uncertain.

## Urban Design & Townscape

Compatible with the industrial land uses in the area but some acquisitions will be needed (Galway St). Good outcomes for Onehunga Town Centre (separation of local and through traffic).

## Social and Economic Facilities

Moderate to high adverse impacts with SH20 / Gloucester Park new diamond interchange works (some uncertainty on extent of impacts on open space in this area). Land take and business disruption impacts for inland section of new link uncertain (potentially minor or adverse).

## Public Health

May involve traversing some contaminated sites. Avoids sensitive receptors.

## Natural Environment

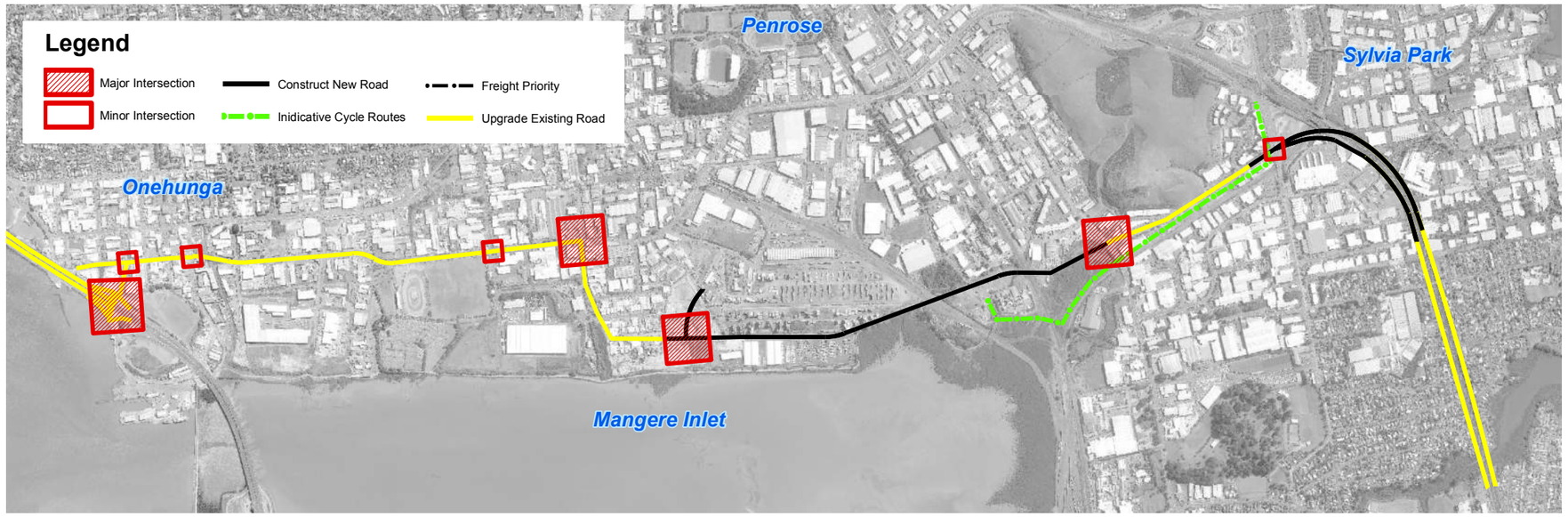
Potential for effects on Hopua tuff ring and extent of works at Onehunga Harbour Rd (with increased use of this Rd from new diamond interchange). Potential for this option to increase reclamation or structures at Onehunga Harbour Rd foreshore. Impacts also at Anns Creek environment and natural environment features (for portion to the east of the Co-Gen site).

## Culture / Heritage

Option affects the foreshore at the western end and will require some degree of reclamation or structure. The option does not affect known archaeological sites.

# OPTION 9

## ONEHUNGA/PENROSE AREA
### NEILSON ST ROUTE TO NEW SH20 INTERCHANGE WITH NEW INLAND ROUTE TO NEW SH1 RAMPS AT MT WELLINGTON



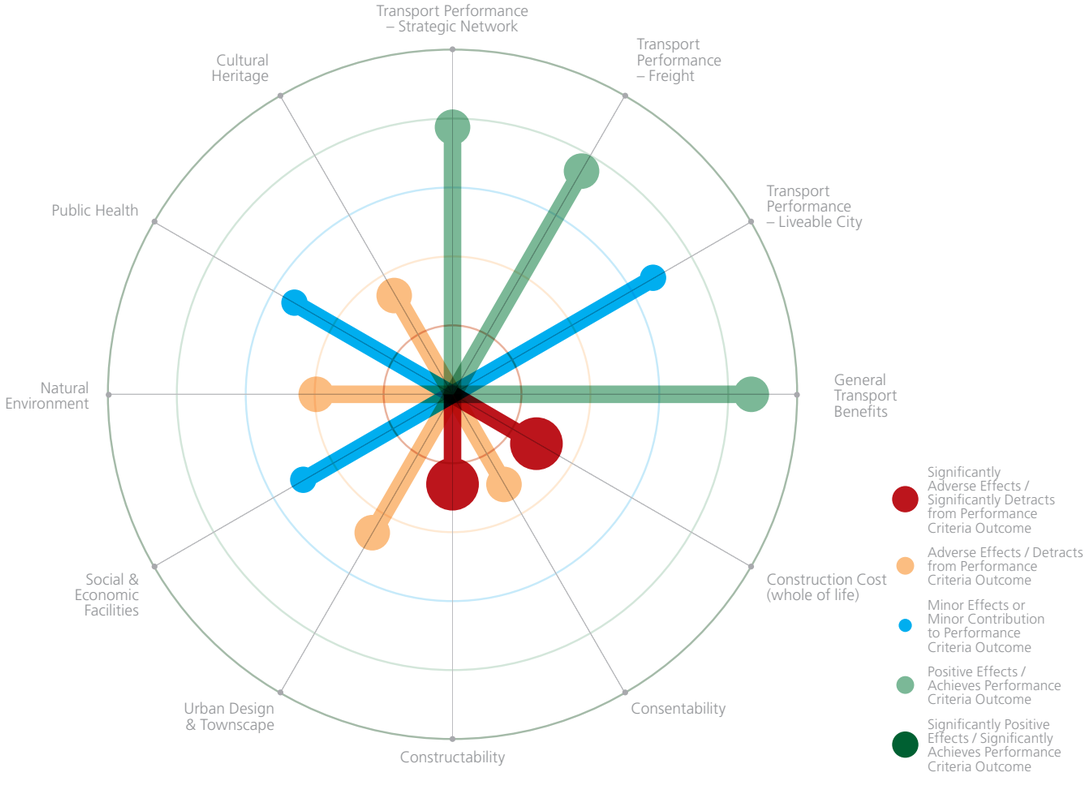

### Description

- Capacity improvements on SH20 from Queenstown Rd to Onehunga with new diamond interchange linking only to Neilson St
- 4-laning of Neilson St
- New inland route from Angle St, Southdown to Sylvia Park Rd, with new grade separated connection from Sylvia Park Rd for traffic to/ from south at SH1 (with land take)
- Requires relocation to Transpower towers
- New cycle link from Waikaraka from Southdown to Sylvia Park (along new link section).

### Assessment Outcome

× Option **not to proceed** to Short List

This option is considered a high level of investment, with improved connections to both SH20 and to SH1 for traffic to/from the south). However, reliance on Neilson St through Onehunga has adverse liveability impacts and traffic conflicts. It has potential impacts in a number of areas. Key potential issues include impacts on Onehunga Lagoon / Foreshore (SH20), business land at Onehunga, inland port land impacts, works on or near Anns Creek and conflict with the Transpower towers.




### Transport Performance

Provides some strategic and freight transport performance improvements and general traffic benefits (moderate) but conflict between strategic and local traffic on the western end of Neilson St.

### Construction (technical)

Construction of ramps over Mt Wellington Highway is complex. Challenges at interface with Transpower towers and construction of rail over.

### Consentability

Moderate consenting challenges are likely to be able to be managed. SH20 capacity improvements and Gloucester Park interchange issues. Degree of foreshore structure and impacts at or near Anns Creek will add complexity. Some complexity where close to Transpower towers and rail (impacts on existing designations).

### Cost (design, property and construction)

Higher cost option. Port land impacts (Metroport area) uncertain and some (limited) property impact at Onehunga.

### Public / Stakeholder Issues

Reliance on Neilson St and Onehunga town centre likely to be of concern to business community in this area. Business impacts resulting from land requirements on industrial / port areas uncertain.

### Urban Design & Townscape

Compatible with the industrial land uses in the area but some acquisitions will be needed (Galway St). Poor outcomes for Onehunga Town Centre.

### Social and Economic Facilities

Moderate impacts with SH20 / Gloucester Park works (common to all options) and interface at Waikaraka walkway (at inland Port area). Business impacts for Onehunga town centre and potential adverse impacts on facilities in this centre identified (though uncertain at this stage).

### Public Health

May involve traversing some contaminated sites. Avoids sensitive receptors.

### Natural Environment

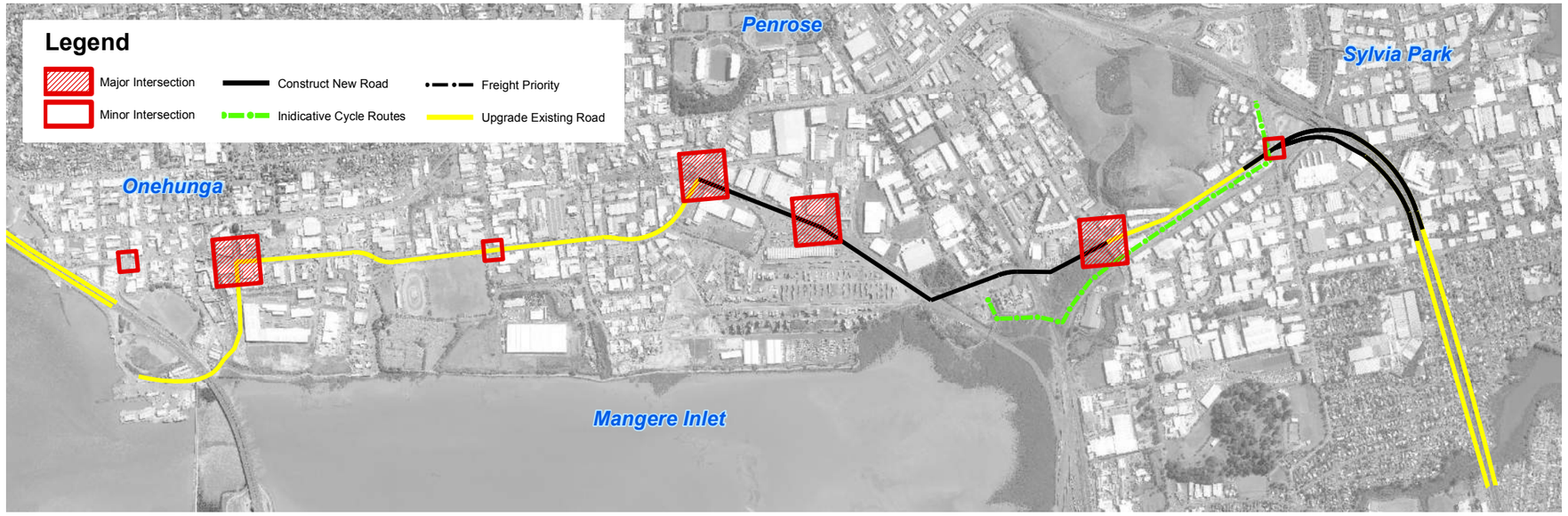
Potential for effects on Hopua tuff ring and works onto Neilson St (with increased use of this Rd from new diamond interchange). Potential for new diamond interchange to impact on coastal environment at interchange (reclamation or structure). Impacts also at Anns Creek environment and natural environment features (for portion to the east of the Co-Gen site).

### Culture / Heritage

Option affects the Māngere Inlet at the western end and will require some degree of reclamation or structure. Potential for impacts on coastal marine area at Gloucester Park and Te Hopua (volcanic heritage). The option does not affect known archaeological sites.

# OPTION 10

## ONEHUNGA/PENROSE AREA
### GALWAY ST LINK TO SH20 WITH NEW RAIL CORRIDOR ROUTE TO NEW SH1 RAMPS AT MT WELLINGTON



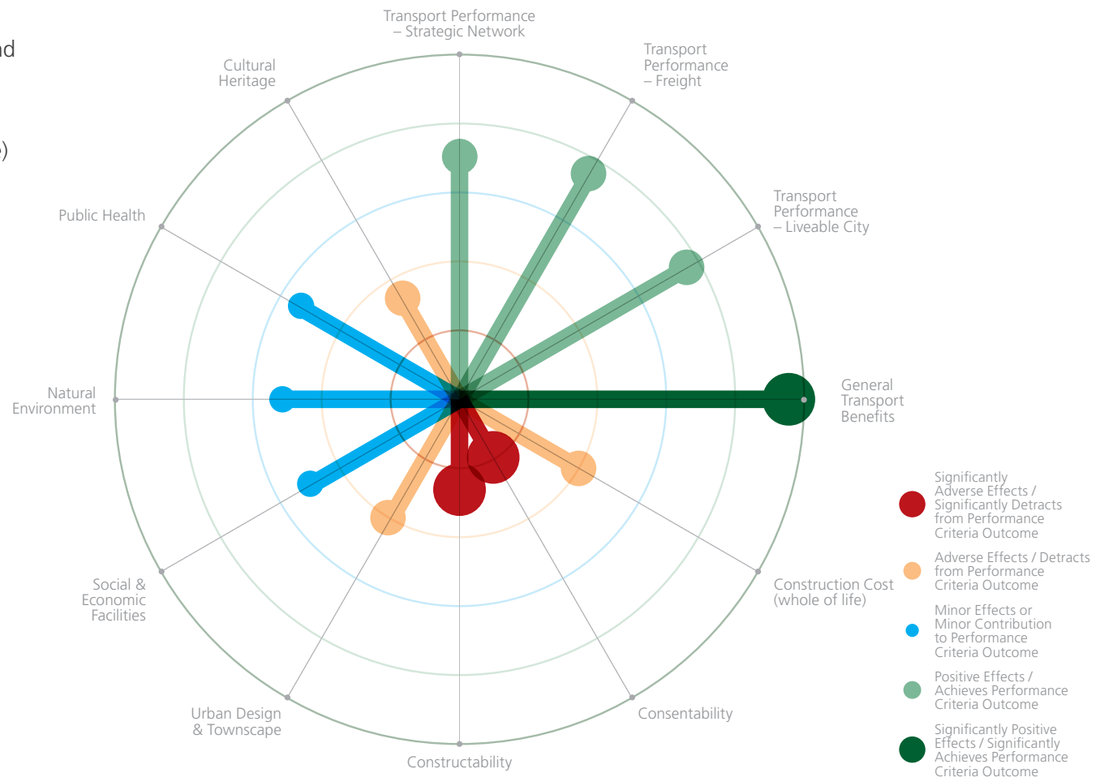

## Description

- Capacity improvement on SH20 and use of Onehunga Harbour Rd and new link on Galway St to Neilson St
- 4-laning of Neilson St
- New link from Neilson St to Southdown via rail siding, (with land take)
- New inland route from Southdown to Sylvia Park Rd, with new grade separated connection from Sylvia Park Rd for traffic to/from south at SH1 (with land take)
- Requires relocation to Transpower towers
- New cycle link from Waikaraka from Southdown to Sylvia Park (along new link section).

## Assessment Outcome

× Option **not to proceed** to Short List

This option is considered a high level of investment, with good transport performance benefits (improved access to SH20 and SH1 for traffic to/from the south). However, the option retains high traffic flows on much of Neilson St and creates conflict between the road and rail operations. Complexity of impacts and integration of land use impacts at MetroPort and along the Southdown rail spur potentially significant (increasing consenting, land use and delivery of transport objective risks), though avoids natural environment impacts.




## Transport Performance

Improved connections to both SH20 and SH1, with reduced traffic on Church St. However use of the rail corridor expected to constrain freight and vehicle operations between the Rd and rail..

## Construction (technical)

Construction of connection along and over rail, plus ramps over Mt Wellington Highway and Transpower towers

## Consentability

Higher consenting challenges with complexity of consenting at Metroport. SH20 capacity improvements with some impact on the Hopua tuff ring for consenting (scope to manage). Degree of foreshore structure and impacts at or near Anns Creek will add complexity. Some complexity where close to Transpower towers and rail (impacts on existing designations).

## Cost (design, property and construction)

Moderate cost option. Port land impacts (Metroport area) uncertain but potentially significant. Less significant cost implications for coastal structures and for relocation of Transpower lines (reduced length).

## Public / Stakeholder Issues

Business impacts including Galway and Sylvia Park Rd. The land requirements on industrial / port areas uncertain but potentially significant.

## Urban Design & Townscape

Compatible with the industrial land uses in the area but some acquisitions will be needed (Galway St). Increase adverse impacts of SH20 interchange on Onehunga town centre (with use of Neilson St).

## Social and Economic Facilities

Moderate to low adverse impacts. Impacts at SH20 / Gloucester Park new interchange works is common to all options, remainder of option uses existing corridors / business land so less impact on community areas. Business impacts at MetroPort and integration of land use, rail and road likely to be complex and may give rise to adverse socio-economic effects.

## Public Health

May involve traversing some contaminated sites. Avoids sensitive receptors.

## Natural Environment

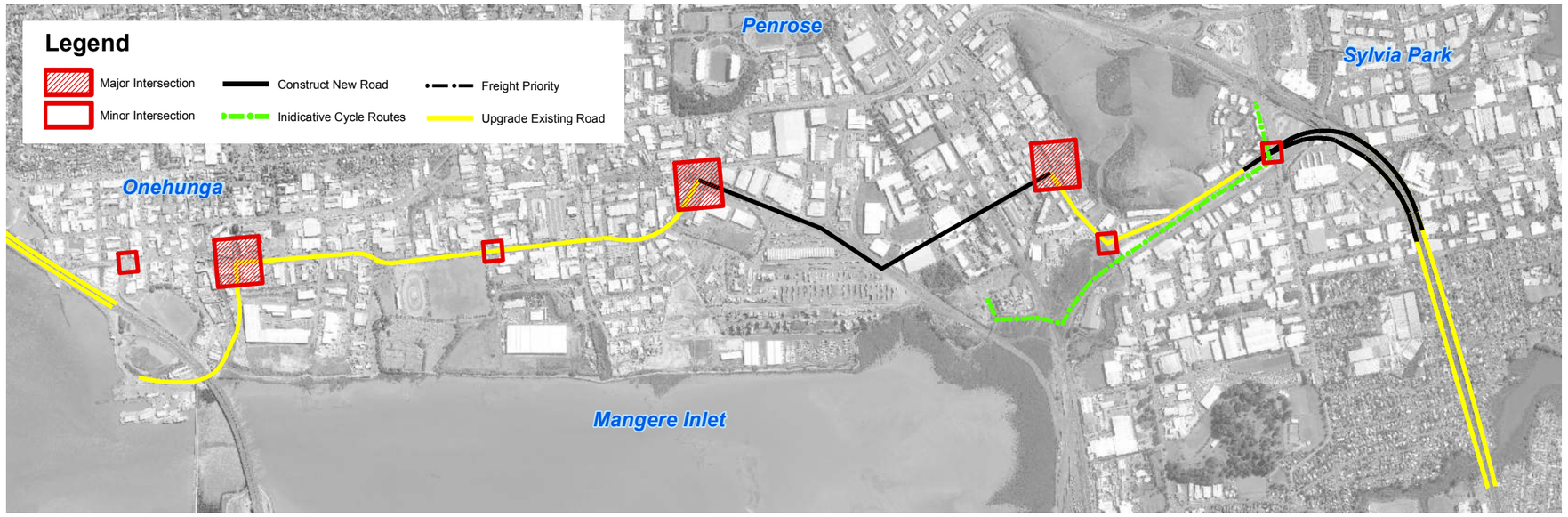
Potential for effects on Hopua tuff ring. Some potential for option to avoid other valued environments (such as Anns Creek) and coastal marine area. Lower impact option.

## Culture / Heritage

Option affects the foreshore at the western end and will require some degree of reclamation or structure in area of value (Anns Creek).

# OPTION 11

## ONEHUNGA/PENROSE AREA
### GALWAY ST LINK TO SH20 WITH NEW RAIL/LOCAL RD ROUTE TO NEW SH1 RAMPS AT MT WELLINGTON




## Description

- Capacity improvement on SH20 and use of Onehunga Harbour Rd and new link on Galway St to Neilson St
- 4-laning of Neilson St
- New link from Neilson St to Southdown via rail siding (with land take)
- New link from Southdown to Great South Rd via Southdown Ln, with grade separated connection from Sylvia Park Rd for traffic to/from south at SH1 (with land take)
- Requires relocation to Transpower towers
- New cycle link from Waikaraka from Southdown to Sylvia Park (along new link section).

## Assessment Outcome

× Option **not to proceed** to Short List

This option is considered a high level of investment, with good transport performance benefits (improved access to SH20 and SH1 for traffic to/from the south). However, the option does not provide as high contributions to the strategic network and freight (objectives of the Project). Complexity of impacts and integration of land use impacts at MetroPort and Great South Rd area potentially significant (increasing consenting, land use and delivery of transport objectives risks), though reduced natural environment impacts.


## Transport Performance

Improved connections to both SH20 and SH1, with reduced traffic on Church St. However a somewhat convoluted route to SH1 and use of the rail corridor expected to constrain freight and vehicle operations between the Rd and rail

## Construction (technical)

Construction of connection along and over rail, plus connections to Great South Rd and ramps over Mt Wellington Highway.

## Consentability

Higher consenting challenges with complexity of consenting at Metroport / Southdown. SH20 capacity improvements with some impact on the Hopua tuff ring for consenting (scope to manage). Reduced impact on coastal marine area / Anns Creek. Some complexity where close to Transpower towers (Sylvia Park Rd).

## Cost (design, property and construction)

Moderate cost option. Port land impacts (Metroport area) uncertain but potentially significant. Less significant cost implications for coastal structures and for relocation of Transpower lines (reduced length).

## Public / Stakeholder Issues

Business impacts including Galway, Great South Rd and Sylvia Park Rd. The land requirements on industrial / port areas uncertain but potentially significant which may increase concerns / opposition from business community.

## Urban Design & Townscape

Compatible with the industrial land uses in the area but some acquisitions will be needed (Galway St). Increase adverse impacts of SH20 interchange on Onehunga town centre (with use of Neilson St).

## Social and Economic Facilities

Moderate to low adverse impacts. Impacts at SH20 / Gloucester Park new interchange works is common to all options, remainder of option uses existing corridors / business land so less impact on community areas. Business impacts at MetroPort and Great South Rd may give rise to adverse socio-economic effects (uncertain).

## Public Health

May involve traversing some contaminated sites. Avoids sensitive receptors.

## Natural Environment

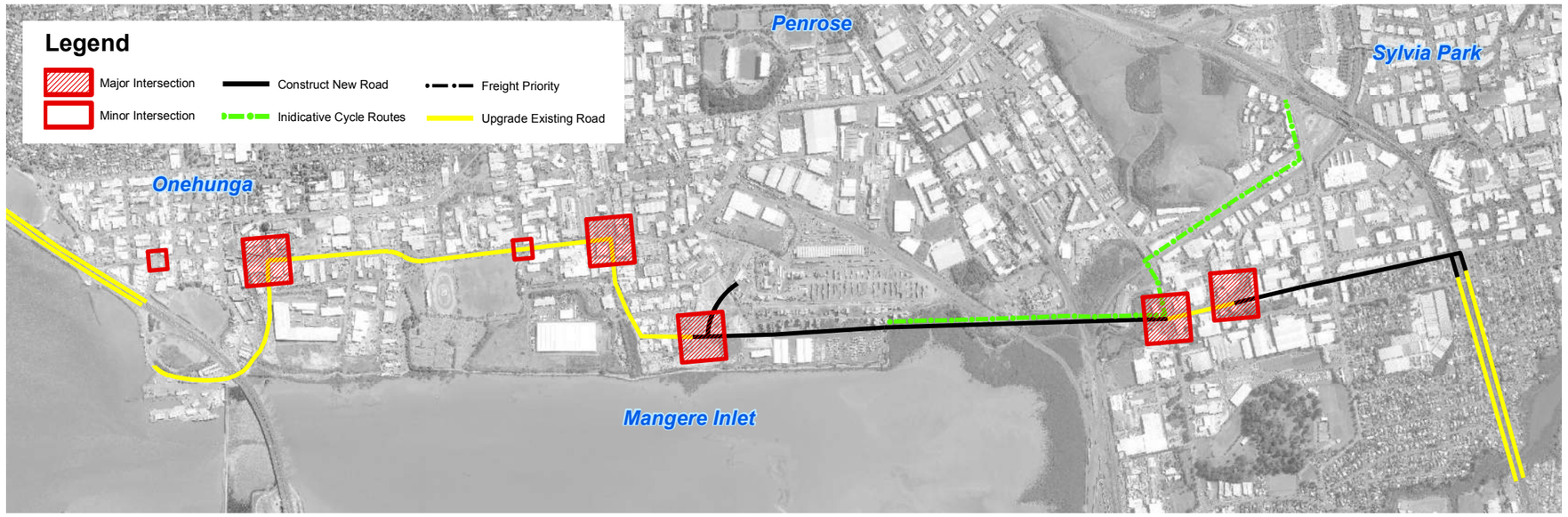
Potential for effects on Hopua tuff ring but avoids other valued environments (such as Anns Creek). Low impact option.

## Culture / Heritage

Potential impacts at Te Hopua, avoids known archaeological sites and other areas of cultural value (e.g. Anns Creek / portage area).

# OPTION 12

## ONEHUNGA/PENROSE AREA
### GALWAY ST LINK TO SH20 WITH NEW INLAND ROUTE TO NEW SH1 RAMPS NEAR PANAMA RD



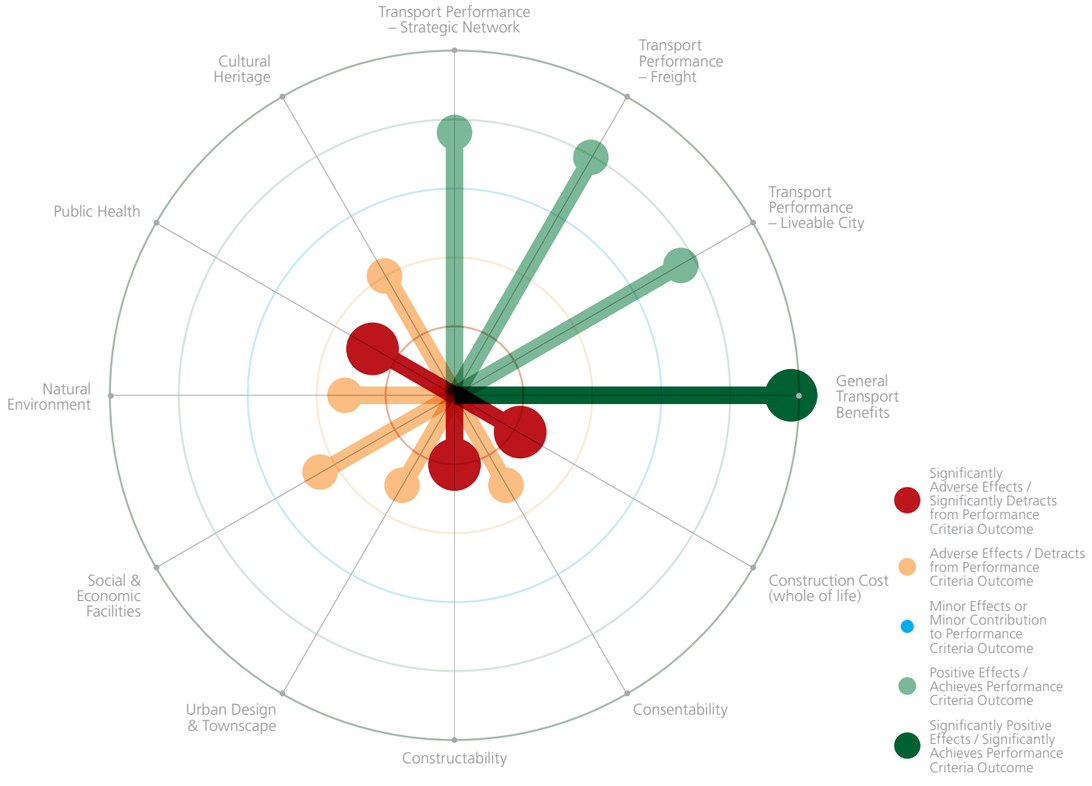

### Description

- Capacity improvement on SH20 and use of Onehunga Harbour Rd and new link on Galway St to Neilson St
- 4-laning of Neilson St
- New inland link from Angle St to Great South Rd (with land take)
- New interchange for traffic to and from the south at SH 1 just north of Panama Rd (with land take)
- New cycle link from Waikaraka from Southdown to Great South Rd (along new link section) and onto Sylvia Park.

### Assessment Outcome

× Option **not to proceed** to Short List

This option is considered a high level of investment, with good transport performance benefits (improved access to SH20 and to SH1 for traffic to/from the south), provides for grade separated interchanges, plus local connections, with a general reduction on rat running. Option less preferred than Option 13, as level of investment to east but does not address the impacts of traffic on Neilson St near Onehunga town centre.




