

Notice is hereby given that an ordinary Meeting of the Council will be held on:

**Date:** Wednesday 6 December 2017  
**Time:** 9.30am  
**Meeting Room:** Council Chamber  
**Venue:** Municipal Building, Garden Place, Hamilton

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## **Council**

### **Open Attachments Under Separate Cover** **Housing Infrastructure Fund**

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## APPENDICES

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<b>4. Preferred Option</b>	
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D	Project Construction Cost Estimates
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## Appendix A

### Multi-criteria analysis background, evaluation, IBC Alternatives and Options Summary Tables and IBC Options development

**Relevance:**

Section 3: Assessment of Infrastructure required to deliver more house faster

- Refinement of IBC objectives and Multi-criteria assessment framework
- Summary of long list to short list process to develop options
- Assessment of wastewater and transport options – descriptions and assessment
- Multi-criteria assessment spreadsheets

Date: 12/9/17



## SUBJECT: Peacocke Housing Infrastructure Options –Assessment Criteria

This file note summarises the agreed problems, benefits and investment objectives to develop assessment criteria to assist in option refinement.

A separate spreadsheets assesses alternatives/options for transport and wastewater separately.

### PROBLEMS

The problems for Hamilton are that:

1. Hamilton City Council's current infrastructure investment strategy does not service or access for enough residential land for the 12, 296 homes the city will need by 2025 or the 33,188 homes the city will need by 2045.
2. The very high upfront costs of gateway strategic infrastructure for wastewater, stormwater, water supply, arterial roads and bridges necessary to enable development exceeds community and Council capacity for funding and constrains development.

### BENEFITS

The Indicative Business Case<sup>1</sup> identified the quantifiable benefits of addressing the problems as:

Benefit Type	40 year est. benefit (NPV)
Transport benefits to Hamilton City ratepayers	\$378M
Rates revenue to Hamilton City Council (and DCs)	\$240M
Wealth created for households from dwelling capital value appreciation.	\$108M
Economic contributions to Hamilton City from economic activity:	
• Infrastructure construction	\$399M
• Housing construction	\$1,536M
• Household expenditure.	\$3,171M

Table 1. Benefits (Quantifiable)

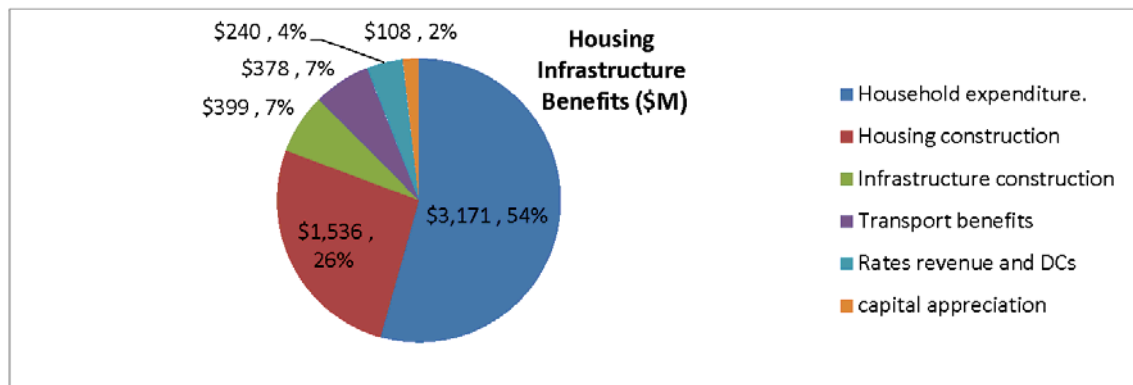


Figure 1: Benefits split

Household expenditure and housing construction benefits make up 70% of benefits. Transport benefits make up less than 10% of benefits. Non-quantifiable benefits include:

- The optimisation of strategic infrastructure networks, including the staging of transport networks and strategic infrastructure, and the earlier opening up of the wider growth cell in Peacocke.
- The earlier realisation of wider economic benefits that impact on the well-being of the community, including social infrastructure.

<sup>1</sup> IBC Section 1.4 – Main Benefits  
Attachment 1\_1\_Mca Criteria

- Wider regional benefits, including the efficient operation of freight corridors and the adherence to coherent settlement patterns.
- National benefits including the key role Hamilton plays in the Waikato and Upper North Island transport network.

The Indicative Business Case<sup>2</sup> suggests the following measures for tracking benefits.

Benefit	Measure	Monitoring/reporting	Status
Residential development (indicator of access to housing and resulting economic gains)	• Dwellings (No)	Building consents (applications, completions)	Existing
	• serviced land suitable for development (area, lots)	Subdivision consents	Existing
	• Trunk infrastructure capacity (households)	reserve capacity (Capacity – connections)	Existing (increase review frequency)
Transport – Travel time	• Travel time (duration)	BlipTrack bluetooth or TomTom data	Existing NZTA access
	• Trip reliability (variation)	BlipTrack bluetooth or TomTom data	Existing NZTA access
	• Delays	Traffic signal performance	Existing HCC SCATS system
		Surveys (before and after)	As required
Transport - Safety, amenity	• Inferred – external traffic	Surveys (before and after)	As required

Table 2. Benefits and Measures (from IBC)

The low relative importance of the transport benefits means that the transport criteria may be over-complicated and could be replaced with a single travel time value.

#### DEVELOPING INVESTMENT OBJECTIVES AND ASSESSMENT CRITERIA FOR THE DBC

The objectives and success criteria in the IBC Long list to short list assessment<sup>3</sup> were:

Objective/Topic	Objective/Criteria
1. Objective 1	Increase the amount of developer ready land that supports Hamilton to be the third city economy in New Zealand by 2025
2. Objective 2	Increase the amount of developer ready land to support 11,638 dwellings by 2025
3. Objective 3	Increase the amount of developer ready land to support the balance of the NPS-UDC dwelling requirements by 2045
4. Objective 4	To support affordable housing by 2025 through allocation of developer ready land for infill, intensification and density increase
5. Strategic fit	Alignment with other key council growth programmes and strategies over short, medium and long term for transport and water
6. Achievability	Overall programme and direct investment can be delivered in required timescales to required standard/quality and corresponding indirect investment and outcomes can be realised, including collaboration and partnering elements
7. Timing and sequencing	Acceleration of core output (housing) is achieved and wider programmes are able to be delivered as forecast or sped up
8. Financial viability	Fit with funding constraints, maximises/optimises financial return and capital recycling over short, medium and long term
9. Market impacts	Developers are incentivised to expedite housing development by accelerating developments, public sector funding matches pace with private sector development and collaboration is fostered
10. Risk management	Appropriate controls/frameworks, management and governance including partnering, can be established and maintained

Table 3. IBC Objectives and Success Criteria

<sup>2</sup> Table 18 – Benefits Management

<sup>3</sup> 7. Annex

Attachment 1\_1\_Mca Criteria

At the project planning meeting on 3/8/17 NZTA, HCC and MBIE refined the investment objectives to assist in refinement of the IBC infrastructure proposal. Hamilton's investment objectives for the Peacocke Housing Infrastructure Detailed Business Case are to (numbers in brackets refer to IBC objectives and criteria above):

Investment Objective	Ref to IBC Criteria
1. Support Hamilton to be the third city economy in New Zealand by 2025	(1, 5)
2. Increase the amount of developer ready land to meet NPS-UDC requirements	(2, 3)
3. Support provision of affordable housing	(4, 8)
4. Build a 'vibrant' community that integrates with Hamilton	(1, 4, 5, 9)
5. Enable coordinated land use and strategic infrastructure	(5, 6, 7, 10)
6. Ensure financial sustainability for Council and Community	(6, 8, 9, 10)

Table 4. DBC Investment Objectives

Multi-criteria assessment of options assists in selection of the final preferred option for implementation. The criteria<sup>4</sup> are:

Assessment Area	Criteria	Weighting	Considerations
<b>Investment Objectives</b> (33.3% of overall)	Economic contribution	16.7%	Proportion of total quantifiable benefits available
	Serviced land meets NPS-UDC targets At min Customer LOS	16.7%	3,153 dwellings in 10 years 8,103 dwellings in 30 years
	Support affordable housing	16.7%	Consistency with structure plan
	Build a vibrant community integrated with Hamilton	16.7%	Consistency with structure plan Connections (all modes) to rest of city
	Coordinated land use and strategic infrastructure	16.7%	Consistency with trunk infrastructure strategic plans and Southern Links)
	Financial sustainability for Council and Community	16.7%	Whole of life cost Benefit cost ratio
<b>Implementability</b> (33.3% of overall)	Technical	16.7%	Certainty/confidence in solution
	Consentability	16.7%	Consents needed/risks/time
	Safety and design	16.7%	Certainty/confidence in solution
	Affordability - Operational/Maintenance	16.7%	Operational costs
	Affordability - Financial	16.7%	Implementation costs (and cost of funding?)
	Stakeholders/Customers	16.7%	Tangata Whenua, Developer, LTP support
<b>Assessment of Effects</b> (33% of overall)	Safety	11%	Relief of traffic from less unsuitable routes
	Cultural	11%	Water impact, river impact, cultural recognition
	Built Environment	11%	Impacts (beyond consented – e.g. SLINKS)
	Natural environment	11%	Impacts (beyond consented – e.g. SLINKS)
	Community - social	11%	Access to jobs, services, shops, etc.
	Community – human health	11%	Risks/opportunities for impacts
	Community - property	11%	Impacts, risks, maori land, other infrastructure
	System Integration	11%	Environmental screen, waters needs met, transport demand met
	Economics	11%	Support economic growth, enhance potential of adjacent land (new and existing corridors)

Table 5. Multi-Criteria Assessment – Draft Criteria

<sup>4</sup> [https://www.nzta.govt.nz/about-us/consultations/multi-criteria-analysis-for-transport-business-cases-guidance/Attachment\\_1\\_1\\_Mca\\_Criteria](https://www.nzta.govt.nz/about-us/consultations/multi-criteria-analysis-for-transport-business-cases-guidance/Attachment_1_1_Mca_Criteria)



## PEACOCKE HOUSING INFRASTRUCTURE DETAILED BUSINESS CASE OPTION DEVELOPMENT SUMMARY

### 1- WASTEWATER

#### a. IBC Long List – Based on Previous Investigations including Cambridge, Airport and Peacocke

IBC Infrastructure Long List (in addition to test against Rotokauri and Combined, and FAR)		Rejected Taken forward for IBC Short List as	Comments
<i>Southern Area Waste Water Study Table 6-5</i>			
DM	Do nothing	SL0	Not acceptable
LL1	Peacocke to Pukete pumped, Rest to Cambridge	SL1	HCC deals with Peacocke, Waipa sorts selves
LL2	All WW to Pukete	SL2	Relies on Waipa agreement – possible future option
LL3	All WW to Cambridge	SL3	
LL4	New WWTP in Peacocke	SL4	
LL5	3 decentralised WWTPs in area	Not viable	Eliminated in previous study because of cost, time or environmental risks.
LL6	Land based treatment	Not viable	
LL7	Decentralised and land based	Not viable	
LL8	Decentralised and reuse water	Not viable	
LL9	Land disposal and LL4 WWTP	SL5	Relies on Waipa agreement – possible future option
LL10	Grinders and small bore pumps	Not viable	Eliminated in previous study because of cost, time or environmental risks.
LL11	On site disposal	Not viable	
LL12	Waterless toilets	Not viable	
<b>Earlier Investigations</b>			
Gravity connection from Peacocke to Pukete		Not Viable	Construction not practically or economically feasible in available corridors.
Western Interceptor Connection		Not Viable	No capacity

#### b. IBC Long List – Based on Previous Investigations including Cambridge, Airport and Peacocke

IBC Infrastructure Short List (taken from viable options from previous)		Rejected Taken forward for DBC Short List	Comments
<i>Southern Area Waste Water Study Table 7-2 and MWH Supplementary and Peer Review</i>			
SL0	Do Nothing		Not acceptable
SL1	Peacocke to Pukete pumped, Airport and Cambridge to Cambridge	SL1 Preferred Option	As planned in HCC infrastructure strategy – only option that meets timeframe
SL2	All WW to Pukete	Not precluded	None of these options meet timeframe needed for 5 – 10 years start.
SL3	All WW to Cambridge	Not precluded	SL1 can be staged/futureproofed to protect future conversion
SL4	New WWTP in Peacocke	Not precluded	
SL5	Land disposal and LL4 WWTP	Not precluded	

#### c. IBC Preferred Option – Costs and details in Opus Report

IBC Preferred Option (Assessed in Opus report)		Taken forward and expanded for DBC	Comments
<i>Southern Area Waste Water Study Table 7-2 and MWH Supplementary and Peer Review</i>			
SL1	Peacocke to Pukete, pumped plus options to protect future for Cambridge links, staging for capacity/demand and rising main, routes	Protects all short list options	Route being confirmed.

#### d. DBC Options

DBC short list		Taken forward and expanded for DBC	Comments
<i>Stakeholder Assessment – Costs and details in Opus Report</i>			
WS0	Do Nothing		Not acceptable
WS1	Full capacity, bridge, route TBA, No Cambridge options	No	Precludes Cambridge option
WS2	Full capacity, bridge, route TBA, Future Proof Cambridge options	WD1 Yes – long term answer	Take forward as single option – variations in staging/procurement to be refined in commercial and management case but do not affect preferred option.
WS3	Stage 1 capacity initially, respond CB later, Bridge or thrust, route TBA	WD2 Staging option	
WS4	Developer led interim solution(s), Full capacity later	No – Risk not acceptable	Environmental risk unacceptable – may procure via/in conjunction with development

#### e. DBC Preferred Option – Refine Staging Options (WD1, 2) in Detailed Business Case

DBC Preferred Option (Assessed in Opus report)		Comments
WD1/2	Peacocke to Pukete, pumped plus options to protect future for Cambridge links, staging for capacity/demand and rising main, routes	Protects all short list options. Management, commercial and economic cases will refine the option to determine how best to future proof or stage for Cambridge and optimise value for money in implementation

## 2- TRANSPORT

### a. IBC Long List – Based on Southern Links previous and SAR network analysis

IBC Infrastructure Long List (in addition to test against Rotokauri and Combined, and FAR)	Rejected Taken forward for IBC Short List as	Comments
Southern Links ACRE (Area, Corridor, Route, Easement) and SAR		
Do nothing	Reject	May be able to sweat assets in interim
Do minimum - HIF infrastructure close to Southern Links do minimum – relevant for SLinks economics	Reject	Not optimum solution – minimum for access for some of Peacocke
Scheme Assessment and Notice of Requirement	Preferred	Southern Links infrastructure – staging variation

### b. IBC Long List – Test of whether any alternatives to Southern Links was Practicable

IBC Infrastructure Short List (taken from viable options from previous)	Rejected Taken forward for DBC Short List	Comments
<i>Southern Links SAR, IBC Long list check</i>		
TL0 Do Nothing	TS0	May be able to sweat assets in interim
TL1 Southern Links Gardens Bridge 4 lane	Best	Best traffic option, greatest benefits and flexibility, lowest risk, high cost
TL2 Cobham Connection	Rejected	Not enough capacity
TL3 Alternative alignments	Rejected	Not practical in timeframe
TL4 Passenger Transport link to Cobham Drive	Rejected - Not HIF	Service solution – future option
TL5 Southern Links Gardens Bridge 2 lane	Rejected	High bridge risk – poor transit option

### c. IBC Preferred Option – Southern Links components consistent with Structure Plan

IBC Preferred Option (Assessed in Opus report)	Taken forward and expanded for DBC	Comments
TS1 Southern Links Gardens Bridge 4 lane and intersection options	Preferred	Optimum control for staging and integration

### d. DBC Options - Minor Variations- Intersections

DBC short list	Taken forward and expanded for DBC	Comments
<i>Stakeholder Assessment</i>		
TS0 Do nothing	Reject	May be able to sweat assets in interim
TS1 Gardens Bridge 4 lane (Wairere Drive Extension) and structure plan road alignments and intersections	Preferred	Low risk, consistent with SLinks
TS2 Gardens Bridge 4 lane (Wairere Drive Extension) and alternative intersection options	Reject	Structure plan and designation inconsistencies and no significant savings or additional benefits

### e. DBC Preferred Option – Refine Staging Options in Detailed Business Case

DBC Preferred Option (Assessed in Opus report)	Comments
TS1 Gardens Bridge 4 lane (Wairere Drive Extension) and structure plan road alignments and intersections	Management, commercial and economic cases will refine the option to determine how best to stage and optimise value for money in implementation.