### Transport Performance

Improved connections to SH20 and SH1 (south), and reduces traffic on Church St and eastern parts of Neilson St.

### Construction (technical)

Significant accomodation works on connection into Vesty Drive. Impact on Vector high pressure gas main.

### Consentability

Higher consenting challenges with impacts on many environmental features and within the coastal marine area SEA1 (Anns Creek). Some opportunities for mitigation and land acquisition to manage impacts on the sensitive receptors identified.

### Cost (design, property and construction)

High cost option. Port land impacts (Metroport area) uncertain but potentially significant. Significant property required on Vesty Drive/ Panama Road. Less significant cost implications for coastal structures and for relocation of Transpower lines (reduced length).

### Public / Stakeholder Issues

Business impacts including Galway, Metroport and east of Great South Rd. The land requirements on industrial / port areas uncertain but potentially significant which may increase concerns / opposition from business community. Residential impacts at Panama area likely to be significant (edge effect recognised).

### Urban Design & Townscape

Compatible with the industrial land uses in the area but some acquisitions will be needed (Galway St). New route through Panama Rd area create severance and change to existing urban form / landscape (Vesty Rd area).

### Social and Economic Facilities

Moderate (some high) adverse impacts. Impacts at SH20 / Gloucester Park new interchange works is common to all options, remainder of option uses existing corridors / business land so less impact on community areas. Business impacts at MetroPort and Great South Rd may give rise to adverse socio-economic effects (uncertain). Option traverses residential area at Vesty Rd (edge and potential take effects). Extent of ramps on SH1 and impact on school uncertain but potentially adverse.

### Public Health

Works traverse known contaminated land – reclamation and landfill. Involves construction of a new arterial adjacent to residential properties in Panama Rd with associated air quality and acoustic considerations for sensitive receptors.

### Natural Environment

Option likely to affect known / listed natural features and ecological areas including Anns Creek, and involves structures / reclamation coastal SEA 1. Given alignment of option, opportunities to avoid impact in design considered more limited (e.g. cutting across Anns Creek area).

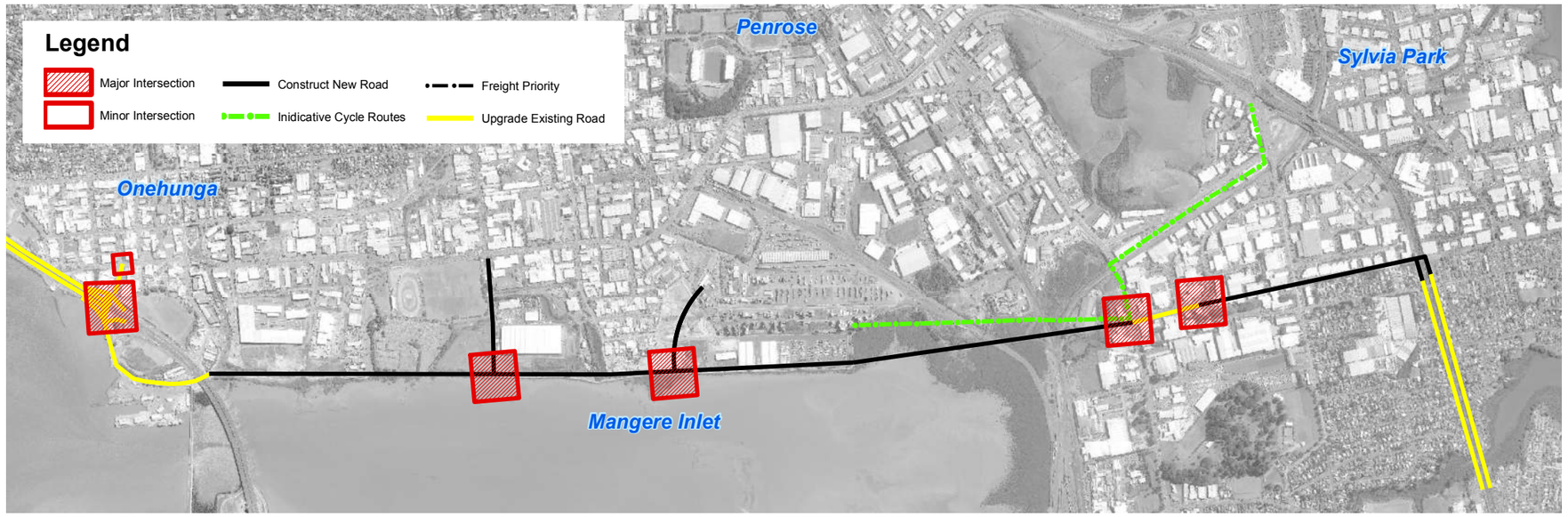
### Culture / Heritage

Option affects the foreshore and will require some degree of structure reclamation. The option does not affect known archaeological sites, but impacts on Anns Creek / portage area.

# OPTION 13

## ONEHUNGA/PENROSE AREA

### NEW SH20 ONEHUNGA INTERCHANGE WITH NEW FORESHORE ROUTE TO NEW SH1 RAMPS NEAR PANAMA RD



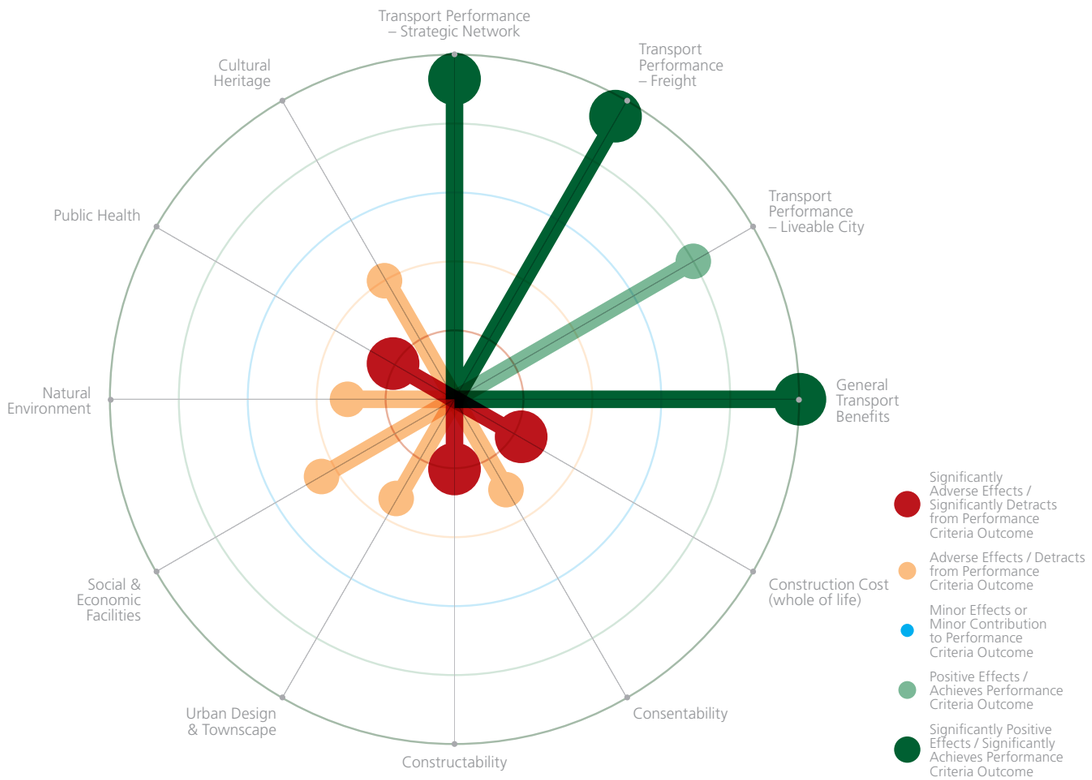

## Description

- Capacity improvements on SH20 from Queenstown Road to Onehunga
- New diamond interchange at SH20 linking to Onehunga Harbour Rd
- New foreshore link from Onehunga Harbour Rd to Great South Rd (with land take)
- New interchange for traffic to and from the south at SH 1 just north of Panama Rd (with land take)
- Cycle link from Waikaraka to Sylvia Park, along new link to Great South Rd and connection from Great South Rd to Sylvia Park.

## Assessment Outcome

✓ Option **to proceed** to Short List

This option is considered a high level of investment, with good transport performance benefits (improved access to SH1 for traffic to/from the south), provides for grade separated interchanges, plus local connections, with a general reduction on rat running. With improvements at Onehunga interchange, this option provides a level of investment to improve connectivity to strategic network in both the west and east. This option would be difficult to construct and is likely to have significant impacts on the natural and social environment. There are opportunities for mitigation that would benefit from more detailed assessment.




## Transport Performance

Improved connections to SH20 and SH1 and significant reduction in traffic on Neilson St and Church St aides local business access. New interchange at Onehunga separates local (via north) and industrial (via south) traffic

## Construction (technical)

Comparatively difficult to construct with diamond interchange at Nielson St and connection into Vesty Drive. Impact on Vector high pressure gas main. Rail crossings include Southdown and Main Trunk lines.

## Consentability

Higher consenting challenges with impacts on many environmental features and within the coastal marine area SEA1 (Anns Creek). Some opportunities for mitigation and land acquisition to manage impacts on the sensitive receptors identified. Uncertainty, scale of effects could increase consentability impact.

## Cost (design, property and construction)

High cost option. Significant cost implications for coastal structures and for land requirements in vicinity of Vesty Drive, and Panama Road.

## Public / Stakeholder Issues

This option is likely to achieve the outcomes that the some parts of the community expect from the East West Connections project, particularly business interests. The impacts on sensitive receptors and land acquisition (both residential and commercial/industrial) are likely to be of significant interest to others in the community.

## Urban Design & Townscape

Compatible with the industrial land uses in the area but some acquisitions will be needed. New route through Panama Rd area create severance and change to existing urban form / landscape (Vesty Rd area).

## Social and Economic Facilities

Moderate (some high) adverse impacts. Impacts at SH20 / Gloucester Park new interchange works is common to all options, remainder of option uses existing corridors / business land so less impact on community areas, but integration with Waikaraka cycleway needs to be considered. Option traverses residential area at Vesty Rd (edge and potential take effects). Extent of ramps on SH1 and impact on school uncertain but potentially adverse.

## Public Health

Works traverse known contaminated land – reclamation and landfill. Involves construction of a new arterial adjacent to residential properties in Panama Rd with associated air quality and acoustic considerations for sensitive receptors.

## Natural Environment

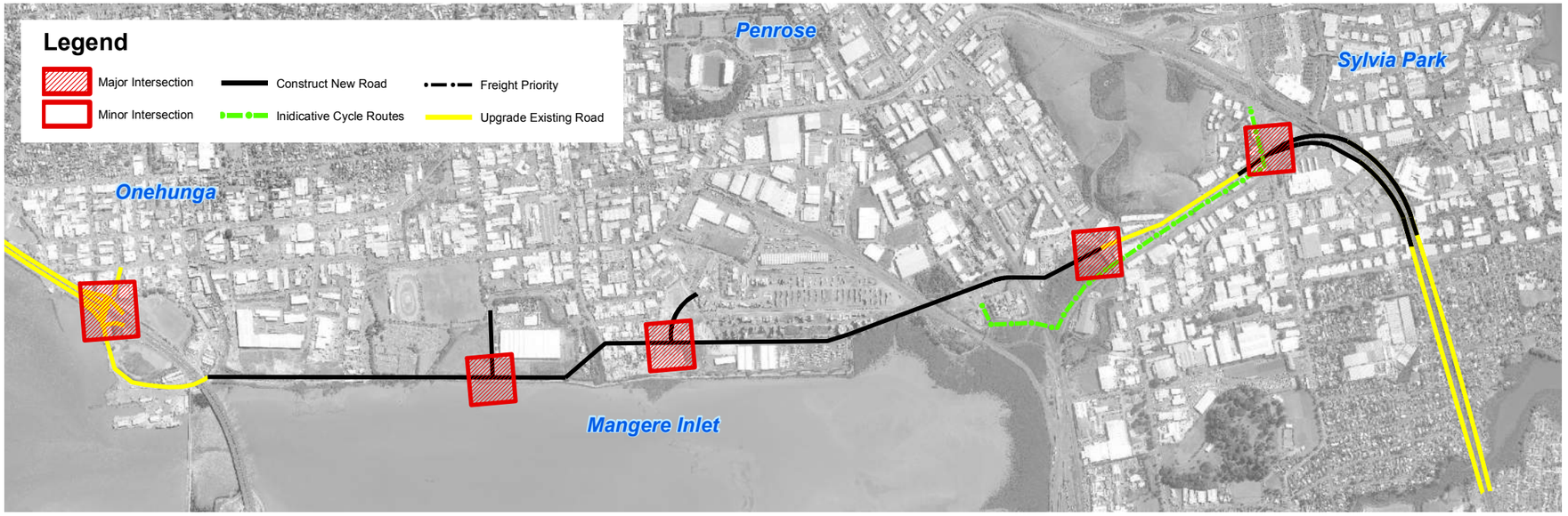
Option likely to affect known / listed natural features and ecological areas including Anns Creek, and involves structures / reclamation coastal SEA 1. Given alignment of option, opportunities to avoid impact in design considered more limited (e.g. cutting across Anns Creek area).

## Culture / Heritage

Option affects the foreshore and will require some degree of structure reclamation. The option does not affect known archaeological sites, but impacts on Anns Creek / portage area

# OPTION 14

## ONEHUNGA/PENROSE AREA
### NEW SH20 ONEHUNGA INTERCHANGE WITH NEW FORESHORE/ INLAND ROUTE TO NEW SH1 RAMPS AT MT WELLINGTON



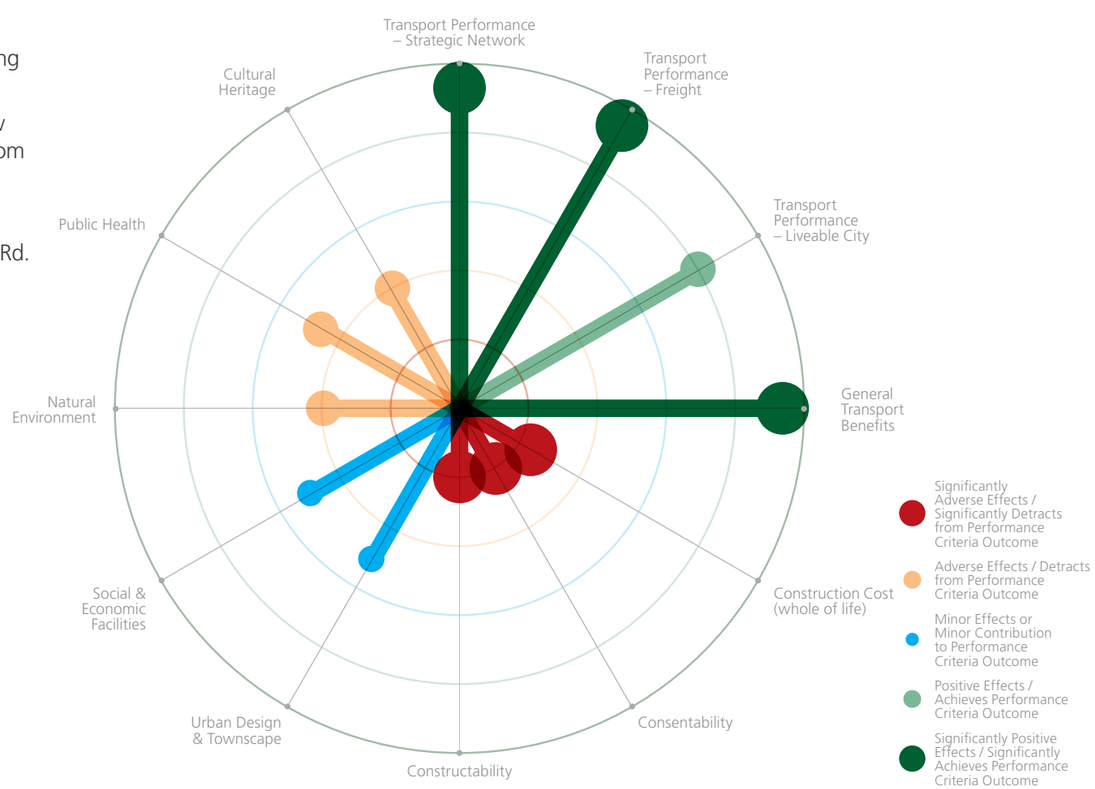

## Description

- Capacity improvements on SH20 and new diamond interchange linking to Onehunga Harbour Rd
- New foreshore link from Onehunga Harbour Rd to Angle St then new link inland to Sylvia Park Rd, with new grade separated connection from Sylvia Park Rd for traffic to/from south at SH1 (with land take)
- Requires relocation to Transpower towers
- Cycle link from Waikaraka to Sylvia Park along new link to Sylvia Park Rd.

## Assessment Outcome

✓ Option **to proceed** to Short List

This option is considered a high level of investment, with good transport performance benefits (improved access to SH1 for traffic to/from the south), provides for grade separated interchanges, plus local connections, with a general reduction on rat running. With improvements at Onehunga interchange, this option provides a level of investment to improve connectivity to strategic network in both the west and east. This option would be difficult to consent and construct and is likely to have significant impacts on the natural and social environment. There are opportunities for mitigation that would benefit from more detailed assessment.




## Transport Performance

Improved connections to SH20 and SH1 and significant reduction in traffic on Neilson St and Church St aids local business access. New interchange at Onehunga separates local (via north) and industrial (via south) traffic

## Construction (technical)

Comparatively difficult to construct with diamond interchange at SH20 and viaduct over Mt Wellington Highway. Impacts Transpower towers.

## Consentability

High consenting challenges, with significant impacts on many environmental and community features and within the coastal marine area (note previous consenting challenges in area of Gloucester Park). There is also interaction with notable services and other utilities that would involve other consenting requirements (including Transpower towers and rail crossings).

## Cost (design, property and construction)

High cost option. Significant cost implications for coastal structures, land requirements and relocation of Transpower towers.

## Public / Stakeholder Issues

This option is likely to achieve the outcomes that the some parts of the community expect from the East West Connections project, particularly business interests. The impacts on sensitive environments and potential land requirements (commercial/industrial) are likely to be of significant interest to others in the community.

## Urban Design & Townscape

Compatible with the industrial land uses in the area. The interchange will be in a highly visible location within Onehunga Bay. There are some positive connectivity impacts in and around the local road environment.

## Social and Economic Facilities

Moderate (some high) adverse impacts. Impacts at SH20 / Gloucester Park new interchange works are common to all options, though scale of interchange increases risk of impacts. Remainder of option uses business land so less impact on community areas, but integration with Waikaraka cycleway needs to be considered. Some positive impacts with removal of traffic from Onehunga Mall.

## Public Health

Works traverse known contaminated land – reclamation and landfill.

## Natural Environment

Option likely to affect known / listed natural features and ecological areas including Anns Creek, and involves significant area of likely reclamation in coastal SEA 1. Opportunities to avoid impact or mitigate (through design considered) (e.g. northern edge of Anns Creek area).

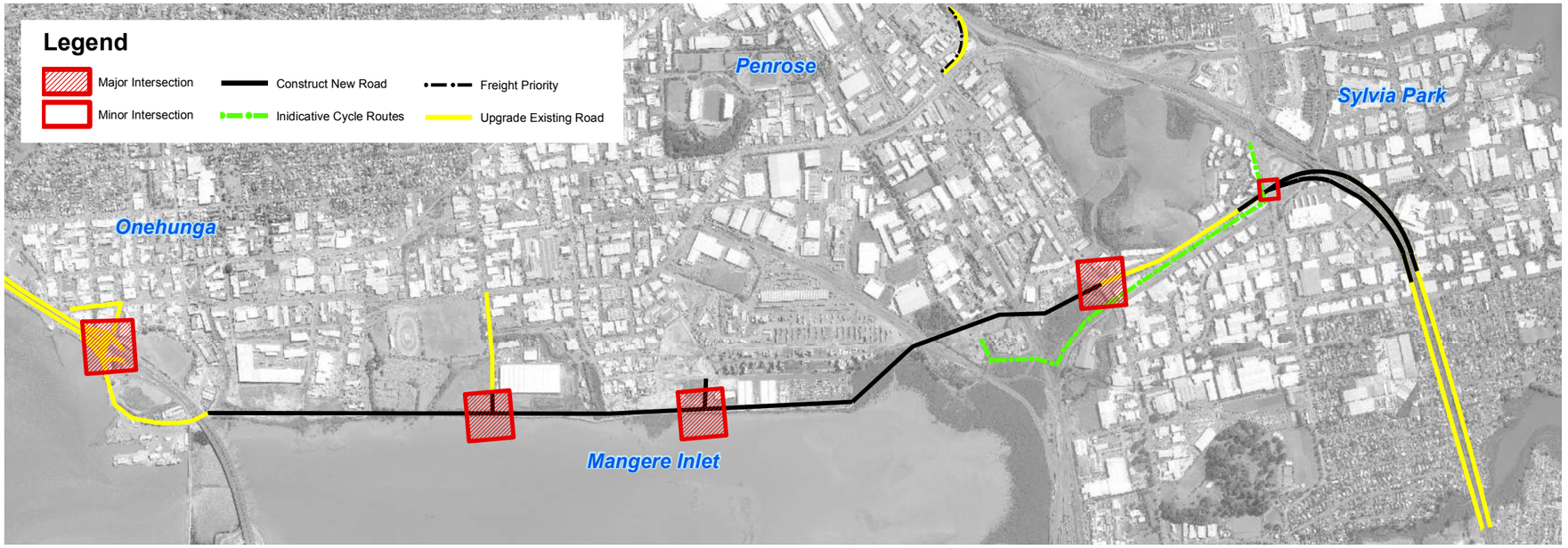
## Culture / Heritage

Option affects the foreshore and will require some degree of structure reclamation. The option does not affect known archaeological sites, but note potential impacts on Anns Creek and Te Hopua (volcanic heritage).

# OPTION 15

## ONEHUNGA/PENROSE AREA

### NEW SH20 ONEHUNGA INTERCHANGE WITH FULL FORESHORE ROUTE TO NEW SH1 RAMPS AT MT WELLINGTON



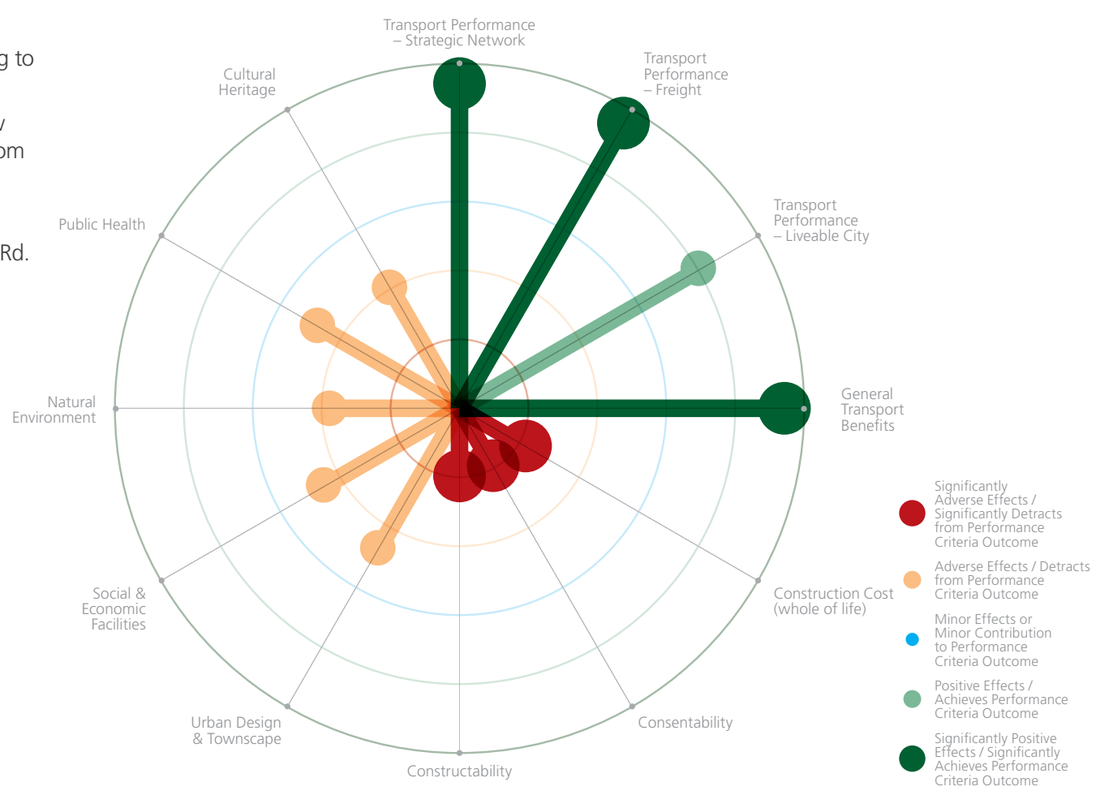

## Description

- Capacity improvments on SH20 and new diamond interchange linking to Onehunga Harbour Rd
- New foreshore link from Onehunga Harbour Rd to Angle St then new link inland to Sylvia Park Rd, with new grade separated connection from Sylvia Park Rd for traffic to/from south at SH1 (with land take)
- Requires relocation to Transpower towers
- Cycle link from Waikaraka to Sylvia Park along new link to Sylvia Park Rd.

## Assessment Outcome

× Option **not to proceed** to Short-list (effectively subsumed into Option 14)

This option is considered a high level of investment, with good transport performance benefits (improved access to SH1 for traffic to/from the south), provides for grade separated interchanges, plus local connections, with a general reduction on rat running. With improvements at Onehunga interchange, this option provides a level of investment to improve connectivity to strategic network in both the west and east. This option would be difficult to consent and construct and is likely to have significant impacts on the natural and social environment. There are opportunities for mitigation that would benefit from more detailed assessment, effectively combining consideration with Option 14 (extent of foreshore works).




## Transport Performance

Improved connections to SH20 and SH1 and significant reduction in traffic on Neilson St and Church St aides local business access. New interchange at Onehunga separates local (via north) and industrial (via south) traffic (conceptually as per Option 14)

## Construction (technical)

Comparatively difficult to construct with diamond interchange at SH20 and viaduct over Mt Wellington Highway. Impacts Transpower towers.

## Consentability

High consenting challenges, with significant impacts on many environmental and community features and within the coastal marine area (note previous consenting challenges in area of Gloucester Park). There is also interaction with notable services and other utilities that would involve other consenting requirements (including Transpower towers and rail crossings).

## Cost (design, property and construction)

High cost option. Significant cost implications for coastal structures, land requirements and relocation of Transpower lines.

## Public / Stakeholder Issues

This option is likely to achieve the outcomes that the some parts of the community expect from the East West Connections project, particularly business interests. The impacts on sensitive environments and potential land requirements (commercial/industrial) are likely to be of significant interest to others in the community.

## Urban Design & Townscape

Compatible with the industrial land uses in the area. The interchange will be in a highly visible location within Onehunga Bay. There are some positive connectivity impacts in and around the local road environment.

## Social and Economic Facilities

Moderate (some high) adverse impacts. Impacts at SH20 / Gloucester Park new interchange works are common to all options, though scale of interchange increases risk of impacts. Remainder of option uses business land so less impact on community areas, but integration with Waikaraka cycleway needs to be considered. Some positive impacts with removal of traffic from Onehunga Mall.

## Public Health

Works traverse known contaminated land – reclamation and landfill.

## Natural Environment

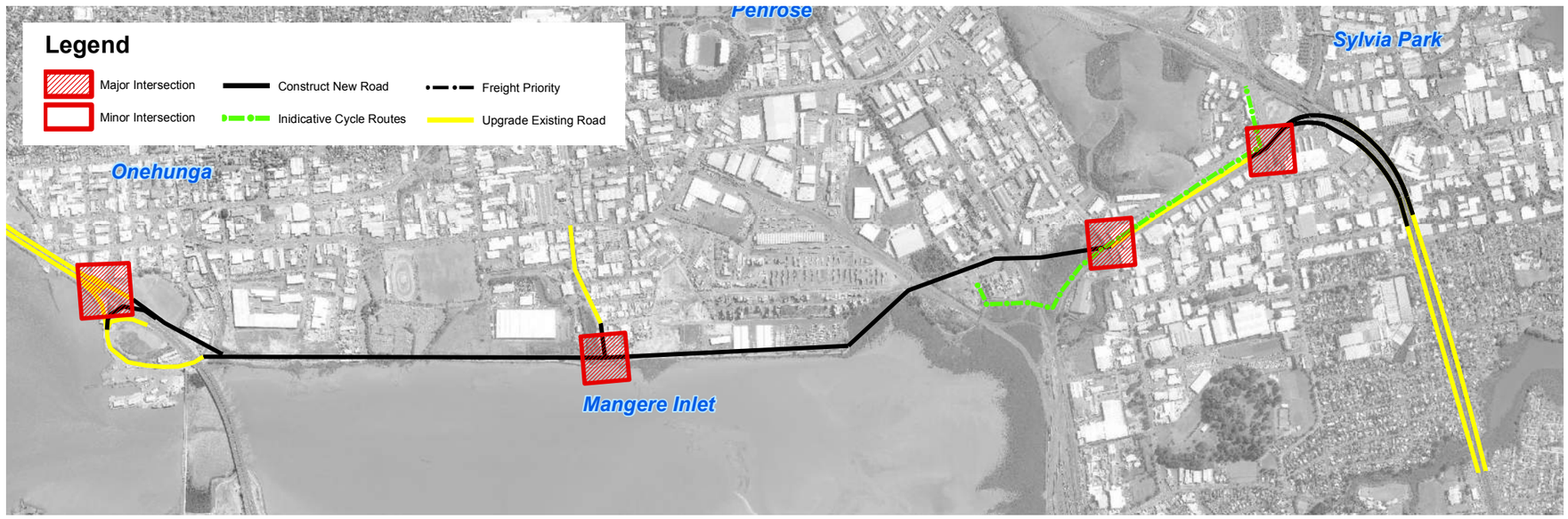
Option likely to affect known / listed natural features and ecological areas including Anns Creek, and involves significant area of likely reclamation in coastal SEA 1. Opportunities to avoid impact or mitigate (through design considered) (e.g. northern edge of Anns Creek area).