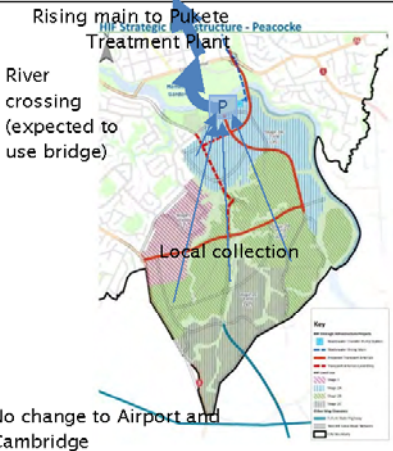
## 3- POTABLE WATER

Only one option – connect to existing distribution and reservoir system as connections become available or are needed (generally with internal with road construction)

PEACOCKE BUSINESS CASE: OPTIONS SUMMARY:

**OPTION SL1 : PEACOCKE TO PUKETE WASTEWATER TREATMENT PLANT**

**PROPOSAL DETAILS**

<p><b>Option description:</b></p>	<ul style="list-style-type: none"> <li>HIF Indicative Business Case proposal.</li> <li>Combination of gravity and pumped local collection to storage/transfer pump station.</li> <li>Rising main river crossing (expected to be over river via Southern Links gardens bridge).</li> <li>Rising main route via ring road or parallel road corridors to link to extension of Far Eastern Interceptor near Crosby Road.</li> <li>Basis for transfer pump station and storage – Full capacity development of Peacocke.</li> <li>No change/independent of Airport and Cambridge proposals.</li> </ul>	
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<p><b>Estimated total public sector funding requirement:</b></p>		<p><b>Lower</b></p>	<p><b>Upper</b></p>
	<p><b>Capital cost (\$m) (whole sector):</b></p>	<p>\$100M</p>	<p>\$110M</p>
	<p><b>Net property cost (\$m):</b></p>	<p>\$1M (nominal)</p>	<p>\$1M (nominal)</p>
	<p><b>Opex (\$m/yr):</b></p>	<p>\$5M</p>	<p>\$7M</p>
	<p><b>Maintenance (\$m/yr):</b></p>	<p>Similar all options</p>	<p>Similar all options</p>
	<p><b>Present value of cost (HCC). (\$m):</b></p>	<p>\$55.9M</p>	<p>\$65.9M</p>

Estimated BCR range:			>5		~18	
Timing of need:	Optimal programme:	5 years	Likely:	5 years		
IAF profile:	Strategic fit:	H (2015) VH (2018)	Effectiveness:	M	Efficiency:	>5 =H

**OUTCOME OBJECTIVES**

<p><b>Objective:</b></p>		<p><b>Performance against objectives</b></p>	<p><b>Rating</b></p>
<p>Economic contribution</p>	<p>Proportion of total benefits available</p>	<p>100%</p>	<p>3</p>
<p>Serviced land meets NPS- UDC targets (At min LOS)</p>	<p>3,153 dwellings in 10 years 8,103 dwellings in 30 years</p>	<p>100% 100%</p>	<p>3</p>
<p>Support affordable housing</p>	<p>Consistency with structure plan</p>	<p>100%</p>	<p>3</p>
<p>Build a vibrant community integrated with Hamilton</p>	<p>Consistency with structure plan Connections (all modes) to rest of city</p>	<p>100% n/a</p>	<p>3</p>
<p>Coordinated land use and strategic infrastructure</p>	<p>Consistency with trunk infrastructure strategic plans and Southern Links</p>	<p>80% (would need additional work to allow for Cambridge option)</p>	<p>3</p>
<p>Financial sustainability</p>	<p>Whole of life cost Benefit cost ratio</p>	<p>As for IBC</p>	<p>3</p>
<p>Rationale for selection or rejection of option:</p>		<p>Meets all objectives (but could be improved to protect options for Airport and Cambridge treatment plant)</p>	



PEACOCKE BUSINESS CASE: OPTIONS SUMMARY:

IMPLEMENTABILITY APPRAISAL (REFER MWH SOUTHERN SECTOR WASTEWATER INVESTIGATION)		
Technical:	3	<ul style="list-style-type: none"> <li>No untried technology.</li> <li>Detailed BC options include grinding, pump and main sizing, river crossing options, storage capacity (e.g. for staging or operational optimisation.)</li> </ul>
Consentability:	1	<ul style="list-style-type: none"> <li>Designation or consent needed for pump station (as for all options)</li> <li>Pipes generally expected in road reserve.</li> </ul>
Operational/ Maintenance:	3	<ul style="list-style-type: none"> <li>No unusual factors.</li> <li>Links to existing infrastructure</li> <li>Consistent with HCC infrastructure strategies</li> </ul>
Safety and design, Risk consideration:	2	<ul style="list-style-type: none"> <li>No unusual hazards</li> </ul>
Financial:	3	<ul style="list-style-type: none"> <li>Similar to other</li> </ul>
Public/Stakeholders:	1	<ul style="list-style-type: none"> <li>If not "future proofed" then Waipa DC and Airport options could be compromised. Waipa DC and Airport have no fixed plans and no options available within required timeframe.</li> </ul>

MULTI-CRITERIA ASSESSMENT			
Criterion	Scale of impact	Significance of impact	Supporting information (Refer MWH Southern Sector Wastewater Investigation)
Safety MWH Risk	0	2	No unusual risks
Cultural:	0	3	Neutral Refer MWH
Built Environment	0	0	Neutral
Natural environment	2	2	Refer MWH
Community/Social:	1	2	Consistent with HCC infrastructure strategy
Human health:	0	3	Refer MWH
Property:	3	1	Refer MWH. Land expected to be available from Southern Links surplus disposal.
Integration: (technology)	1	2	Consistent with HCC infrastructure strategy
Economy	3	3	Full economic benefits – full area (from IBC, not MWH)

Scale: -3 Bad to +3 Good. (MWH 5 point scale) Significance – 0 Nil to +3 lots (MWH weighting equivalent)



PEACOCKE BUSINESS CASE: OPTIONS SUMMARY:

IMPLEMENTABILITY APPRAISAL SL2: ALL PUMP TO TO PUKETE WWTP		
Technical:	1	<ul style="list-style-type: none"> <li>No untried technology. Significant investment for CB connection</li> <li>Detailed BC options include grinding, pump and main sizing, river crossing options, storage capacity (e.g. for staging or operational optimisation.)</li> </ul>
Consentability:	0	<ul style="list-style-type: none"> <li>Designation or consent needed for pump station (as for all options)</li> <li>Pipes generally expected in road reserve.</li> <li>No commitment from Waipa or Airport</li> </ul>
Operational/ Maintenance:	1	<ul style="list-style-type: none"> <li>Needs Waipa and Airport agreement</li> <li>Links to existing infrastructure</li> <li>Consistent with HCC infrastructure strategies</li> </ul>
Safety and design, Risk consideration:	1	<ul style="list-style-type: none"> <li>No unusual hazards</li> </ul>
Financial:	3	<ul style="list-style-type: none"> <li>Similar to others as far as HCC is concerned</li> <li>Increased costs once Waipa connected presumed met by Waipa</li> </ul>
Public/Stakeholders:	1	<ul style="list-style-type: none"> <li>If not "future proofed" then Waipa DC and Airport options could be compromised. Waipa DC and Airport have no fixed plans and no options available within required timeframe.</li> </ul>


MULTI-CRITERIA ASSESSMENT			
Criterion	Scale of impact	Significance of impact	Supporting information (Refer MWH Southern Sector Wastewater Investigation)
Safety MWH Risk	0	0	No unusual risks
Cultural:	1	3	Neutral Refer MWH
Built Environment	1	0	Neutral
Natural environment	3	2	Refer MWH
Community/Social:	1	2	Consistent with HCC infrastructure strategy
Human health:	3	3	Refer MWH
Property:	3	1	Refer MWH. Land expected to be available from Southern Links surplus disposal.
Integration: (technology)	3	2	Consistent with HCC infrastructure strategy
Economy	3	3	Full economic benefits – full area (from IBC, not MWH)

Scale: -3 Bad to +3 Good. (MWH 5 point scale) Significance – 0 Nil to +3 lots (MWH weighting equivalent)

PEACOCKE BUSINESS CASE: OPTIONS SUMMARY:

**OPTION SL3: ALL PUMP TO UPGRADED CAMBRIDGE WWTP**

**PROPOSAL DETAILS**

Option description:	<ul style="list-style-type: none"> <li>Within Peacocke similar to HIF indicative Business Case proposal but needs bigger pipes and pumps.</li> <li>Combination of gravity and pumped local collection to storage/transfer pump station.</li> <li>Rising main river crossing (expected to be over river via Southern Links Gardens Bridge).</li> <li>Rising main route via ring road or parallel road corridors to link to extension of Far Eastern Interceptor near Crosby Road.</li> <li>Basis for transfer pump station and storage – Full capacity development of Peacocke, Airport and Cambridge.</li> <li>No agreements, commitments, consents or infrastructure for Airport and Cambridge connections.</li> </ul>	 <p>All pumped to Upgraded CB WWTP</p>
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Estimated total public sector funding requirement:		Lower	Upper
	Capital cost (\$m) (whole sector):	\$90M	\$110M
	Net property cost (\$m):	\$1M (nominal)	\$1M (nominal)
	Opex (\$m/30yr):	\$5M	\$7M
	Maintenance (\$m/30yr):	Similar all options	Similar all options
	Present value of cost (HCC). (\$m):	\$55.9M plus \$12M of \$20M	\$65.9M plus \$12M of \$20M
Estimated BCR range:	>5	~16 (relative assessment)	
Timing of need:	Optimal programme:	5 years	Likely: 5 years
IAF profile:	Strategic fit:	H (2015) VH (2018)	Effectiveness: L Efficiency: >5 =H

**OUTCOME OBJECTIVES SL3 : ALL PUMP TO UPGRADED CAMBRIDGE WWTP**

Objective:	Performance against objectives	
Economic contribution	Proportion of total benefits available	50% - benefits delayed -1
Serviced land meets NPS- UDC targets (At min LOS)	3,153 dwellings in 10 years 8,103 dwellings in 30 years	20% 100% (No capacity at Cambridge – no certainty) -2
Support affordable housing	Consistency with structure plan	100% 3
Build a vibrant community integrated with Hamilton	Consistency with structure plan Connections (all modes) to rest of city	100% Higher costs, not fully consistent with HCC strategy, no support from Waipa DC or airport in timeframe 3 -1
Coordinated land use and strategic infrastructure	Consistency with trunk infrastructure strategic plans and Southern Links	40% (would need additional work to allow for Cambridge option (local collection out of sequence) -1
Financial sustainability	Whole of life cost Benefit cost ratio	As for IBC 2
Rationale for selection or rejection of option:		REJECT - High risk option in timeframe – not precluded by IBC Option

PEACOCKE BUSINESS CASE: OPTIONS SUMMARY:

IMPLEMENTABILITY APPRAISAL SL3 : ALL PUMP TO UPGRADED CAMBRIDGE WWTP		
Technical:	3	<ul style="list-style-type: none"> <li>No untried technology. Significant investment for CB connection</li> <li>Detailed BC options include grinding, pump and main sizing, river crossing options, storage capacity (e.g. for staging or operational optimisation.)</li> </ul>
Consentability:	-1	<ul style="list-style-type: none"> <li>Designation or consent needed for pump station (as for all options)</li> <li>Pipes generally expected in road reserve.</li> <li>No commitment from Waipa or Airport</li> </ul>
Operational/ Maintenance:	-1	<ul style="list-style-type: none"> <li>Needs Waipa and Airport agreement</li> <li>Links to uncertain infrastructure out of HCC control</li> <li>Consistent with HCC infrastructure strategies</li> </ul>
Safety and design, Risk consideration:	0	<ul style="list-style-type: none"> <li>No unusual hazards</li> </ul>
Financial:	2	<ul style="list-style-type: none"> <li>Similar to others as far as HCC is concerned</li> <li>Increased costs once Waipa connected presumed met by Waipa</li> </ul>
Public/Stakeholders:	2	<ul style="list-style-type: none"> <li>Consistent with prior plans but timing and funding at risk. Waipa DC and Airport have no fixed plans and no options available within required timeframe.</li> </ul>

MULTI-CRITERIA ASSESSMENT SL3 : ALL PUMP TO UPGRADED CAMBRIDGE WWTP			
Criterion	Scale of impact	Significance of impact	Supporting information (Refer MWH Southern Sector Wastewater Investigation)
Safety MWH Risk	0	0	No unusual risks
Cultural:	0	3	Neutral Refer MWH
Built Environment	1	0	Less urban impact
Natural environment	3	2	Refer MWH – new treatment plant – higher standards
Community/ Social:	1	2	Not consistent with HCC infrastructure strategy
Human health:	1	3	Refer MWH
Property:	0	1	Refer MWH. Land expected to be available from Southern Links surplus disposal.
Integration: (technology)	1	2	Significant risk of delays from agreements, approvals, consents, funding, etc.
Economy	3	3	delayed economic benefits – full area (from IBC, not MWH) but helps airport

Scale: -3 Bad to +3 Good. (inferred from MWH 5 point scale) Significance – 0 Nil to +3 lots (MWH weighting equivalent)



PEACOCKE BUSINESS CASE: OPTIONS SUMMARY:


**OPTION SL4 : ALL PUMP TO NEW PEACOCKE/MYSTERY CREEK WWTP**

PROPOSAL DETAILS

Option description:

- Within Peacocke similar to HIF indicative Business Case proposal but needs bigger pipes and pumps.
- Combination of gravity and pumped local collection to storage/transfer pump station.
- Rising main river crossing (expected to be over river via Southern Links Gardens Bridge.
- Rising main route via ring road or parallel road corridors to link to extension of Far Eastern Interceptor near Crosby Road.
- Basis for transfer pump station and storage – Full capacity development of Peacocke, Airport and Cambridge.
- No agreements, commitments, consents or infrastructure for Airport and Cambridge connections.

HIF Strategic Infrastructure - Peacocke



Estimated total public sector funding requirement:

	Lower	Upper
Capital cost (\$m) (whole sector):	\$90M	\$110M
Net property cost (\$m):	\$1M (nominal)	\$1M (nominal)
Opex (\$m/30yr):	\$5M	\$7M
Maintenance (\$m/30yr):	Similar all options	Similar all options
Present value of cost (HCC). (\$m):	\$55.9M plus \$12M of \$20M	\$65.9M plus \$12M of \$20M

Estimated BCR range:

	>5	~16 (relative assessment)
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Timing of need:

Optimal programme:

5 years

Likely:

5 years

IAF profile:

Strategic fit:

H (2015) VH (2018)

Effectiveness:

L

Efficiency:

>5 =H

OUTCOME OBJECTIVES SL4 : ALL PUMP TO NEW PEACOCKE/MYSTERY CREEK WWTP

Objective:

Performance against objectives

Economic contribution	Proportion of total benefits available	50% - benefits delayed	-2
Serviced land meets NPS- UDC targets (At min LOS)	3,153 dwellings in 10 years 8,103 dwellings in 30 years	20% 100% (No new plant planned – no certainty)	-3
Support affordable housing	Consistency with structure plan	100%	3
Build a vibrant community integrated with Hamilton	Consistency with structure plan Connections (all modes) to rest of city	100% Higher costs, not fully consistent with HCC strategy, no support from Waipa DC or airport in timeframe	3
Coordinated land use and strategic infrastructure	Consistency with trunk infrastructure strategic plans and Southern Links	40% (would need additional work to allow for Cambridge option (local collection out of sequence)	-2
Financial sustainability	Whole of life cost Benefit cost ratio	As for IBC	3

Rationale for selection or rejection of option:

REJECT – very high risk option – no chance in timeframe

PEACOCKE BUSINESS CASE: OPTIONS SUMMARY:

IMPLEMENTABILITY APPRAISAL SL4 : ALL PUMP TO NEW PEACOCKE/MYSTERY CREEK WWTP		
Technical:	3	<ul style="list-style-type: none"> <li>No untried technology. Significant investment for CB connection</li> <li>Detailed BC options include grinding, pump and main sizing, river crossing options, storage capacity (e.g. for staging or operational optimisation.)</li> </ul>
Consentability:	-3	<ul style="list-style-type: none"> <li>Designation or consent needed for pump station (as for all options)</li> <li>Pipes generally expected in road reserve.</li> <li>No commitment from Waipa or Airport</li> </ul>
Operational/ Maintenance:	-2	<ul style="list-style-type: none"> <li>Needs Waipa and Airport agreement</li> <li>Links to uncertain infrastructure out of HCC control</li> <li>Consistent with HCC infrastructure strategies</li> </ul>
Safety and design, Risk consideration:	-1	<ul style="list-style-type: none"> <li>No unusual hazards</li> </ul>
Financial:	1	<ul style="list-style-type: none"> <li>Similar to others as far as HCC is concerned</li> <li>Increased costs once Waipa connected presumed met by Waipa</li> </ul>
Public/Stakeholders:	3	<ul style="list-style-type: none"> <li>Consistent with prior plans but timing and funding at risk. Waipa DC and Airport have no fixed plans and no options available within required timeframe.</li> </ul>


MULTI-CRITERIA ASSESSMENT SL4 : ALL PUMP TO NEW PEACOCKE/MYSTERY CREEK WWTP			
Criterion	Scale of impact	Significance of impact	Supporting information (Refer MWH Southern Sector Wastewater Investigation)
Safety MWH Risk	0	0	No unusual risks
Cultural:	0	3	Neutral Refer MWH
Built Environment	1	0	Less urban impact
Natural environment	0	2	Refer MWH – new treatment plant – higher standards
Community/ Social:	0	2	Not consistent with HCC infrastructure strategy
Human health:	1	3	Refer MWH
Property:	0	1	Refer MWH. Land expected to be available from Southern Links surplus disposal.
Integration: (technology)	3	2	Significant risk of delays from agreements, approvals, consents, funding, etc.
Economy	3	3	delayed economic benefits – full area (from IBC, not MWH) but helps airport

Scale: -3 Bad to +3 Good. (inferred from MWH 5 point scale)Significance – 0 Nil to +3 lots (MWH weighting equivalent)

PEACOCKE BUSINESS CASE: OPTIONS SUMMARY:

**OPTION TL1 GARDENS BRIDGE CONNECTION 4 LANE**

**PROPOSAL DETAILS**

Option description:	<ul style="list-style-type: none"> <li>IBC preferred option</li> <li>Consistent with Southern Links staging</li> <li>Regional arterial link across Gardens Bridge</li> <li>4 lane deck</li> <li>Gateway/iconic structure</li> </ul>			
Estimated total public sector funding requirement:		Lower	Upper	
	Capital cost (\$m) incl. property:	\$179M	\$250M	
	Net property cost (\$m):	tbc	Tbc	
	Opex (\$m/30yr):	Not significant	Not significant	
	Maintenance (\$m/30yr):	Not significant	Not significant	
	Present value of cost (HCC). (\$m):	\$179M	\$250M	
Estimated BCR range:		2.9	>18	
Timing of need:	Optimal programme:	5 years	Likely:	10 years
IAF profile:	Strategic fit:	H (2015) VH (2018)	Effectiveness:	H
			Efficiency:	>5 =H

**OUTCOME OBJECTIVES TL1 GARDENS BRIDGE CONNECTION 4 LANE**

Objective:		Performance against objectives	
Economic contribution	Proportion of total benefits available	100% of benefits	3
Serviced land meets NPS- UDC targets (At min LOS)	3,153 dwellings in 10 years 8,103 dwellings in 30 years	Full NPS UDC targets delivered	3
Support affordable housing	Consistency with structure plan	100% consistent	3
Build a vibrant community integrated with Hamilton	Consistency with structure plan Connections (all modes) to rest of city	Connections to Ruakura, University, ring road, Ham E	3
Coordinated land use and strategic infrastructure	Consistency with trunk infrastructure strategic plans and Southern Links)	100% consistent	3
Financial sustainability	Whole of life cost Benefit cost ratio	2.9 as for IBC (transport benefits alone)	3
Rationale for selection or rejection of option:		PREFERRED – designated, agreed, consistent with Structure Plan	



PEACOCKE BUSINESS CASE: OPTIONS SUMMARY:

IMPLEMENTABILITY APPRAISAL TL1 GARDENS BRIDGE CONNECTION 4 LANE		
Technical:	3	<ul style="list-style-type: none"> <li>Simple</li> </ul>
Consentability:	1	<ul style="list-style-type: none"> <li>Minor consents only</li> </ul>
Operational/ Maintenance:	3	<ul style="list-style-type: none"> <li>Similar</li> </ul>
Safety and design, Risk consideration:	2	<ul style="list-style-type: none"> <li>Similar</li> </ul>
Financial:	3	<ul style="list-style-type: none"> <li>In long term infrastructure plan</li> </ul>
Public/Stakeholders:	1	<ul style="list-style-type: none"> <li>As for IBC</li> </ul>


MULTI-CRITERIA ASSESSMENT TL1 GARDENS BRIDGE CONNECTION 4 LANE			
Criterion	Scale of impact	Significance of impact	Supporting information (Refer MWH Southern Sector Wastewater Investigation)
Safety MWH Risk	3	1	Relieves SH3 and hospital area
Cultural:	1	1	Consulted (ongoing) as part of Southern Links
Built Environment	0	1	Relieves SH3
Natural environment	2	1	Consulted – best option
Community/ Social:	3	1	Access to Uni, Ruakura and Ham E Urban design gateway feature
Human health:	1	1	SH 3 slight benefits Supports active modes
Property:	3	1	Designated – under way
Integration: (technology)	3	1	Consistent with Infr strategy Allows for transit lanes
Economy	3	1	As for IBC

Scale: -3 Bad to +3 Good. Significance – all even = 11%

PEACOCKE BUSINESS CASE: OPTIONS SUMMARY:

**OPTION TL2 COBHAM DRIVE CONNECTION**

**PROPOSAL DETAILS**

Option description:	<ul style="list-style-type: none"> <li>Alternative arterial link to Peacocke</li> <li>Mangakotukutuku gully crossing</li> <li>Connection to Cobham Drive – Dual laning of Cobham Bridge</li> <li>Similar E-W connection</li> </ul>	 <p>HIF Strategic Infrastructure - Peacocke</p> <p>Connection to Cobham Drive</p> <p>Southern Links and Structure Plan Alignments</p>
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Estimated total public sector funding requirement:		Lower	Upper
	Capital cost (\$m) incl. property:	\$250M	\$350M
	Net property cost (\$m):	tbc	Tbc
	Opex (\$m/30yr):	Not significant	Not significant
	Maintenance (\$m/30yr):	Not significant	Not significant
	Present value of cost (HCC). (\$m):	\$250M	\$350M
Estimated BCR range:	>5	~16 (relative assessment)	
Timing of need:	Optimal programme:	5 years	Likely: 5 years
IAF profile:	Strategic fit:	H (2015) VH (2018)	Effectiveness: L Efficiency: >5 =H

**OUTCOME OBJECTIVES TL2 COBHAM DRIVE CONNECTION**

Objective:		Performance against objectives	
Economic contribution	Proportion of total benefits available	Constraints at Cobham connections restrict development to 100 households 15%	1
Serviced land meets NPS- UDC targets (At min LOS)	8,153 dwellings in 10 years 8,103 dwellings in 30 years	1000 lots in 10 years and would/should catch up in 30 years	1
Support affordable housing	Consistency with structure plan	Would catch up in 30 years	3
Build a vibrant community integrated with Hamilton	Consistency with structure plan Connections (all modes) to rest of city	Fully consistent	3
Coordinated land use and strategic infrastructure	Consistency with trunk infrastructure strategic plans and Southern Links)	Fails to complete ring road or support waste water	-1
Financial sustainability	Whole of life cost Benefit cost ratio	\$250M Around 2 – probably less	1
Rationale for selection or rejection of option:		REJECTED – not consistent with SLinks, relieving SH3 or WW option	

PEACOCKE BUSINESS CASE: OPTIONS SUMMARY:


IMPLEMENTABILITY APPRAISAL TL2 COBHAM DRIVE CONNECTION		
Technical:	3	<ul style="list-style-type: none"> <li>Simple</li> </ul>
Consentability:	0	<ul style="list-style-type: none"> <li>Minor consents only</li> </ul>
Operational/ Maintenance:	1	<ul style="list-style-type: none"> <li>Similar</li> </ul>
Safety and design, Risk consideration:	1	<ul style="list-style-type: none"> <li>Similar</li> </ul>
Financial:	3	<ul style="list-style-type: none"> <li>As for IBC</li> </ul>
Public/Stakeholders:	1	<ul style="list-style-type: none"> <li>As for IBC but not consistent with Access Strategy</li> </ul>

MULTI-CRITERIA ASSESSMENT TL2 COBHAM DRIVE CONNECTION			
Criterion	Scale of impact	Significance of impact	Supporting information (Refer MWH Southern Sector Wastewater Investigation)
Safety	1	1	Partly relieves SH3 and hospital
Cultural:	0	1	Consulted – risks for Mangakotukutuku being early?
Built Environment	0	1	Less relief for SH3
Natural environment	3	1	As for IBC
Community/ Social:	1	1	Access to centre but with congestion and not new jobs
Human health:	0	1	Neutral
Property:	3	1	Designated – passive engagement/purchase under way
Integration: (technology)	1	1	Sequence change from infrastructure strategy
Economy	3	1	As for IBC but limited/delayed

Scale: -3 Bad to +3 Good. Significance – all even = - 11%

PEACOCKE BUSINESS CASE: OPTIONS SUMMARY:

**OPTION TL3 DIFFERENT TO SOUTHERN LINKS ALIGNMENT**

PROPOSAL DETAILS						
Option description:	<ul style="list-style-type: none"><li>Challenge option for SLinks designation conclusions</li><li>Alternative north south connection to HCC network – e.g. Galloway Street/Gardens</li><li>E-W connection equivalent but in different location to designation</li><li>Sunk costs lost from designation</li></ul>					
Estimated total public sector funding requirement:		Lower	Upper			
	Capital cost (\$m) incl. property:	n/a >\$250M	n/a >\$350M			
	Net property cost (\$m):	similar	similar			
	Opex (\$m/30yr):	Not significant	Not significant			
	Maintenance (\$m/30yr):	Not significant	Not significant			
	Present value of cost. (\$m):	n/a >\$250M	n/a >\$350M			
Estimated BCR range:		<1	~2			
Timing of need:	Optimal programme:	10 years	Likely:	15 years		
IAF profile:	Strategic fit:	H (2015) VH (2018)	Effectiveness:	L	Efficiency:	~2 = L/M
OUTCOME OBJECTIVES TL3 DIFFERENT TO SOUTHERN LINKS ALIGNMENT						
Objective:		Performance against objectives				
Economic contribution	Proportion of total benefits available	100%			1	
Serviced land meets NPS- UDC targets (At min LOS)	3,153 dwellings in 10 years 8,103 dwellings in 30 years	100% - but risk if no access to development area because of stormwater			3	
Support affordable housing	Consistency with structure plan	Not consistent – renotify?			-3	
Build a vibrant community integrated with Hamilton	Consistency with structure plan Connections (all modes) to rest of city	Not consistent – renotify? Not efficient			-3	
Coordinated land use and strategic infrastructure	Consistency with trunk infrastructure strategic plans and Southern Links)	Not consistent – renotify?			-3	
Financial sustainability	Whole of life cost Benefit cost ratio	Sunk costs, inefficient			-1	
Rationale for selection or rejection of option:		REJECTED – 5 YEAR Delay and wrong answer for Southern Links				

PEACOCKE BUSINESS CASE: OPTIONS SUMMARY:

IMPLEMENTABILITY APPRAISAL TL3 DIFFERENT TO SOUTHERN LINKS ALIGNMENT		
Technical:	3	<ul style="list-style-type: none"> <li>Straightforward options</li> </ul>
Consentability:	0	<ul style="list-style-type: none"> <li>No chance - redesignation</li> </ul>
Operational/ Maintenance:	1	<ul style="list-style-type: none"> <li>Less efficient</li> </ul>
Safety and design, Risk consideration:	3	<ul style="list-style-type: none"> <li>Not optimum alignment</li> </ul>
Financial:	3	<ul style="list-style-type: none"> <li>Less efficient – sunk costs</li> <li>No match with national</li> </ul>
Public/Stakeholders:	1	<ul style="list-style-type: none"> <li>Revisit designation and structure plan</li> <li>Contrary to NZTA expectations</li> </ul>



MULTI-CRITERIA ASSESSMENT TL3 DIFFERENT TO SOUTHERN LINKS ALIGNMENT			
Criterion	Scale of impact	Significance of impact	Supporting information (Refer MWH Southern Sector Wastewater Investigation)
Safety MWH Risk	1	1	Neutral – not ideal
Cultural:	-1	1	SLinks optimised balance of need vs impact
Built Environment	0	1	SLinks optimised balance of need vs impact
Natural environment	3	1	SLinks optimised balance of need vs impact
Community/ Social:	1	1	Not known – contrary to Structure Plan
Human health:	-1	1	Community stress – redesignate
Property:	-3	1	Can't buy without willing seller or designation.
Integration: (technology)	-3	1	Major change to strategy (waters, wwater, etc.)
Economy	3	1	As for IBC but huge risk of delays

Scale: -3 Bad to +3 Good. (inferred from MWH 5 point scale) Significance – All same 11% by NZTA methodology

PEACOCKE BUSINESS CASE: OPTIONS SUMMARY:

**OPTION TL4 PASSENGER TRANSPORT OPTION**

**PROPOSAL DETAILS**

<p>Option description:</p>	<ul style="list-style-type: none"> <li>Challenge option for alternative transport modes</li> <li>3km Busway under Cobham bridge to Grantham Street/CBD @ \$10M/km plus \$20M intersections and \$45M E-W link</li> <li>E-W connection equivalent to Southern Links</li> <li>Bader Street as unattractive car connection</li> <li>80% of 3,500 peak trips out 80% north, 50% mode share = 1120 trips = 28 loads = 2 minute headways 5 buses</li> </ul> 	
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<p>Estimated total public sector funding requirements:</p>		<p>Lower</p>	<p>Upper</p>
	<p>Capital cost (\$m) incl. property:</p>	<p>\$100M</p>	<p>\$125M</p>
	<p>Net property cost (\$m):</p>	<p>similar</p>	<p>similar</p>
	<p>Opex (\$m/30yr):</p>	<p>\$2.1M/year = \$30M</p>	<p>\$3.5M/year = \$50M</p>
	<p>Maintenance (\$m/30yr):</p>	<p>Not significant</p>	<p>Not significant</p>
	<p>Present value of cost. (\$m):</p>	<p>\$60M</p>	<p>\$130M</p>

<p>Estimated BCR range:</p>	<p>1 (Est)</p>	<p>2 (Est) Transport (10 for development economic benefits)</p>
<p>Timing of need:</p>	<p>Optimal programme: 5years</p>	<p>Likely: 5 years</p>
<p>IAF profile:</p>	<p>Strategic fit: H (2015) VH (2018)</p>	<p>Effectiveness: L Efficiency: 1-2 = L/M</p>

**OUTCOME OBJECTIVES TL4 PASSENGER TRANSPORT OPTION**

Objective:		Performance against objectives	
<p>Economic contribution</p>	<p>Proportion of total benefits available</p>	<p>40%</p>	<p>1</p>
<p>Serviced land meets NPS- UDC targets (At min LOS)</p>	<p>3,153 dwellings in 10 years 8,103 dwellings in 30 years</p>	<p>40% - but risk of low take up</p>	<p>1</p>
<p>Support affordable housing</p>	<p>Consistency with structure plan</p>	<p>Consistent – interim solution</p>	<p>3</p>
<p>Build a vibrant community integrated with Hamilton</p>	<p>Consistency with structure plan Connections (all modes) to rest of city</p>	<p>Consistent – interim solution</p>	<p>3</p>
<p>Coordinated land use and strategic infrastructure</p>	<p>Consistency with trunk infrastructure strategic plans and Southern Links)</p>	<p>Not inconsistent</p>	<p>1</p>
<p>Financial sustainability</p>	<p>Whole of life cost Benefit cost ratio</p>	<p>Service cost would be needed anyway for 30% long term mode share</p>	<p>1</p>
<p>Rationale for selection or rejection of option:</p>		<p>REJECTED – 5 YEAR Delay and wrong answer for Southern Links</p>	



PEACOCKE BUSINESS CASE: OPTIONS SUMMARY:

IMPLEMENTABILITY APPRAISAL TL4 PASSENGER TRANSPORT OPTION		
Technical:	2	<ul style="list-style-type: none"> <li>Straightforward options – not investigated yet</li> <li>Route under Cobham Bridge/structure</li> </ul>
Consentability:	2	<ul style="list-style-type: none"> <li>Within Southern Links corridors</li> </ul>
Operational/ Maintenance:	1	<ul style="list-style-type: none"> <li>Less efficient</li> <li>High OPEX (WRC and user funded for 65%)</li> </ul>
Safety and design, Risk consideration:	2	<ul style="list-style-type: none"> <li>Contraflow buses</li> <li>Route through reserve</li> </ul>
Financial:	2	<ul style="list-style-type: none"> <li>Low cost</li> </ul>
Public/Stakeholders:	1	<ul style="list-style-type: none"> <li>Revisit designation? and structure plan? Green support?</li> <li>Contrary to NZTA expectations</li> </ul>


MULTI-CRITERIA ASSESSMENT TL4 PASSENGER TRANSPORT OPTION			
Criterion	Scale of impact	Significance of impact	Supporting information (Refer MWH Southern Sector Wastewater Investigation)
Safety MWH Risk	2	1	Neutral – not ideal
Cultural:	2	1	SLinks optimised balance of need vs impact
Built Environment	2	1	SLinks optimised balance of need vs impact
Natural environment	3	1	SLinks optimised balance of need vs impact
Community/ Social:	2	1	Supports Structure Plan
Human health:	3	1	Active modes
Property:	1	1	Use of reserve?
Integration: (technology)	-3	1	Major change to strategy – electric buses? Driverless?
Economy	2	1	Staged solution?

Scale: -3 Bad to +3 Good. (inferred from MWH 5 point scale) Significance – All same 11% by NZTA methodology

PEACOCKE BUSINESS CASE: OPTIONS SUMMARY:

**OPTION TL5 GARDENS BRIDGE CONNECTION 2 LANE**

**PROPOSAL DETAILS**

Option description:	<ul style="list-style-type: none"><li>IBC preferred option</li><li>Consistent with Southern Links staging</li><li>Regional arterial link across Gardens Bridge</li><li>2 lane deck</li></ul>					
Estimated total public sector funding requirement:		Lower	Upper			
	Capital cost (\$m) incl. property:	\$160M (90%)	\$225M			
	Net property cost (\$m):	tbc	Tbc			
	Opex (\$m/30yr):	Not significant	Not significant			
	Maintenance (\$m/30yr):	Not significant	Not significant			
	Present value of cost (HCC). (\$m):	\$160M	\$225M			
Estimated BCR range:		3.1	>18			
Timing of need:	Optimal programme:	5 years	Likely:	10 years		
IAF profile:	Strategic fit:	H (2015) VH (2018)	Effectiveness:	H	Efficiency:	>5 =H

**OUTCOME OBJECTIVES TL2 GARDENS BRIDGE CONNECTION 5 LANE**

Objective:		Performance against objectives	
Economic contribution	Proportion of total benefits available	80% of benefits	2
Serviced land meets NPS- UDC targets (At min LOS)	3,153 dwellings in 10 years 8,103 dwellings in 30 years	Full NPS UDC targets delivered as long as extra lanes delivered on time – covered in risk	3
Support affordable housing	Consistency with structure plan	100% consistent	3
Build a vibrant community integrated with Hamilton	Consistency with structure plan Connections (all modes) to rest of city	Connections to Ruakura, University, ring road, Ham E	3
Coordinated land use and strategic infrastructure	Consistency with trunk infrastructure strategic plans and Southern Links)	Long term consistent but staging risk consistent	2
Financial sustainability	Whole of life cost Benefit cost ratio	3.1 similar to IBC (transport benefits alone)	3
Rationale for selection or rejection of option:		NOT PREFERRED – Urban design, risk of compromise later, reduced PT opportunities	



PEACOCKE BUSINESS CASE: OPTIONS SUMMARY:

IMPLEMENTABILITY APPRAISAL TL5 GARDENS BRIDGE CONNECTION 2 LANE		
Technical:	2	<ul style="list-style-type: none"> <li>Simple</li> <li>Slightly more complex for staged construction</li> </ul>
Consentability:	0	<ul style="list-style-type: none"> <li>Minor consents only</li> <li>Double phase construction affecting reiver corridor</li> </ul>
Operational/ Maintenance:	2	<ul style="list-style-type: none"> <li>Less flexibility</li> </ul>
Safety and design, Risk consideration:	1	<ul style="list-style-type: none"> <li>Similar – slightly worse than 4 lane</li> <li>Risk of not achieving savings in long term.</li> </ul>
Financial:	3	<ul style="list-style-type: none"> <li>In long term infrastructure plan</li> </ul>
Public/Stakeholders:	0	<ul style="list-style-type: none"> <li>Political opposition</li> </ul>

MULTI-CRITERIA ASSESSMENT TL5 GARDENS BRIDGE CONNECTION 2 LANE			
Criterion	Scale of impact	Significance of impact	Supporting information (Refer MWH Southern Sector Wastewater Investigation)
Safety Risk	1	1	Relieves SH3 and hospital area, slightly less than 2 lanes
Cultural:	1	1	Consulted (ongoing) as part of Southern Links
Built Environment	0	1	Relieves SH3 but not as much as four lanes
Natural environment	2	1	Consulted – best option
Community/ Social:	2	1	Access to Uni, Ruakura and Ham E Less of an opportunity for urban design gateway feature
Human health:	0	1	Neutral (SH 3 slight benefits)
Property:	3	1	Designated – under way
Integration: (technology)	2	1	Generally Consistent with Infr strategy Reduced opportunities for transit lanes
Economy	3	1	As for IBC