## Culture / Heritage

Option affects the foreshore and will require some degree of structure reclamation. The option does not affect known archaeological sites, but note potential impacts on Anns Creek and Te Hopua (volcanic heritage).

# OPTION 16 ONEHUNGA/PENROSE AREA

## NEW FULL FORESHORE MOTORWAY CONNECTION SH20 TO SH1



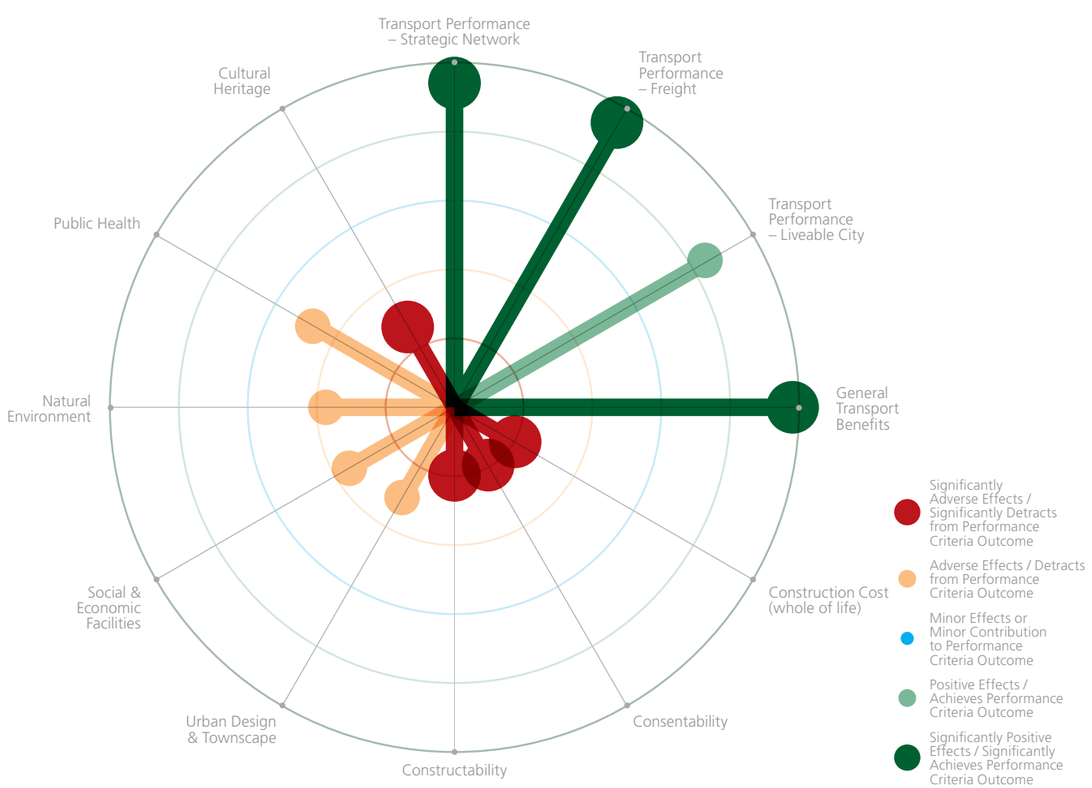

Description

- Capacity improvments on SH20 with a new system interchange at SH20 with Southdown Link to SH1
- New System interchange at SH20 linking to foreshore link
- New foreshore link from SH20 to SH1. New grade separated at Great South Road and connection from Sylvia Park Rd for traffic to/from south at SH1 (with land take)
- Requires relocation to Transpower towers
- Cycle link from Waikaraka to Sylvia Park along new link section.

Assessment Outcome

### × Option **not to proceed** to Short-list

This option is considered a high level of investment, with good transport performance benefits (improved access to SH1 for traffic to/from the south) and provides for grade separated interchanges. However, the scale of improvements at Onehunga interchange significant and environmental impacts considered hard to mitigate. This option would be difficult to consent and construct and is likely to have significant impacts on the natural and social environment, both at Gloucester Park / Onehunga and along the Māngere Inlet foreshore.




### Transport Performance

Option provides for grade separated connections, plus local connections, with a general reduction on rat running. Reduced conflicts and traffic on Mt Wellington Highway and Sylvia Park Rd and reduced on rat running trucks. Improved, high-speed connections to SH20 and SH1 comes at the expense of reduced local access through limited access points. Constraints on providing both local (Onehunga) and motorway connections at Onehunga mean a high likelihood of disbenefits to local traffic.

### Construction (technical)

Comparatively difficult to construct with diamond interchange at SH20 and viaduct over Mt Wellington Highway. Impacts Transpower towers.

### Consentability

High consenting challenges, with significant impacts on many environmental and community features and within the coastal marine area (note previous consenting challenges in area of Gloucester Park). There is also interaction with notable services and other utilities that would involve other consenting requirements (including Transpower towers and rail crossings).

### Cost (design, property and construction)

High cost option. Significant cost implications for coastal structures and interchange at Onehunga, land requirements and relocation of Transpower lines.

### Public / Stakeholder Issues

This option is likely to achieve the outcomes that the some parts of the community expect from the East West Connections project, particularly business interests. The impacts on sensitive environments and potential land requirements (commercial/industrial) are likely to be of significant interest to others in the community, particularly associated with the scale of impacts at the Onehunga Interchange.

### Urban Design & Townscape

The interchange will be in a highly visible location in the vicinity of Onheunga and the Hopua tuff ring. There are some (lesser) positive connectivity impacts in and around the local Rd environment.

### Social and Economic Facilities

Moderate (some high) adverse impacts. Impacts at SH20 / Gloucester Park new interchange works are common to all options, though scale of interchange increases risk of impacts and likely scale of requirements for facilities in this area. Remainder of option uses existing corridors / business land so less impact on community areas, but integration with Waikaraka cycleway needs to be considered. Some positive impacts with removal of traffic from Onehunga Mall.

### Public Health

Works traverse known contaminated land – reclamation and landfill.

### Natural Environment

Option likely to affect known / listed natural features and ecological areas including Anns Creek, and involves significant area of likely reclamation in coastal SEA 1. Opportunities to avoid impact or mitigate (through design considered) (e.g. northern edge of Anns Creek area), but scale of impact at Gloucester Park / Hopua tuff ring considered more constrained.

### Culture / Heritage

Option affects the foreshore and will require some degree of structure reclamation. The option does not affect known archaeological sites, but note potential impacts on Anns Creek. Impacts on Te Hopua (volcanic heritage) and coastal marine area significant and of interest to mana whenua in earlier projects (Manukau Harbour Crossing).

Appendix B

# Transport Performance Benefits and Measures of Performance

TABLE 4.1: TRANSPORT PERFORMANCE BENEFITS AND MEASURES OF PERFORMANCE FOR ONEHUNGA-PENROSE CONNECTIONS

| Benefit | Measure | Description | Source Information / Metric | Rationale |
|---|---|---|---|---|
| Benefit 1: An improvement in travel times and travel time reliability between businesses in the Onehunga-Penrose industrial area and State Highways 1 and 20. | 1. Reliable freight connections | Number of controlled stops between Neilson/Captain Springs and the 'four corners' (SH1 north south and SH20 north south). | Number of signals, weighted by size/likely congestion | This is a simple proxy for reliability as it is very hard to predict (models predict only averages). Instead this counts the number of sources of variability. This measure also addresses stop/start conditions which was identified as a major issue for freight users |
| | 2. Efficiency of freight connections to strategic network | Truck travel times between Neilson/Captain Springs and the 'four corners' (SH1 north south and SH20 north south). | Traffic model average travel time for year 2026. Results considered for three peaks and both directions. Performance assessed relative to the 2026 Do Minimum travel times | Direct measure of efficiency of connection to the Strategic network |
| | 3. Efficiency of accessing freight network | Daily Volume of vehicles in Neilson St and Church St | Traffic model daily traffic flows for year 2026. Performance assessed relative to reduction in traffic, relative to to 2026 Do Minimum. | This is a proxy measure of difficulty getting to/from the network from driveways/side roads if through traffic increases. Very high volumes of traffic will make accessing this corridor from driveways and side roads very difficult, possibly requiring extra traffic signals to manage. |
| | 4. Efficiency of strategic network | Minimise impact on travel time on SH1 and SH20 for through traffic | Modelled 2026 travel times relative to Do Minimum. | Desired outcome is to avoid new/improved connections to the state highways adversely affecting existing highway performance |
| | 5. Efficiency of access to strategic network | General vehicle travel times between Neilson/Captain Springs and the 'four corners' (SH1 north south and SH20 north south). Similar to criteria 2 but for general traffic. | Traffic model average travel time for year 2026. Results considered for three peaks and both directions. Performance assessed relative to the 2026 Do Minimum travel times | Direct measure of efficiency of connection to the Strategic network. This measure reflects business access for general traffic rather than specifically for freight vehicles. |

| Benefit | Measure | Description | Source Information / Metric | Rationale |
|---|---|---|---|---|
| | 6. Enduring benefits | The extent to which travel time savings and traffic flow reductions on Church/Neilson Street are retained between 2026 and 2036 | Model outputs for 2026 and 2036:<br>- general traffic access (Measure 5)<br>- traffic flow reductions (Measure 3)<br>- Increase in average network $/km | The rate of deterioration in the key benefits was used as a measure for enduring benefits. The change in travel times, average travel costs was used, along with the extent to which flows on Neilson/Church Streets were maintained below a broad daily capacity threshold |
| | 7. Integration of rail and road freight | This criteria was used for the long list of options but was not considered to be a differentiator of the shortlisted options. . | | |
| | 8. Resilient Network | The extent to which options provide network alternatives to points of vulnerability. | Qualitative assessment of network choices added | The existence of choices in the network provides a greater ability to absorb incidents (and general congestion at bottlenecks). |
| Benefit 2: An improvement in safety and accessibility for cycling and walking between Māngere Bridge, Onehunga, and Sylvia Park | 9. Improved safety and accessibility | Change in trucks on key sensitive areas near residential areas, schools and bus routes | Modelled daily truck flows in 2026, relative to 2026 Do Minimum. | Desired outcome is minimising trucks on residential (and retail) streets. |
| | 10. Improved safety and accessibility for cycling and walking between Māngere Bridge, Onehunga and Sylvia Park | % completion of quality strategic link Hillsborough to Onehunga to Sylvia Park | Qualitative assessment of the quality of connection provided between Onehunga and Sylvia park. All options assumed to retain the existing cycleway between Onehunga and Hugo Johnston Drive | Some options provide more direct, higher-quality linkage than others. |
| | 11. Improved safety and accessibility for cycling and walking | Reduction in vehicle flow at the Neilson/Onehunga Mall intersection | Modelled daily flow at Neilson/Onehunga Mall, relative to the 2026 Do | Heavy flows at this location provide a barrier to better cycle facilities between Onehunga and the Old Māngere Bridge. Reducing traffic flows would allow |

| Benefit | Measure | Description | Source Information / Metric | Rationale |
|---|---|---|---|---|
| | between Māngere Bridge, Onehunga and Sylvia Park | | Minimum | re-prioritisation of traffic signal times and road narrowing to provide wider cycle paths and narrower crossings. |
| Benefit 3: An improvement in journey time reliability for buses between SH20 and Onehunga town centre | 12. Improved journey time and reliability of buses accessing Onehunga | Bus travel times between SH20/Rimu Rd and Onehunga Mall/Princes Street. | Qualitative assessment of the extent to which the options address the existing congestion and sources of unreliability | Current congestion at Onehunga also impacts buses and hence reduces accessibility and reliability of other modes. |
| | 13. Improved safety and accessibility | Change in total traffic flows on key sensitive areas near residential areas, schools and bus routes | Modelled daily traffic flows in 2026, relative to 2026 Do Minimum. | Desired outcome is minimising traffic flows on residential (and retail) streets, to improve safety/amenity, especially for vulnerable road users. |

Appendix C

# Multi Criteria Analysis Key Result Areas and Criteria for Corridor Options

| No. | MCA Topic | Key Result Area | Criteria |
|---|---|---|---|
| C1 | Performance againts Objectives | To provide reliable freight linkages to the Penrose/Onehunga industrial area | Number of controlled stops between Nelison/Captain Springs and the 'four corners' (SH1 north south and SH20 north south). |
| C2 | | To provide efficient freight linkages to the Penrose/Onehunga industrial area | Truck travel times between Neilson/Captain Springs and the 'four corners' (SH1 north south and SH20 north south). (average speeds will also be calculated and used if more intuitive) |
| C3 | | To support functionality of the Onehunga/Penrose industrial area by retaining appropriate accessability | Daily Volume of non-freight vehicles in Neilson St and Church St |
| C4 | | Enable growth of town centres by reducing through traffic and conflicts and delivering appropriate social outcomes | Change in % trucks on key freight and non-freight routes |
| C5 | | Support functionality by retaining accessability & to enable growth of town centres by removing conflicts between buses & freight | Bus travel times and reliability between SH20/Rimu Rd and Onehunga Mall/Princes Street (minutes) |
| C6 | | To improve accessability to and between Sylvia Park and Mangere by improving passenger transport travel times and reliability | Bus travel times and reliability (Peak vs off peak) on route 32 |
| C7 | | To enable growth in town centres by improving cycling and walking connections | % completion of quality strategic link Hillsborough to Onehunga to Sylvia Park |
| C8 | | To enable growth in town centres by improving cycling and walking connections | Conflicting vehicle flow to cross on Neilson/Onehunga Mall intersection |
| C9 | | Enable growth of town centres by reducing through traffic and conflicts and delivering appropriate social outcomes | Change against do min of general traffic on cycle routes and at sensitive areas (schools, stations etc) |
| C10 | | Provide enduring, efficient transport linkages | Minimise impact on travel time on SH1 and SH20 for through traffic and between SH20 and SH1 |
| C11 | | To support functionality of the Onehunga/Penrose industrial area by retaining appropriate accessability | General traffic travel times between Neilson/Captain Springs and the 'four corners' (SH1 north south and SH20 north south). (average speeds will also be calculated and used if more intuitive) |
| C13 | | To provide resilient transport linkages to the Penrose/Onehunga industrial area | Provision of additional network choices/reduced reliance on single constrained points in the network |
| C14 | | To provide efficient, reliable and enduring transport linkages to the Penrose/Onehunga industrial area and the NIMT | How the constraints between industrial area nd freight terminal are addressed |
| C15 | Cost / Ben | Relative costs of the Options | |
| C16 | | Relative Benefits of the options | |
| C19 | Consent ability | Consenting Complexity of Project | Qualititative assessment of the number and nature of consent requirements including the consideration of zoning and Plan objectives and policies. |
| C20 | | Consenting Risks (wider consent requirements) | Qualitative assessment of likely / anticipated secondary consenting requirements (including conflicting / overlapping designations) |
| C21 | Constr uct-ability | Construction Impact on Businesses | Accessibility to businesses over construciton period |
| C22 | | Construction impacts on Utilities and lifeline infrastructure | Requirements for relocation / design of alternative major infrastructure, including consideration of Safety impacts of such requirements and risk of continuity of service over construction |
| C24 | Urban Design & Townscape | Connectivity (circulation | The extent of effects on connectivity including disruption to the street network and walkability. |
| C25 | | Built Form | The extent of effects on urban form including lot pattern, street frontages, significant buildings and other structures. |
| C26 | | Activities | The extent of effects on surrounding activities, with particular regard to public activities (such as town centres), land use, and character. |
| C27 | | Natural Landscape | The extent of effects on the natural landscape and features such as streams, coastal edges, natural vegetation and underlying topography. |
| C28 | | Visual Amenity | The extent of effects on visual amenity taking into account the character & visibility of the proposal, & the character of the existing environment, the sensitivity of audiences, & the exp. of future road users |
| C29 | | Associative Elements | The extent of effects on elements of townscape amenity with historical or cultural associations, recreational significance, or otherwise contribute to amenity. |
| C30 | Social | Community cohesion | The extent of effects on community cohesion and connectedness. |
| C31 | | Open space | The extent of effects on passive and active recreation opportunities in the EWC study area. |
| C32 | | Community facilities | The extent of effects on community facilities in the EWC study area. |
| C34 | | Viability / productivity of business land areas | The extent of land take and severance of industrial and business land |
| C35 | | Community linkages and access to and along the coastal marine area | The extent of effects on linkages to and along the CMA and other mapped / identified linkages |
| C36 | Natural Environment | Air quality | Extent of effects on air quality (airshed) |
| C37 | | Water resources | Extent of effects on surface freshwater and groundwater resources (including mauri of water resource) |
| C38 | | Water quality | Impact of operational stormwater in regards to quantity and quality (including life supporting capacity). |
| C39 | | Ecological resources (terrestrial biodiversity) | Extent of effects on significant indigenous vegetation and significant habitats of indigenous fauna (terrestrial). |
| C40 | | Coastal environment and resources | Extent of effects on significant marine areas, existing coastal processes, and physical footprint within the coastal marine area. |
| C41 | | Natural character | Extent of effects on natural character based on technical report evaluation. |
| C42 | | Outstanding Natural Features & Landscapes | Extent of effects on natural character and outstanding natural features including geological features. |
| C43 | Health | Air shed (human health) | Impact of air borne contaminants on sensitive receivers. |
| C44 | | Noise and vibration (human health) | Impact of operational noise and vibration on sensitive receivers. |
| C45 | | Contaminated land (human health) | Impact of contaminants from historical land uses (air discharges and groundwater impacts). |
| C46 | Cultural and Heritage | Cultural values | Extent of effects on the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga. |
| C47 | | Customary rights | Extent of effects on areas of protected customary rights. |
| C48 | | Archaeological and built heritage | Extent of effects on sites and places of archaeological value, heritage buildings and places. |

Appendix D

# Assessment Summary of Long List Corridor Options

| Long list Options | Description | Advantages | Disadvantages | Comments |
|---|---|---|---|---|
| Option 1 | Existing Route Upgrade with Freight Lanes | • Provides some transport performance improvements (particularly at SH20)<br>• 'Low-moderate' level of complexity for consentability<br>• No major impacts on utilities and lifeline infrastructure<br>• Construction impacts on business and traffic will be minor (comparatively)<br>• Low effects on surrounding public facilities, land use and character and reinforces urban form (including severance issues at Onehunga Mall)<br>• Does not pass through any areas of significant ecological value or coastal marine area<br>• Relatively low cost | • Traffic conflicts (local and strategic) expected at Onehunga Mall and Nielson Street intersection<br>• Traffic conflict with freight lane at Mt Wellington Hwy and Sylvia Park Road<br>• Minor construction impacts related to accessibility to businesses and traffic<br>• Reduces pedestrian/cycle connectivity in Onehunga town centre and between the centre and Māngere<br>• Potential environmental, cultural and heritage effects associated with capacity improvements on SH20 (common to all options) and at the Hopua tuff ring (volcanic feature) | **Proceed to Short List**<br>Option has some transport performance benefits and is a comparatively low investment option |

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| Option 2 | Existing Route Upgrade with New SH1 Ramps at SEART | • Provides general traffic and strategic transport performance improvements.<br>• Provides a more direct route to SH1 South<br>• 'Low-moderate' level of complexity for consentability<br>• Relatively low effects on surrounding activities with regards to public activities, land use and character.<br>• Compatible with the industrial land uses in the area<br>• Largely avoids sensitive receptors.<br>• Moderate (to low) cost | • Conflicts at Onehunga Mall / Nielson Street intersection. More traffic on Nielson and Church Streets will increase access conflict and challenges for pedestrian access and town centre outcomes.<br>• Extra traffic attracted to Church Street<br>• Accessibility issues during construction around SEART/Great South Road and adjacent properties between Aranui Road, Mt Wellington Highway and SH<br>• Construction of ramps over Mt Wellington Highway is complex. Challenges at interface with Transpower towers and construction of rail over.<br>• Uncertainty on impacts for viability of business land affected at Sylvia Park<br>• Potential effects on cultural values associated with Te Hopua tuff ring and Hamlins Hill | **Proceed to Short List**<br>Option is a moderate (to low) investment option, with some transport performance benefits (improved access to SH1 for traffic to/from the south). It has comparatively low impacts (similar to Option 1), but increased complexity and impacts for works at Hamlins Hill / SH1. |

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| Option 3 | Existing route upgrade to SH20 with new inland route to new SH1 ramps at Mt Wellington | • Transport performance benefits (improved access to SH1 for traffic to/from the south) and some freight movement improvements.<br>• Reduces traffic and conflicts on Mt Wellington Hwy, and Sylvia Park Road intersection<br>• 'Low-moderate' level of complexity for consentability<br>• Improves cycle connectivity Waikaraka to Sylvia Park<br>• Moderate impacts social impacts including SH20 (Onehunga Lagoon and Foreshore).<br>• Does not affect any known archaeological or heritage sites (but along historic foreshore)<br>• Moderate cost | • Conflicts at Onehunga Mall and Nielson Street intersection and on Onehunga Harbour Road.<br>• Construction impact on Transpower pylons at Southdown and SH1/Mt Wellington Highway<br>• Potential construction related traffic disruption around MetroPort area and Sylvia Park Road<br>• Reduces pedestrian/cycle connectivity in Onehunga town centre and between the centre and Māngere<br>• Potential for effects on natural and cultural features including SH20 (Onehunga foreshore), Hopua tuff ring, Anns Creek and coastal foreshore.<br>• Affects foreshore at western end (Southdown) and will require some reclamation / structure.<br>• Uncertain business impacts with land take at Angle Street / Port(s) land. | **Not to proceed** to short list<br><br>Option has some good transport performance benefits, but challenges for construction and some potentially significant impacts particularly for business land impacts |

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| Option 4 | Existing route upgrade to SH20 with new foreshore route to new SH1 ramps at Mt Wellington | • Transport performance benefits (improved access to SH1 for traffic to/from the south) and some freight movement improvements.<br>• Reduces traffic and conflicts on Mt Wellington Hwy, and Sylvia Park Road intersection<br>• Moderate level of complexity for consentability<br>• Compatible with the industrial land uses (reduced industrial land take with foreshore alignment) but some land acquisitions will be needed.<br>• Improves cycle connectivity Waikaraka to Sylvia Park<br>• Moderate impacts social impacts including SH20 (Onehunga Lagoon and Foreshore).<br>• Does not affect any known archaeological or heritage sites.<br>• High relative cost<br>• | • Conflicts at Onehunga Mall / Nielson Street intersection<br>• Moderate level of complexity for consentability<br>• Construction of ramps over Mt Wellington Highway is complex.<br>• Challenges at interface with Transpower towers at Southdown and SH1/Mt Wellington Highway<br>• Acquisition of industrial and residential properties required<br>• Outstanding natural features , natural landscape effects and ecological resources impacted as skirts Anns Creek pohuehue lava flow and potential effects on Te Hopua)<br>• Coastal environment and resources impacted – requires reclamation along the foreshore<br>• Natural character impacted adjacent to the shoreline.<br>• Cultural value impacts (Anns Creek and Manukau Harbour)<br>• Customary rights affected (impacts the foreshore) | **Not to proceed** to short list<br><br>Option has some good transport performance benefits, but challenges for construction and some potentially significant impacts particularly Anns Creek area |

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| Option 5 | Galway St Link to SH20 with new inland route to new SH1 ramps at Mt Wellington | • Provides good transport performance improvements. Less traffic on Church Street, with more on Nielson Street West.<br>• Reduction of traffic and conflicts at Mt Wellington Hwy and Sylvia Park Road intersection<br>• Potentially improves localised connectivity for pedestrians and cyclists (Onehunga Harbour Road)<br>• Reduces conflict at Onehunga Mall and Neilson Street intersection, compatible with the industrial land uses in the area but some acquisitions will be needed (Galway Street).<br>• Moderate cost<br>• Avoids impact on Waikaraka Walkway, but uncertainty of land requirement from Port | • Conflicts with freight lane at Sylvia Park Road/Mt Wellington Highway<br>• Moderate level of complexity for consenting<br>• Construction over Mt Wellington Highway is complex. Challenges at interface with Transpower towers at Southdown and Carbine Rd<br>• Some acquisition of industrial and residential properties required, including uncertainty on extent of impacts at Metroport / Southdown area (detailed design issue)<br>• Natural landscape effects and ecological resources –borders Anns' Creek (to east). Potential to manage via design solutions. Potential for effects on Hopua tuff ring<br>• Affects the foreshore at the western end and will require some degree of reclamation or structure including potential impacts at Anns Creek, area of Māori value | **Proceed to Short List**<br>Option has some good transport performance benefits, with challenges for construction (Transpower interface) |

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| Option 6 | Galway St Link to SH20 with new inland route to existing SH1 ramps at Mt Wellington | • Potentially improves pedestrian and cycle connectivity between Onehunga town centre and Māngere<br>• Limited benefits at SH1 (Mt Wellington) due to conflicts of general traffic and freight<br>• Likely to have some localised connectivity benefits<br>• Compatible with the industrial land uses in the area but some acquisitions will be needed<br>• Comparatively simpler to construct than other options – some challenges at interface with Transpower towers.<br>• Moderate cost | • Provides transport performance improvements, but comparatively less beneficial than other options<br>• Conflicts with freight lane at Sylvia Park Road and Mt Wellington Highway. Increases freight traffic onto SH1 without mitigating this effect by auxiliary lane construction. Conflicts with freight lane at Mt Wellington Hwy and Sylvia park Road<br>• Some potential business disruption impacts around the MetroPort area and uncertain extent of works at Sylvia Park Road (with road upgrade)<br>• Moderate (to low) level of complexity for consenting<br>• Natural landscape effects and ecological resources –borders Anns' Creek (to east). Potential to manage via design solutions. Potential for effects on Hopua tuff ring<br>• Affects the foreshore at the western end and will require some degree of reclamation or structure including potential impacts at Anns Creek, area of Māori value | **Not to proceed** to short list<br>Option has fewer transport performance benefits compared to others and creates conflicts that adversely impact performance at SH1 (Mt Wellington) |

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| Option 7 | Galway St Link to SH20 with new Waikaraka/inland route to NEW SH1 ramps at Mt Wellington | • Provides good transport performance improvements. Less traffic on Church Street, with more on Nielson Street West.<br>• Reduction of traffic and conflicts at Mt Wellington Hwy and Sylvia Park Road intersection<br>• Potentially improves localised connectivity for pedestrians and cyclists (Onehunga Harbour Road)<br>• Reduces conflict at Onehunga Mall and Neilson Street intersection, compatible with the industrial land uses in the area but some acquisitions will be needed (Galway Street).<br>• High cost<br>• Avoids impact on Waikaraka Walkway, but uncertainty of land requirement from Port | • Conflicts with freight lane at Sylvia Park Road/Mt Wellington Highway<br>• Moderate level of complexity for consenting with Transpower lines requiring relocation<br>• Construction over Mt Wellington Highway Highway is complex. Challenges at interface with Transpower towers at Southdown and Carbine Rd<br>• Impacts on Waikaraka Park raise social and heritage impacts and may be difficult to justify compared to Option 5<br>• Some acquisition of industrial and residential properties required, including uncertainty on extent of impacts at Metroport / Southdown area (detailed design issue)<br>• Natural landscape effects and ecological resources –borders Anns' Creek (to east). Potential to manage via design solutions. Potential for effects on Hopua tuff ring<br>• Affects the foreshore at the western end and will require some degree of reclamation or structure including potential impacts at Anns Creek, area of Māori value | **Not to proceed** to short list<br>Option has positive traffic performance benefits but creates significant impacts on Waikaraka Park public open space area. Consider these impacts hard to justify over Option 5 outcomes |

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| Option 8 | Galway St Link to new SH20 Interchange with NEW inland route to new SH1 ramps at Mt Wellington | • Provides for local connections, with a general reduction on rat running<br>• Reduces potential for traffic conflicts on Onehunga Mall/Nielson Street by removing traffic west of Galway St<br>• Reduction of traffic and conflicts at Mt Wellington Hwy and Sylvia Park Road intersection<br>• Reduction of through traffic in Onehunga town centre, but some diversion in trips for residents in Onehunga<br>• Potentially improves pedestrian and cycle connectivity between Onehunga town centre and Māngere<br>• May improve linkages to foreshore and Onehunga Harbour Road | • Moderate level of complexity for consenting<br>• Comparatively difficult to construct with diamond interchange at Nielson Street and significant impact on Mt Wellington Highway during grade separation.<br>• Construction impact on business same as for Option 5<br>• Construction impact on Transpower pylons at Southdown and SH1/Mt Wellington Highway and Neilson Street<br>• Potential impacts of option for works at Hopua tuff ring and foreshore at Onehunga Harbour Road<br>• Natural environment, ecological values and landscape affected at Anns Creek<br>• Potential effects on cultural values associated with Te Hopua, Anns Creek<br>• Ecological resources affected where option crosses a section of Anns Creek<br>• Coastal environment and resources affected as reclamation likely for this option (Onehunga Harbour Road)<br>• High cost | **Proceed to Short List**<br><br>Option has positive traffic performance benefits and some positive environmental outcome opportunities (e.g. at Onehunga town centre). Potential impacts need to be considered further, with opportunities for mitigation and design development to address. |