Scale: -3 Bad to +3 Good. Significance – all even = 11%





VASTEWATER OPTIONS

Assessment Area	Criteria	Weighting % of Area	Considerations	Ratings	Reason for Rating	Alternative and Ratings	Reason for Rating	Alternative and Ratings	Reason for Rating	Alternative and Ratings	Reason for Rating	Alternative and Ratings	Reason for Rating
					SL1: Base Case – Peacocke to HCC Pukete Treatment Plant, Airport and Cambridge to upgraded Cambridge Wastewater Treatment Plant;	SL2: All Peacocke, Airport and Cambridge wastewater conveyed to HCC Pukete Treatment Plant, two alternative routes and timing have been identified and investigated, coded as SL2Ai, SL2Aii and SL2B;		SL3: All Peacocke, Airport and Cambridge wastewater conveyed to upgraded Cambridge WWTP;		SL4: All Peacocke, Airport and Cambridge wastewater conveyed to a New WWTP in Mystery Creek / Peacocke area with discharge to the Waikato River, 2 alternative discharge routes have been identified, upstream and downstream of the HCC Water Supply Intake, denoted A upstream and B downstream.		Preferred option - Combination of SL1 and SL2 - Pump station and pressure systems designed with manifolds and land area to allow for future Cambridge connections if required in future.	
					\$100 - 110M Cap, \$5-6M Opex/year	\$110 - 130M Cap, \$5-7M Opex/year (SL1 plus \$20M)		\$90 - 110M Cap, \$6-8M Opex/year (SL1 plus \$28M)		\$100 - 125M Cap, \$7-9M Opex/year (SL1+30M)		\$100 - 110M Cap, \$5-6M Opex/year	
Investment Objectives 33.3% of total overall	Economic contribution	16.7%	Proportion of total quantifiable benefits available	3	All benefits available	2	As it can be delivered in time - risk of lower	-1	Benefits delayed	-2	Benefits delayed	3	All benefits available
	Serviced land meets NPS-UDC targets	16.7%	3,153 dwellings in 10 years 8,103 dwellings in 30 years At min desirable Customer Levels of Service	3	Full development capacity available from start	1	Full development capacity available from start as long as agreements reached	-2	No consent or capacity at Cambridge	-3	No new plant available	3	Full development capacity available from start
	Support affordable housing	16.7%	Consistency with structure plan	3	Fully consistent	3	Fully consistent	3	Fully consistent	3	Fully consistent	3	Fully consistent
	Build a vibrant community integrated with Hamilton	16.7%	Consistency with structure plan Connections (all modes) to rest of city	3	Fully consistent	3	Fully consistent	3	Fully consistent	3	Fully consistent	3	Fully consistent
	Coordinated land use and strategic infrastructure	16.7%	Consistency with trunk infrastructure strategic plans and Southern Links	3	Fully consistent with HCC plans	-1	Higher cost - no support from Waipa DC, airport or Titanium Park	-1	Higher cost - no agreement with Waipa DC, airport or Titanium Park	-2	Higher cost - not consistent with HCC plans	3	Fully consistent with HCC plans
	Financial sustainability for Council and Community	16.7%	Whole of life cost (HCC component) Benefit cost ratio	3	\$60.9M As for IBC	-1	\$60.9M plus part of +\$20M) As for IBC	2	\$60.9M plus part of +28M) As for IBC	3	\$60.9M plus part of \$30M) As for IBC	2	\$60.9M + say \$2M FutureProofing As for IBC
			Subtotal (out of 33%)	100%		39%		22%		11%		94%	
Implementability 33.3% of total overall	Technical	16.7%	Certainty/confidence in solution	3	Simple	3	Simple	3	Simple	3	Simple	3	Simple
	Consentability	16.7%	Consents needed/risks/time	1	Pump station designation and pipeline consents to north needed. Presume SLinks corridors	0	Pump station designation and pipeline consents to north needed. Presume SLinks corridors	-1	Pump station designation and pipeline consents needed	-3	Pump station designation and pipeline consents needed	1	Pump station designation and pipeline consents to north needed. Presume SLinks corridors
	Safety and design	16.7%	Certainty/confidence in solution	3	Simple	1	Simple	-1	Simple	-2	Simple	3	Simple
	Affordability - Operational/ Maintenance	16.7%	Operational costs	2	Typical operational costs for pumped solution	1	Slightly higher operational costs for pumped solution	0	Higher maint/opex costs	-1	Higher maint/opex costs	2	Typical operational costs for pumped solution
	Affordability - Financial	16.7%	Implementation costs (and cost of funding?)	3	As for IBC	3	As for IBC	2	As for IBC but higher risk of extras	1	As for IBC but significantly higher risk	2	Minor increase to allow for future changes
	Stakeholders/Customers	16.7%	Tangata Whenua, Developer, LTP support	1	In 30 year infrastructure plan and Peacocke Structure Plan consultation. May concern Waipa.	1	In 30 year infrastructure plan and Peacocke Structure Plan consultation. May concern Waipa.	2	Not in 30 year infrastructure plan and Peacocke Structure Plan consultation. May concern Waipa.	3	Not in 30 year infrastructure plan and Peacocke Structure Plan consultation. May concern Waipa and Waikato	2	Future proof simple option with space for pump capacity, manifolds, etc.
			Subtotal (out of 33%)	72%		50%		28%		6%		72%	
Assessment of Effects 33.3% of total overall	Safety	11.1%	Relief of traffic from less suitable routes	0	n/a	0	n/a	0	n/a	0	n/a	0	n/a
	Cultural	11.1%	Water impact, river impact, cultural recognition	0	Standard treatment approach	1	Standard treatment approach	0	Standard treatment approach	0	Standard treatment approach	0	Standard treatment approach
	Built Environment	11.1%	Impacts (beyond consented – e.g. SLinks)	0	Neutral	1	Less urban impact	1	Less urban impact	1	Less urban impact	2	Neutral
	Natural environment	11.1%	Impacts (beyond consented – e.g. SLinks)	2	Neutral	3	Neutral	3	3	0	Neutral	2	Neutral
	Community - social	11.1%	Access to jobs, services, shops, etc.	1	n/a	1	n/a	1	n/a	0	n/a	1	n/a
	Community – human health	11.1%	Risks/opportunities for impacts	0	Neutral	3	Neutral	1	Neutral	1	Neutral	0	Neutral
	Community - property	11.1%	Impacts, risks, maori land, other infrastructure	3	Land for pump station may be residual from SLinks	3	Land for pump station may be residual from SLinks	0	0	0	Land for pump station may be residual from SLinks	3	Land for pump station may be residual from SLinks
	System Integration	11.1%	Environmental screen, water needs and transport demand dealt with, risk management	1	Risk of future changes being compromised	3	Risk of delays from decisions/approvals/ agreement	1	Risk of delays from decisions/approvals/ agreement	3	High risk of delays, opposition, etc.	3	Risk of future changes being compromised
	Economics	11.1%	Support economic growth, enhance potential of adjacent land (new and existing corridors)	3	As for IBC	3	As for IBC	3	As for IBC	3	As for IBC	3	As for IBC
			Subtotal (out of 33%)	37%		67%		37%		30%		52%	
			Weighted Rating (and Ranking)	70%	2	52%	3	29%	4	15%	5	73%	1
REJECT - DELAY													
REJECT - DELAY, RISK													
REJECT - DELAY, RISK													
PREFERRED													

Rating	Definition	Score
Significantly positive	Significant positive impact, likely resulting in long term improvements	3
Moderately positive	Moderate positive impact, which may provide improvements and opportunities	2
Slightly positive	Minor positive impact	1
Neutral	Similar impact to the do-minimum	0
Slightly adverse	Minor adverse impact, which can be mitigated or managed	-1
Moderately adverse	Moderate adverse impact, that may be managed or mitigated	-2
Significantly adverse	Significant adverse impact with serious long term effects	-3

Alternative/Option	Score	Ranking
SL1: Base Case – Peacocke to HCC Pukete Tre	70%	2
SL2: All Peacocke, Airport and Cambridge was	52%	3
SL3: All Peacocke, Airport and Cambridge was	29%	4
SL4: All Peacocke, Airport and Cambridge was	15%	5
Preferred option - Combination of SL1 and SL2	73%	1

TRANSPORT OPTIONS

Assessment Area	Criteria	Weighting % of Area	Considerations	Ratings	Reason for Rating	Ratings	Reason for Rating	Ratings	Reason for Rating	Ratings	Reason for Rating	Ratings	Reason for Rating
					T1: Gardens Bridge connection 4 lane (IBC Proposal)		T2: Cobham Drive connection - Mangakotukutuku Gully crossing, four lane Cobham Bridge		T3: Different to Southern Links alignments		T4: Passenger Transport Options		T5: Gardens Bridge connection 2 lane
Investment Objectives 33.3% of total overall	Economic contribution	16.7%	Proportion of total quantifiable benefits available	3	All benefits available	1	Cobham and existing network constraints restrict to around 1000 lots - reduced early benefits, remainder delayed, reduced external transport benefits	1	Cobham and existing network constraints restrict to around 1000 lots - reduced early benefits, remainder delayed, reduced external transport benefits	1	Cobham and existing network constraints restrict to around 3500 lots - reduced early benefits, remainder delayed, reduced external transport benefits	2	Most benefits available as long as staged correctly available
	Serviced land meets NPS-UDC targets	16.7%	3,153 dwellings in 10 years 8,103 dwellings in 30 years At min desirable Customer Levels of Service	3	Full development capacity available from start	1	1000 lots in 10 years	1	1000 lots in 10 years	1	3500 lots in 10 years	3	Most development capacity available from start
	Support affordable housing	16.7%	Consistency with structure plan	3	Fully consistent	3	Would catch up by 30 years	3	Would catch up by 30 years	3	Would catch up by 30 years	3	Fully consistent
	Build a vibrant community integrated with Hamilton	16.7%	Consistency with structure plan Connections (all modes) to rest of city	3	Fully consistent	3	Just connection to centre - no uni link	-1	Changes to structure plan	3	Changes to structure plan	3	Fully consistent
	Coordinated land use and strategic infrastructure	16.7%	Consistency with trunk infrastructure strategic plans and Southern Links	3	Fully consistent with HCC plans	-1	Fails to complete ring Road	-1	Fails to complete ring Road	1	Fails to complete ring Road	2	Fully consistent with HCC plans
	Financial sustainability for Council and Community	16.7%	Whole of life cost (HCC component) Benefit cost ratio	3	\$179M >10 (As for IBC)	1	\$250M (est) around 2	1	Not Available - probably similar around 2	1	Not Available - probably similar around 2	3	\$160M (at risk if 2 stage difficult >10
			Subtotal (out of 33%)	100%		44%		22%		56%		89%	
Implementability 33.3% of total overall	Technical	16.7%	Certainty/confidence in solution	3	Simple	3	Simple	3	Not sure what alternatives would make sense	2	Not sure what alternatives would make sense	2	Risk if cable stay or asymmetrical arch
	Consentability	16.7%	Consents needed/risks/time	1	Minor consents only	0	Minor consents only	0	Alteration to designation and new consents - 5 years	2	Alteration to designation and new consents - 5 years	0	Risk of dual river crossing activities being undesirable (esp. DoC)
	Safety and design	16.7%	Certainty/confidence in solution	3	Simple	1	Simple	1	May not end up being an advantage	1	May not end up being an advantage	2	Risk - should be manageable but at cost risk
	Affordability - Operational/ Maintenance	16.7%	Operational costs	2	similar	1	similar	1	similar	0	Significant - service solution	1	similar
	Affordability - Financial	16.7%	Implementation costs (and cost of funding?)	3	As for IBC	3	As for IBC	3	As for IBC	2	As for IBC	3	
	Stakeholders/Customers	16.7%	Tangata Whenua, Developer, LTP support	1	Supports Peacocks	1	Not consistent with Access Strategy	1	Not consistent with Access Strategy, HUGS, SH network, structure Plan, etc.	1	Not consistent with Access Strategy, HUGS, SH network, structure Plan, etc.	0	Politically sensitive, DOC and Tangata Whenua risks
			Subtotal (out of 33%)	72%		50%		50%		44%		44%	
Assessment of Effects 33.3% of total overall	Safety	11.1%	Relief of traffic from less suitable routes	3	Relieves SH3 and hospital	1	Partly relieves SH3 and hospital	1	Probably relieves SH3 and hospital	2	Probably relieves SH3 and hospital	1	Relieves SH3 and hospital (significant portion)
	Cultural	11.1%	Water impact, river impact, cultural recognition	1	Consulted	0	Consulted - risk for Mangakotukutuku Gully being early?	-1	Not consulted	2	Consistent with SLinks	0	Not consulted in relation to two stages
	Built Environment	11.1%	Impacts (beyond consented – e.g. SLinks)	0	Neutral	0	Neutral	0	Neutral	2	Neutral	0	Neutral
	Natural environment	11.1%	Impacts (beyond consented – e.g. SLinks)	2	Neutral	3	Neutral	3	Neutral	3	Neutral	2	Neutral
	Community - social	11.1%	Access to jobs, services, shops, etc.	3	Access to Uni, Ruakura and Ham E	1	Access to centre	1	Not known	2	Not known	2	Access to Uni, Ruakura and Ham E, not as much as 4 lane,
	Community – human health	11.1%	Risks/opportunities for impacts	0	Neutral	0	Neutral	-1	Community stress	3	Community stress	0	Neutral
	Community - property	11.1%	Impacts, risks, maori land, other infrastructure	3	Designated - conditions for engagement under way	3	Designated - conditions for engagement under way	-3	Not designated	1	Not designated	3	Designated - conditions for engagement under way
	System Integration	11.1%	Environmental screen, water needs and transport demand dealt with, risk management	3	Consistent with infr strategy	1	Sequence change from infr strategy	-3	Major change	2	Future Proof	3	Consistent with infr strategy
	Economics	11.1%	Support economic growth, enhance potential of adjacent land (new and existing corridors)	3	As for IBC	3	As for IBC	3	Similar	2	Staged	2	As for IBC
			Subtotal (out of 33%)	67%		44%		0%		70%		48%	
			Weighted Rating (and Ranking)	80%	1	46%	4	24%	5	57%	3	60%	2
					PREFERRED		REJECT		REJECT		NOT HIF, NOT PREFERRED		NOT PREFERRED

Rating	Definition	Score
Significantly positive	Significant positive impact, likely resulting in long term improvements	3
Moderately positive	Moderate positive impact, which may provide improvements and opportunities	2
Slightly positive	Minor positive impact	1
Neutral	Similar impact to the do-minimum	0
Slightly adverse	Minor adverse impact, which can be mitigated or managed	-1
Moderately adverse	Moderate adverse impact, that may be managed or mitigated	-2
Significantly adverse	Significant adverse impact with serious long term effects	-3

Alternative/Option	Score	Ranking
T1: Gardens Bridge connection 4 lane (IBC Proc	80%	1
T2: Cobham Drive connection - Mangakotuku	46%	4
T3: Different to Southern Links alignments	24%	5
T4: Passenger Transport Options	57%	3
T5: Gardens Bridge connection 2 lane	60%	2



Waste water option development

IBC ALTERNATIVES

DBC OPTIONS

DBC REFINEMENT

Previous Investigations			IBC Infrastructure Short List			IBC Preferred			DBC short list			DBC Assessment - Tentative		
Southern Area Waste Water Study Table 6-5			Southern Area Waste Water Study Table 7-2 and MWH Supplementary			Opus detailed design and MWH Supplementary			Stakeholder Assessment – anything else?			For five case analysis (Presume Scenarios say “some development in Peacocke” = >1,000hh)		
DM	Do nothing	SL0	SL0	Do Nothing		SL0 Do Nothing			WS0	Do Nothing		WD0	Do Nothing	No. Reduction in LOS is unacceptable
LL1	Peacocke to Pukete, Airport and Cambridge to Cambridge	SL1	SL1	Base case	Best	SL1 Base case +staging, routes and Cambridge links options			WS1	Full capacity, bridge, route TBA, No Cambridge options	No	WD1	Full capacity, bridge, route TBA, Future Proof Cambridge options	Affordability – in financial case (if staged, same as WD2)
LL2	All WW to Pukete	SL2	SL2	All WW to Pukete	Not precluded				WS2	Full capacity, bridge, route TBA, Future Proof Cambridge options	Yes	WD2	Stage 1 capacity initially, respond later, Bridge or thrust, route TBA	Staging efficiency in procurement/ management case (same as WD1)
LL3	All WW to Cambridge	SL3	SL3	All WW to Cambridge	Not precluded				WS3	Stage 1 capacity initially, respond CB later, Bridge or thrust, route TBA	Staging option			?
LL4	New WWTP in Peacocke	SL4	SL4	New WWTP in Peacocke	Not precluded				WS4	Developer led interim solution(s), Full capacity later	No – Risk not acceptable			
LL5	3 decentralised WWTPs in area	Not viable	SL5	Land disposal and LL4 WWTP	Not precluded									
LL6	Land based treatment	Not viable												
LL7	Decentralised and land based	Not viable												
LL8	Decentralised and reuse water	Not viable												
LL9	Land disposal and LL4 WWTP	SL5												
LL10	Grinders and small bore pumps	Not viable												
LL11	On site disposal	Not viable												
LL12	Waterless toilets	Not viable												
Earlier Investigations														
	Gravity connection from Peacocke to Pukete	Not Viable												
	Western Interceptor Connection	Not Viable												

HCC Peacocke HIF DBC

11/9/17

Only DBC wastewater option is:

- Collection in Peacocke, pump to Pukete

Management, commercial and economic cases will refine the option to determine how best to future proof or stage for Cambridge and optimise value for money in implementation.