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| Option 9 | Neilson St route to new SH20 Interchange with NEW inland route to new SH1 ramps at Mt Wellington | • Provides for local connections, with a general reduction on rat running<br>• Reduction of traffic and conflicts at Mt Wellington Hwy and Sylvia Park Road intersection<br>• Potentially improves pedestrian and cycle connectivity between Onehunga town centre and Māngere<br>• May improve linkages to foreshore and Onehunga Harbour Road | • Increases traffic conflicts on Onehunga Mall/Nielson Street by diverting all traffic through this area<br>• Moderate level of complexity for consenting<br>• Comparatively difficult to construct with diamond interchange at Nielson Street and significant impact on Mt Wellington Highway during grade separation.<br>• Construction impact on business same as for Option 5, but uncertainty on extent of impacts for Onehunga town centre<br>• Construction impact on Transpower pylons at Southdown and SH1/Mt Wellington Highway and Neilson Street<br>• Potential impacts of option for works at Hopua tuff ring and foreshore at Onehunga Harbour Road<br>• Natural environment, ecological values and landscape affected at Anns Creek<br>• Potential effects on cultural values associated with Te Hopua, Anns Creek<br>• Ecological resources affected where option crosses a section of Anns Creek<br>• Coastal environment and resources affected as reclamation likely for this option (Onehunga Harbour Road)<br>• High cost | **Not to proceed** to short list<br>Option similar to Option 8, but with reduced potential for positive outcomes at Onehunga town centre therefore not recommended to proceed to short-list |

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| Option 10 | Galway St Link to SH20 with new Rail Corridor route to new SH1 ramps at Mt Wellington | • Reduction of traffic and conflicts at Mt Wellington Hwy and Sylvia Park Road intersection<br>• Potentially improves pedestrian and cycle connectivity between Onehunga town centre and Māngere<br>• Does not affect known archaeological sites<br>• Comparatively low impact option on natural environment (higher social, land use impacts)<br>• Moderate cost | • Less traffic on Church Street but more on Nielson Street West – with conflict potential at MetroPort<br>• High level of complexity for consenting given conflicts between road and rail on MetroPort and, along with a highly visible interchange at Onehunga Bay<br>• Comparatively difficult to construct with diamond interchange at Nielson Street and connection along and over rail, plus ramps over Mt Wellington Highway.<br>• Construction impact on Transpower pylons at Southdown and SH1/Mt Wellington Highway<br>• Some acquisition of industrial and business properties required<br>• Productivity of business land areas affected with significant land take required through and around MetroPort)<br>• Natural landscape and ecology affected (edge of Anns Creek)<br>• Potential effects on cultural values associated with Te Hopua, Anns Creek<br>• Ecological effects at Anns Creek | **Not to proceed** to short list<br>Option would be difficult to construct. Challenging balancing between space for the road and rail corridors, and industrial land take. Introduces potential for traffic conflict at MetroPort |

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| Option 11 | Galway St Link to SH20 with new Rail/Local Corridor route to new SH1 ramps at Mt Wellington | • Reduction in rat running.<br>• Reduction of traffic and conflicts at Mt Wellington Hwy and Sylvia Park Road intersection<br>• Potential to improve pedestrian and cycle connectivity between Onehunga town centre and Māngere<br>• Ecological values less effected<br>• Reduces areas of coastal effects (SH20 only)<br>• Does not affect any identified features or site of cultural value<br>• No identified archaeological and built heritage sites affected | • Moderate level of complexity for consenting<br>• Will have construction impact on businesses (Southdown/Hugo Johnson Dr/Greath South Road)<br>• Some acquisition of industrial and residential properties required with disruptions to operations of MetroPort)<br>• Productivity of business land areas affected significantly at MetroPort and to the east (Great South Road)<br>• Potential natural character effects on Te Hopua<br>• High cost | **Not to proceed** to short list<br>Option would be difficult to construct. Challenging balancing between space for the road and rail corridors, and industrial land take. |

| | | | | |
|---|---|---|---|---|
| Option 12 | Galway St Link to SH20 with new inland route to new SH1 ramps near Panamna Road | • Reduction in rat running<br>• Reduces traffic and conflicts at Mt Wellington Hwy and Sylvia Park Road intersection<br>• Potential to improve pedestrian and cycle connectivity between Onehunga town centre and Māngere<br>• None of the archaeological and built heritage sites affected | • High level of complexity for consenting<br>• Significant construction impact on businesses at Great South Road and Vestry Drive<br>• Construction impact on Vector's high pressure gas designation<br>• Works traverse known contaminated land – reclamation and landfill<br>• Involves construction of a new arterial adjacent to residential properties in Panama Road with associated air quality and acoustic considerations for sensitive receptors<br>• Viaduct across Anns Creek will be a prominent structure<br>• Potential effects on cultural values associated with Te Hopua, Anns Creek, portage area<br>• Coastal environment, cultural values and Natural character affected where crosses Anns Creek<br>• Option traverses residential area at Vesty Road (edge and potential take effects). Extent of ramps on SH1 and impact on school uncertain but potentially adverse.<br>• High cost | **Not to proceed** to short list<br>Option would be difficult to construct and is likely to have significant impacts on the natural and social environment |

| | | | | |
|---|---|---|---|---|
| Option 13 | New SH20 Onehunga Interchange with new foreshore route to new SH1 ramps near Panama road | • Reduction in rat running<br>• Reduces traffic and conflicts at Mt Wellington Hwy and Sylvia Park Road intersection<br>• Reduces traffic on Neilson/Onehunga Mall intersection<br>• Improves connectivity of local road network<br>• No identified archaeological and built heritage sites affected | • 'High level of complexity for consenting with significant reclamation involved but with opportunities for mitigation and land acquisition to manage impacts on the sensitive receptors<br>• Significant construction impact on businesses at Great South Road and Vestry Drive<br>• Construction impact on Vector's high pressure gas designation<br>• Construction impact on Transpower's pylons at Neilson Street<br>• Natural landscape affected at Anns Creek<br>• Viaduct across Anns Creek will be a prominent structure<br>• Option traverses residential area at Vesty Road (edge and potential take effects). Extent of ramps on SH1 and impact on school uncertain but potentially adverse.<br>• Potential effects on cultural values associated with Te Hopua, Anns Creek<br>• Ecological resources affected where crosses Anns Creek)<br>• Coastal environment and Natural character affected with reclamation along foreshore<br>• High cost | **Proceed to Short List**<br>Option would be difficult to construct and is likely to have significant impacts on the natural and social environment. Has notable traffic benefits and opportunities for mitigation that would benefit from further investigation |

| | | | | |
|---|---|---|---|---|
| Option 14 | New SH20 Onehunga Interchange with new foreshore/Inland route to new SH1 ramps at Mt Wellington | • Provides for grade separated interchanges, plus local connections, with a general reduction on rat running.<br>• Reduced conflicts and traffic on Mt Wellington Highway / Sylvia Park Road intersection.<br>• Reduces traffic on Nielson and Church Streets and on Neilson/Onehunga Mall intersection<br>• Improves connectivity of local road network<br>• Does not affect known archaeological sites, but note potential impacts on Anns Creek and Hopua tuff ring (volcanic heritage). | • High level of complexity for consenting with significant reclamation / structures in CMA involved.<br>• Interaction with notable services and other utilities that would involve other consenting requirements (including Transpower towers and rail crossings)<br>• Significant construction impact on businesses at Mt Wellington Hwy and complexity due to impacts on Transpower pylons at Southdown SH1/Mt Wellington Highway and Neilson Street<br>• Interchange will be in a prominent and highly visibility location (Onehunga)<br>• Scale of social and economic impacts at Gloucester Park greater due to scale of interchange and potential impact on recreational land<br>• affect known / listed natural features and ecological areas including Anns Creek, and involves significant area of likely reclamation in coastal SEA 1. Opportunities to avoid impact or mitigate (through design considered) (e.g. northern edge of Anns Creek areaHigh cost | **Proceed to Short List**<br>Option would be difficult to construct and is likely to have significant impacts on the environment, but delivers high level of transport performance. |

| | | | | |
|---|---|---|---|---|
| Option 15 | New SH20 Onehunga Interchange with new full foreshore route to new SH1 ramps at Mt Wellington | • Provides for grade separated interchanges, plus local connections, with a general reduction on rat running.<br>• Reduced conflicts and traffic on Mt Wellington Highway / Sylvia Park Road intersection.<br>• Reduces traffic on Nielson and Church Streets and on Neilson/Onehunga Mall intersection<br>• Improves connectivity of local road network<br>• Does not affect known archaeological sites, but note potential impacts on Anns Creek and Hopua tuff ring (volcanic heritage). | • High level of complexity for consenting with significant reclamation / structures in CMA involved.<br>• Interaction with notable services and other utilities that would involve other consenting requirements (including Transpower towers and rail crossings)<br>• Significant construction impact on businesses at Mt Wellington Hwy and complexity due to impacts on Transpower pylons at Southdown SH1/Mt Wellington Highway and Neilson Street<br>• Interchange will be in a prominent and highly visibility location (Onehunga)<br>• Scale of social and economic impacts at Gloucester Park greater due to scale of interchange and potential impact on recreational land<br>• Affects known and/or listed natural features and ecological areas including Anns Creek, and involves significant area of likely reclamation in coastal SEA 1. Opportunities to avoid impact or mitigate (through design considered) (e.g. northern edge of Anns Creek area<br>• High cost | **Not to proceed** to short list<br>Option would be difficult to construct and consent. It is likely to have significant impacts on the social and natural environment but delivers high level of transport performance. Effects on coastal edge greater than for Option 14 (consider the option effectively subsumed in consideration of mitigation effects for Option 14_ |

| | | | | |
|---|---|---|---|---|
| Option 16 | New full foreshore Motorway connection SH20 to SH1 | • Provides for grade separated interchanges, plus local connections, with a general reduction on rat running.<br>• Reduced conflicts and traffic on Mt Wellington Highway / Sylvia Park Road intersection.<br>• Reduces traffic on Nielson and Church Streets and on Neilson/Onehunga Mall intersection<br>• Improves connectivity of local road network | • High level of complexity for consenting with significant reclamation / structures in CMA involved, including impacts at Gloucester Park / Onehunga.<br>• Interaction with notable services and other utilities that would involve other consenting requirements (including Transpower towers and rail crossings)<br>• High level of community interest in option (scale of effects at Onehunga foreshore)<br>• Significant construction impact on businesses at Mt Wellington Hwy and complexity due to impacts on Transpower pylons at Southdown SH1/Mt Wellington Highway and Neilson Street<br>• Interchange will be in a prominent and highly visibility location (Onehunga)<br>• Scale of social and economic impacts at Gloucester Park including likely residential and open space impacts, due to scale of interchange and potential impact on recreational land<br>• Affects known / listed natural features and ecological areas including Anns Creek, and involves significant area of likely reclamation in coastal SEA 1. Opportunities to avoid impact or mitigate (through design considered) (e.g. northern edge of Anns Creek area | **Not to proceed** to short list<br>Option has good transport performance benefits. However, the scale of improvements at Onehunga interchange significant and environmental impacts considered hard to mitigate. This option would be difficult to consent and construct and is likely to have significant impacts on the natural and social environment. |

Appendix E

# Transport Performance Assessment Detail

TABLE 1: ASSESSMENT OF OPTIONS AGAINST TRANSPORT CRITERIA

| Measure | Description[18] | Do Minimum 2013 | Do Minimum 2026 | Expected change relative to do minimum by 2026 | | | | | | Comment |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Option A | Option B | Option C | Option D | Option E | Option F | |
| 1) Reliable freight connections | Number of intersections on Neilson/Captain Springs and SH1/SH20 Connections* weighted by congestion. | 11 | 12 | +0.3 | −4 | −2.3 | −3.3 | −3.3 | −4.3 | Option A increases the overall number of intersections while Options B and F provide the most significant reductions. . For Options C-E, the reductions on the route to SH1 south are offset by increases elsewhere |
| | | | Score | 0 | 4 | 2 | 3 | 3 | 4 | |
| 2) Efficiency of freight connections to strategic network | Daily mean travel time of freight on Neilson/Captain Springs and SH1/SH20 Connections* (total minutes aggregated across the eight connections) | 61mins | 69mins | −7mins | −19mins | −18mins | −17mins | −17mins | −17mins | All options reduce freight movement times to/from SH20. Option A does not materially reduce access times to SH1 south, however the other options have more significant savings for that movement, with little distinguishing Options B-F |
| | | | Score | 2 | 4 | 4 | 4 | 4 | 4 | |
| 3) Efficiency of accessing freight network | Daily number of vehicles in Neilson/Church Corridor, aggregated across four locations | 120,700 | 126,000 | 142,500 | 149,800 | 117,900 | 117,100 | 97,000 | 99,300 | Options A and B increase traffic on the full corridor, thereby creating conflicts with vehicle access to properties. Options C and D reduce traffic on all but the western section of the corridor, where flows increase. Options E and F reduce traffic on the full corridor |
| | | | Score | −3 | −5 | 2 | 2 | 5 | 5 | |
| 4) Efficiency of strategic network | Mean daily through travel time on SH20 and SH1 North/South (minutes aggregated across four routes) | 16mins | 21mins | −2mins | −2mins | −2mins | −2mins | −2mins | −2mins | For all Options, the effects of extra ramps/traffic on north-south through traffic is mitigated with small improvement |
| | | | Score | 2 | 2 | 2 | 2 | 2 | 2 | |
| 5) Efficiency of access to strategic network | Daily mean travel time on Neilson/Captain Springs and SH1/SH20 Connections * (total minutes aggregated across the eight connections) | 62mins | 70mins | −6mins | −17mins | −16mins | −16mins | −15mins | −16mins | Similar to criteria 1, Options B-F all show strong improvement. Option A does not address access to SH1 south |
| | | | Score | 1 | 4 | 4 | 4 | 4 | 4 | |
| 6) Enduring Benefits | Change in daily mean travel time on Neilson/Captain Springs and SH1/SH20 Connections * from 2026 to 2036 (change in total minutes aggregated across the eight connections) | N/A | +9mins | −1min | −5mins | −6mins | −6mins | −5mins | −6mins | Options A and B are least enduring due to their more rapid increase in congestion time and increased flows in the corridor over time. Options C and D have a slower increase in congestion and but have a residual problem with high flows in one part of the corridor. Options E and F are the most enduring with the slowest increase in travel times and traffic flows over time. |
| | Percentage change in $/km within the wider study area from 2026 to 2036 | N/A | +7% | −1% | −1% | −1% | −1% | −1% | −1% | |
| | Change in daily number of vehicles in Neilson/Church Corridor from 2026 to 2036, aggregated across four locations | N/A | 4,900 | +1,100 | +12,700 | +2,700 | +1,100 | +1,000 | +500 | |
| | | | Score | 1 | 0 | 2 | 2 | 4 | 4 | |
| 7) Integration of rail and | This criteria was used for the long list of options but was | | | | | | | | | |

[18] Descriptions here are intended to summarise key information from the assessment, detailed descriptions that directly informed the scores are shown in Appendix M.

| Measure | Description[18] | Do Minimum 2013 | Do Minimum 2026 | Expected change relative to do minimum by 2026 | | | | | | Comment |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Option A | Option B | Option C | Option D | Option E | Option F | |
| road freight | not considered to be a differentiator of the shortlisted options. | | | | | | | | | |
| 8) Resilient Network | Qualitative score for provision of additional network choices | | Score | 0 | 1 | 3 | 2 | 4 | 4 | Option A does not improve resilience as it continues to rely on single points of access. Option B provides only a single new access point while Option D provides 2 locations. Option C provides alternatives to 3 parts of the network while Options E and F provide alternative routes across four locations (Gloucester Park Interchange, Foreshore link, Southdown Link, SH1 ramps) |
| 9) Improved safety and accessibility | Number of trucks daily at key sensitive locations** (aggregated across seven sites) | 13,400 | 19,200 | −200 | −400 | −3,500 | −6,000 | −2,100 | −2,800 | Options C and D remove the most freight vehicles from sensitive areas, predominantly Onehunga Mall/Neilson St. |
| | | | Score | 0 | 0 | 4 | 5 | 2 | 3 | |
| 10) Improved safety and accessibility for cycling and walking between Māngere Bridge, Onehunga and Sylvia Park | Qualitative score for quality and directness of route between Onehunga and Sylvia Park | | Score | 1 | 1 | 4 | 4 | 3 | 4 | Options C, D & F provide the most direct, off-road links. Options A and B use the existing, less direct on-road routes while Option E has a longer route. |
| 11) Improved safety and accessibility for cycling and walking between Māngere Bridge, Onehunga and Sylvia Park | Daily traffic volume at Onehunga Mall/Neilson St intersection | 38,200 | 36,000 | +10,900 | +12,500 | −12,500 | −22,200 | −6,800 | −9,700 | Option D strongest performer as it diverts much of the traffic away from the Onehunga Mall./Neilson St intersection.. Options A and B increase traffic at this location, reducing the amenity and scope for improved cycle connections. |
| | | | Score | −3 | −3 | 3 | 5 | 2 | 2 | |
| 12) Improved journey time and reliability of buses accessing Onehunga | Qualitative score for improved bus access between SH20 and Onehunga Mall | | Score | 2 | 2 | 4 | 2 | 3 | 3 | Options C best due to reduced traffic on Onehunga Mall/Neilson St intersection and scope to provide bus priority. Other options reduce current congestion but have lesser potential for priority. |
| 13) Improved safety and accessibility | Sum of daily general traffic at key sensitive locations** in 2026 (aggregated across six sites) | 112,500 | 125,400 | −4,200 | −5,300 | −900 | +1,800 | +100 | −6100 | Option F delivers most reduction in traffic at sensitive areas due to new corridor. |
| | | | Score | 1 | 1 | 0 | 0 | 0 | 2 | |

*"Neilson/Captain Springs and SH1/SH20 Connections" – includes Neilson/Captain Springs intersection to/from SH20 southbound & northbound, and to/from SH1 southbound & northbound.

**"Sensitive locations" – includes intersections at Onehunga Mall/Neilson St, Onehunga Mall/Church St, Church St/Victoria St, Church St/ Captain Springs Rd, Mt Smart Rd/Mays Rd/Victoria St, Selwyn St/Trafalgar St and Mt Wellington Hwy/Panama Rd.

# East West Connections
# Scoring of Short-listed options in Indicative Business Case MCA
# Transport Criteria (Objectives)

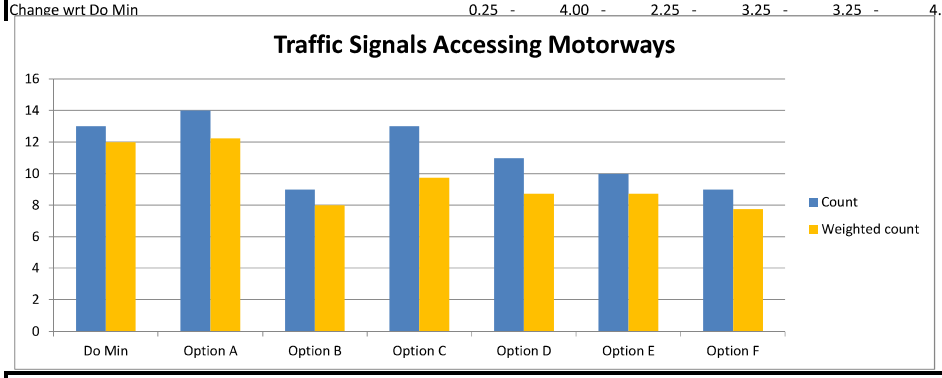
**MCA Transport Spreadsheet Revision Control**

| Version | Date | By | Description |
|---|---|---|---|
| V1-3 | | APM | working files |
| V4 | 4/11/2014 | APM | used in MCA workshop |
| V5 | 5/11/2014 | APM | Enduring criteria updated |
| V6 | 13/11/2014 | APM | 2013 data added and text updated |
| v7 | 21/11/2014 | APM | minor correction 'to sh1 south' travel time formula which missed some rows |
| v8 | 10/12/2014 | APM | BCR values updated and formatting for IBC report |

| **Criteria 1** | **Trip Reliability Accessing Onehunga/Penrose Area** |
|---|---|
| **Proxy Measure** | **Intersections between Neilson/Captain Springs and motorways (freight)** |
| **Notes:** | Weighted by broad level of congestion |
| | This attribute also captures freight industry concern about costs of stop-start conditions for heavy vehicles |

| **Signals to SH1 south** | 8 | 8 | 8 | 4 | 1 | 1 | 2 | 1 |
|---|---|---|---|---|---|---|---|---|

| **Intersection** | **2013 Do Min** | **Do Min** | **Option A** | **Option B** | **Option C** | **Option D** | **Option E** | **Option F** |
|---|---|---|---|---|---|---|---|---|
| Neilson/Gloucester Park | 50% | 100% | 75% | 75% | 75% | 0% | 0% | 0% |
| Neilson/Selwyn | 50% | 100% | 75% | 75% | 75% | 0% | 0% | 0% |
| Neilson/Onehunga Mall | 100% | 100% | 75% | 75% | 50% | 0% | 0% | 0% |
| Neilson/Captain Springs | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| Neilson/Church | 100% | 100% | 100% | 100% | 75% | 75% | 75% | 75% |
| Church/Hugo Johnston | 100% | 100% | 100% | 100% | 75% | 75% | 75% | 75% |
| Church/Gt South Road | 100% | 100% | 100% | 75% | 75% | 75% | 75% | 75% |
| SEART/NBD On Ramp | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| Gt South/Church East | 50% | 50% | 50% | 0% | 0% | 0% | 0% | 0% |
| Gt South/Southdown | 50% | 50% | 50% | 0% | 0% | 0% | 0% | 0% |
| Gt South/Sylvia Park | 100% | 100% | 100% | 0% | 100% | 100% | 0% | 100% |
| Sylvia Park/Mt Wellington | 100% | 100% | 100% | 0% | 0% | 0% | 0% | 0% |
| Mt Wellington Interchange | 100% | 100% | 100% | 0% | 0% | 0% | 0% | 0% |
| Gloucester Park Interchange | 0% | 0% | 0% | 0% | 0% | 100% | 100% | 100% |
| Onehunga Harbour/Galway Link | 0% | 0% | 0% | 0% | 50% | 50% | 0% | 0% |
| Neilson/Galway Link | 0% | 0% | 0% | 0% | 75% | 75% | 0% | 0% |
| Neilson/Angle | 0% | 0% | 0% | 0% | 75% | 75% | 0% | 0% |
| Foreshore/Southport | 0% | 0% | 0% | 0% | 50% | 50% | 75% | 75% |
| Foreshore/Captain Springs | 0% | 0% | 0% | 0% | 0% | 0% | 75% | 75% |
| Gt South/Vestey | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 0% |
| Vestey/Niall Burgess | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 0% |
| Neilson/Southport | 0% | 0% | 100% | 100% | 0% | 0% | 0% | 0% |
| **Count** | 13 | 13 | 14 | 9 | 13 | 11 | 10 | 9 |
| **Weighted count** | 11.0 | 12.0 | 12.3 | 8.0 | 9.8 | 8.8 | 8.8 | 7.8 |
| Change wrt Do Min | | | 0.25 | -4.00 | -2.25 | -3.25 | -3.25 | -4.25 |




**MCA Assessment:**

Set relative to Do Min (0). Each 1 Reduction as 'noticeable' and hence set at 1 point.

| | Score | comment |
|---|---|---|
| **Option A** | 0 | same as Do Min |
| **Option B** | 4 | Reduced signals with grade separation at GSR and new ramps to SH1 |
| **Option C** | 2 | Extra signals in west but less to SH1. Could be 3 with Angle replaced with Captain Springs |
| **Option D** | 3 | Similar to C but less signals in west |
| **Option E** | 3 | Extra signals at Vestey/GSr and GPI |
| **Option F** | 4 | Less signals to SH1 and SH20 |

**Criteria 2** — **Freight Access times to Strategic Network from Onehunga/Penrose Area**

**Proxy Measure** — **Travel time Between Neilson/Captain Springs and SH1/SH20 north and south**

**Notes:** Times weighted average across day.

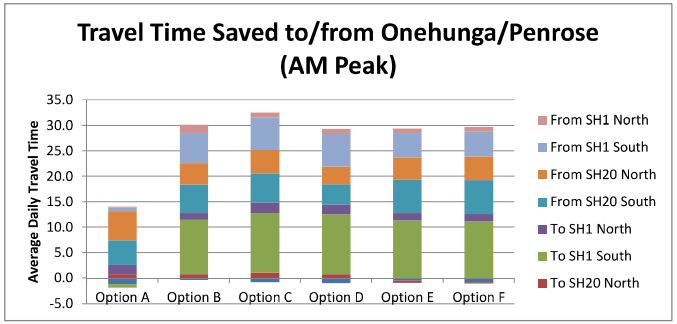
| AM PEAK | 2013 Mod | 2026 Times | | | | | | | 2026 Time Saved (wrt 2026 Do Min) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Do Min | Do Min | Option A | Option B | Option C | Option D | Option E | Option F | Option A | Option B | Option C | Option D | Option E | Option F |
| To SH20 South | 5.5 | 6.8 | 8.0 | 7.2 | 7.6 | 7.8 | 7.3 | 7.6 | -1.2 | -0.4 | -0.8 | -1.0 | -0.5 | -0.8 |
| To SH20 North | 4.4 | 4.9 | 4.2 | 4.2 | 3.9 | 4.2 | 5.3 | 5.2 | 0.8 | 0.7 | 1.1 | 0.8 | -0.4 | -0.3 |
| To SH1 South | 18.2 | 20.5 | 21.2 | 9.8 | 8.8 | 8.8 | 9.2 | 9.4 | -0.6 | 10.7 | 11.7 | 11.7 | 11.3 | 11.1 |
| To SH1 North | 11.8 | 11.9 | 10.1 | 10.6 | 9.9 | 9.8 | 10.4 | 10.4 | 1.8 | 1.3 | 2.0 | 2.1 | 1.5 | 1.5 |
| From SH20 South | **10.8** | **12.8** | 7.9 | 7.2 | 7.0 | 8.8 | 6.2 | 6.1 | 4.9 | 5.6 | 5.8 | 4.0 | 6.6 | 6.6 |
| From SH20 North | 4.7 | 11.7 | 6.0 | 7.5 | 7.2 | 8.3 | 7.3 | 7.0 | 5.7 | 4.3 | 4.5 | 3.4 | 4.4 | 4.7 |
| From SH1 South | 14.8 | 15.4 | 14.7 | 9.5 | 9.0 | 9.0 | 10.7 | 10.6 | 0.7 | 5.9 | 6.4 | 6.4 | 4.8 | 4.8 |
| From SH1 North | 8.0 | 8.0 | 7.8 | 6.3 | 7.0 | 7.0 | 7.1 | 7.0 | 0.1 | 1.7 | 1.0 | 1.0 | 0.9 | 0.9 |
| | | | | | | | | SUM | 12.2 | 29.8 | 31.7 | 28.4 | 28.6 | 28.6 |
| | | | | | | | Scale | 2.5 | 4.9 | 11.9 | 12.7 | 11.3 | 11.4 | 11.5 |

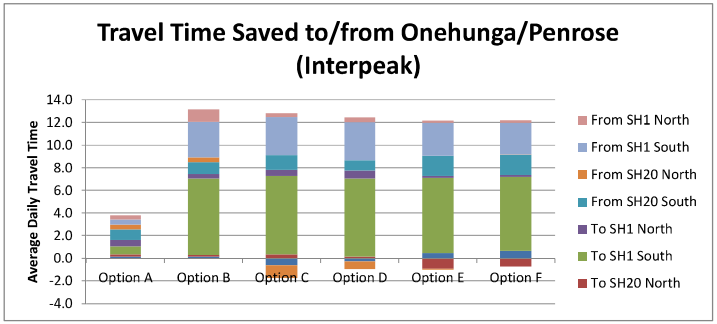
| INTERPEAK | 2013 Mod | 2026 Times | | | | | | | 2026 Time Saved (wrt 2026 Do Min) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Do Min | Do Min | Option A | Option B | Option C | Option D | Option E | Option F | Option A | Option B | Option C | Option D | Option E | Option F |
| To SH20 South | 4.4 | 4.9 | 4.7 | 4.8 | 5.5 | 5.2 | 4.4 | 4.3 | 0.1 | 0.1 | -0.6 | -0.3 | 0.5 | 0.6 |
| To SH20 North | 4.1 | 4.3 | 4.1 | 4.2 | 4.0 | 4.2 | 5.2 | 5.1 | 0.2 | 0.1 | 0.3 | 0.1 | -0.9 | -0.7 |
| To SH1 South | 14.0 | 14.8 | 14.1 | 8.0 | 7.8 | 7.8 | 8.1 | 8.2 | 0.7 | 6.8 | 6.9 | 6.9 | 6.6 | 6.6 |
| To SH1 North | 6.2 | 6.5 | 6.0 | 6.1 | 6.0 | 5.9 | 6.4 | 6.4 | 0.6 | 0.4 | 0.5 | 0.7 | 0.2 | 0.2 |
| From SH20 South | **5.6** | **6.7** | 5.7 | 5.6 | 5.3 | 5.7 | 4.9 | 4.8 | 1.0 | 1.0 | 1.3 | 0.9 | 1.8 | 1.8 |
| From SH20 North | 4.0 | 4.9 | 4.6 | 4.5 | 6.1 | 5.6 | 5.1 | 4.9 | 0.4 | 0.4 | -1.1 | -0.7 | -0.1 | 0.0 |
| From SH1 South | 10.2 | 10.8 | 10.4 | 7.7 | 7.5 | 7.5 | 7.9 | 8.1 | 0.5 | 3.1 | 3.4 | 3.4 | 2.9 | 2.8 |
| From SH1 North | 6.8 | 7.1 | 6.7 | 5.9 | 6.7 | 6.6 | 6.9 | 6.8 | 0.3 | 1.1 | 0.4 | 0.4 | 0.2 | 0.2 |
| | | | | | | | | SUM | 3.8 | 13.2 | 11.1 | 11.5 | 11.2 | 11.4 |
| | | | | | | | Scale | 2.5 | 1.5 | 5.3 | 4.4 | 4.6 | 4.5 | 4.6 |