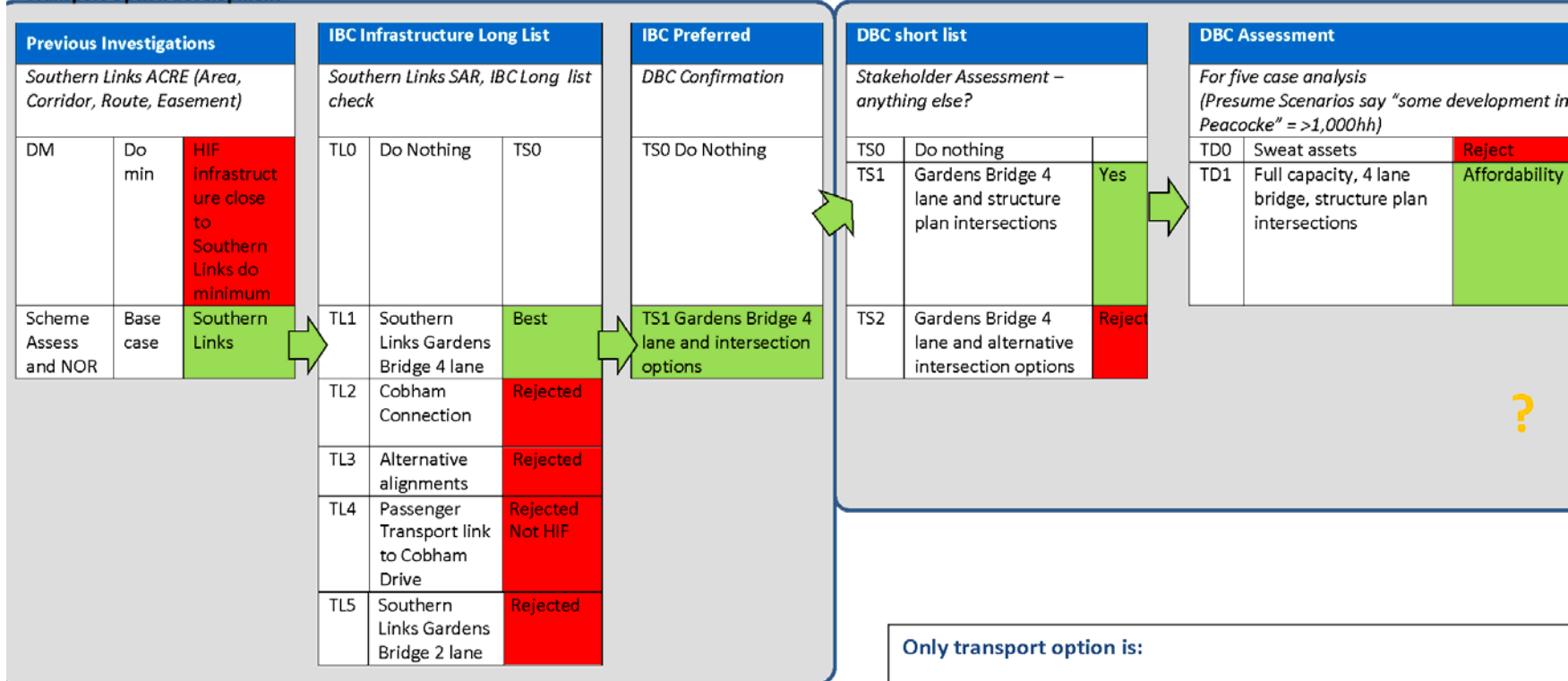
Selection Process 1

**Attachment 4**

**Item 10**



**Transport Option development**



**Only transport option is:**

- **Full capacity, four lane Gardens Bridge, Southern Links alignments, structure plan intersections**  
Management, commercial and economic cases will refine the option to determine how best to stage and optimise value for money in implementation.

**Attachment 4**

**Item 10**

**Combined Option Development WD1, WD2 and DT1**

DBC Alternatives	Transport Detailed 0 No new infrastructure (accept lower LOS)	Transport Detailed 1 Full capacity, 4 lane bridge, expect signals but allow for change
<b>Wastewater Detailed 0</b> No new infrastructure – Accept lower LOS/local treatment	X  WW LOS not acceptable Transport LOS not acceptable	X  WW LOS not acceptable Transport LOS not acceptable
<b>Wastewater Detailed 1</b> Full capacity, bridge, route TBA, Future Proof Cambridge options (in pre-implementation phase.)	X  Transport LOS not acceptable	✓ <b>DBC1:</b> IBC Preferred Option
<b>Wastewater Detailed 2</b> Stage 1 capacity initially, respond with more capacity or Cambridge later, Bridge or thrust, route TBA	X  Transport LOS not acceptable	DBC2 Bridge available – Staged TS1 Refine staging as part of WD1

**After DBC multi-criteria assessment = 5 case analysis for: DBC2**

Option	Description	Considerations	Likely Preference
DBC0	<b>Do minimum</b> – (or development elsewhere) For comparison – no investment, no development	Te Awa Lakes (500-1000hh) SHA's (??hh), Ruakura (??hh)	<b>If unaffordable-</b> Alternative scenarios, PT option?
DBC1	<b>IBC Preferred Option</b> – 4 lane Gardens Bridge Full capacity wastewater	High cost Oversupply early	<b>No</b> – early investment, Cambridge risks
DBC2	<b>Staged wastewater</b> 4 lane Gardens Bridge 2 stage wastewater	High cost Oversupply transport early Demand responsive wastewater	<b>Yes</b> – efficient – low risk

HCC Peacocke HIF DBC

11/9/17

Selection Process 3

## Appendix B

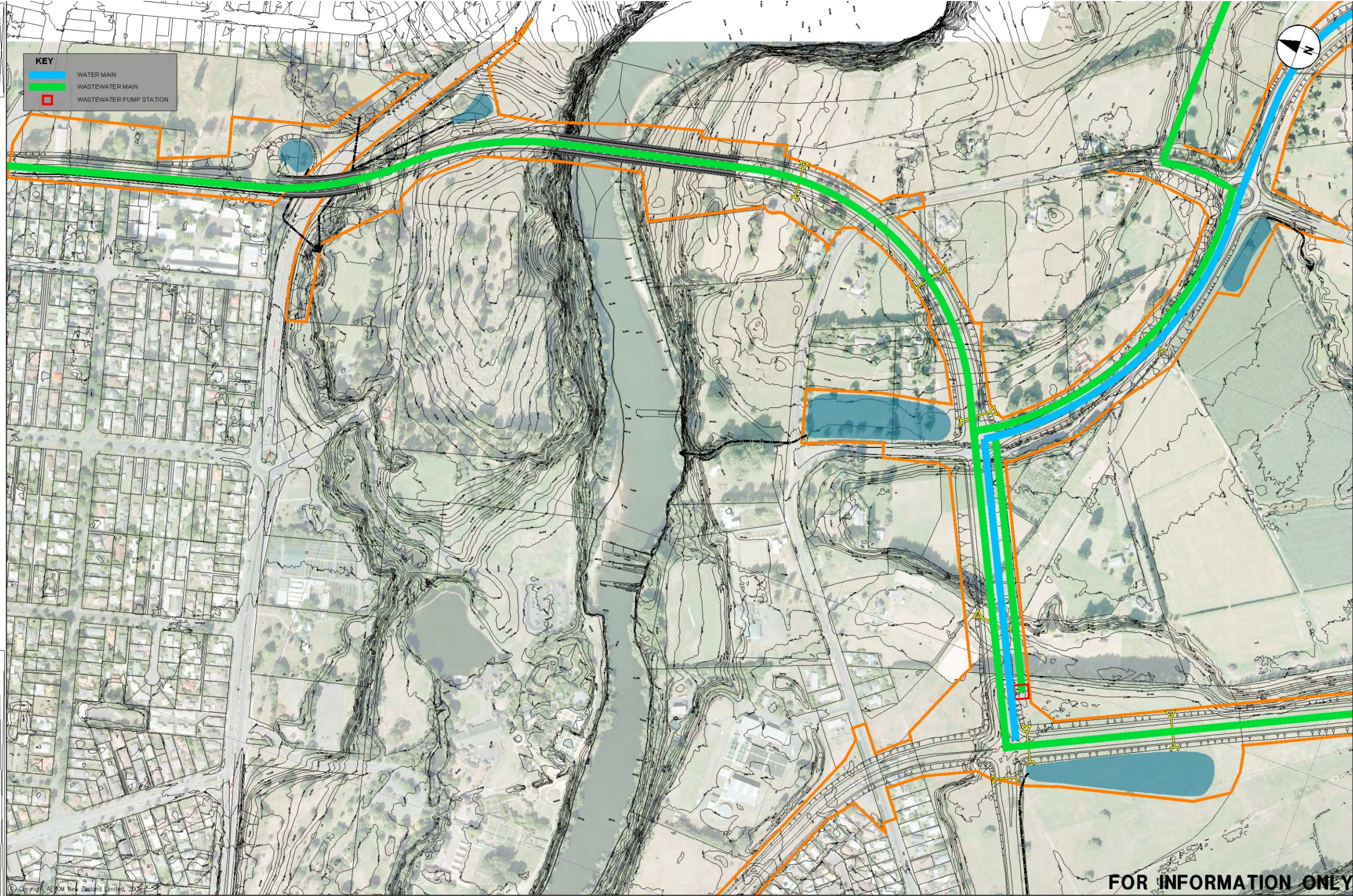
### Preliminary design drawings

#### Relevance:

Section 4: Preferred Option

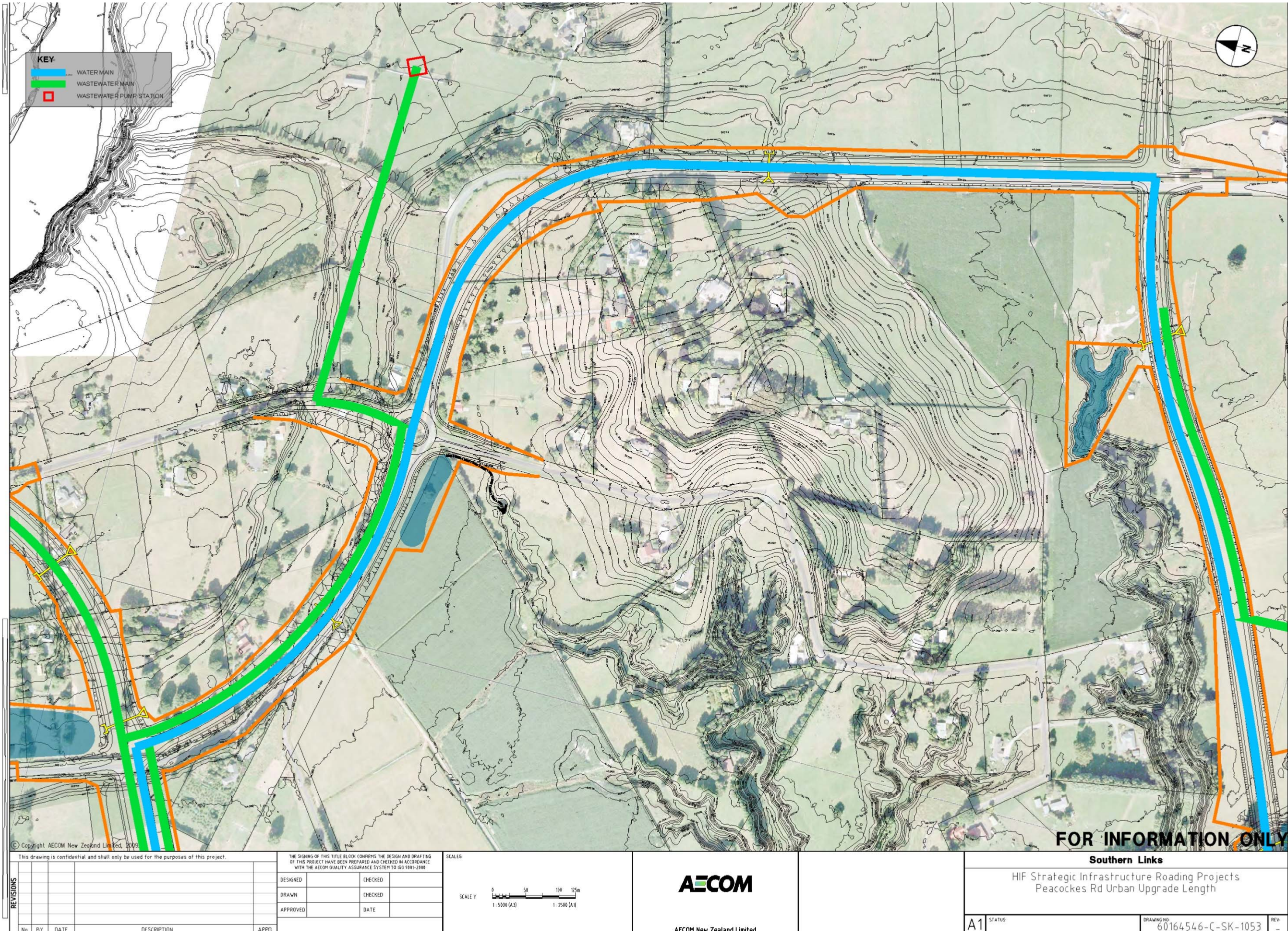
- Southern Links permanent level drawings to show preferred option.
- Wastewater and water pipe network sizes and materials are shown on LTP drawings in DBC.
- Concept for transfer pump station is shown in report with further information in Bibliography (9) (Prestidge, A. & Jeram, A. (2017). *Peacocks Wastewater Solution Concept Design Report*. Opus International Consultants Ltd 2017. Reference: 3-AWC07.00)



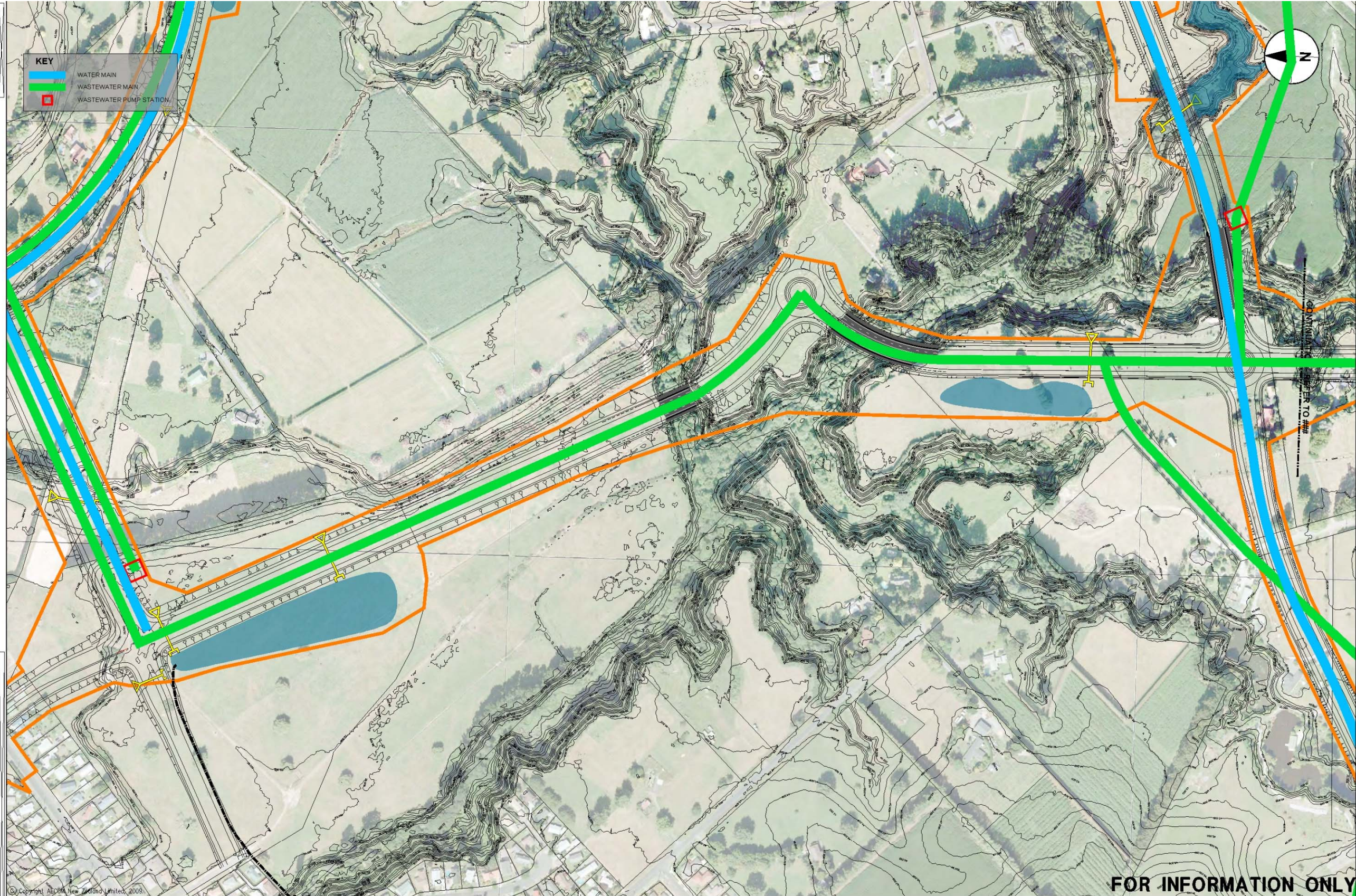


This drawing is confidential and shall only be used for the purposes of this project.					THE SIGNING OF THIS TITLE BLOCK CONFIRMS THE DESIGN AND DRAFTING OF THIS PROJECT HAVE BEEN PREPARED AND CHECKED IN ACCORDANCE WITH THE AECOM QUALITY ASSURANCE SYSTEM TO ISO 9001:2008					SCALES:  SCALE Y 					  AECOM New Zealand Limited					<b>Southern Links</b> HIF Strategic Infrastructure Rooding Projects Cobham/Wairere to Peacocks Rd & Peacocks Rd to Plateau Dr - East West Link					A1	STATUS	DRAWING NO. 60164546-C-SK-1052	REV: -						
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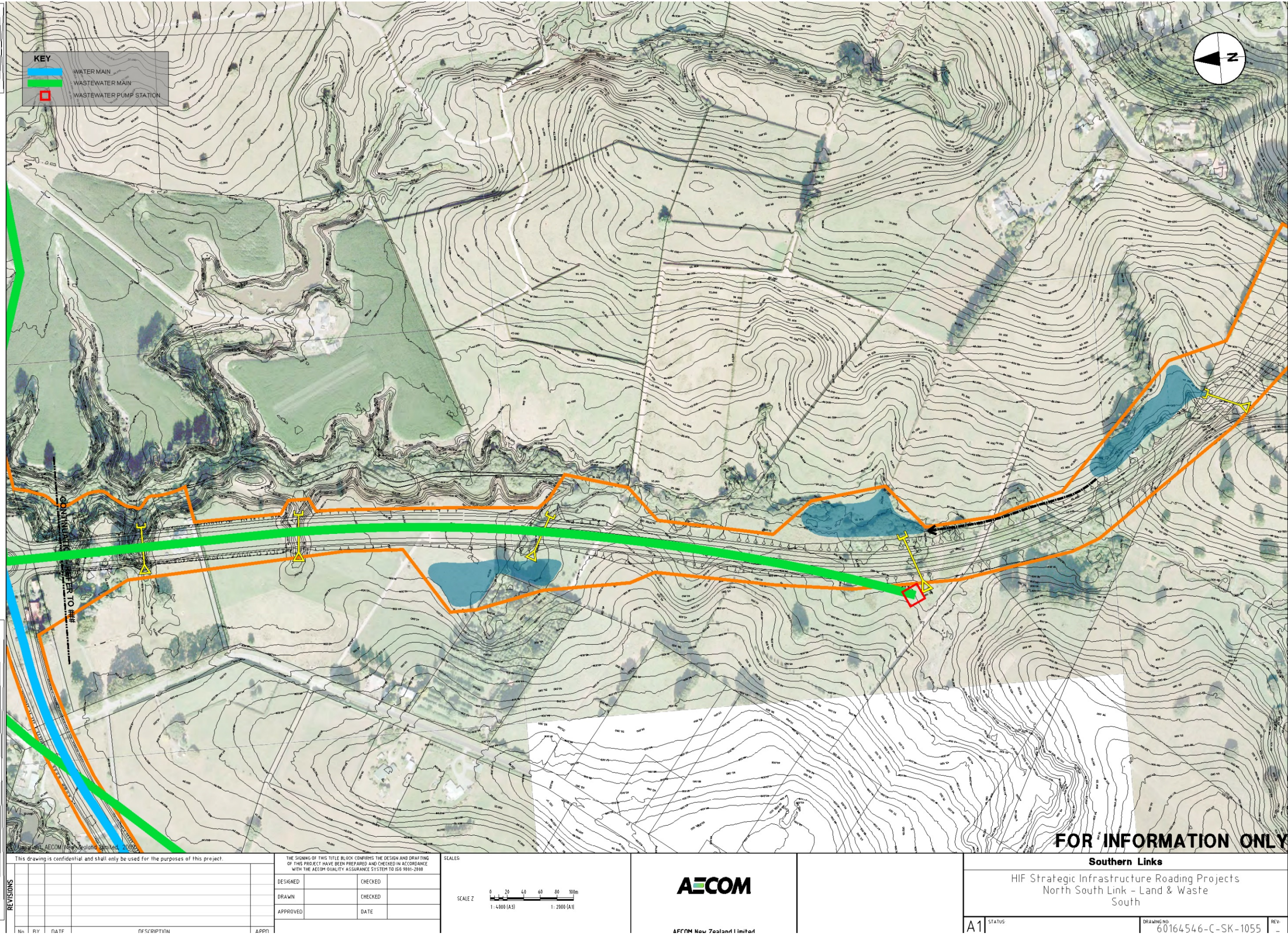