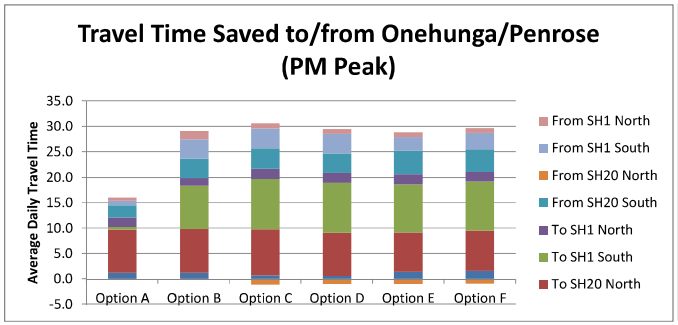
| PM PEAK | 2013 Mod | 2026 Times | | | | | | | 2026 Time Saved (wrt 2026 Do Min) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Do Min | Do Min | Option A | Option B | Option C | Option D | Option E | Option F | Option A | Option B | Option C | Option D | Option E | Option F |
| To SH20 South | 6.3 | 7.1 | 5.9 | 5.9 | 6.3 | 6.4 | 5.6 | 5.4 | 1.2 | 1.2 | 0.7 | 0.6 | 1.4 | 1.6 |
| To SH20 North | 6.2 | 13.3 | 4.8 | 4.7 | 4.3 | 4.8 | 5.6 | 5.4 | 8.5 | 8.7 | 9.1 | 8.5 | 7.7 | 7.9 |
| To SH1 South | 19.9 | 20.2 | 19.6 | 11.6 | 10.3 | 10.4 | 10.8 | 10.5 | 0.6 | 8.5 | 9.9 | 9.8 | 9.4 | 9.7 |
| To SH1 North | 8.8 | 9.0 | 7.1 | 7.5 | 6.9 | 7.0 | 7.0 | 7.1 | 1.9 | 1.5 | 2.0 | 2.0 | 2.0 | 1.9 |
| From SH20 South | **7.9** | **12.8** | 10.4 | 9.0 | 8.8 | 9.1 | 8.2 | 8.4 | 2.4 | 3.8 | 4.0 | 3.7 | 4.6 | 4.4 |
| From SH20 North | 4.4 | 4.7 | 4.7 | 4.8 | 5.8 | 5.6 | 5.6 | 5.6 | -0.1 | -0.2 | -1.1 | -1.0 | -1.0 | -1.0 |
| From SH1 South | 10.7 | 11.9 | 11.0 | 8.2 | 8.0 | 8.0 | 9.1 | 8.6 | 0.9 | 3.7 | 3.9 | 3.9 | 2.8 | 3.3 |
| From SH1 North | 7.3 | 8.1 | 7.4 | 6.4 | 7.1 | 7.1 | 7.1 | 7.1 | 0.7 | 1.6 | 1.0 | 0.9 | 0.9 | 0.9 |
| | | | | | | | | SUM | 16.0 | 28.9 | 29.5 | 28.5 | 27.9 | 28.7 |
| | | | | | | | Scale | 2.5 | 6.4 | 11.6 | 11.8 | 11.4 | 11.2 | 11.5 |

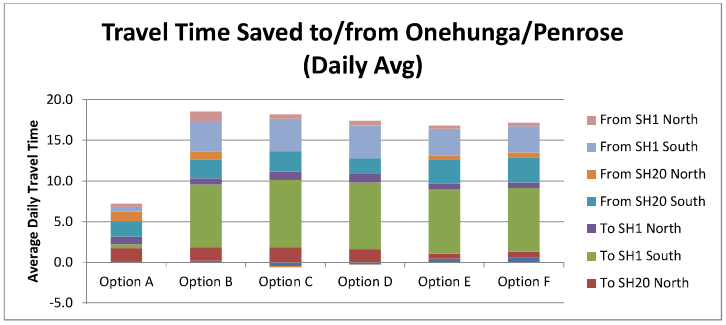
| DAILY AVERAGE | 2013 Mod | 2026 Times | | | | | | | 2026 Time Saved (wrt 2026 Do Min) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Do Min | Do Min | Option A | Option B | Option C | Option D | Option E | Option F | Option A | Option B | Option C | Option D | Option E | Option F |
| To SH20 South | 4.9 | 5.6 | 5.5 | 5.3 | 6.0 | 5.8 | 5.1 | 5.0 | 0.1 | 0.2 | -0.4 | -0.3 | 0.5 | 0.6 |
| To SH20 North | 4.5 | 5.9 | 4.3 | 4.3 | 4.0 | 4.3 | 5.3 | 5.2 | 1.7 | 1.7 | 1.9 | 1.6 | 0.6 | 0.8 |
| To SH1 South | 15.7 | 16.6 | 16.2 | 8.9 | 8.4 | 8.4 | 8.7 | 8.8 | 0.5 | 7.7 | 8.2 | 8.2 | 7.9 | 7.8 |
| To SH1 North | 7.6 | 7.8 | 6.9 | 7.1 | 6.8 | 6.7 | 7.1 | 7.2 | 1.0 | 0.7 | 1.0 | 1.1 | 0.7 | 0.7 |
| From SH20 South | **6.9** | **8.7** | 6.8 | 6.4 | 6.2 | 6.8 | 5.6 | 5.6 | 1.9 | 2.3 | 2.5 | 1.9 | 3.0 | 3.0 |
| From SH20 North | 4.2 | 6.0 | 4.8 | 5.1 | 6.2 | 6.1 | 5.5 | 5.4 | 1.2 | 1.0 | -0.2 | 0.0 | 0.5 | 0.7 |
| From SH1 South | 11.0 | 11.8 | 11.2 | 8.1 | 7.8 | 7.8 | 8.6 | 8.6 | 0.6 | 3.7 | 4.0 | 4.0 | 3.2 | 3.2 |
| From SH1 North | 7.1 | 7.4 | 7.0 | 6.1 | 6.8 | 6.8 | 6.9 | 6.9 | 0.4 | 1.3 | 0.6 | 0.6 | 0.4 | 0.5 |
| | | | | | | | | SUM | 7.2 | 18.6 | 17.6 | 17.1 | 16.8 | 17.2 |
| | | | | | | | Scale | **4** | 1.8 | 4.6 | 4.4 | 4.3 | 4.2 | 4.3 |

## Criteria 2 ctd



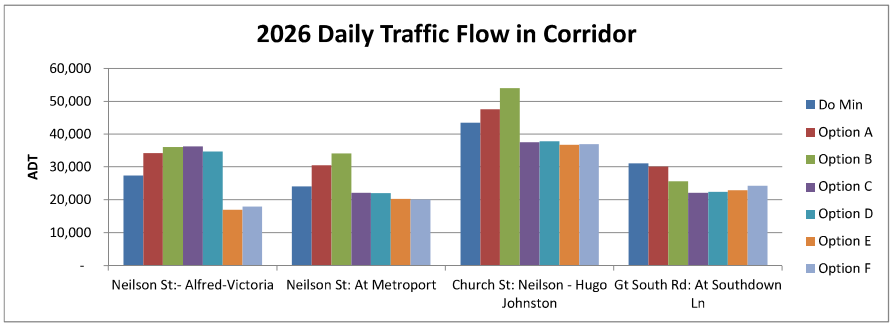

**MCA Assessment:**

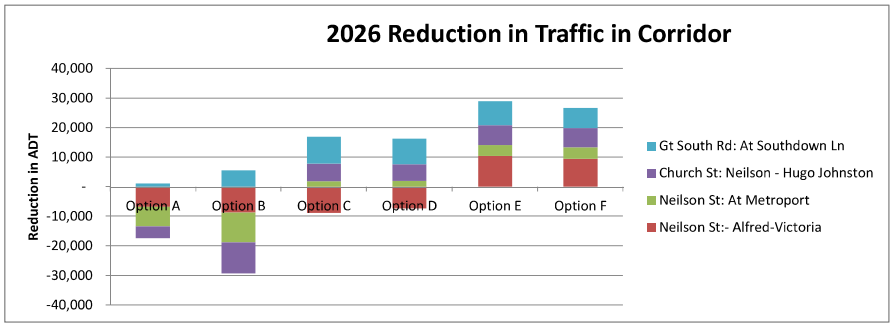
Set relative to Do Min (0). Each 1 min deemed noticeable but scale at 2.5 min as 1 point to cover range.

| | Score | comment |
|---|---|---|
| **Option A** | 2 | less than half the savings of the other options |
| **Option B** | 4 | Significant time savings, especially to SH1 south |
| **Option C** | 4 | Significant time savings, especially to SH1 south |
| **Option D** | 4 | Significant time savings, especially to SH1 south |
| **Option E** | 4 | Significant time savings, especially to SH1 south |
| **Option F** | 4 | Significant time savings, especially to SH1 south |

**Criteria 3** — **Ability to Access Neilson/Church St corridor from properties**
**Proxy Measure** — **Vehicles in Neilson/Church Corridor**
**Notes:** Lowest volume is best for property access

| # Rounded | 2013 Mod | 2026 ADT | | | | | | | 2026 reduction in ADT (relative to 2026 Do Min) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Do Min | Do Min | Option A | Option B | Option C | Option D | Option E | Option F | Option A | Option B | Option C | Option D | Option E | Option F |
| Neilson St:- Alfred-Victoria | 26,700 | 27,400 | 34,200 | 36,100 | 36,200 | 34,800 | 17,000 | 17,900 | - 6,800 | - 8,700 | - 8,800 | - 7,400 | 10,400 | 9,500 |
| Neilson St: At Metroport | 22,600 | 24,000 | 30,600 | 34,100 | 22,100 | 22,000 | 20,300 | 20,100 | - 6,600 | - 10,100 | 1,900 | 2,000 | 3,700 | 3,900 |
| Church St: Neilson - Hugo Johnstor | 40,700 | 43,500 | 47,600 | 54,000 | 37,500 | 37,900 | 36,800 | 37,000 | - 4,100 | - 10,500 | 6,000 | 5,600 | 6,700 | 6,500 |
| Gt South Rd: At Southdown Ln | 30,700 | 31,100 | 30,100 | 25,600 | 22,100 | 22,400 | 22,900 | 24,300 | 1,000 | 5,500 | 9,000 | 8,700 | 8,200 | 6,800 |
| | | | | | | | | | - 16,500 | - 23,800 | 8,100 | 8,900 | 29,000 | 26,700 |
| 5000 | | | | | | | | | - 3.3 | - 4.8 | 1.6 | 1.8 | 5.8 | 5.3 |




**MCA Assessment:**
Set relative to Do Min (0). Each 5,000 reduction deemed to impact access so set as 1 point.

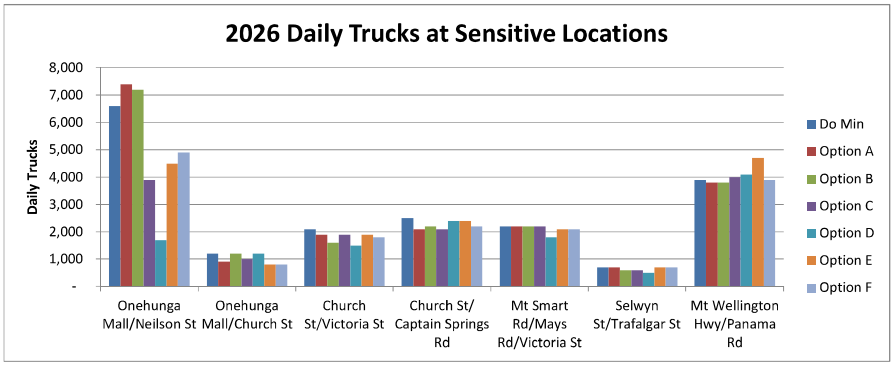
| | Score | comment |
|---|---|---|
| **Option A** | -3 | significant increases in traffic will compromise access function |
| **Option B** | -5 | significant increases in traffic will compromise access function |
| **Option C** | 2 | Mostly reductions in corridor, except Galway to Angle St which increases |
| **Option D** | 2 | Mostly reductions in corridor, except Galway to Angle St which increases |
| **Option E** | 5 | Significant decreases on full corridor |
| **Option F** | 5 | Significant decreases on full corridor |

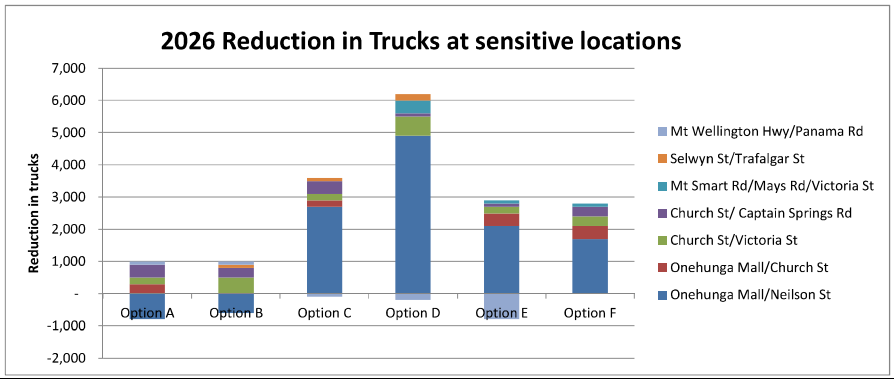
**Criteria 4** — Access/Amenity/Safety at sensitive areas, with freight vehicles reduced on non-freight routes

**Proxy Measure** — Reduction in trucks at key locations

**Notes:**

| # | Rounded | 2013 Mod | 2026 Daily Trucks | | | | | | | 2026 reduction in trucks | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Do Min | Do Min | Option A | Option B | Option C | Option D | Option E | Option F | Option A | Option B | Option C | Option D | Option E | Option F |
| | Onehunga Mall/Neilson St | 4,500 | 6,600 | 7,400 | 7,200 | 3,900 | 1,700 | 4,500 | 4,900 | - 800 | - 600 | 2,700 | 4,900 | 2,100 | 1,700 |
| | Onehunga Mall/Church St | 800 | 1,200 | 900 | 1,200 | 1,000 | 1,200 | 800 | 800 | 300 | - | 200 | - | 400 | 400 |
| | Church St/Victoria St | 1,400 | 2,100 | 1,900 | 1,600 | 1,900 | 1,500 | 1,900 | 1,800 | 200 | 500 | 200 | 600 | 200 | 300 |
| | Church St/ Captain Springs Rd | 2,100 | 2,500 | 2,100 | 2,200 | 2,100 | 2,400 | 2,400 | 2,200 | 400 | 300 | 400 | 100 | 100 | 300 |
| | Mt Smart Rd/Mays Rd/Victoria St | 1,300 | 2,200 | 2,200 | 2,200 | 2,200 | 1,800 | 2,100 | 2,100 | - | - | - | 400 | 100 | 100 |
| | Selwyn St/Trafalgar St | 300 | 700 | 700 | 600 | 600 | 500 | 700 | 700 | - | 100 | 100 | 200 | - | - |
| | Mt Wellington Hwy/Panama Rd | 3,000 | 3,900 | 3,800 | 3,800 | 4,000 | 4,100 | 4,700 | 3,900 | 100 | 100 | - 100 | - 200 | - 800 | - |
| | | | | | | | | | | 200 | 400 | 3,500 | 6,000 | 2,100 | 2,800 |
| | | | | | | | | | 1000 | 0.2 | 0.4 | 3.5 | 6.0 | 2.1 | 2.8 |




**MCA Assessment:**

Set relative to Do Min (0). Each 1,000 reduction as 1 point.

| | Score | comment |
|---|---|---|
| **Option A** | 0 | decreases offset by increases |
| **Option B** | 0 | decreases offset by increases |
| **Option C** | 4 | Significant decreases |
| **Option D** | 5 | Significant decreases |
| **Option E** | 2 | Moderate reductions but offset by some increase |
| **Option F** | 3 | Moderate reductions |

## Criteria 5

**Improved Bus Travel Times Accessing Onehunga**

**Proxy Measure** **Improved Bus access between SH20 and Onehunga Mall**

**Notes:** Qualitative - bus priority to be refined with detailed development

| | Qualitative Assessment |
|---|---|
| **Do Min** | NBD buses congested on off-ramp. SBD buses congested at Onehunga Mall but priority lanes available on Neilson and ramp |
| **Option A** | Some improvement to bus times with increased Onehunga Mall/Neilson St intersection |
| **Option B** | Some improvement to bus times with increased Onehunga Mall/Neilson St intersection |
| **Option C** | Significant improvement to NBD bus times via Onehunga Mall South access and reduced traffic on Onehunga Mall/Neilson St intersection |
| **Option D** | Significant improvement to NBD bus times via Onehunga Mall South access and reduced traffic on Onehunga Mall/Neilson St intersection but longer route for SBD buses |
| **Option E** | Improvement from reduced congestion, however bus priority at interchange yet to be defined/confirmed |
| **Option F** | Improvement from reduced congestion, however bus priority at interchange yet to be defined/confirmed |

**MCA Assessment:**

Qualitative, relative to Do Min (0).

| | Score | comment |
|---|---|---|
| **Option A** | 2 | Some improvement to NBD buses. |
| **Option B** | 2 | Some improvement to NBD buses. |
| **Option C** | 4 | Best potential savings avoiding new interchange where priority could be constrained |
| **Option D** | 2 | Improved NBD offset by longer route SBD |
| **Option E** | 3 | Reduced congestion but bus-priority through Interchange could be constrained |
| **Option F** | 3 | Reduced congestion but bus-priority through Interchange could be constrained |

## Criteria 6

**Improved Pedestrian/Cycle Links Onehunga to Sylvia Park**

**Proxy Measure** **Quality and directness of route between Onehunga and Sylvia Park**

**Notes:** Qualitative

| | Qualitative Assessment |
|---|---|
| **Do Min** | Poor quality route between termination at Hugo Johnston Drive to Sylvia Park |
| **Option A** | Improved but indirect route between termination at Hugo Johnston Drive to Sylvia Park |
| **Option B** | Improved but indirect, generally on-road route between termination at Hugo Johnston Drive to Sylvia Park |
| **Option C** | Direct, off-road route to Sylvia Park Road then Sylvia Park |
| **Option D** | Direct, off-road route to Sylvia Park Road then Sylvia Park |
| **Option E** | Less direct, off-road route to Mt Wellington Highway, but then needs to use busier Mt Wellington Highway (bus conflict). But potential for connection to Carbine |
| **Option F** | Direct, off-road route to Sylvia Park Road then Sylvia Park |

**MCA Assessment:**

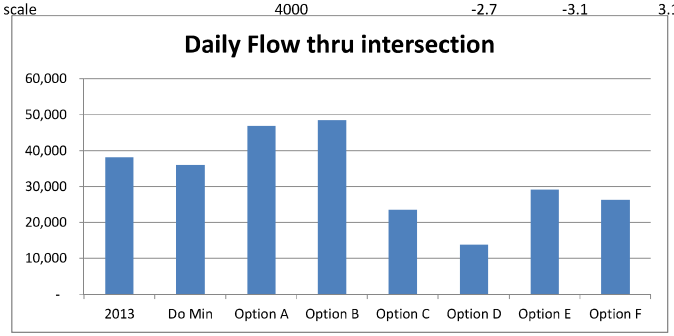
Set relative to Do Min (0).

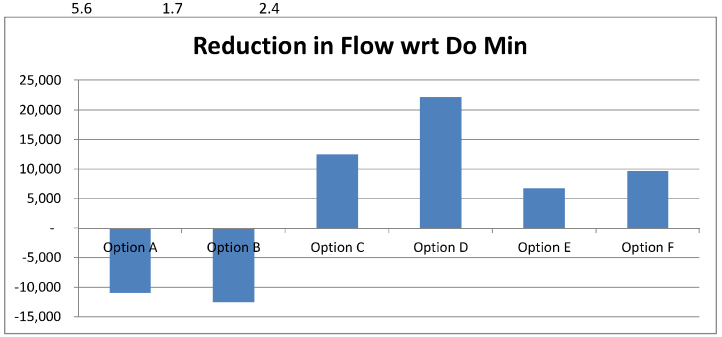
| | Score | comment |
|---|---|---|
| **Option A** | 1 | Limited improvement |
| **Option B** | 1 | Limited improvement |
| **Option C** | 4 | Significantly improved and more direct route |
| **Option D** | 4 | Significantly improved and more direct route |
| **Option E** | 3 | New route but less direct to Sylvia Park. Some value in Carbine Connection |
| **Option F** | 4 | Significantly improved and more direct route |

| | |
|---|---|
| **Criteria 7** | **Improved Pedestrian/Cycle Links Old Mangere Bridge to Onehunga** |
| **Proxy Measure** | **Reduced Traffic at Onehunga Mall/Neilson St intersection** |
| **Notes:** | Reduction is best |

**# Rounded**

| | 2013 | Do Min | Option A | Option B | Option C | Option D | Option E | Option F |
|---|---|---|---|---|---|---|---|---|
| Daily Flow thru intersection | 38,200 | 36,000 | 46,900 | 48,500 | 23,500 | 13,800 | 29,200 | 26,300 |
| Reduction wrt Do Min | | | - 10,900 | - 12,500 | 12,500 | 22,200 | 6,800 | 9,700 |
| scale | 4000 | | -2.7 | -3.1 | 3.1 | 5.6 | 1.7 | 2.4 |




**MCA Assessment:**

Set relative to Do Min (0). Each 4,000 reduction as 1 point (significant reductions allow road narrowing)

| | Score | comment |
|---|---|---|
| **Option A** | -3 | Increased traffic through intersection constrains ability to enhance facility |
| **Option B** | -3 | Increased traffic through intersection constrains ability to enhance facility |
| **Option C** | 3 | Significant reduction in traffic and extra facility via Onehunga Mall south signals |
| **Option D** | 5 | Significant reduction in traffic and extra facility via Onehunga Mall south signals |
| **Option E** | 2 | Limited reduction in traffic |
| **Option F** | 2 | Limited reduction in traffic |

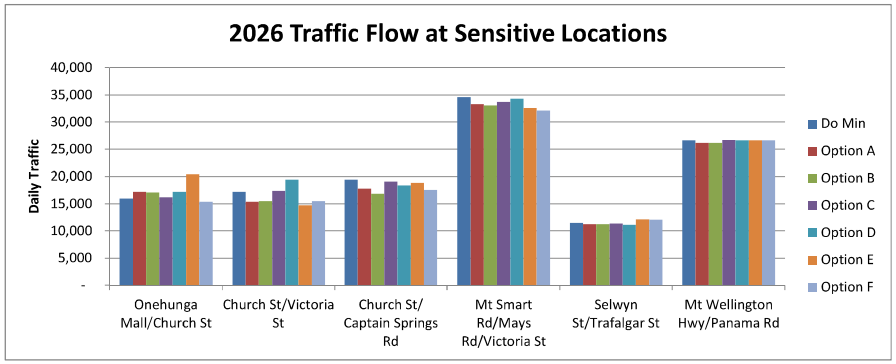
## Criteria 8

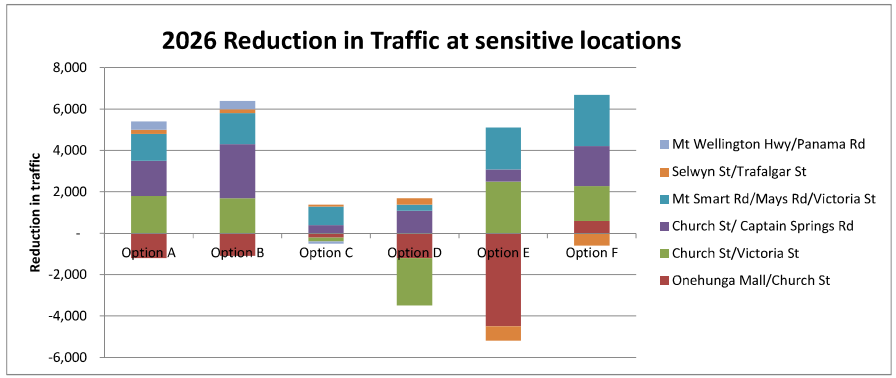
**Access/Amenity/Safety at sensitive areas**

**Proxy Measure** **Reduction in general traffic at key locations**

**Notes:** Onehunga Mall/Neilson excluded as covered in cycle/ped criteria

| # | Rounded | 2013 Mod | 2026 Daily Traffic | | | | | | | 2026 reduction in trucks | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Do Min | Do Min | Option A | Option B | Option C | Option D | Option E | Option F | Option A | Option B | Option C | Option D | Option E | Option F |
| | Onehunga Mall/Church St | 14,800 | 16,000 | 17,200 | 17,100 | 16,200 | 17,200 | 20,500 | 15,400 | - 1,200 | - 1,100 | - 200 | - 1,200 | - 4,500 | 600 |
| | Church St/Victoria St | 15,400 | 17,200 | 15,400 | 15,500 | 17,400 | 19,500 | 14,700 | 15,500 | 1,800 | 1,700 | - 200 | - 2,300 | 2,500 | 1,700 |
| | Church St/ Captain Springs Rd | 18,900 | 19,500 | 17,800 | 16,900 | 19,100 | 18,400 | 18,900 | 17,600 | 1,700 | 2,600 | 400 | 1,100 | 600 | 1,900 |
| | Mt Smart Rd/Mays Rd/Victoria St | 29,300 | 34,600 | 33,300 | 33,100 | 33,700 | 34,300 | 32,600 | 32,100 | 1,300 | 1,500 | 900 | 300 | 2,000 | 2,500 |
| | Selwyn St/Trafalgar St | 9,400 | 11,500 | 11,300 | 11,300 | 11,400 | 11,200 | 12,200 | 12,100 | 200 | 200 | 100 | 300 | - 700 | - 600 |
| | Mt Wellington Hwy/Panama Rd | 24,700 | 26,600 | 26,200 | 26,200 | 26,700 | 26,600 | 26,600 | 26,600 | 400 | 400 | - 100 | - | - | - |
| | | | | | | | | Scale | 4,000 | 4,200 | 5,300 | 900 | - 1,800 | - 100 | 6,100 |
| | | | | | | | | | | 1.1 | 1.3 | 0.2 | - 0.5 | - 0.0 | 1.5 |



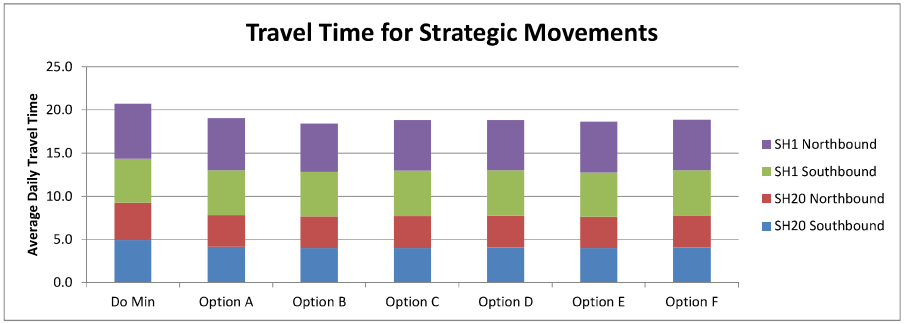

**MCA Assessment:**

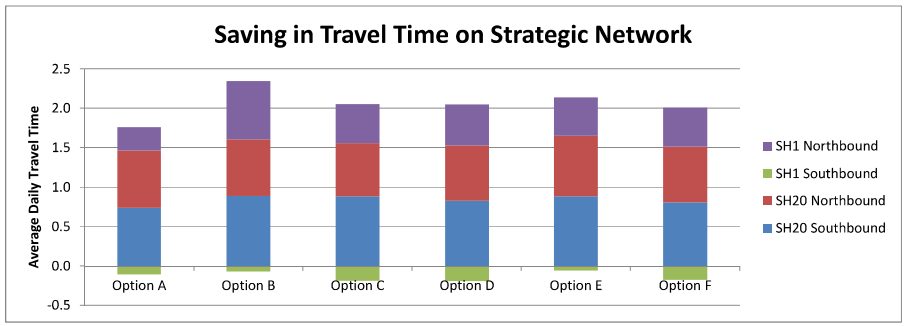
Set relative to Do Min (0). Each 4,000 reduction as 1 point.

| | Score | comment |
|---|---|---|
| **Option A** | 1 | Mostly minor reductions at each location |
| **Option B** | 1 | Mostly minor reductions at each location |
| **Option C** | 0 | Mostly very minor reductions at each location |
| **Option D** | 0 | Minor reductions offset by some increase |
| **Option E** | 0 | reductions offset by increases |
| **Option F** | 2 | Moderate reductions |

| **Criteria 9** | **Maintain Travel on Strategic Routes** |
|---|---|
| **Proxy Measure** | **Travel time on SH20 and SH1 and East West** |
| **Notes:** | Times weighted average across day. |

| | 2013 Mod | 2026 Times | | | | | | | 2026 Time Saved (relative to 2026 Do Min) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Do Min | Do Min | Option A | Option B | Option C | Option D | Option E | Option F | Option A | Option B | Option C | Option D | Option E | Option F |
| SH20 Southbound | 3.4 | 4.9 | 4.2 | 4.0 | 4.0 | 4.1 | 4.0 | 4.1 | 0.7 | 0.9 | 0.9 | 0.8 | 0.9 | 0.8 |
| SH20 Northbound | 2.7 | 4.4 | 3.7 | 3.7 | 3.7 | 3.7 | 3.6 | 3.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.8 | 0.7 |
| SH1 Southbound | 4.8 | 5.1 | 5.2 | 5.2 | 5.3 | 5.3 | 5.1 | 5.3 | -0.1 | -0.1 | -0.2 | -0.2 | -0.1 | -0.2 |
| SH1 Northbound | 5.6 | 6.4 | 6.1 | 5.6 | 5.9 | 5.8 | 5.9 | 5.9 | 0.3 | 0.7 | 0.5 | 0.5 | 0.5 | 0.5 |
| | | | | | | | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | | | | | | | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | | | | | | | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | | | | | | | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | | | | | | | | 1 | 1.7 | 2.3 | 1.9 | 1.9 | 2.1 | 1.8 |
| | | | | | | | | | 1.7 | 2.3 | 1.9 | 1.9 | 2.1 | 1.8 |




**MCA Assessment:**

Set relative to Do Min (0). Each 1 min as 'noticeable' and hence set at 1 point.

| | Score | comment |
|---|---|---|
| **Option A** | 2 | |
| **Option B** | 2 | |
| **Option C** | 2 | |
| **Option D** | 2 | effects of extra ramps/traffic mitigated with small improvement. Similar effect across all options |
| **Option E** | 2 | |
| **Option F** | 2 | |

## Criteria 10

**General Traffic Access to Strategic Network from Onehunga/Penrose Area**

**Proxy Measure** **Travel time Between Neilson/Captain Springs and SH1/SH20 north and south**

**Notes:** Times weighted average across day.

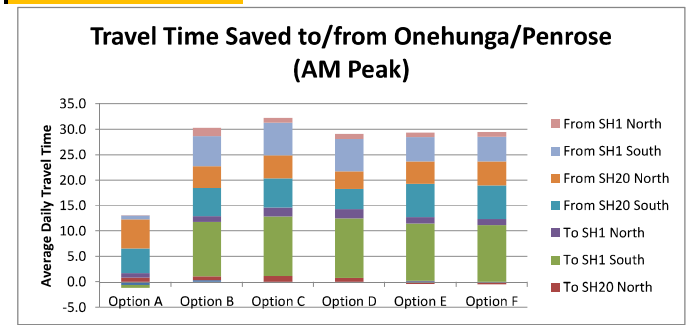
| AM PEAK | 2013 Mod | 2026 Times | | | | | | | 2026 Time Saved (relative to 2026 Do Min) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Do Min | Do Min | Option A | Option B | Option C | Option D | Option E | Option F | Option A | Option B | Option C | Option D | Option E | Option F |
| To SH20 South | 5.8 | 7.8 | 8.3 | 7.5 | 7.9 | 7.8 | 7.6 | 7.9 | -0.5 | 0.3 | -0.1 | 0.0 | 0.2 | -0.1 |
| To SH20 North | 4.4 | 5.0 | 4.2 | 4.2 | 3.9 | 4.2 | 5.3 | 5.2 | 0.8 | 0.8 | 1.1 | 0.8 | -0.4 | -0.3 |
| To SH1 South | 18.2 | 20.5 | 21.2 | 9.8 | 8.8 | 8.8 | 9.2 | 9.4 | -0.6 | 10.7 | 11.7 | 11.7 | 11.3 | 11.1 |
| To SH1 North | 12.4 | 13.7 | 12.8 | 12.6 | 11.9 | 11.9 | 12.4 | 12.4 | 0.9 | 1.1 | 1.8 | 1.8 | 1.2 | 1.2 |
| From SH20 South | **10.8** | **12.8** | 7.9 | 7.2 | 7.0 | 8.8 | 6.2 | 6.1 | 4.9 | 5.6 | 5.8 | 4.0 | 6.6 | 6.6 |
| From SH20 North | 4.7 | 11.7 | 6.0 | 7.5 | 7.2 | 8.3 | 7.3 | 7.0 | 5.7 | 4.3 | 4.5 | 3.4 | 4.4 | 4.7 |
| From SH1 South | 14.8 | 15.4 | 14.7 | 9.5 | 9.0 | 9.0 | 10.7 | 10.6 | 0.7 | 5.9 | 6.4 | 6.4 | 4.8 | 4.8 |
| From SH1 North | 8.0 | 8.0 | 7.8 | 6.3 | 7.0 | 7.0 | 7.1 | 7.0 | 0.1 | 1.7 | 1.0 | 1.0 | 0.9 | 0.9 |
| | | | | | | | | SUM | 12.0 | 30.3 | 32.2 | 29.1 | 29.0 | 29.1 |
| | | | | | | | Scale | 2.5 | 4.8 | 12.1 | 12.9 | 11.6 | 11.6 | 11.6 |

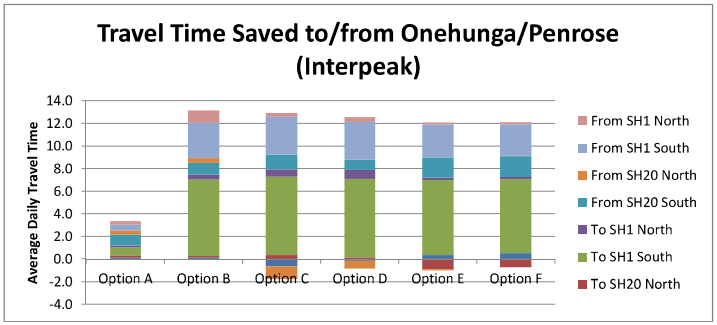
| INTERPEAK | 2013 Mod | 2026 Times | | | | | | | 2026 Time Saved (relative to 2026 Do Min) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Do Min | Do Min | Option A | Option B | Option C | Option D | Option E | Option F | Option A | Option B | Option C | Option D | Option E | Option F |
| To SH20 South | 4.6 | 5.0 | 4.9 | 4.9 | 5.7 | 5.2 | 4.7 | 4.5 | 0.1 | 0.1 | -0.6 | -0.2 | 0.4 | 0.5 |
| To SH20 North | 4.2 | 4.4 | 4.1 | 4.2 | 4.0 | 4.2 | 5.3 | 5.1 | 0.2 | 0.2 | 0.4 | 0.2 | -0.9 | -0.7 |
| To SH1 South | 14.0 | 14.8 | 14.1 | 8.0 | 7.8 | 7.8 | 8.1 | 8.2 | 0.7 | 6.8 | 6.9 | 6.9 | 6.6 | 6.6 |
| To SH1 North | 6.6 | 7.1 | 6.9 | 6.7 | 6.4 | 6.3 | 6.8 | 6.8 | 0.2 | 0.4 | 0.6 | 0.8 | 0.2 | 0.2 |
| From SH20 South | **5.6** | **6.7** | 5.7 | 5.6 | 5.3 | 5.7 | 4.9 | 4.8 | 1.0 | 1.0 | 1.3 | 0.9 | 1.8 | 1.8 |
| From SH20 North | 4.0 | 4.9 | 4.6 | 4.5 | 6.1 | 5.6 | 5.1 | 4.9 | 0.4 | 0.4 | -1.1 | -0.7 | -0.1 | 0.0 |
| From SH1 South | 10.2 | 10.8 | 10.4 | 7.7 | 7.5 | 7.5 | 7.9 | 8.1 | 0.5 | 3.1 | 3.4 | 3.4 | 2.9 | 2.8 |
| From SH1 North | 6.8 | 7.1 | 6.7 | 5.9 | 6.7 | 6.6 | 6.9 | 6.8 | 0.3 | 1.1 | 0.4 | 0.4 | 0.2 | 0.2 |
| | | | | | | | | SUM | 3.4 | 13.2 | 11.2 | 11.7 | 11.1 | 11.4 |
| | | | | | | | Scale | 2.5 | 1.4 | 5.3 | 4.5 | 4.7 | 4.4 | 4.6 |

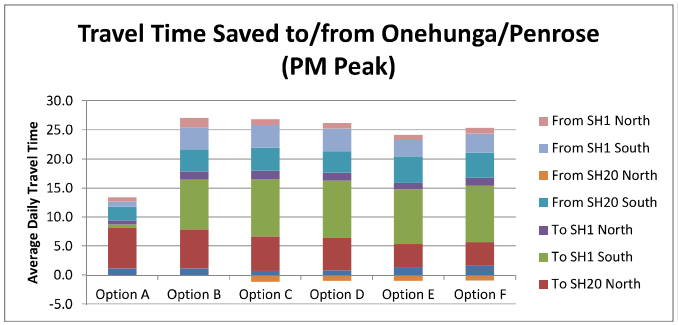
| PM PEAK | 2013 Mod | 2026 Times | | | | | | | 2026 Time Saved (relative to 2026 Do Min) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Do Min | Do Min | Option A | Option B | Option C | Option D | Option E | Option F | Option A | Option B | Option C | Option D | Option E | Option F |
| To SH20 South | 6.5 | 7.3 | 6.1 | 6.1 | 6.6 | 6.4 | 5.9 | 5.7 | 1.2 | 1.2 | 0.7 | 0.8 | 1.4 | 1.6 |
| To SH20 North | 6.3 | 13.4 | 6.4 | 6.6 | 7.4 | 7.7 | 9.4 | 9.2 | 7.0 | 6.7 | 6.0 | 5.6 | 4.0 | 4.1 |
| To SH1 South | 19.9 | 20.2 | 19.6 | 11.6 | 10.3 | 10.4 | 10.8 | 10.5 | 0.6 | 8.5 | 9.9 | 9.8 | 9.4 | 9.7 |
| To SH1 North | 10.4 | 9.9 | 9.1 | 8.5 | 8.5 | 8.5 | 8.8 | 8.5 | 0.8 | 1.4 | 1.4 | 1.4 | 1.1 | 1.4 |
| From SH20 South | **7.9** | **12.8** | 10.4 | 9.0 | 8.8 | 9.1 | 8.2 | 8.4 | 2.4 | 3.8 | 4.0 | 3.7 | 4.6 | 4.4 |
| From SH20 North | 4.4 | 4.7 | 4.7 | 4.8 | 5.8 | 5.6 | 5.6 | 5.6 | -0.1 | -0.2 | -1.1 | -1.0 | -1.0 | -1.0 |
| From SH1 South | 10.7 | 11.9 | 11.0 | 8.2 | 8.0 | 8.0 | 9.1 | 8.6 | 0.9 | 3.7 | 3.9 | 3.9 | 2.8 | 3.3 |
| From SH1 North | 7.3 | 8.1 | 7.4 | 6.4 | 7.1 | 7.1 | 7.1 | 7.1 | 0.7 | 1.6 | 1.0 | 0.9 | 0.9 | 0.9 |
| | | | | | | | | SUM | 13.3 | 26.9 | 25.7 | 25.2 | 23.2 | 24.4 |
| | | | | | | | Scale | 2.5 | 5.3 | 10.8 | 10.3 | 10.1 | 9.3 | 9.8 |

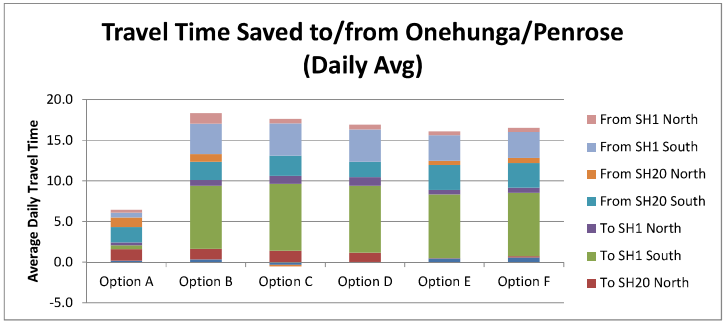
| DAILY AVERAGE | 2013 Mod | 2026 Times | | | | | | | 2026 Time Saved (relative to 2026 Do Min) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Do Min | Do Min | Option A | Option B | Option C | Option D | Option E | Option F | Option A | Option B | Option C | Option D | Option E | Option F |
| To SH20 South | 5.1 | 5.9 | 5.7 | 5.5 | 6.2 | 5.8 | 5.4 | 5.3 | 0.2 | 0.3 | -0.3 | 0.0 | 0.5 | 0.6 |
| To SH20 North | 4.6 | 6.0 | 4.5 | 4.6 | 4.5 | 4.8 | 6.0 | 5.8 | 1.4 | 1.4 | 1.4 | 1.2 | 0.0 | 0.2 |
| To SH1 South | 15.7 | 16.6 | 16.2 | 8.9 | 8.4 | 8.4 | 8.7 | 8.8 | 0.5 | 7.7 | 8.2 | 8.2 | 7.9 | 7.8 |
| To SH1 North | 8.2 | 8.6 | 8.3 | 8.0 | 7.7 | 7.6 | 8.1 | 8.0 | 0.4 | 0.7 | 1.0 | 1.1 | 0.5 | 0.6 |
| From SH20 South | **6.9** | **8.7** | 6.8 | 6.4 | 6.2 | 6.8 | 5.6 | 5.6 | 1.9 | 2.3 | 2.5 | 1.9 | 3.0 | 3.0 |
| From SH20 North | 4.2 | 6.0 | 4.8 | 5.1 | 6.2 | 6.1 | 5.5 | 5.4 | 1.2 | 1.0 | -0.2 | 0.0 | 0.5 | 0.7 |
| From SH1 South | 11.0 | 11.8 | 11.2 | 8.1 | 7.8 | 7.8 | 8.6 | 8.6 | 0.6 | 3.7 | 4.0 | 4.0 | 3.2 | 3.2 |
| From SH1 North | 7.1 | 7.4 | 7.0 | 6.1 | 6.8 | 6.8 | 6.9 | 6.9 | 0.4 | 1.3 | 0.6 | 0.6 | 0.4 | 0.5 |
| | | | | | | | | SUM | 6.5 | 18.3 | 17.1 | 16.9 | 16.1 | 16.5 |
| | | | | | | | Scale | **4** | 1.6 | 4.6 | 4.3 | 4.2 | 4.0 | 4.1 |

## Criteria 10 ctd




**MCA Assessment:**

Set relative to Do Min (0). Each 1 min deemed noticeable but scale at 2.5 min as 1 point to cover range.

| | Score | comment |
|---|---|---|
| **Option A** | 1 | Improvements to SH20 but negligible to SH1 |
| **Option B** | 4 | Improvements to both SH1 and SH20 |
| **Option C** | 4 | Improvements to both SH1 and SH20 |
| **Option D** | 4 | Improvements to both SH1 and SH20 |
| **Option E** | 4 | Improvements to both SH1 and SH20 |
| **Option F** | 4 | Improvements to both SH1 and SH20 |

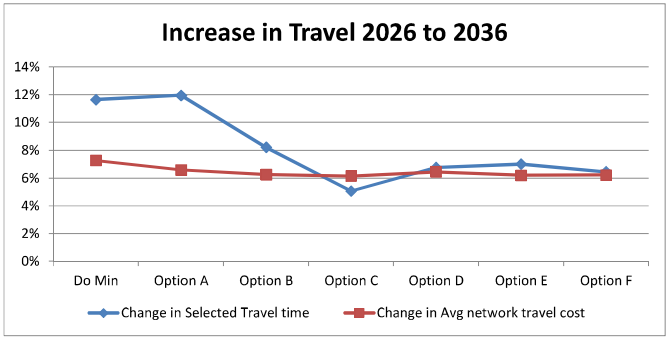
## Criteria 11

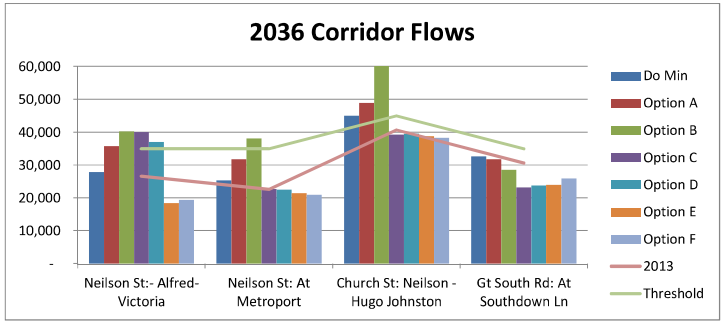
**Enduring Benefits**

**Proxy Measure** **Change in Travel Time 2026 to 2036, Max ADT on Neilson St in 2036 and change in $/km 2026 to 2036**

**Notes:** Least Increase is best

| Travel Times | Increase 2026 to 2036 | | | | | | |
|---|---|---|---|---|---|---|---|
| | Do Min | Option A | Option B | Option C | Option D | Option E | Option F |
| To SH20 South | 1.4 | 0.6 | 0.5 | 0.4 | 0.5 | 0.4 | 0.4 |
| To SH20 North | 1.1 | 0.2 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 |
| To SH1 South | 0.5 | 1.7 | 0.9 | 0.4 | 0.3 | 0.7 | 0.5 |
| To SH1 North | 0.9 | 3.0 | 0.6 | 0.4 | 0.3 | 0.6 | 0.5 |
| From SH20 South | 2.4 | 1.3 | 1.4 | 1.2 | 1.5 | 1.2 | 1.3 |
| From SH20 North | 0.5 | 0.4 | 0.3 | -0.2 | 0.6 | 0.2 | 0.2 |
| From SH1 South | 1.1 | 0.6 | 0.2 | 0.2 | 0.2 | 0.5 | 0.4 |
| From SH1 North | 0.4 | -0.1 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 |
| sum | 8.3 | 7.7 | 4.3 | 2.7 | 3.7 | 3.8 | 3.5 |
| % Increase over 2026 | 12% | 12% | 8% | 5% | 7% | 7% | 6% |
| | wrt Do Mir | 0.6 | 3.9 | 5.5 | 4.6 | 4.4 | 4.7 |
| scale | 2 | 0.3 | 2.0 | 2.8 | 2.3 | 2.2 | 2.4 |
| **Cost per km** | | | | | | | |
| 2026 Average $/km | $ 0.884 | $ 0.874 | $ 0.862 | $ 0.865 | $ 0.866 | $ 0.863 | $ 0.862 |
| 2036 Average $/km | $ 0.949 | $ 0.932 | $ 0.916 | $ 0.918 | $ 0.922 | $ 0.917 | $ 0.915 |
| % Increase | 7.3% | 6.6% | 6.3% | 6.2% | 6.5% | 6.2% | 6.2% |




**MCA Assessment:**

Set relative to Do Min (0).

| | Score | comment | |
|---|---|---|---|
| **Option A** | 1 | travel times and costs increase noticeably, corridor flows exceed threshold (minor upgrades likely) | -3 |
| **Option B** | 0 | travel times increase, corridor flows substantially exceed threshold (major upgrades likely) | -4 |
| **Option C** | 2 | travel times and costs increase marginally, corridor flows exceed threshold in west (minor upgrades) | -2 |
| **Option D** | 2 | travel times and costs increase marginally, corridor flows exceed threshold in west (minor upgrades) | -2 |
| **Option E** | 4 | travel times and costs increase marginally, corridor flows below threshold | 0 |
| **Option F** | 4 | travel times and costs increase marginally, corridor flows below threshold | 0 |

| **Criteria 12** | **Freight/Industrial Interface** |
|---|---|
| **Proxy Measure** | |
| **Notes:** | Not considered to be a differentiator of short-listed options so not assessed |

| | **Qualitative Assessment** |
|---|---|
| **Do Min** | |
| **Option A** | |
| **Option B** | |
| **Option C** | |
| **Option D** | |
| **Option E** | |
| **Option F** | |

**MCA Assessment:**

Qualitative, relative to Do Min (0).

| | Score | comment |
|---|---|---|
| **Option A** | 0 | |
| **Option B** | 0 | |
| **Option C** | 0 | |
| **Option D** | 0 | |
| **Option E** | 0 | |
| **Option F** | 0 | |
| | 0 | |

| **Criteria 13** | **Network Resilience** |
|---|---|
| **Proxy Measure** | **Provision of Additional Network choices** |
| **Notes:** | Qualitative |

| | **Qualitative Assessment** |
|---|---|
| **Do Min** | |
| **Option A** | Increased traffic on existing network = no change in resilience |
| **Option B** | Continued loading of existing corridor with only limited extra choice with new SH1 ramps |
| **Option C** | Extra choices with Galway Link and new Southdown Link and new ramps to SH1 |
| **Option D** | Extra choices with Galway Link and new Southdown Link and new ramps to SH1 |
| **Option E** | Extra choices with Galway Link and new Southdown Link and new ramps to SH1 |
| **Option F** | Extra choices with Galway Link and new Southdown Link and new ramps to SH1 |

**MCA Assessment:**

Set relative to Do Min (0).

| | Score | comment |
|---|---|---|
| **Option A** | 0 | no change wrt do Min |
| **Option B** | 1 | small change with SH1 ramps |
| **Option C** | 3 | Galway link, Southdown Link, SH1 ramps |
| **Option D** | 2 | Southdown Link, SH1 ramps |
| **Option E** | 4 | Gloucester 2-way Interchange, Foreshore link, Southdown Link, SH1 ramps |
| **Option F** | 4 | Gloucester 2-way Interchange, Foreshore link, Southdown Link, SH1 ramps |
| | | |

# SUMMARY

**OBJECTIVES**

| | Criteria | Problem1 | Objective | WEIGHT1 | Option A | Option B | Option C | Option D | Option E | Option F |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Trip Reliability Accessing Onehunga/Penrose Area | 2 | 1 | 1 | 0 | 4 | 2 | 3 | 3 | 4 |
| 2 | Freight Access times to Strategic Network from Onehunga/Penrose Area | 1 | 1 | 1 | 2 | 4 | 4 | 4 | 4 | 4 |
| 3 | Ability to Access Neilson/Church St corridor from properties | 1 | 1 | 1 | -3 | -5 | 2 | 2 | 5 | 5 |
| 4 | Access/Amenity/Safety at sensitive areas, with freight vehicles reduced on non-freight r | 3 | 2 | 1 | 0 | 0 | 4 | 5 | 2 | 3 |
| 5 | Improved Bus Travel Times Accessing Onehunga | 3 | 3 | 1 | 2 | 2 | 4 | 2 | 3 | 3 |
| 6 | Improved Pedestrian/Cycle Links Onehunga to Sylvia Park | 3 | 2 | 1 | 1 | 1 | 4 | 4 | 3 | 4 |
| 7 | Improved Pedestrian/Cycle Links Old Mangere Bridge to Onehunga | 3 | 2 | 1 | -3 | -3 | 3 | 5 | 2 | 2 |
| 8 | Access/Amenity/Safety at sensitive areas | 3 | 3 | 1 | 1 | 1 | 0 | 0 | 0 | 2 |
| 9 | Maintain Travel on Strategic Routes | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 |
| # | General Traffic Access to Strategic Network from Onehunga/Penrose Area | 1 | 1 | 1 | 1 | 4 | 4 | 4 | 4 | 4 |
| # | Enduring Benefits | 2 | 1 | 1 | 1 | 0 | 2 | 2 | 4 | 4 |
| # | Freight/Industrial Interface | 2 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| # | Network Resilience | 2 | 1 | 1 | 0 | 1 | 3 | 2 | 4 | 4 |
| | | | | WEIGHTED SUM | 4 | 11 | 34 | 35 | 36 | 41 |
| | | | | WEIGHTED AVERAGE | 0.3 | 0.8 | 2.6 | 2.7 | 2.8 | 3.2 |

## Summary by Project Objectives

1 To improve travel times and travel time reliability between businesses in the Onehunga-Penrose industrial area and State highways 1 and 20.
2 To improve safety and accessibility for cycling and walking between Mangere Bridge, Onehunga and Sylvia Park.
3 To improve journey time reliability for buses between SH20 and Onehunga town centre.