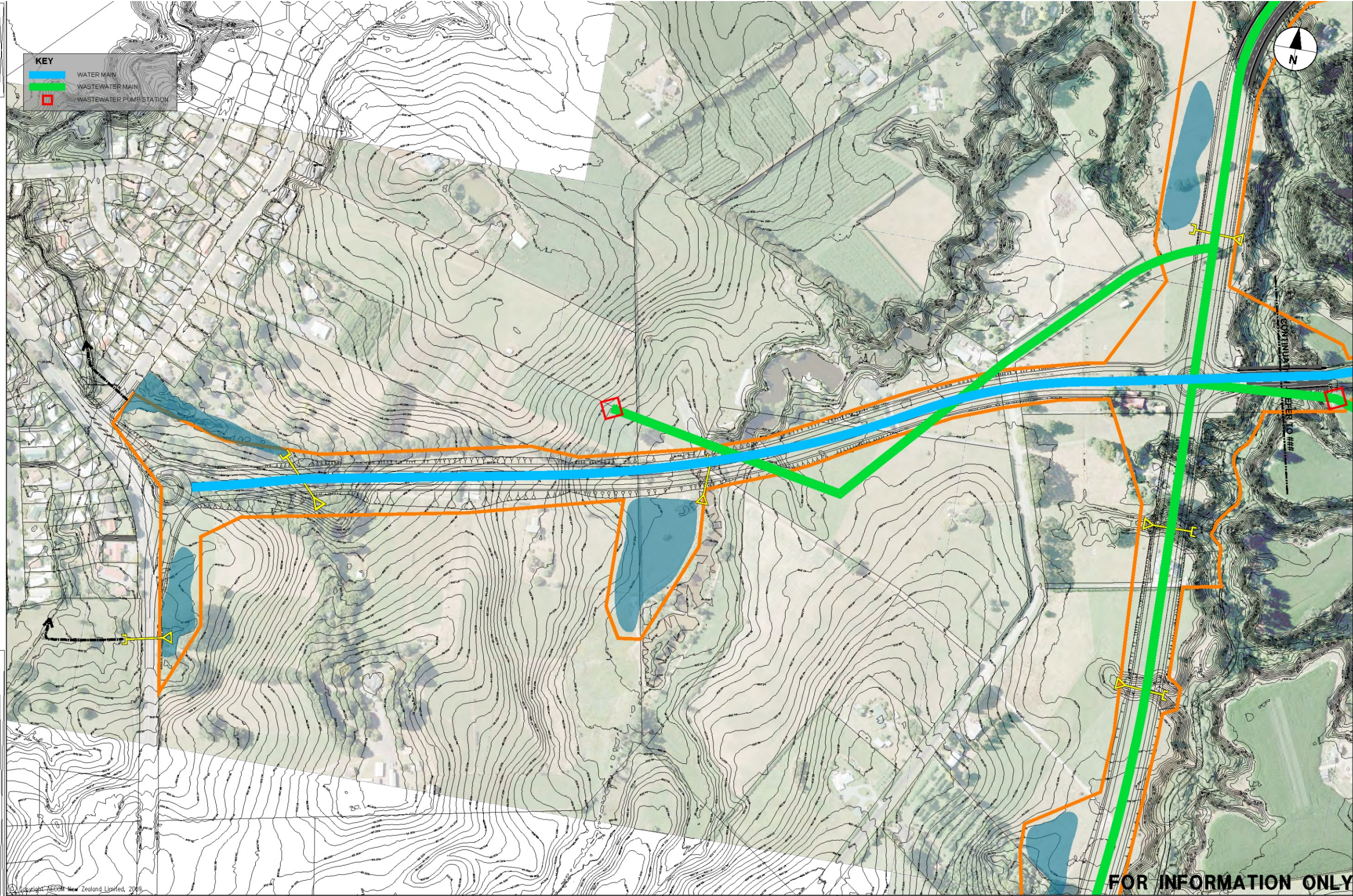


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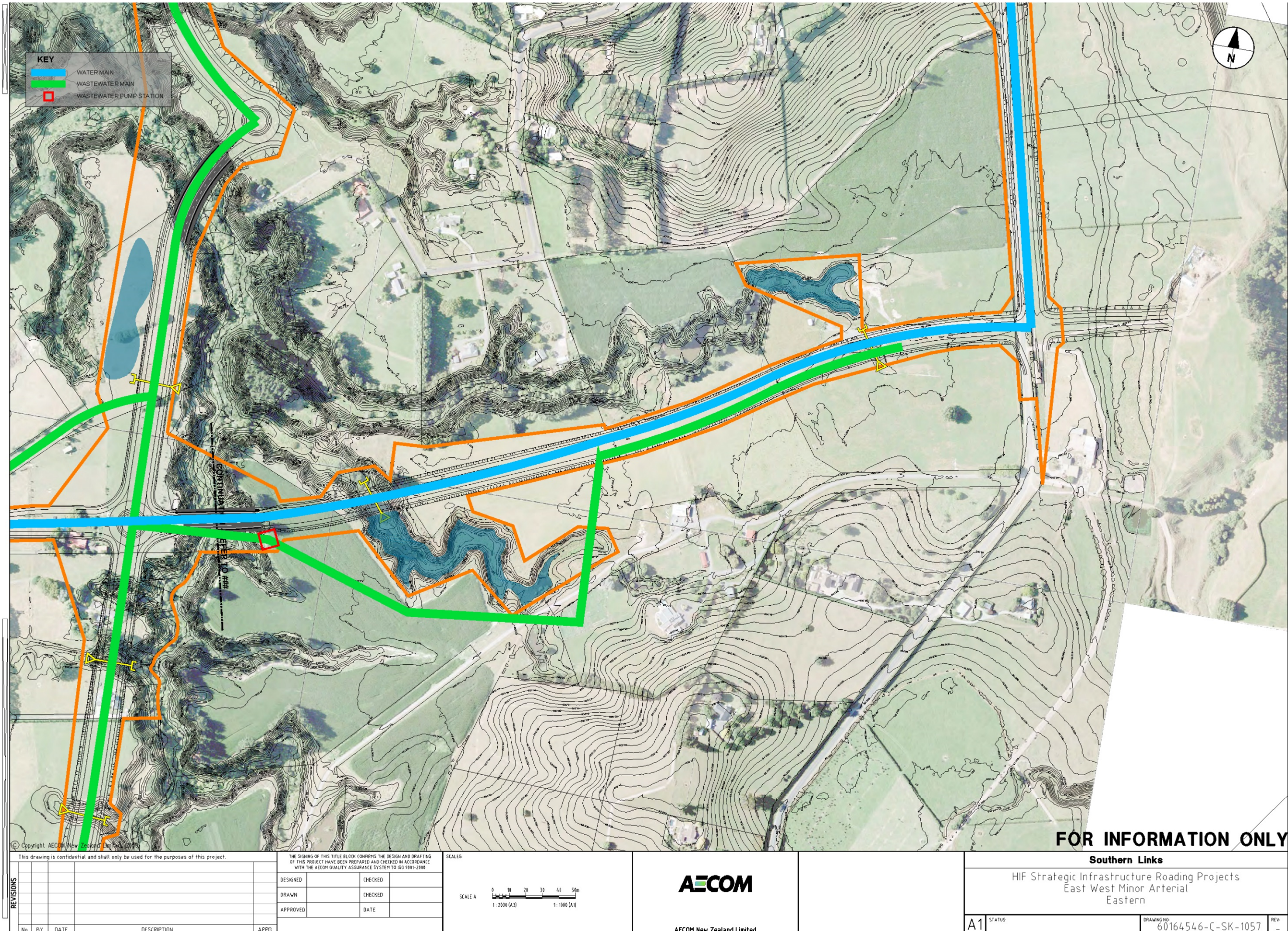






This drawing is confidential and shall only be used for the purposes of this project.					THE SIGNING OF THIS TITLE BLOCK CONFIRMS THE DESIGN AND DRAFTING OF THIS PROJECT HAVE BEEN PREPARED AND CHECKED IN ACCORDANCE WITH THE AECOM QUALITY ASSURANCE SYSTEM TO ISO 9001:2000		SCALES: SCALE A 0 10 20 30 40 50m 1:2000 (A3) 1:1000 (A1)		<b>AECOM</b> AECOM New Zealand Limited		<b>Southern Links</b> HIF Strategic Infrastructure Roadway Projects East West Minor Arterial Western		<b>FOR INFORMATION ONLY</b>	
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													DRAWING NO.	
													60164546-C-SK-1056	
													REV:	







## Appendix C

### Preliminary design estimates

**Relevance:**

Section 4:	Preferred Option
Section 5:	Economics
Section 6:	Financial Case
Section 7:	Commercial Case
Section 8:	Management Case

The design estimates used are those from Hamilton's draft 2018-2028 long term plan (LTP).

These are based on standard rates, cross sections/infrastructure elements, and lengths/scope/extents.

There are some minor variations in costs between the LTP costs where, for example, land is expected to be provided by developers, or there are sunk costs.

More specific costs for the wastewater transfer pump station and pressure main and for road sections are contained in references for the relevant components.





								1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
time line								2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48
bid program capex gross																																					
Transport program																																					
2A STRATEGIC Wairere/cobham	Construction	1.0	100%	20,000.0	20000			20,000.0																													
	Project Property Cost			84%	6,360.0	6,360.0			3,180.0	3,180.0																											
	Investigation and Reporting			12%	879.0	879.0																															
	Land procurement			5%	354.0	354.0			177.0	177.0																											
2B STRATEGIC land	LTCGP 3200.2	6.0	100%	7593.0	7593.0			4,236.0	3,357.0																												
	Project Property Cost			82%	4,333.0	4,333.0				4,333.0																											
	Investigation and Reporting			13%	690.0	690.0			690.0																												
	Land procurement			5%	246.0	246.0				246.0																											
2B STRATEGIC land	LTCGP 3200.3	6.0	100%	5,269.0	5,269.0			690.0	4,579.0																												
	Project Property Cost			85%	3,887.0	3,887.0				3,887.0																											
	Investigation and Reporting			9%	404.0	404.0			404.0																												
	Land procurement			6%	258.0	258.0				258.0																											
2B STRATEGIC land	LTCGP 3200.4	6.0	100%	4,549.0	4,549.0			404.0	4,145.0																												
	Project Property Cost			87%	5,358.0	5,358.0				5,358.0																											
	Investigation and Reporting			8%	509.0	509.0			509.0																												
	Land procurement			4%	258.0	258.0				258.0																											
2B STRATEGIC land	LTCGP 3200.5	6.0	100%	6,125.0	6,125.0			509.0	5,616.0																												
	Project Property Cost			25.4%	1,566.0	1,566.0				783.0	783.0																										
	Investigation and Reporting			6.1%	378.0	378.0																															
	Land procurement			4.3%	264.0	264.0				132.0	132.0																										
2B STRATEGIC land	Design and Project Documentation			7.0%	434.0	434.0				434.0																											
	Construction			52.0%	3,206.0	3,206.0																															
	MSQA, HCC Managed Costs and Consent monitoring fees			4.2%	257.0	257.0																															
	Maintenance			1.1%	66.0	66.0																															
1B STRATEGIC	LTCGP 3123.1	4.0		6,171.0	6171			1,293.0	1,349.0	3,463.0																											
	Project Property Cost			25.6%	1,755.0	1,755.0																															
	Investigation and Reporting			6.4%	436.0	436.0				436.0																											
	Land procurement			3.9%	264.0	264.0																															
2B STRATEGIC	Design and Project Documentation			7.6%	518.0	518.0																															
	Construction			51.5%	35,260.0	35,260.0																															
	MSQA, HCC Managed Costs and Consent monitoring fees			4.1%	283.0	283.0																															
	Maintenance			1.0%	66.0	66.0																															
2B STRATEGIC	LTCGP 3123.2	4.0		6,847.0	6847			-	-	436.0	2,537.0	3,809.0	66.0																								
	Project Property Cost			4.2%	192.0	192.0																															
	Investigation and Reporting			5.8%	265.0	265.0																															
	Land procurement			3.8%	173.0	173.0																															
1B STRATEGIC	Design and Project Documentation			9.7%	445.0	445.0																															
	Construction			69.5%	3,183.0	3,183.0																															
	MSQA, HCC Managed Costs and Consent monitoring fees			5.6%	255.0	255.0																															
	Maintenance			1.4%	66.0	66.0																															
2B STRATEGIC	LTCGP 0076.1	4.0		4,579.0	4579			1,075.0	3,438.0	66.0																											
	Project Property Cost			14.2%	1,561.0	1,561.0																															
	Investigation and Reporting			4.7%	518.0	518.0																															
	Land procurement			1.9%	213.0	213.0																															
2B STRATEGIC	Design and Project Documentation			9.6%	1,052.0	1,052.0																															
	Construction			63.8%	6,996.0	6,996.0																															
	MSQA, HCC Managed Costs and Consent monitoring fees			5.1%	560.0	560.0								</																							

## Attachments

## Attachments

			yrs 1-10		yrs 1-30		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22		23		24		25		26		27		28		29		30																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
time line							2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
1B STRATEGIC	Construction		69.2%	543.8	543.8				543.8																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		

						1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
time line										yrs 1-10	yrs 1-30																								
						1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Gross costs						2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48
HIF item		subsidy		yrs 1-10	yrs 1-30																														
1	Wairere Drive/Cobham overbridge - additional to current funding	51%		20,000.0	20,000.0		20,000.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2	Wairere Drive extension and bridge over waikato river to Peacocke north south arterial	51%		116,783.0	116,783.0		11,471.0	13,383.5	14,329.5	40,423.5	37,109.5	66.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
3	Peacocke Road urban upgrade	51%		9,725.0	9,725.0		-	679.0	1,450.0	748.0	3,920.0	2,350.0	66.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
4	SH3/Dixon road intersection and peacockes east west arterial to peacockes road	51%		36,468.0	36,468.0		2,368.0	4,787.0	4,482.0	5,753.0	7,587.0	7,048.0	4,377.0	66.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
5	Wastewater strategic storage and pressure main back to the existing far eastern interceptor	0%		44,190.3	44,190.3		3,173.0	12,671.0	15,869.0	5,279.0	772.0	900.0	118.0	2,644.7	2,644.7	119.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
6	North south arterial Land	51%		235,360.0	235,360.0		5,839.0	17,697.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
7	Wastewater internal strategic network	0%		15,418.9	15,418.9		735.9	1,707.9	5,501.0	2,923.1	2,859.1	1,638.3	53.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
8	Water Distribution mains	0%		5,678.8	5,678.8		238.8	238.7	1,544.5	788.5	1,592.0	501.5	756.1	18.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Total			271,800.0	271,800.0	271,800.0	43,625.7	51,164.1	43,675.9	55,915.1	53,851.6	12,503.7	5,370.9	2,729.4	2,644.7	119.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Income						1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
HIF item		subsidy		yrs 1-10	yrs 1-30																														
1	Wairere Drive/Cobham overbridge - additional to current funding	51%		10,200.0	10,200.0		10,200.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2	Wairere Drive extension and bridge over waikato river to Peacocke north south arterial	51%		59,559.3	59,559.3		5,850.2	6,825.6	7,308.0	20,616.0	18,925.8	33.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
3	Peacocke Road urban upgrade	51%		4,359.8	4,359.8		-	346.3	994.5	381.5	2,005.3	1,198.5	33.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
4	SH3/Dixon road intersection and peacockes east west arterial to peacockes road	51%		18,598.7	18,598.7		1,207.7	2,441.4	2,285.8	2,934.0	3,869.4	3,594.5	2,232.3	33.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
5	Wastewater strategic storage and pressure main back to the existing far eastern interceptor	0%		-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
6	North south arterial Land	51%		12,003.4	12,003.4		2,977.9	9,025.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
7	Wastewater internal strategic network	0%		-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
8	Water Distribution mains	0%		-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Total			106,321.1	106,321.1	106,321.1	20,236.8	18,638.7	10,588.4	23,931.5	24,800.5	4,826.6	2,265.9	33.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Net cost HCC						1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
HIF item		subsidy		yrs 1-10	yrs 1-30																														
1	Wairere Drive/Cobham overbridge - additional to current funding	51%		9,800.0	9,800.0		9,800.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2	Wairere Drive extension and bridge over waikato river to Peacocke north south arterial	51%		57,223.7	57,223.7		5,620.8	6,557.9	7,021.5	19,807.5	18,183.7	32.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
3	Peacocke Road urban upgrade	51%		4,765.3	4,765.3		-	332.7	365.5	366.5	1,926.7	1,151.5	32.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
4	SH3/Dixon road intersection and peacockes east west arterial to peacockes road	51%		17,869.3	17,869.3		1,160.3	2,345.6	2,196.2	2,819.0	3,717.6	3,453.5	2,144.7	32.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
5	Wastewater strategic storage and pressure main back to the existing far eastern interceptor	0%		44,190.3	44,190.3		3,173.0	12,671.0	15,869.0	5,279.0	772.0	900.0	118.0	2,644.7	2,644.7	119.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
6	North south arterial Land	51%		11,532.6	11,532.6		2,861.1	8,671.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
7	Wastewater internal strategic network	0%		15,418.9	15,418.9		735.9	1,707.9	5,501.0	2,923.1	2,859.1	1,638.3	53.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
8	Water Distribution mains	0%		5,678.8	5,678.8		238.8	238.7	1,544.5	788.5	1,592.0	501.5	756.1	18.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Total			166,478.9	166,478.9	166,478.9	23,589.9	32,525.3	33,067.6	31,983.6	29,051.0	7,677.1	3,104.9	2,636.7	2,644.7	119.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	