### Average Scores by Objective

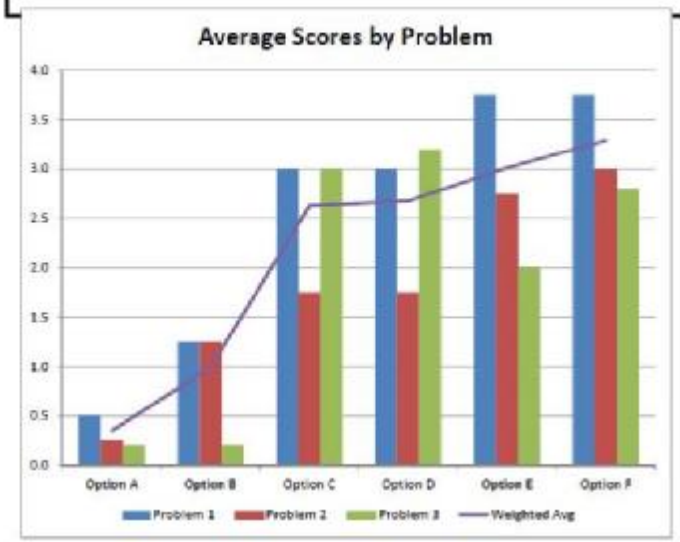
| | Count | Weight | Objective | Option A | Option B | Option C | Option D | Option E | Option F |
|---|---|---|---|---|---|---|---|---|---|
| Weights based on ILM, with Objective 1 mapped to Problems 1 and 2 | 8 | 75% | **1** | 0.4 | 1.3 | 2.4 | 2.4 | 3.3 | 3.4 |
| and Objectives 2 and 3 mapped to Problem 3 | 3 | 12.5% | **2** | -0.7 | -0.7 | 3.7 | 4.7 | 2.3 | 3.0 |
| | 2 | 12.5% | **3** | 1.5 | 1.5 | 2.0 | 1.0 | 1.5 | 2.5 |
| | 13 | Weighted Avg | | 0.4 | 1.0 | 2.5 | 2.5 | 2.9 | 3.2 |
| | | Unweighted SUM | | 1.2 | 2.1 | 8.0 | 8.0 | 7.1 | 8.9 |
| | | Straight Avg | | 0.4 | 0.7 | 2.7 | 2.7 | 2.4 | 3.0 |

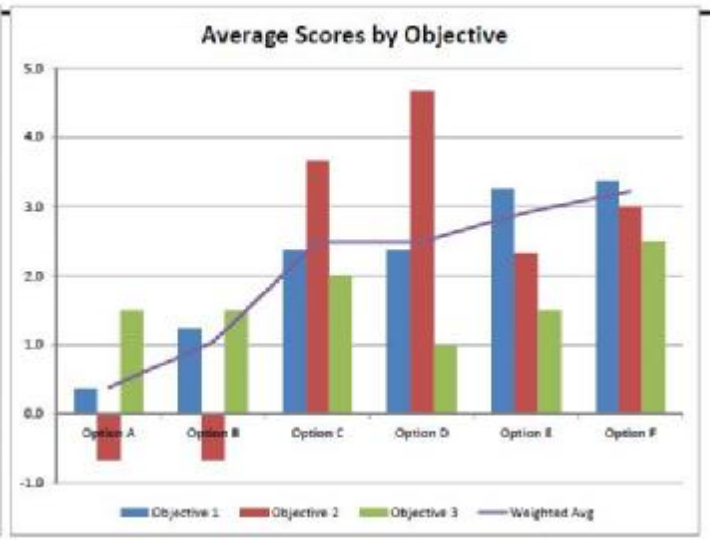
## Summary by ILM Problems

1 Inefficient transport connections increase travel times and constrain the productive potential of Auckland and the upper north island (45%).
2 A lack of response to changes in industry's supply chain strategies contributes to greater network congestion, unpredictable travel times and increased costs (30%)
3 The quality of transport choices is inadequate and hinders the development of liveable communities (25%)

### Average Scores by Problem

| Count | Weight | Problem | Option A | Option B | Option C | Option D | Option E | Option F |
|---|---|---|---|---|---|---|---|---|
| 4 | 45% | **1** | 0.5 | 1.3 | 3.0 | 3.0 | 3.8 | 3.8 |
| 4 | 30% | **2** | 0.3 | 1.3 | 1.8 | 1.8 | 2.8 | 3.0 |
| 5 | 25% | **3** | 0.2 | 0.2 | 3.0 | 3.2 | 2.0 | 2.8 |
| 13 | Weighted Avg | | 0.4 | 1.0 | 2.6 | 2.7 | 3.0 | 3.3 |
| | Unweighted SUM | | 1.0 | 2.7 | 7.8 | 8.0 | 8.5 | 9.6 |


Average Scores by Problem
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Option A
Option B
Option C
Option D
Option E
Option F
Problem 1
Problem 2
Problem 3
Weighted Avg


Average Scores by Objective
5.0
4.0
3.0
2.0
1.0
0.0
-1.0
Option A
Option B
Option C
Option D
Option E
Option F
Objective 1
Objective 2
Objective 3
Weighted Avg

Appendix F

# Short List MCA Criteria

| KRA | Criteria | Meaures |
|---|---|---|
| Performance against Benefits | To provide reliable freight linkages to the Penrose/Onehunga industrial area | Number of controlled stops between Neilson/Captain Springs and the 'four corners' (SH1 north south and SH20 north south). |
| | To provide efficient freight linkages to the Penrose/Onehunga industrial area | Truck travel times between Neilson/Captain Springs and the 'four corners' (SH1 north south and SH20 north south). (average speeds will also be calculated and used if more intuitive). |
| | To support functionality of the Onehunga/Penrose industrial area by retaining appropriate accessibility | Daily Volume of non-freight vehicles in Neilson St and Church St |
| | | Minimise impact on travel time on SH1 and SH20 for through traffic and between SH20 and SH1 |
| | Reducing through traffic and conflicts and delivering appropriate social outcomes | Change in % trucks on key freight vs non-freight routes |
| | Support functionality by retaining accessibility and to enable growth of town centres by removing conflicts between buses and freight | Bus travel times and reliability between SH20/Rimu Rd and Onehunga Mall/Princes Street (minutes) |
| | Improving cycling and walking connections | % completion of quality strategic link Hillsborough to Onehunga to Sylvia Park |
| | | Conflicting vehicle flow to cross on Neilson/Onehunga Mall intersection |
| | Reducing through traffic and conflicts and delivering appropriate social outcomes | Change against do min of general traffic on cycle routes and at sensitive areas (schools, stations etc) |
| | To support functionality of the Onehunga/Penrose industrial area by retaining appropriate accessibility | General traffic travel times between Neilson/Captain Springs and the 'four corners' (SH1 north south and SH20 north south). (average speeds will also be calculated and used if more intuitive) |
| | To provide enduring, efficient and reliable transport linkages to the Penrose/Onehunga industrial area | The rate to which the benefits are sustained (endure) through to 2036 |
| | To provide resilient transport linkages to the Penrose/Onehunga industrial area | Provision of additional network choices/reduced reliance on single constrained points in the network |
| | **Benefit 1: To improve travel times and travel time reliability between businesses in the Onehunga–Penrose industrial area and State Highways 1 and 20.** | |
| | **Benefit 2: To improve safety and accessibility for cycling and walking between Māngere Bridge, Onehunga and Sylvia Park.** | |
| | **Benefit 3 - To improve journey time reliability for buses between SH20 and Onehunga town centre** | |
| Consentability | Consenting Complexity of Project | Qualitative assessment of the number of consents and nature of consenting requirements for the Project including the consideration of zoning and Plan objectives and policies. Included assessment of likely / anticipated secondary consenting requirements (including conflicting /overlapping designations) |
| Constructability | Construction Impact on Businesses | Accessibility to remaining businesses and activities over the construction period (assessed by local traffic management requirements) |
| | Construction impacts on Utilities and lifeline infrastructure | Requirements for relocation / design of alternative major infrastructure, including consideration of Safety impacts of such requirements and risk of continuity of service over construction |

| KRA | Criteria | Meaures |
|---|---|---|
| Urban Design & Townscape | Connectivity (circulation | The extent of effects on connectivity including disruption to the street network and walkability. |
| | Built Form | The extent of effects on urban form including lot pattern, street frontages, significant buildings and other structures. |
| | Activities | The extent of effects on (compatibility with) surrounding activities, with particular regard to public activities (such as town centres), land use, and character. |
| | Natural Landscape | The extent of effects on the natural landscape and features such as streams, coastal edges, natural vegetation and underlying topography. |
| | Visual Amenity | The extent of effects on visual amenity taking into account the character and visibility (prominence) of the proposal, and the character of the existing environment, the sensitivity of audiences, and the experience of future road users |
| | Associative Elements | The extent of effects on elements of townscape amenity with historical or cultural associations, recreational significance, or which otherwise contribute to townscape amenity. |
| Social | Community cohesion | The extent of effects on community cohesion and connectedness. |
| | Open space | The extent of effects on passive and active recreation opportunities in the EWC study area. |
| | Community facilities | The extent of effects on community facilities in the EWC study area. |
| | Viability / productivity of business land areas | The extent of land take and severance of industrial and business land |
| | Community linkages and access to and along the coastal marine area | The extent of effects on linkages to and along the CMA and other mapped / identified linkages |
| Natural Environment | Air quality | Extent of effects on air quality (airshed) |
| | Water resources | Extent of effects on surface freshwater and groundwater resources (including mauri of water resource) |
| | Water quality | Impact of operational stormwater in regards to quantity and quality (including life supporting capacity). |
| | Ecological resources (terrestrial biodiversity) | Extent of effects on significant indigenous vegetation and significant habitats of indigenous fauna (terrestrial). |
| | Coastal environment and resources | Extent of effects on significant marine areas, existing coastal processes, and physical footprint within the coastal marine area. |
| | Natural character | Extent of effects on natural character based on technical report evaluation. |
| | Outstanding Natural Features & Landscapes | Extent of effects on natural character and outstanding natural features including geological features. |
| Public Health | | Impact of air borne contaminants on sensitive receivers. |
| | Noise and vibration (human health) | Impact of operational noise and vibration on sensitive receivers. |
| | Contaminated land (human health) | Impact of contaminants from historical land uses (air discharges and groundwater impacts). |
| Cultural & Heritage | Cultural values | Extent of effects on the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga. |
| | Customary rights | Extent of effects on areas of protected customary rights. |
| | Archaeological and built heritage | Extent of effects on sites and places of valued heritage |

| KRA | Criteria | Meaures |
|---|---|---|
| | | buildings and places. |
| | | Extent of effects on sites and places of archaeological value. |
| | | Extent of effects on sites and places of cultural heritage value. |

Appendix G

# Summary of Short List Options

## SUMMARY OF OPTIONS

| | |
|---|---|
| Option A | Performs at a level just above the "do minimum". It does the least to respond to the transport problems in the area. Unlikely to have notable adverse environmental effects. |
| Option B | Provides improved connections to SH1 and SH20, however, works against the problems it's trying to resolve by attracting very high traffic volumes to the Neilson/Church corridor. This undermines time savings for local trips due to difficulty accessing and leaving properties. It has significant risks associated with constructability and consentability due to encroachment into the Mutukaroa-Hamlins Hill Regional Park. This included negative responses in the heritage assessment and in engagement with Mana Whenua and the Department of Conservation.. |
| Option C | Performs well and addresses the immediate problems and objectives. Performance is not enduring and by 2036 increased traffic volumes on the western section of Neilson St are predicted to make property access difficult. This option poses fewer consenting challenges than any of the options involving foreshore reclamation and still offers opportunities for improving the coastal edge, particularly in the vicinity of Anns Creek. |
| Option D | Performs marginally better than Option C but is more complex (than Option C) in terms of both consentability and constructability due to the form, scale, and reclamation required for the Gloucester Park Interchange and impacts associated with visual effects for Onehunga and reclamation in the Manukau Harbour. Offers similar opportunities for improving the coastal edge in the vicinity of Anns Creek and may offer additional opportunities to enhance linkages through to the new Onehunga foreshore project which is currently under construction. |
| Option E | Performs very well in transport terms, but has significant risks associated with constructability, consentability, and property acquisitions. This option is poorest overall performance from an environmental and social/community perspective. It is the only option that would have notable impacts on residential property. Whilst having high overall transport benefits, the scale of adverse social and environmental effects along with risks associated with consenting (due to NZ Coastal Policy Statement policy tests) are very significant. |
| Option F | Performs very well in transport terms, and addresses the longer-term issue of high traffic flows on the western section of Neilson St in an enduring way. It has the highest performance against transport criteria and amongst the highest economic benefits. It has the highest cost of all the options. This option has significant consenting risks associated with reclamation (due to NZ Coastal Policy Statement policy tests). However, the option also offers potential opportunities for environmental betterment (e.g. enhancing the Māngere Inlet foreshore environment, improving "naturalness" of the coastal edge, improved accessibility to the coastal marine area and, water quality |

improvements). Responses in our stakeholder engagement (including engagement with Mana Whenua and the Department of Conservation) indicate that this option is worth pursuing further. However, the significant consentability risk exists.

In summary, the analysis concluded that Option F has superior transport performance and is more enduring. It best delivers the critical IBC outcomes of improved connectivity, travel time reliability including travel time savings of 4 to 7 minutes depending on route, and greater resilience along the Nelson/Church corridor (via removal of up to 10,000 vehicles per day). It has challenges with its higher cost and significant consenting risks. However, it also gives opportunities for positive environmental outcomes of great interest to key stakeholders (see Section 8.5). Further work is proposed at the DBC stage to determine how best to deliver option F. This will include consideration of staging, detailed consenting strategies, conceptual design refinement, and continued collaborative engagement with project partners.

Appendix H

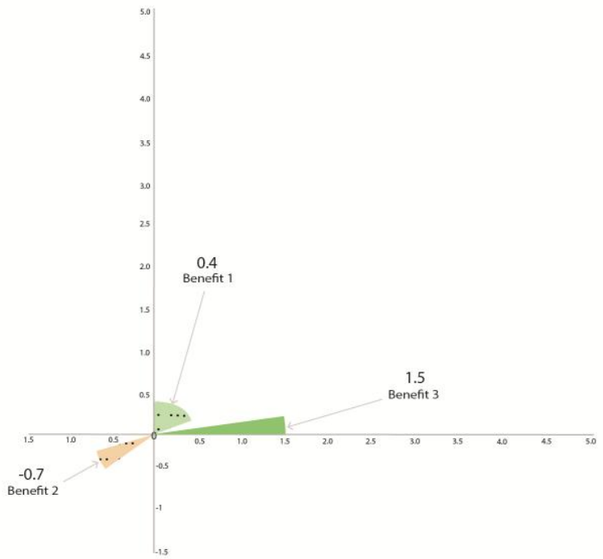
# Short List Individual Option Assessment

## Option A

*This option provides an upgrade of the existing roads. This includes improving capacity on SH20, Neilson and Church Streets. It also provides freight lanes*

Overall this Option:

- Has little / no change to improving travel time savings and travel reliability between Onehunga – Penrose area and SH1 and SH20;
- Has minor reduction in improving safety and accessibility for cycling and walking between Mangere Bridge, Onehunga and Sylvia Park; and
- Small improvements to journey time reliability for buses between SH20 and the Onehunga Town Centre.


Overall, it was concluded that this option **did not adequately address the identified problems** related to improving connections to SH1.

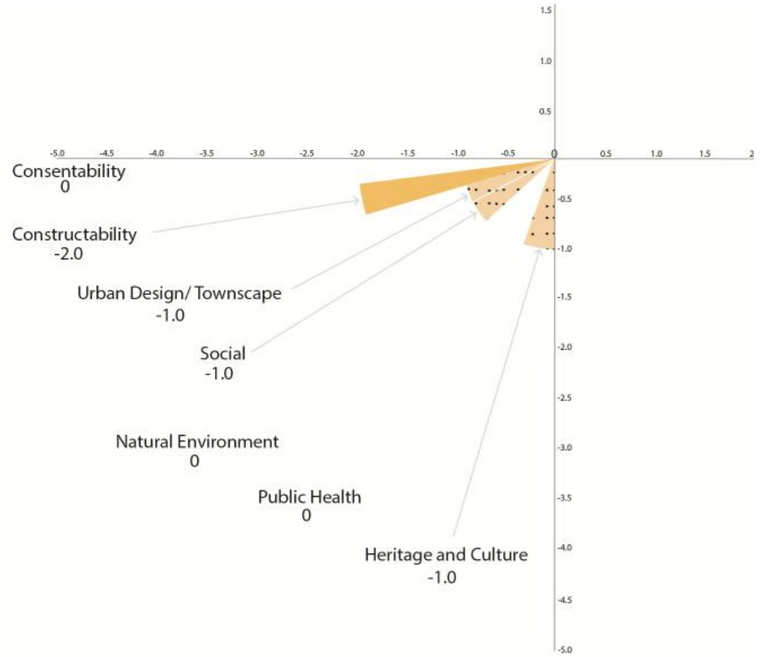
Key assessment of the option against the transport objectives, and the specific transport performance criteria concluded:

- Benefits are derived from improved access to SH20 is improved via the auxiliary lanes and upgraded Onehunga Mall/Neilson St intersection, while capacity along the corridor is improved with widening of Neilson St to provide a continuous 4-lane-corridor between Onehunga and Penrose. Time savings (relative to the 2026 Do Minimum) are up to 8 minutes heading to SH20 north and nearly 5 minutes from SH20 south.
- There is no improvement to connections to SH1, especially the tortuous route to SH1 south, with 8 sets of traffic lights between Metroport and SH1
- The improved connection to SH20 attracts more traffic into the Neilson/Church corridor (some 6,800 added to Neilson Street and 4100 vpd added to Church St. The resulting traffic flows will make it more difficult to access properties
- The option does not facilitate improved pedestrian/ cycle connections between Onehunga and the old Mangere Bridge as it adds some 10,900 vpd to the Neilson St/Onehunga Mall intersection.
- The cycle/pedestrian connection to Sylvia Park is via limited enhancements to the existing on-road route via Hugo Johnston Drive and Church St East (then connecting to the SEART cycle path).
- There is reduced congestion for buses accessing Onehunga from SH20, with time savings of 4.4 minutes predicted
- This option results in negligible reduction in freight vehicles in sensitive areas (a net reduction of 200 vpd aggregated across 7 locations).
- The benefits are not considered ‘enduring’; as the time savings benefits deteriorate quite quickly over time (a 12% increase in travel times between 2026 and 2036). This option also has high traffic flows in the Neilson/Church corridor and residual congestion problems connecting to SH1.
- The network resilience is not enhanced with this option as all access points continue through single locations at each end of the corridor.

The transport benefits are significant ($670m), however the majority of these benefits accrue from the SH20 auxiliary lanes.

Summary of Social/Environmental Screen of Option:

- Generally this option scores ‘neutral’ to minor adverse on the basis of the social / environmental assessment, given its general minor change to the existing environment.
- The consenting risks are low but the construction impacts of the option, particularly for existing businesses are recognised.
- The cycle/pedestrian connection to Sylvia Park is via limited enhancements to the existing on-road route via Hugo Johnston Drive and Church St East – as such some urban design and social impacts are scored adversely in this respect.
- Options A largely reinforces the existing development grid and overall fragmentation of the area increasing the visibility and prominence of the road corridor through widening and upgrading of major intersections. While this is considered to have adverse social and urban design impacts, they are a reinforcement of existing poor quality environment and therefore need to consider the additional adverse effects over the ‘existing environment’ impacts.

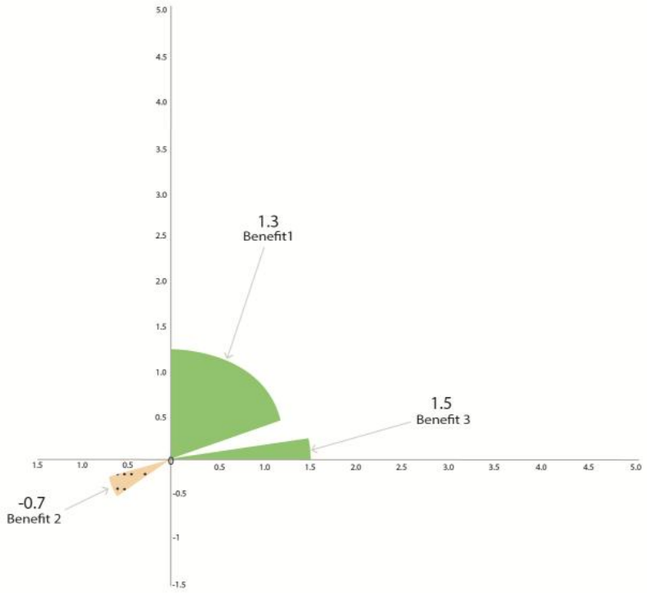


## Option B

*This option proposes an upgrade of existing roads with a new ramp connection from Church Street to SH1 at South Eastern Highway*

Overall this Option:

- Improves travel time savings and travel reliability between Onehunga – Penrose area and SH1 and SH20;
- Has minor reduction in improving safety and accessibility for cycling and walking between Mangere Bridge, Onehunga and Sylvia Park; and
- Small improvements to journey time reliability for buses between SH20 and the Onehunga Town Centre.





Overall, it was concluded that this option **does adequately address some identified problems but does not achieve improved safety and accessibility outcomes for cyclists and pedestrians**.

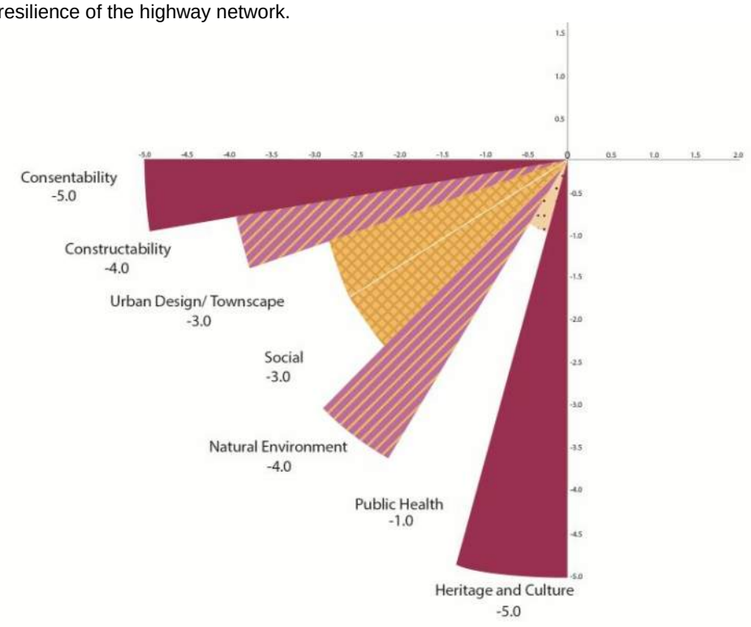
Key assessment of the option against the transport objectives, and the specific transport performance criteria concluded:

- Access to SH20 is improved via the auxiliary lanes and upgraded Onehunga Mall/Neilson St intersection, while capacity along the corridor is improved with widening of Neilson St to provide a continuous 4-lane-corridor. Time savings (relative to a 2026 Do Minimum) are predicted to be 8.7 minutes to SH20 north and 5.6 minutes from SH20 south.
- The new ramps to connecting to SH1 provide more direct route, with time savings of up to 10.7 minutes to SH1 south. There would however still be 4 sets of traffic lights between Metroport and SH1 south, providing a relatively high level of trip variability
- However the improved access to SH1 attracts significant additional traffic into the corridor, with over 10,000 vpd added to Neilson St and Church St. This would make property access very difficult and could require further upgrades at Great South Road and on Church Street, and to side-road access points.
- The cycle/pedestrian connection to Sylvia Park is via limited enhancements to the existing on-road route via Hugo Johnston Drive and Church St East (then connecting to the SEART cycle path).
- The option does not facilitate improved pedestrian/ cycle connections between Onehunga and the old Mangere Bridge as it adds some 12,500 vpd to the Neilson St/Onehunga Mall intersection:
- There is reduced congestion for buses accessing Onehunga from SH20 with time savings of 5 minutes expected.
- This option results in very small reductions in freight vehicles in sensitive areas, expected as only some 400 vpd aggregated across 7 locations.
- The benefits are somewhat enduring, although time savings deteriorate over time (an 8% increase between 2026 and 2036), especially around the very busy Great South Road area. The very high traffic flows in the Neilson/Church corridor will mean property access becomes even more difficult over time, likley to require mitigation (such as traffic signals), which would reduce strategic access and reliability.
- The network resilience is enhanced slightly via provision of the new connection point to SH1, however this is somewhat off-set by the high concentration of traffic on Church Street.

The transport benefits are significant ($1330m), but it does not score well against the objectives for the Project due to the increases in through traffic on existing urban networks.

Summary of Social/Environmental Screen of Option:

- This option scores as 'highly adverse' due to its impacts on Mutukaroa / Hamlin's Hill. These adverse effects relate to:
  - Heritage and historic significance impacts;
  - Cultural impacts (both in terms of historic heritage but also cultural associations and current management structures for this reserve). This area is identified as wahi tapū.
  - Landscape and visual impact; and
  - Open space / recreation impacts (not considered significantly adverse).
- The increase in traffic volumes on Neilson Street / Church Street are also considered adverse (to highly adverse). These impacts include:
  - Business disruption both during construction and more traffic on Nielson and Church will increase waits getting out of driveways
  - Increases in traffic flow along these roads resulting in impacts on community cohesion, increasing the barriers this road creating between these areas.
  - Increased adverse impacts on employment and business due to significant increases in traffic on local road networks resulting in impacts on business access / functioning
- The consenting risks are considered high to very high given the values and impacts at Mutukaroa / Hamlin's Hill.
- The cycle/pedestrian connection to Sylvia Park is via limited enhancements to the existing on-road route via Hugo Johnston Drive and Church St East – as such some urban design and social impacts are scored adversely in this respect.
- Overall, constructability is considered challenging, particularly for works at Great South Road.
- While there are no current plans for increasing capacity on SH1 between the Mt Wellington and South Eastern Arterial interchanges, it is noted that this option effectively removes flexibility for this option and is therefore considered to also have impacts on the overall resilience of the highway network.



## Option C

*This option proposes a new connection from Onehunga Harbour Road to Galway Street, an upgrade of Neilson and Angle Streets and Sylvia Park Road, and a new connection from Angle Street to Sylvia Park Road and to SH1 – A sub-option alternative is shown in yellow*

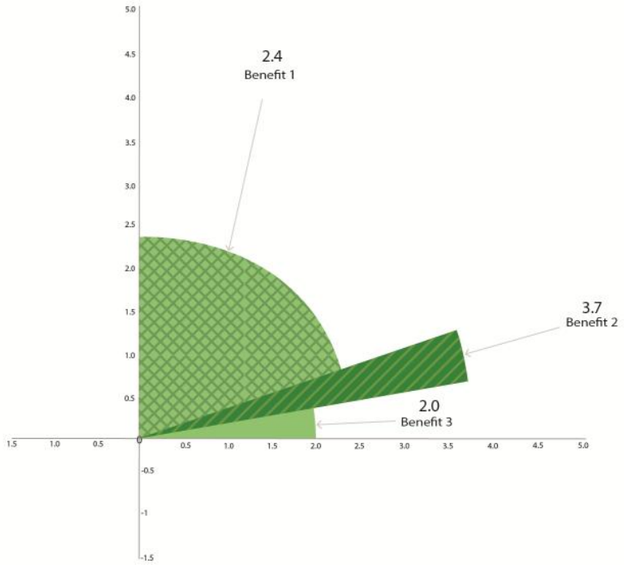
Overall this Option:

- Notably improves travel time savings and travel reliability between Onehunga – Penrose area and SH1 and SH20;
- Improves safety and accessibility for cycling and walking between Mangere Bridge, Onehunga and Sylvia Park; and
- Notably improves journey time reliability for buses between SH20 and the Onehunga Town Centre.


Overall, it was concluded that this option **adequately address identified problems in the Project Area (being between Penrose and Onehunga)**.

Key assessment of the option against the transport objectives, and the specific transport performance criteria concluded:

- Access to SH20 is improved via the auxiliary lanes and new Galway St link, while capacity along the corridor is improved with widening of Neilson St and the new southdown link at Angle St. Time savings (relative to a 2026 Do Minimum) are predicted to be 9.1 minutes to SH20 north and 5.8 minutes from SH20 south.
- The improved motorway connections attract greater traffic into the western section of Neilson between Galway Street and Angle St (an extra 8,800 vpd), making it difficult to access properties.
- This option separates access to SH1 north (via SEART and Church St) and south (via the new connections south of Mt Wellington), reducing traffic on the eastern part of Neilson St (a 1900 vpd reduction) and on the Church street corridor (6000 vpd reduction).
- The improved connections to SH1 result in only a single set of traffic lights between Metroport and SH1 south, with time savings of up to 11.7 minutes
- The cycle/pedestrian connection to Sylvia Park is a direct, mostly off-road route connecting to Sylvia Park Road, then to Mt Wellington Highway.

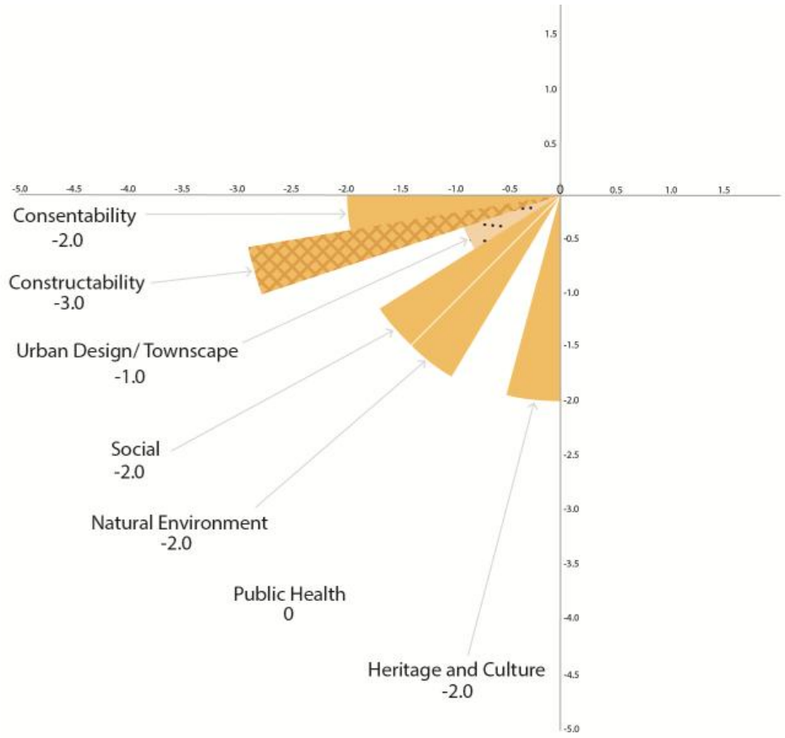



- The option facilitates improved pedestrian/ cycle connections between Onehunga and the old Mangere Bridge by removing 12,500 vpd from the Neilson St/Onehunga Mall intersection.
- This options removes freight vehicles from sensitive locations, predicted to be some 3500 vpd aggregated across 7 locations
- There is reduced congestion for buses accessing Onehunga from SH20, with time savings of 4.9 minutes
- Some benefits are reasonably enduring, with limited deterioration in key travel times with traffic growth (travel times only increase by 5% between 2026 and 2036). However, the high traffic flows in the western section of Neilson St (36,200 vpd in 2026) will mean property access becomes more difficult over time and may require additional investment in the future to address.
- The network resilience is enhanced greatly via the new Galway St Link, the new southdown link to Great South Road and the new connection point to SH1

The transport benefits are significant ($1180m), and it performs well against the transport performance criteria.

Summary of Social/Environmental Screen of Option:

- Specialist design will need to be employed for all works on land that has been filled and where contamination is present(contaminated land works will be complex). Leachate pathways will need to be managed so effects on groundwater aquifers are managed.
- Improved connections for pedestrians and cyclists, particularly along the Waikaraka cycleway to Sylvia Park are identified, with the potential for this to also improve connections to Mutukaroa / Hamlin's Hill.
- Socially there are benefits are identified with the separation of through traffic and the Onehunga Mall / town centre area.
- Works in the area of Waikaraka Park are identified for both community values and potential disruption of historic heritage.
- From a consenting perspective, key issues include potential works at the foreshore, particularly for any foreshore reclamation which has a high policy test for consenting and consenting requirements for works adjoining Anns Creek (ecological area) and the complexity of consenting due to the multiple designations along the route.
- Constructability issues include: disruption during construction and complexity of works around the Transpower towers. The works over closed landfills are considered complex (and with some contaminated land impacts too).

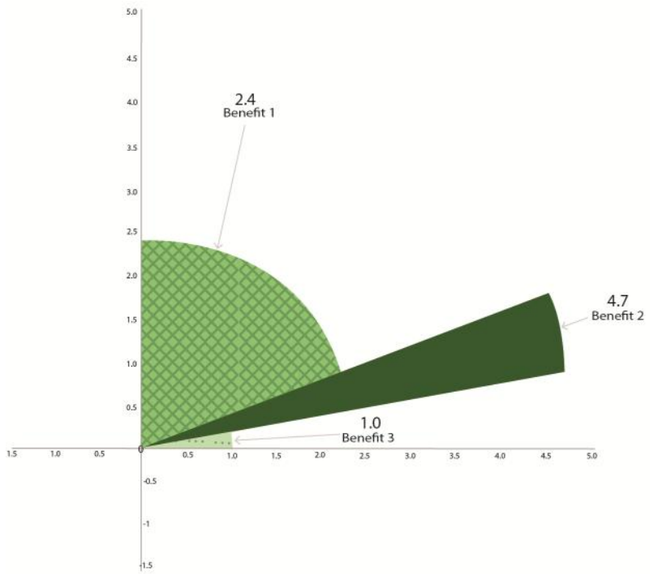


## Option D

*This option proposes an upgrade at Gloucester Park interchange with a new connection from Onehunga Harbour Road to Galway Street. The remainder is the same as Option C*

Overall this Option:

- Notably improves travel time savings and travel reliability between Onehunga – Penrose area and SH1 and SH20;
- Improves safety and accessibility for cycling and walking between Mangere Bridge, Onehunga and Sylvia Park; and
- Notably improves journey time reliability for buses between SH20 and the Onehunga Town Centre.





Overall, it was concluded that this option **adequately address identified problems in the Project Area (being between Penrose and Onehunga)**.

Key assessment of the option against the transport objectives, and the specific transport performance criteria concluded:

- Access to SH20 is improved via the auxiliary lanes and new Galway St link, while capacity along the corridor is improved with widening of Neilson St and the new southdown link at Angle St. Time savings (relative to a 2026 Do Minimum) are predicted to be 8.5 minutes to SH20 north and 4.0 minutes from SH20 south.
- The new Gloucester Park interchange significantly reduces traffic in the vicinity of the Onehunga Mall/Neilson Street area (an expected reduction of 22,000 vpd), but increases access time to SH20 for some local movements from Onehunga. This does however result in over 50,000 vpd expected on Onehunga Harbour Road;
- The improved motorway connections attract greater traffic into the western section of Neilson between Galway Street and Angle St (an extra 7,400 vpd), making it difficult to access properties.
- The improved connections to SH1 result in only a single set of traffic lights between Metroport and SH1 south, with time savings of up to 11.7 minutes. This option separates access to SH1 north (via SEART and Church St) and south (via the new connections south of Mt Wellington), reducing traffic on the eastern part of Neilson St (2,000 vpd reduced) and on Church Street (5,600 vpd).
- The cycle/pedestrian connection to Sylvia Park is a direct, mostly off-road route connecting to Sylvia Park Road, then to Mt Wellington Highway.
- The option facilitates improved pedestrian/ cycle connections between Onehunga and the old Mangere Bridge by removing 22,200 vpd from the Neilson St/Onehunga Mall intersection). This options removes freight vehicles from sensitive locations, predicted to be some 6,000 vpd aggregated across 7 locations

  There is reduced congestion for buses accessing Onehunga from SH20 with time savings of 4.8 minutes expected
- The benefits are reasonably enduring, with limited deterioration in key travel times with traffic growth (7% increase in travel time between 2026 and 2036). The high traffic flows in the western section of Neilson St (34,800 vpd in 2026) will mean property access becomes more difficult over time and may require additional investment in the future to address.
- The network resilience is enhanced greatly via the new Galway St Link, the new southdown link to Great South Road and the new connection point to SH1. The interchange design does not promote resilience.

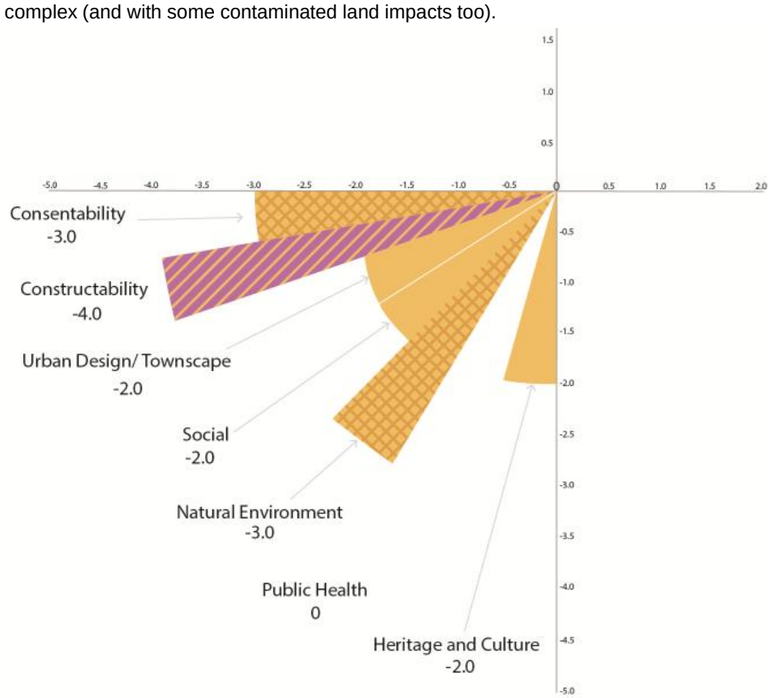
The transport benefits are notable ($980m), but lower than for C (due to the diversion of Onehunga local traffic through the new interchange).

Summary of Social/Environmental Screen of Option:

The impacts of the Gloucester Park interchange are considered adverse, particularly:

- The impacts on the Hopua Tuff Ring (though not cutting into the tuff ring is considered to be less adverse);
- Visual and amenity impacts for the Onehunga town centre and connectivity to the foreshore;
- Business and open space impacts in this area.

- Specialist design will need to be employed for all works on land that has been filled and where contamination is present(contaminated land works will be complex). Leachate pathways will need to be managed so effects on groundwater aquifers are managed.
- Improved connections for pedestrians and cyclists, particularly along the Waikaraka cycleway to Sylvia Park are identified, with the potential for this to also improve connections to Mutukaroa / Hamlin's Hill.
- Socially there are benefits are identified with the separation of through traffic and the Onehunga Mall / town centre area.
- Works in the area of Waikaraka Park are identified for both community values and potential disruption of historic heritage.
- From a consenting perspective, key issues include potential works at the foreshore, particularly for any foreshore reclamation which has a high policy test for consenting and consenting requirements for works adjoining Anns Creek (ecological area) and the complexity of consenting due to the multiple designations along the route.
- Constructability issues include: disruption during construction and complexity of works around the Transpower towers. The works over closed landfills are considered complex (and with some contaminated land impacts too).

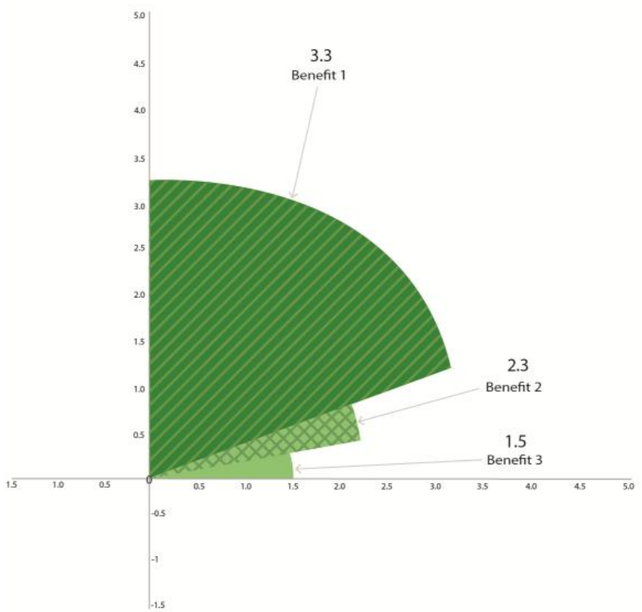


## Option E

*This option proposes an upgrade at Gloucester Park interchange and a new connection from SH20 to SH1 along the foreshore*

Overall this Option:

- Notably improves travel time savings and travel reliability between Onehunga – Penrose area and SH1 and SH20;
- Improves safety and accessibility for cycling and walking between Mangere Bridge, Onehunga and Sylvia Park; and
- Improves journey time reliability for buses between SH20 and the Onehunga Town Centre.





Overall, it was concluded that this option **addresses identified problems in the Project Area (being between Penrose and Onehunga)**.

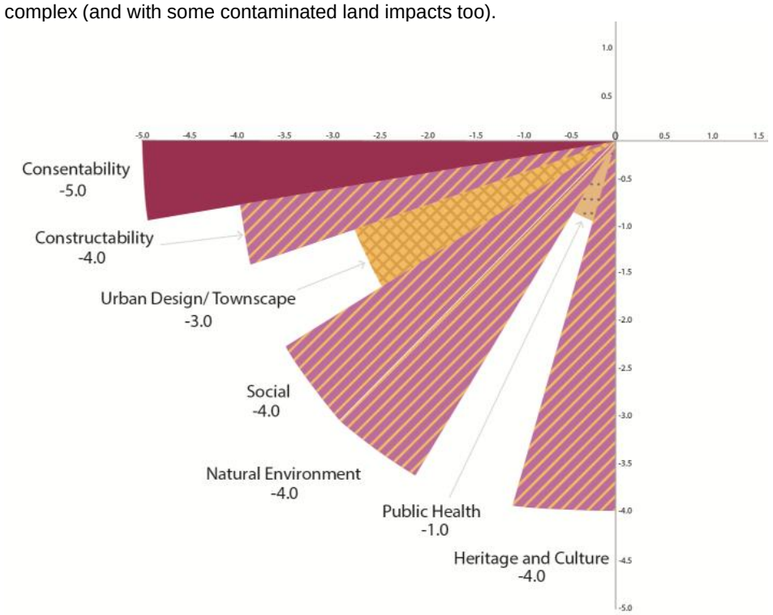
Key assessment of the option against the transport objectives, and the specific transport performance criteria concluded:

- Access to SH20 is improved via the auxiliary lanes, new interchange which separates industrial and local Onehunga traffic, and new foreshore link connecting into Captain Springs Road or metroport areas. The new southdown link to Great South Road (and onto SH1) provides the most direct route to SH1 south. Time savings (relative to a 2026 Do Minimum) are predicted to be 7.7 minutes to SH20 north and 6.6 minutes from SH20 south.
- This option separates access to SH1 north (via SEART and Church St) and south (via the new connections south of Mt Wellington), thereby improving network resilience and congestion. It also separates access to SH20 for local and industrial traffic via the new interchange.
- The new foreshore route reduces traffic on the length of the Neilson St/ Church St corridor (up to a 10,400 vpd reduction) making it easier to access properties.
- The at-grade connections on Vestey drive attract some traffic from east of Mt Wellington Highway wanting to access the new ramps, which could increase congestion at these intersections.
- This options removes freight vehicles from sensitive locations, predicted to be some 2,100 vpd aggregated across 7 locations
- The cycle/pedestrian connection to Sylvia Park is via a new, off-road route connecting to Great South Road but then relies on on-road facilities from Vestey Drive and onto the Mt Wellington Highway (constraints in this area for cyclists are noted).
- There is reduced congestion for buses accessing Onehunga from SH20, with time savings of some 3.3 minutes.
- The new southdown link to Great South Road then to SH1 provides a direct route to SH1 south, with 2 sets of traffic signals between metroport and SH1 south
- There is a reduction in traffic at the Onehunga Mall/Neilson St intersection (6800 vpd reduction), facilitating improved pedestrian/cycle connections between Onehunga and the old Mangere Bridge
- The benefits are enduring, with limited deterioration in key travel times with traffic growth (travel times increase by only 7% between 2026 and 2036), and the lowered traffic flows on Neilson and Church Streets will resolve local through and access conflicts.
- The network resilience is enhanced via the new Gloucester Park interchange, foreshore routes and new connection point to SH1.

The transport benefits are significant ($1290m). There is an increase in benefits over the other 'new link' option (Option F) due to the accessibility created by the link at Vesty Drive

Summary of Social/Environmental Screen of Option:

- The social impacts of this option are considered highly adverse, particularly due to the residential and community disruption (around Panama Road) and the business loss and disruption in the area of Vesty Drive. Associated with these impacts, the adverse public health impacts are also identified including noise and air quality due to the increased number of residential (sensitive) receivers.
- The impacts of the Gloucester Park interchange are considered adverse, including impacts on the Hopua Tuff Ring, visual and amenity impacts for the Onehunga town centre and connectivity to the foreshore, and business and open space impacts in this area.
- Other environmental impacts are also adverse, in particular due to impacts at Ann's Creek and potentially to the foreshore.
- Specialist design will need to be employed for all works on land that has been filled and where contamination is present (contaminated land works will be complex). Leachate pathways will need to be managed so effects on groundwater aquifers are managed.
- Improved connections for pedestrians and cyclists, particularly along the Waikaraka cycleway to Sylvia Park are identified, with the potential for this to also improve connections to Mutukaroa / Hamlin's Hill.
- Urban design benefits include with the separation of through traffic and the Onehunga Mall / town centre area, but conversely adverse effects due to changes in urban form around Panama Road.
- Works in the area of Waikaraka Park are identified for both community values and potential disruption of historic heritage.
- From a consenting perspective, there are a number of potentially significant issues. These include potential works at the foreshore, particularly for any foreshore reclamation which has a high policy test for consenting and consenting requirements for works adjoining Ann's Creek (ecological area) and the complexity of consenting due to the multiple designations along the route (Vector gas).
- Constructability issues include: disruption during construction and complexity of works around the Transpower towers. The works over closed landfills are considered complex (and with some contaminated land impacts too).

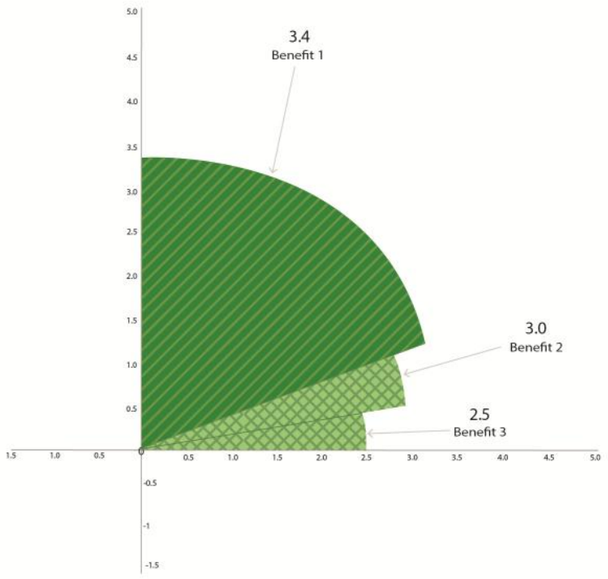


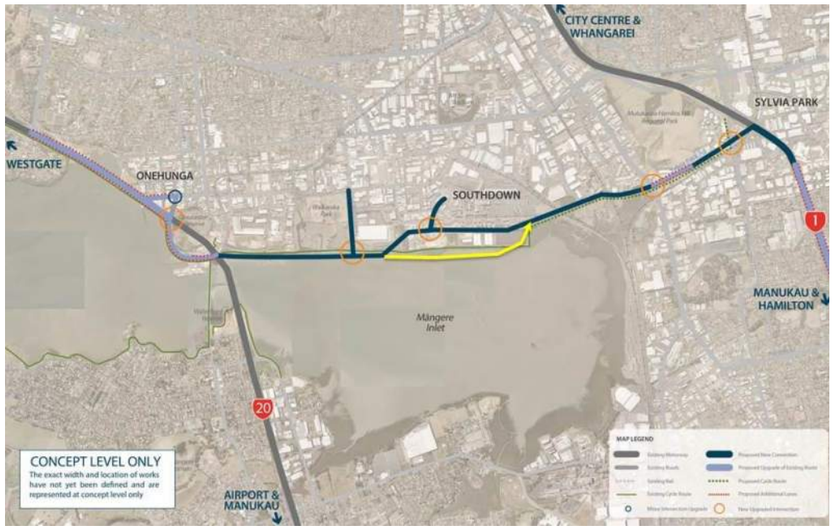
## Option F

*This option proposes a new connection from SH20 to SH1 (partly along the foreshore and partly inland). – A sub-option alternative is shown in yellow, to be considered further if this option is preferred*

Overall this Option:

- Notably improves travel time savings and travel reliability between Onehunga – Penrose area and SH1 and SH20;
- Notably improves safety and accessibility for cycling and walking between Mangere Bridge, Onehunga and through to Sylvia Park; and
- Improves journey time reliability for buses between SH20 and the Onehunga Town Centre.




Overall, it was concluded that this option **addresses identified problems in the Project Area (being between Penrose and Onehunga)**.

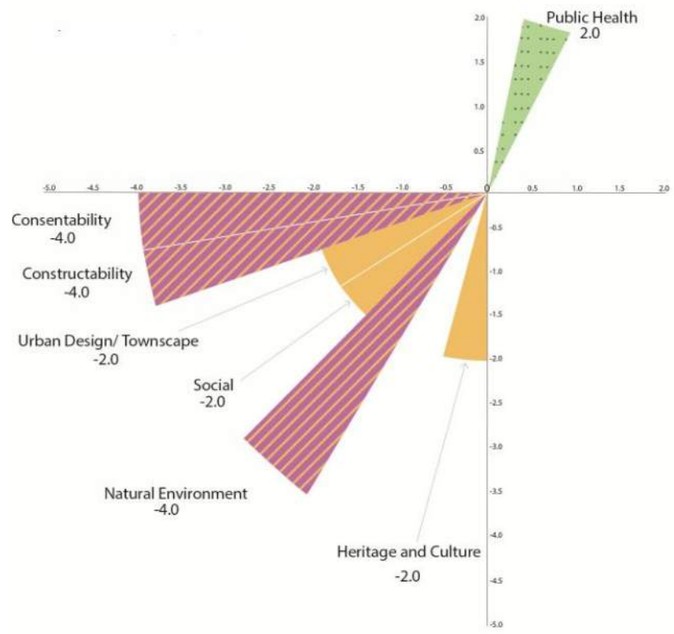
Key assessment of the option against the transport objectives, and the specific transport performance criteria concluded:

- Access to SH20 is improved via the auxiliary lanes, new interchange which separates industrial and local Onehunga traffic, and new foreshore link connecting into Captain Springs Road or metroport areas. Time savings (relative to a 2026 Do Minimum) are predicted to be 7.9 minutes to SH20 north and 6.6 minutes from SH20 south.
- The new southdown link to Great South Road then to SH1 provides a direct route to SH1 south, with only 1 set of traffic signals between metroport and SH1 south
- This option separates access to SH1 north (via SEART and Church St) and south (via the new connections south of Mt Wellington), reducing traffic in the Church street corridor), thereby improving network resilience and congestion. It also separates access to SH20 for local and industrial traffic via the new interchange
- The new foreshore route reduces traffic on the length of the Neilson St/ Church St corridor (up to a 9,500 vpd reduction) making it easier to access properties.
- The cycle/pedestrian connection to Sylvia Park is a direct, mostly off-road route connecting to Sylvia Park Road and onto Sylvia Park (Centre).
- There is reduced congestion for buses accessing Onehunga from SH20 with time savings of some 3.2 minutes;
- This options removes freight vehicles from sensitive locations, predicted to be some 2,800 vpd aggregated across 7 locations
- The expected reduction in traffic at the Onehunga Mall/Neilson St intersection (of some 9700 vpd) will facilitate improved pedestrian/cycle connections between Onehunga and the old Mangere Bridge
- The benefits are enduring, with limited deterioration in key travel times with traffic growth (travel times increase by only 6% between 2026 and 2036). The traffic flow reductions on Neilson and Church Streets will resolve local through and access conflicts.
- The network resilience is enhanced by the new southdown link to Greatt South Road and the new connection point to SH1.

The transport benefits are significant ($1240m).

Summary of Social/Environmental Screen of Option:

- The impacts of the Gloucester Park interchange are considered adverse, particularly:
  - The impacts on the Hopua Tuff Ring (though not cutting into the tuff ring is considered to be less adverse);
  - Visual and amenity impacts for the Onehunga town centre and connectivity to the foreshore;
  - Reclamation over basalt rock exposed at the Onehunga foreshore;
  - Business and open space impacts in this area.
- Specialist design will need to be employed for all works on land that has been filled and where contamination is present (contaminated land works will be complex). Leachate pathways will need to be managed so effects on groundwater aquifers and sensitive receiving environments are managed.
- Improved connections for pedestrians and cyclists, particularly along the Waikaraka cycleway to Sylvia Park are identified, with the potential for this to also improve connections to Mutukaroa / Hamlin's Hill.
- Socially there are benefits are identified with the separation of through traffic and the Onehunga Mall / town centre area.
- Works in the area of Waikaraka Park are identified for both community values (cemetery and park land areas) and potential disruption of historic heritage.
- From a consenting perspective, key significant issues include the scale of reclamation and works at the foreshore, which has a very high policy test for consenting.
- Other consenting issues include for works in the Anns Creek area (ecological area) and the complexity of consenting due to the multiple designations along the route.
- Constructability issues include: disruption during construction and complexity of works around the Transpower Towers (SH1 and Sylvia Park Road).



Appendix I

# Multi Criteria Analysis Criteria for Alignment Options

| Consenting Phase MCA | | | |
|---|---|---|---|
| **MCA Topic** | **Criteria** | **Measure** | **Lead Assessor** |
| Performance against project objectives | *Obj 1.*<br>*Improved travel times between businesses in the Onehunga–Penrose industrial area and State Highways 1 and 20*<br>*Improved travel time reliability between businesses in the Onehunga–Penrose industrial area and State Highways 1 and 20* | • *Improved journey time of business to the strategic network (SH1 and SH20)*<br>• *Improved journey time reliability of business to the strategic network (SH1 and SH20)*<br>• *Accessibility of businesses to the arterial / freight network*<br>• *Accessibility to alternative routes within the network (contribution to network resilience)*<br>• *The extent to which the improved travel times and travel time reliability is enduring under predicted traffic growth.* | |
| | *Obj 2.*<br>*Improved safety for pedestrians and cyclists between Māngere Bridge, Onehunga and Sylvia Park, and access into Otahuhu East* | • *Reduced conflict points with motorized vehicles, measured as predicted reduction in truck flows on local network)* | |
| | *Improved accessibility for local cycling and walking between Māngere Bridge, Onehunga and Sylvia Park, and access into Otahuhu East* | • *Improved connections to the strategic network, including reduction in flows at the Onehunga Mall/Neilson Street intersection* | |
| | *Improved accessibility for regional cycling and walking (strategic network)* | • *% retention / completion of quality strategic link Māngere Bridge / Onehunga / Sylvia Park* | |
| | *Obj 3.*<br>*Improved journey time and reliability for buses between SH20 and Onehunga town centre* | • *Improved journey time and reliability for buses between SH20 and Onehunga town centre* | |
| 1. Road safety | 1A. User Safety | • *Safety for road users* | |
| 2. Construction | 2A. Construction impacts on Utilities and lifeline infrastructure | *Requirements for relocation / design of alternative major infrastructure, including consideration of Safety impacts of such requirements and risk of continuity of service over construction* | |
| | 2B. Construction Cost | *Assessed cost for construction of options including:*<br>• *Complexity and risk in construction*<br>• *Complexity in programme*<br>• *Cost and complexity of undertaking works on contaminated land (including health and safety)* | |
| 3. Operation | 3A. Operational Cost | • *Whole of life including maintenance and operational costs*<br>• *Safety – maintenance* | |
| 4. Social & Economic | 4A. Construction Impact | *Includes:*<br>• *Disruption from traffic, dust, noise*<br>• *Potential adverse economic effects associated with disruption to businesses and other activities over the construction period*<br>• *Potential adverse amenity effects for businesses and the users of these businesses during construction*<br>• *Potential adverse effects on the bus network*<br>• *Potential adverse effects associated with disruption to residences* | |
| | 4B. Built Form and Amenity | *The extent of effects on:*<br>• *Built form and urban character, including lot pattern, street frontages, significant buildings and other structures*<br>• *Onehunga place outcomes in the Auckland Plan, Auckland Council's* | |

| Consenting Phase MCA | | | |
|---|---|---|---|
| **MCA Topic** | **Criteria** | **Measure** | **Lead Assessor** |
| | | *aspirations for future use of Onehunga port area, Auckland Council's aspirations for Sylvia Park* | |
| | 4C. Connectivity | • *Severance (of communities)*<br>• *Impacts on movements and desire lines between community facilities / 'attractors'*<br>• *Quality and amenity of the walking and cycling network* | |
| | 4D. Quality of living environment | *The impacts of the options on:*<br>• *community facilities and open spaces, including use of these spaces*<br>• *residential activities*<br>• *CPTED*<br>• *noise and vibration (operational); and*<br>• *air quality (operational)* | |
| | 4E. Viability of land areas | *(land take and associated effects)*<br>• *The extent of land take (footprint) Impact of land take on current and future use of industrial and business land*<br>• *Ease of relocation (of the activities occurring on the property – difficulty of re-consenting elsewhere)*<br>• *Availability of large industrial lots* | |
| | 4F. Productivity of land | *(consequential economic outcomes, change in land value)*<br>• *Accessibility – and associated potential change in land values* | |
| | 4G. Public Access to and along the coastal marine area | *Public access to coastal marine area, quality of access, visual connectivity to Māngere Inlet and Manukau Harbour.* | |
| 5. Natural Environment | 5A. Natural Landscape / Character | *The extent of effects on:*<br>• *the natural landscape and features such as streams, coastal edges, natural vegetation and underlying topography*<br>• *natural character and outstanding natural features/landscapes including geological features* | |
| | 5B. Water quality | • *Impact of operational stormwater in regards to quantity and quality (including life supporting capacity).*<br>• *Groundwater* | |
| | 5C. Ecological resources | *Extent of effects on:*<br>• *significant indigenous vegetation;*<br>• *significant habitats of indigenous fauna;*<br>• *indigenous biodiversity; and*<br>• *other significant marine areas.* | |
| | 5D. Coastal environment and resources | *Extent of effects on:*<br>• *existing coastal processes; and*<br>• *physical footprint within the coastal marine area.* | |
| 6. Cultural and heritage | 6A. Mana Whenua values | *Extent of effects on:*<br>• *the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga; and*<br>• *areas of protected customary rights.* | |
| | 6B. Archaeological and built heritage | *Extent of effects on:*<br>• *sites and places of valued heritage buildings and places.*<br>• *extent of effects on sites and places of archaeological value.*<br>• *extent of effects on sites and places of cultural heritage value.* | |

# MCA Scoring guide

### MCA Scoring Guide

In undertaking assessment against the criteria, each nominated evaluator will be responsible for determining an overall 'score' on the attached 11-point scale. In considering the score, it has been agreed that the following evaluation matters will be considered / assessed. The final overall score will be based on a qualitative assessment of the composite elements of effect (not a quantitative averaging process).

In addition, for each Overall Score, a final consideration will be given on 'scope to avoid, remedy or mitigate impacts identified'. If this is considered 'good or high' the assessment will be qualified ("*") and further review of the design option / design development may be undertaken (e.g. designs and consequential cost reviews completed) to enable a revised assessment to be undertaken.

| Scoring | Significance of 'Feature' or Area affected | Extent of Impact / Scale of Impact | Duration of Impact | Overall Score |
|---|---|---|---|---|
| -5 | National or greater<br>The works will impact on a nationally significant resource / or will be experienced by national scale audience | Substantial / complete impact on the feature identified | Permanent (or more than 20yr) | Significantly Adverse Impact |
| -4 | Regional – impact on a regionally significant resource / experienced by regional audience | High extent of impact | Long Term – 10 – 20yr | Highly Adverse Impact |
| -3 | Local I – impact on a locally significant resource (e.g. significant within an ecological district or within a catchment) or will impact on a local board community / geographic scale | Some extent of impact | Medium Term – 5-10yr | Adverse Impact |
| -2 | Local II – The impact of the works impact on a lesser scale local resource (e.g. within a defined local environment or sub-catchment) or at a community / CAU level. | Moderate extent of impact on the feature / resource identified | Short Term – 1 – 5yr | Low Adverse Impact |
| -1 | Individual (s) – The works impact on resources not otherwise identified for values or are otherwise innominate value. Or experienced by few (e.g. less than 20 households / 50 people) | Low extent of impact on the feature / resource identified | Very Short Term < 1yr | Minor Adverse Impact |
| 0 | No Impact | No Impact | No Impact | No Impact |
| 1 | Individual (s) – The benefits will be experienced for resources not otherwise identified for their values or are otherwise of innominate value.<br>The benefits will be experienced by few (e.g. less than 20 households / 50 people) | Low or small extent of benefits identified | Very Short Term < 1yr | Minor Positive Impact |
| 2 | Local II – The benefits will be realised on a defined local environment or sub-catchment or at a community / CAU level. | Moderate extent of benefits identified | Short Term – 1 – 5yr | Low positive Impact |

| Scoring | Significance of 'Feature' or Area affected | Extent of Impact / Scale of Impact | Duration of Impact | Overall Score |
|---|---|---|---|---|
| 3 | Local l – The benefits will be experienced for values of ecological district or within a catchment) or at a local board community / geographic scale | Some extent of benefit (not able to be more fully quantified) | Medium Term – 5-10yr | Positive Impact |
| -4 | Regional – The benefits will be experienced for a sub-regionally significant resource / experienced by subregional audience | High extent of benefit (confident of benefit being realised) | Long Term – 10 – 20yr | Highly Positive Impact |
| -5 | Regional or greater benefit<br>The benefits will be experienced by a whole region or across regions (including nation) or will be to a regionally or nationally significant resource | Substantial benefits and high degree of confidence of benefits being realised | Permanent (or more than 20yr) | Significantly Positive Impact |