## Appendix D

### Project Construction Cost Estimates

**Relevance:**

Section 7: Commercial Case

This information collates the Peacocke housing infrastructure estimates into construction packages based on coordination of location and timing.

version 6 Comparison

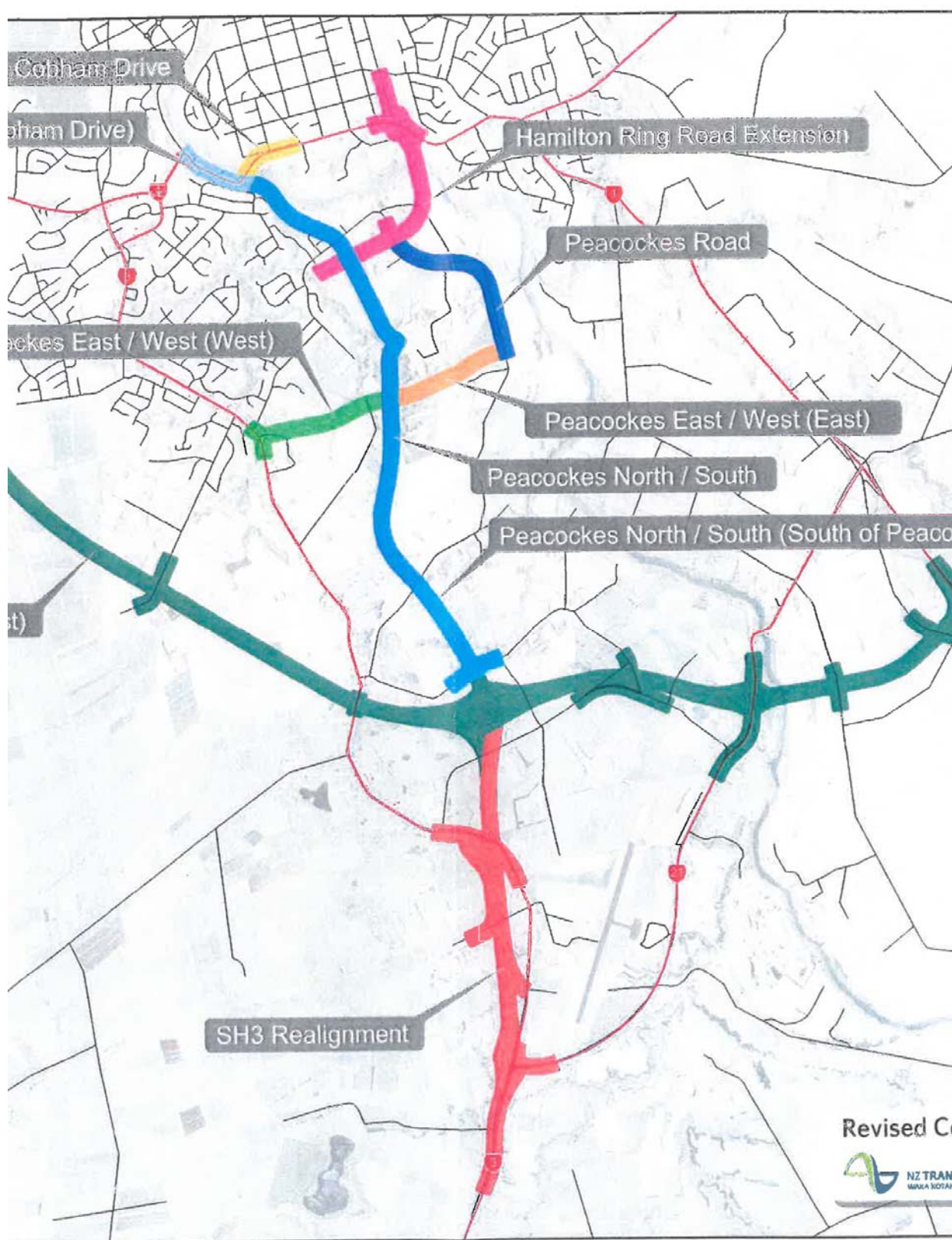
Southern Links Summary			AECOM			BOND CM		
Preliminary Design Estimates			Base Estimate	Expected Estimate	95%ile Estimate	Base Estimate	Expected Estimate	95%ile Estimate
Item	Description							
1	East West Alignment		\$246,334,808	\$290,547,900	\$364,480,000	\$260,923,545	\$321,253,492	\$386,484,339
	MSQA		\$13,066,257	\$15,026,197	\$18,292,757	\$10,179,303	\$12,724,129	\$15,268,955
	Construction		\$170,908,125	\$203,692,257	\$258,742,727	\$185,078,242	\$231,347,802	\$277,617,363
	Project Property Costs		\$49,008,958	\$56,360,258	\$68,612,458	\$49,008,958	\$56,360,258	\$68,612,458
	D&PD and NZTA Management Costs		\$13,451,468	\$15,469,188	\$18,832,058	\$16,657,042	\$20,821,302	\$24,985,563
2	SH3 Realignment		\$58,405,316	\$69,032,900	\$86,808,000	\$59,011,582	\$72,723,400	\$87,476,318
	MSQA		\$3,072,200	\$3,533,030	\$4,301,080	\$2,334,521	\$2,918,150.64	\$3,501,780.77
	Construction		\$41,665,556	\$49,782,140	\$63,372,280	\$42,445,828	\$53,057,284.44	\$63,668,741.33
	Project Property Costs		\$10,411,109	\$11,972,809	\$14,575,609	\$10,411,109	\$11,972,809	\$14,575,609
	D&PD and NZTA Management Costs		\$3,256,451	\$3,744,921	\$4,559,031	\$3,820,124	\$4,775,155.60	\$5,730,186.72
3	Peacocks Major Arterial		\$96,916,955	\$112,927,600	\$139,661,000	\$94,572,924	\$117,462,202	\$141,105,480
	MSQA		\$4,571,957	\$5,257,747	\$6,400,737	\$4,180,649	\$5,225,811.34	\$6,270,973.61
	Construction		\$79,285,072	\$92,650,947	\$114,976,327	\$76,011,801	\$95,014,751.66	\$114,017,701.99
	Project Property Costs		\$7,539,411	\$8,670,311	\$10,555,211	\$7,539,411	\$8,670,311	\$10,555,211
	D&PD and NZTA Management Costs		\$5,520,515	\$6,348,595	\$7,728,725	\$6,841,062	\$8,551,327.65	\$10,261,593.18
4	Cobham Link		\$22,593,336	\$26,008,900	\$31,703,000	\$31,927,191	\$39,908,989	\$47,890,787
	MSQA		\$1,012,319	\$1,164,169	\$1,417,249	\$1,533,621	\$1,917,025.68	\$2,300,430.81
	Construction		\$20,217,779	\$23,277,003	\$28,377,213	\$27,884,010	\$34,855,012.29	\$41,826,014.75
	Project Property Costs		\$0	\$0	\$0	\$0	\$0	\$0
	D&PD and NZTA Management Costs		\$1,363,238	\$1,567,728	\$1,908,538	\$2,509,561	\$3,136,951.11	\$3,764,341.33
5	Ring Road Extension		\$84,807,071	\$98,225,400	\$120,613,000	\$89,478,531	\$111,415,502	\$133,785,173
	MSQA		\$3,891,056	\$4,474,716	\$5,447,476	\$4,090,265	\$5,112,831.52	\$6,135,397.82
	Construction		\$71,714,038	\$83,168,407	\$102,282,717	\$74,368,458	\$92,960,573.02	\$111,552,687.62
	Project Property Costs		\$4,326,646	\$4,975,646	\$6,057,346	\$4,326,646	\$4,975,646	\$6,057,346
	D&PD and NZTA Management Costs		\$4,875,331	\$5,606,631	\$6,825,461	\$6,693,161	\$8,366,451.57	\$10,039,741.89
6	Peacocks Minor Arterial		\$9,580,897	\$11,162,400	\$13,803,000	\$9,159,195	\$10,892,444	\$13,110,403
	MSQA		\$556,490	\$639,960	\$779,080	\$345,263	\$414,315.34	\$497,178.41
	Construction		\$6,470,942	\$7,585,975	\$9,449,055	\$6,277,505	\$7,533,006.19	\$9,039,607.43

Attachment 4

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	Project Property Costs	\$1,971,452	\$2,267,152	\$2,760,052	\$1,971,452	\$2,267,152	\$2,760,052
	D&PD and NZTA Management Costs	\$582,013	\$669,313	\$814,813	\$584,975	\$677,970.56	\$813,564.67
<b>7</b>	<b>Peacockes East Arterial</b>	<b>\$13,571,378</b>	<b>\$15,743,000</b>	<b>\$19,367,000</b>	<b>\$13,517,284</b>	<b>\$16,168,400</b>	<b>\$19,423,038</b>
	MSQA	\$679,996	\$781,996	\$951,996	\$599,023	\$718,827.99	\$862,593.59
	Construction	\$11,017,893	\$12,806,495	\$15,792,095	\$10,891,333	\$13,069,599.82	\$15,683,519.78
	Project Property Costs	\$1,046,708	\$1,203,708	\$1,465,408	\$1,046,708	\$1,203,708	\$1,465,408
	D&PD and NZTA Management Costs	\$826,781	\$950,801	\$1,157,501	\$980,220	\$1,176,263.98	\$1,411,516.78
<b>8</b>	<b>Peacockes West Arterial</b>	<b>\$11,342,181</b>	<b>\$13,079,100</b>	<b>\$15,977,000</b>	<b>\$10,464,983</b>	<b>\$12,454,352</b>	<b>\$14,986,696</b>
	MSQA	\$636,930	\$732,470	\$891,700	\$403,102	\$483,722.22	\$580,466.66
	Construction	\$7,950,338	\$9,178,447	\$11,228,377	\$7,329,125	\$8,794,949.46	\$10,553,939.35
	Project Property Costs	\$2,073,135	\$2,384,135	\$2,902,435	\$2,073,135	\$2,384,135	\$2,902,435
	D&PD and NZTA Management Costs	\$681,778	\$784,048	\$954,488	\$659,821	\$791,545.45	\$949,854.54
<b>9</b>	<b>Residual from Risk Register</b>						
	<b>Total Base Estimate</b>	<b>\$543,551,941</b>			<b>\$569,055,235</b>		
	<b>Expected Estimate</b>	<b>(NOT @Risk adjusted)</b>	<b>\$636,730,000</b>		<b>(NOT @Risk adjusted)</b>	<b>\$702,280,000</b>	
	<b>95th Percentile Estimate</b>			<b>\$792,420,000</b>			<b>\$844,270,000</b>





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Attachment 4

## Appendix E

### Transport Benefits

**Relevance:**

Section 5: Economic Case

- Economic evaluation in accordance with NZ Transport Agency Economic Evaluation Manual. Used as inputs for Transport Investment OnLine (TIO)

Note: Hamilton Southern Links economic analysis treats the network as a package, since the full benefits will not be realised until the final sections (for Peacocke the north-south arterial connection between central Hamilton and the Southern Links central interchange at SH3 near the airport).



Peacocke EEM worksheets.xlsm

W1 - Summary\_Upload

**Worksheet 1 - Evaluation Summary and TIO Upload**

Upload V1.0 (10 of 15)

This spreadsheet can be automatically uploaded into Transport Investment Online. To enable automatic upload please do not adjust the columns or rows.

Activity name	Peacockes Arterials (Southern Links)		
Reference	0		
Evaluator(s)	- name, organisation	Alasdair Gray, Gray Matter Ltd (Based on Aecom Southern	
Reviewer(s)	- name, organisation	None - (Southern Links peer reviewed by Dr John Bolland)	
Date of evaluation	mm/yyyy	03-2017	
Time zero / implementation start date	1 July yyyy	2018	
Construction duration	Months	60	
Base date of costs and benefits	1 July yyyy	2017	
Location	South Hamilton - Peacocke Structure Plan area		
Problem definition	Access for residential development,		
Do minimum description	Do nothing		
Alternatives considered (or page references to relevant)			
Options considered (or page references to relevant)	Demand management, alternative development areas/sequencing, different staging options, HIF		
Preferred option description	SH3 Ohauupo Road roundabout and east west arterial link, Peacocke Road upgrade, Waitaka to river		

	Base rate	Growth rate (%)	New users/transfer
AADT	30,500	1.00	
Pedestrians - Annual Average Daily	0	0.00	0
Cyclists - Annual Average Daily	0	0.00	0
Annual Patronage - Total	0	0.00	0
Annual Patronage - Peak Period	0	0.00	
Freight volume	0	0.00	0
Heavy Vehicles Volume	0	0.00	
Heavy Vehicles Volume	%	0.00	
Road Category	Urban arterial		

	Before	After
IRI/NAASRA	70	70
Posted speed	50	0
Average traffic speed	32	50
Length of road / route	14.00	14.00
Road width	0.00	0.00
Travel time on route	0	0

	Period start am	Period stop am	Period start pm	Period stop pm
Peak Period				
Peak Period Traffic flow	Vehicles/hr	0		
Period of crash analysis	yyyy - yyyy			

	Fatal	Serious	Minor	Non Injury
Recorded crashes (row 4 crash analysis)	0.0	0.0	0.0	0.0
Total estimated crashes per year - do minimum (row 11)				
Predicted crashes per year - preferred option (row 20)				

	count
Heavy Vehicle Trips Saved (average per year)	0
Vehicle Operating Cost Savings (per annum)	\$/vehicle 914
Travel time savings (per day)	minutes 4,694

	Do minimum	Preferred option
Construction / implementation	\$ 0	206,512,000
Present Value Construction / implementation	\$ 0	194,121,280
Present Value Maintenance, renewal and operating costs	\$ 0	4,075,082
Present Value Total costs (whole of life)	\$ 0	198,196,362
Present Value Cost savings	\$ 0	
Present Value Funding assistance	\$ 0	

Benefits (Present Value)	
Travel time cost savings	\$ 460,184,500
Vehicle operating cost savings	\$ 18,780,660
Crash cost savings	\$ 0
Seal extension benefits	\$ 0
Driver frustration reduction benefits	\$ 0
Risk reduction benefits	\$ 0
Vehicle emission reduction benefits	\$ 0
Other external benefits (noise, visual, impact etc)	\$ 0
Mode change benefits	\$ 0
Walking and cycling health benefits	\$ 0
Service or facility user benefits	\$ 0
Parking user cost savings	\$ 0
Dis-benefits during implementation/construction	\$ 0
Road Traffic reduction benefits	\$ 0
National strategic benefits	\$ 0
Agglomeration benefits (WEB)	\$ 0
Increased Labour Supply (WEB)	\$ 0
Imperfect Competition (WEB)	\$ 0
Total Benefits Present Value	\$ 478,965,160

Non monetised benefits or national strategic factors	
--	--

Benefit Cost Ratio (BCRn) National	2.42
Benefit Cost Ratio (BCRg) Government	0.00
First Year Rate of Return (FYRR)	8.71

Sensitivity Analysis - BCR range	0.00	0.00
----------------------------------	------	------

### 5P3 General road improvements

Spreadsheet v3 (27-March-2014)

#### Worksheet 1 - Evaluation summary

#### Peacocke Evaluation: Refer Section 7.3 of Proposal

Worksheet 1 provides a summary of the general data used for the evaluation as well as the results of the analysis. The information required is a subset of the information entered into Transport Investment Online.

<b>1</b>	Evaluator(s)	Alasdair Gray, Gray Matter Ltd (Based on Aecom Southern Links evaluation)					
	Reviewer(s)	None - (Southern Links peer reviewed by Dr John Bolland)					
<b>2</b>	Activity/package details						
	Approved organisation name	Hamilton City Council					
	Activity/package name	Peacockes Arterials (Southern Links)					
	Your reference						
	Activity description	SH3 Ohaupo Road roundabout and east west arterial link, Peacocke Road upgrade, Waikato river crossing and link to Wairere Drive/Cobham intersection					
	Describe the issues to be addressed	Access for residential development, Increase SE-NW connection to improve travel time reliability on SH3 Ohaupo Road					
<b>3</b>	Location						
	Brief description of location	South Hamilton - Peacocke Structure Plan area					
<b>4</b>	Alternatives and options						
	Describe the do-minimum	Do nothing					
	Summarise the options assessed	Demand management, alternative development areas/sequencing, different staging options. HIF infrastructure proposal is consistent with do min accepted for Southern Links. Refer Southern Links Scheme Assessment and Business Case Status Summary.					
<b>5</b>	Timing						
	Time zero (assumed construction start date)	1 July	2018				
	Expected duration of construction (months)	60					
<b>6</b>	Economic efficiency						
	Date economic evaluation completed (mm/yyyy)	Mar-17					
	Base date for costs and benefits	1 July	2017				
	AADT at time zero	30,500					
	Traffic growth rate at time zero (%)	1.00					
	Existing roughness	IRI or NAASRA	70.00	Length of road before works	14.00	km	
	Predicted roughness	IRI or NAASRA	70.00	Length of road after works	14.00	km	
	Existing traffic speed	32 km/h					
	Predicted traffic speed	50 km/h					
<b>7</b>	PV cost of do-minimum			\$	0	<b>A</b>	
<b>8</b>	PV cost of the preferred option			\$	198,196,362	<b>B</b>	
<b>9</b>	Benefit values from worksheet 4, 5, 6						
	PV travel time cost savings	\$ 317,368,621	C x Update factor <sup>TTC</sup>	1.45	= \$	460,184,500	<b>W</b>
	PV VOC and CO <sub>2</sub> savings	\$ 19,163,939	D x Update factor <sup>VOC</sup>	0.98	= \$	18,780,660	<b>Y</b>
	PV crash cost savings	\$ 0	E x Update factor <sup>AC</sup>	1.03	= \$	0	<b>Z</b>
<b>10</b>	BCR <sub>N</sub>	=	$\frac{\text{PV net benefits}}{\text{PV net costs}}$	=	$\frac{\text{W} + \text{Y} + \text{Z}}{\text{B} - \text{A}}$	=	2.42
<b>11</b>	FYRR	=	$\frac{\text{PV 1st year benefits}}{\text{PV net costs}}$	=	$\frac{[(\text{W} + \text{Y}) / \text{DF}^{\text{VOC}} + (\text{Z} / \text{DF}^{\text{AC}})] \times 0.94}{\text{B} - \text{A}}$	=	9 %

### SP3 General road improvements

Spreadsheet v3 (27-March-2014)

#### Worksheet 2 - Cost of do-minimum

Worksheet 2 is used to calculate the PV cost of the do minimum. The do minimum is the minimum level of expenditure necessary to keep a road open and generally consists of maintenance work.

#### 1 Historic maintenance cost data (indicate whether assessed or actual)

Maintenance costs for the site over last three years

Year 1	2015		\$	
Year 2	2016		\$	
Year 3	2017		\$	
Maintenance costs for the site this year	2018		\$	
Future annual maintenance costs	Assessed		\$	0

#### 2 PV of annual maintenance costs

$$\text{Total} = \$ 0 \times \text{USPWF yr 30 - yr 5 } 9.84 = \$ 0 \quad \text{(a)}$$

#### 3 PV of periodic maintenance costs

Time zero 1st July in the year 2018

Periodic maintenance will be required in the following years:

Year	Type of maintenance	Amount \$	SPPWF	Present value

$$\text{Sum of PV of periodic maintenance } \$ 0 \quad \text{(b)}$$

#### 4 PV of the do-minimum

$$\text{(a)} + \text{(b)} = \$ 0 \quad \text{A}$$

Transfer the PV cost of do minimum **A**, to **A** on worksheet 1.

### 5P3 General road improvements

Spreadsheet v3 (27-March-2014)

#### Worksheet 3 - Cost of the option(s)

Worksheet 3 is used to calculate the PV costs of the different options. A separate Worksheet 3 is required for each option evaluated. To convert dollar values from different years to base date values, use the update factors in appendix A12.

Option name

Peacocke Arterial Roads (Part of Southern Links)

#### 1 PV of estimated cost of proposed work (as per attached estimate sheet)

\$ 206,512,000 x 0.94 = \$ 194,121,280 **(a)**

#### 2 PV of maintenance in year 1

\$ **(b)**

#### 3 PV of annual maintenance and inspection costs following the work

USPWF yr 30 - yr 6

(years 6 to 30 inclusive) \$ 447,300 x 9.11 = \$ 4,075,082 **(c)**

#### 4 PV of periodic maintenance costs

Time zero

1st July in the year

2018

Year	Type of maintenance	Amount \$	SPPWF	Present Value

Sum of PV of periodic maintenance costs = \$ 0 **(d)**

#### 5 PV cost of additional annual maintenance

\$ x 14.25 = \$ 0 **(e)**

#### 6 PV of total costs of option

PV total costs **(a) + (b) + (c) + (d) + (e)** = \$ 198,196,362 **B**

Transfer the PV total costs for the preferred option **B**, to **B** on worksheet 1.

Attachment 4

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### SP3 General road improvements

Spreadsheet v3 (27-March-2014)

#### Worksheet 4 - Travel time cost savings

Worksheet 4 is used for calculating travel time cost savings.

1 Road category (Select)

Urban arterial

2 Travel time data

AADT (or the traffic volumes affected by the improvement)

30,500

Traffic growth rate (per annum)

% 1.00

Travel time cost (TTC) refer table A4.3

\$/hr 16.27

		Do-minimum		Option
Length of route (km)	$L^{dm}$	14.00	$L^{opt}$	14.00
Mean vehicle speed	$VS^{dm}$	32	$VS^{opt}$	50

3 Annual travel time costs for the do-minimum

$$\frac{AADT \times 365 \times L^{dm} \times TTC}{VS^{dm}} = \$ 78,590,663 \quad \text{(a)}$$

4 Annual travel time costs for the option

$$\frac{AADT \times 365 \times L^{opt} \times TTC}{VS^{opt}} = \$ 50,715,217 \quad \text{(b)}$$

5 Value of annual travel time cost savings

$$\text{(a)} - \text{(b)} = \$ 27,875,446 \quad \text{(c)}$$

6 PV of travel time cost savings

$$\text{(c)} \times DF = \$ 317,368,621 \quad \text{C}$$

Transfer the PV of travel time cost savings for the preferred option C, to C on worksheet 1

### SP3 General road improvements

Spreadsheet v3 (27-March-2014)

#### Worksheet 5 - Vehicle operating cost savings

Worksheet 5 is used for calculating vehicle operating cost (VOC) savings.

#### 1 Base data

Traffic growth rate (per annum) % 1.00  
AADT (or the traffic volumes affected by the improvement) 30,500

		Do minimum		Option
Length of route (km)	$L^{dm}$	14.00	$L^{opt}$	14.00
Roughness (IRI/NAASRA)		70.00		70.00
Roughness cost (table 4.6)	$CR^{dm}$	23.40	$CR^{opt}$	21.80
Mean vehicle speed	$VS^{dm}$	35	$VS^{opt}$	50
Gradient		0.00%		0.00%
Base cost (table 4.5)	$CB^{dm}$	32.54	$CB^{opt}$	33.40

#### 2 Annual vehicle operating cost for the do-minimum

$$\frac{L^{dm} \times (CR^{dm} + CB^{dm}) \times AADT \times 365}{100} = \$ 87,192,806 \quad \text{(a)}$$

#### 3 Annual vehicle operating cost for the option

$$\frac{L^{opt} \times (CR^{opt} + CB^{opt}) \times AADT \times 365}{100} = \$ 86,031,960 \quad \text{(b)}$$

4 Value of annual vehicle operating cost savings **(a) - (b) = \$ 1,160,846 (c)**

5 PV of vehicle operating cost savings **(c) x DF = \$ 19,163,939 D**

Transfer PV of vehicle operating cost savings for the preferred option **D**, to **D** on worksheet 1

Attachment 4

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### SP3 General road improvements

Spreadsheet v3 (27-March-2014)

#### Worksheet 6 - Crash cost savings

These simplified procedures are suitable only for **crash-by-crash analysis** (method A in appendix A6). There must be 5 years or more crash data for the site and the number and types of crashes must meet the specifications set out in appendix A6.1 and A6.2. If not, either the crash rate analysis or weighted crash procedure described in appendix A6.2 should be used. The annual crash cost savings determined from such an evaluation are multiplied by the appropriate discount factor and entered in worksheet 1 as total E. Evidence to support alternative analysis must be attached.

Movement category		All movements	Vehicle involvement		All vehicles
1	Do-minimum mean speed	32	Road category		Urban arterial
	Posted speed limit	50	Traffic growth rate %		1.00%
2	Option mean speed	50			

Do-minimum	Severity			
	Fatal	Serious	Minor	Non- injury
3	Number of years of typical crash rate records			
4	Number of reported crashes over period			
5	Fatal/serious severity ratio (tables A6.19(a) to (c))			
6	Number of reported crashes adjusted by severity (4) x (5)			
7	Crashes per year = (6)/(3)			
8	Adjustment factor for crash trend (table A6.1(a))			
9	Adjusted crashes per year = (7) x (8)			
10	Under-reporting factors (tables A6.20(a) to (b))			
11	Total estimated crashes per year = (9) x (10)			
12	Crash cost, 100km/h limit (tables A6.21(e) to (h))			
13	Crash cost, 50km/h limit (tables A6.21(a) to (d))			
14	Mean speed adjustment = ((1) - 50)/50			
15	Cost per crash = (13) + (14) x [(12) - (13)]			
16	Crash cost per year = (11) x (15)			
17	Total cost of crashes per year (sum of columns in row (16) fatal + serious + minor + non-injury)			
Option				
18	Percentage crash reduction			
19	Percentage of crashes 'remaining' [100 - (18)]			
20	Predicted crashes per year (11) x (19)			
21	Crash cost, 100km/h limit (tables A6.21(e) to (h))			
22	Crash cost, 50km/h limit (tables A6.21(a) to (d))			
23	Mean speed adjustment = ((2) - 50)/50			
24	Cost per crash = (22) + (23) x [(21) - (22)]			
25	Crash cost per year = (20) x (24)			
26	Total cost of crashes per year (sum of columns in row (25) fatal + serious + minor + non-injury)			
27	Annual crash cost savings = (17) - (26)			
28	PV crash cost savings = (27) x DF			

Transfer PV of crash cost savings, E for the preferred option to E on worksheet 1

Item 10

Attachment 4

E

**SP3 General road improvements**

Spreadsheet v3 (27-March-2014)

**Worksheet 7 - BCR and incremental analysis**

Time zero                      1 July              2018  
Base date                    1 July              2017

BCR <sub>N</sub>	Do-minimum	Option A	Option B	Option C	Option A	Option B	Option C
Benefits		PV of user costs			PV of net benefits		
Travel time cost savings	0	460,184,500			460,184,500	0	0
OC and CO <sub>2</sub> savings		18,780,660			18,780,660	0	0
Rash cost savings					0	0	0
<b>V total</b>	0	478,965,160	0	0	478,965,160	0	0
Costs		PV of costs as calculated			PV of net costs		
Capital costs		194,121,280			194,121,280	0	0
Maintenance costs		4,075,082			4,075,082	0	0
<b>V total</b>	0	198,196,362	0	0	198,196,362	0	0
<b>BCR<sub>N</sub></b>					2.42		

Target incremental BCR (from appendix A12.4)

Base option for comparison			Next higher cost option			Incremental analysis		
Option	Total costs (1)	Total benefits (2)	Option	Total costs (3)	Total Benefits (4)	Incremental costs (5)=(3)-(1)	Incremental benefits (6)=(4)-(2)	Incremental BCR <sub>N</sub> (7)=(6)/(5)
						0	0	
						0	0	
						0	0	
						0	0	



Peacocke EEM worksheets.xlsm

W1 - Summary\_Upload

**Worksheet 1 - Evaluation Summary and TIO Upload**

Upload V1.0 (10 of 15)

This spreadsheet can be automatically uploaded into Transport Investment Online. To enable automatic upload please do not adjust the columns or rows.

Activity name	Peacockes Arterials (Southern Links)		
Reference	0		
Evaluator(s)	- name, organisation	Alasdair Gray, Gray Matter Ltd (Based on Aecom Southern	
Reviewer(s)	- name, organisation	None - (Southern Links peer reviewed by Dr John Bolland)	
Date of evaluation	mm/yyyy	03-2017	
Time zero / implementation start date	1 July yyyy	2018	
Construction duration	Months	60	
Base date of costs and benefits	1 July yyyy	2017	
Location	South Hamilton - Peacocke Structure Plan area		
Problem definition	Access for residential development,		
Do minimum description	Do nothing		
Alternatives considered (or page references to relevant)			
Options considered (or page references to relevant)	Demand management, alternative development areas/sequencing, different staging options, HIF		
Preferred option description	SH3 Ohauapo Road roundabout and east west arterial link, Peacocke Road upgrade, Waitaka to river		

	Base rate	Growth rate (%)	New users/transfer
AADT	30,500	1.00	
Pedestrians - Annual Average Daily	0	0.00	0
Cyclists - Annual Average Daily	0	0.00	0
Annual Patronage - Total	0	0.00	0
Annual Patronage - Peak Period	0	0.00	
Freight volume	0	0.00	0
Heavy Vehicles Volume	0	0.00	
Heavy Vehicles Volume	%	0.00	
Road Category	Urban arterial		

	Before	After
IRI/NAASRA	70	70
Posted speed	50	0
Average traffic speed	32	50
Length of road / route	14.00	14.00
Road width	0.00	0.00
Travel time on route	0	0

	Period start am	Period stop am	Period start pm	Period stop pm
Peak Period				
Peak Period Traffic flow	Vehicles/hr	0		
Period of crash analysis	yyyy - yyyy			

	Fatal	Serious	Minor	Non Injury
Recorded crashes (row 4 crash analysis)	0.0	0.0	0.0	0.0
Total estimated crashes per year - do minimum (row 11)				
Predicted crashes per year - preferred option (row 20)				

	count
Heavy Vehicle Trips Saved (average per year)	0
Vehicle Operating Cost Savings (per annum)	914
Travel time savings (per day)	4,694

	Do minimum	Preferred option
Construction / implementation	\$ 0	206,512,000
Present Value Construction / implementation	\$ 0	194,121,280
Present Value Maintenance, renewal and operating costs	\$ 0	4,075,082
Present Value Total costs (whole of life)	\$ 0	198,196,362
Present Value Cost savings	\$ 0	
Present Value Funding assistance	\$ 0	

Benefits (Present Value)	
Travel time cost savings	\$ 460,184,500
Vehicle operating cost savings	\$ 18,780,660
Crash cost savings	\$ 0
Seal extension benefits	\$ 0
Driver frustration reduction benefits	\$ 0
Risk reduction benefits	\$ 0
Vehicle emission reduction benefits	\$ 0
Other external benefits (noise, visual, impact etc)	\$ 0
Mode change benefits	\$ 0
Walking and cycling health benefits	\$ 0
Service or facility user benefits	\$ 0
Parking user cost savings	\$ 0
Dis-benefits during implementation/construction	\$ 0
Road Traffic reduction benefits	\$ 0
National strategic benefits	\$ 0
Agglomeration benefits (WEB)	\$ 0
Increased Labour Supply (WEB)	\$ 0
Imperfect Competition (WEB)	\$ 0
Total Benefits Present Value	\$ 478,965,160

Non monetised benefits or national strategic factors	
Benefit Cost Ratio (BCRn) National	2.42
Benefit Cost Ratio (BCRg) Government	0.00
First Year Rate of Return (FYRR)	8.71
Sensitivity Analysis - BCR range	0.00 0.00

### 5P3 General road improvements

Spreadsheet v3 (27-March-2014)

#### Worksheet 1 - Evaluation summary

#### Peacocke Evaluation: Refer Section 7.3 of Proposal

Worksheet 1 provides a summary of the general data used for the evaluation as well as the results of the analysis. The information required is a subset of the information entered into Transport Investment Online.

<b>1</b>	Evaluator(s)	Alasdair Gray, Gray Matter Ltd (Based on Aecom Southern Links evaluation)					
	Reviewer(s)	None - (Southern Links peer reviewed by Dr John Bolland)					
<b>2</b>	Activity/package details						
	Approved organisation name	Hamilton City Council					
	Activity/package name	Peacockes Arterials (Southern Links)					
	Your reference						
	Activity description	SH3 Ohaupo Road roundabout and east west arterial link, Peacocke Road upgrade, Waikato river crossing and link to Wairere Drive/Cobham intersection					
	Describe the issues to be addressed	Access for residential development, Increase SE-NW connection to improve travel time reliability on SH3 Ohaupo Road					
<b>3</b>	Location						
	Brief description of location	South Hamilton - Peacocke Structure Plan area					
<b>4</b>	Alternatives and options						
	Describe the do-minimum	Do nothing					
	Summarise the options assessed	Demand management, alternative development areas/sequencing, different staging options. HIF infrastructure proposal is consistent with do min accepted for Southern Links. Refer Southern Links Scheme Assessment and Business Case Status Summary.					
<b>5</b>	Timing						
	Time zero (assumed construction start date)	1 July	2018				
	Expected duration of construction (months)	60					
<b>6</b>	Economic efficiency						
	Date economic evaluation completed (mm/yyyy)	Mar-17					
	Base date for costs and benefits	1 July	2017				
	AADT at time zero	30,500					
	Traffic growth rate at time zero (%)	1.00					
	Existing roughness	IRI or NAASRA	70.00	Length of road before works	14.00	km	
	Predicted roughness	IRI or NAASRA	70.00	Length of road after works	14.00	km	
	Existing traffic speed	32 km/h					
	Predicted traffic speed	50 km/h					
<b>7</b>	PV cost of do-minimum	\$ 0				<b>A</b>	
<b>8</b>	PV cost of the preferred option	\$ 198,196,362				<b>B</b>	
<b>9</b>	Benefit values from worksheet 4, 5, 6						
	PV travel time cost savings	\$ 317,368,621	C x Update factor <sup>TTC</sup>	1.45	= \$ 460,184,500	<b>W</b>	
	PV VOC and CO <sub>2</sub> savings	\$ 19,163,939	D x Update factor <sup>VOC</sup>	0.98	= \$ 18,780,660	<b>Y</b>	
	PV crash cost savings	\$ 0	E x Update factor <sup>AC</sup>	1.03	= \$ 0	<b>Z</b>	
<b>10</b>	BCR <sub>N</sub>	$\frac{\text{PV net benefits}}{\text{PV net costs}} = \frac{\text{W} + \text{Y} + \text{Z}}{\text{B} - \text{A}} = \frac{478,965,160}{198,196,362} = 2.42$					
<b>11</b>	FYRR	$\frac{\text{PV 1st year benefits}}{\text{PV net costs}} = \frac{[(\text{W} + \text{Y}) / \text{DF}^{\text{VOC}} + (\text{Z} / \text{DF}^{\text{AC}})] \times 0.94}{\text{B} - \text{A}} = 9 \%$					

### SP3 General road improvements

Spreadsheet v3 (27-March-2014)

#### Worksheet 2 - Cost of do-minimum

Worksheet 2 is used to calculate the PV cost of the do minimum. The do minimum is the minimum level of expenditure necessary to keep a road open and generally consists of maintenance work.

#### 1 Historic maintenance cost data (indicate whether assessed or actual)

Maintenance costs for the site over last three years

Year 1	2015		\$	
Year 2	2016		\$	
Year 3	2017		\$	
Maintenance costs for the site this year	2018		\$	
Future annual maintenance costs	Assessed		\$	0

#### 2 PV of annual maintenance costs

$$\text{Total} = \$ 0 \times \text{USPWF yr 30 - yr 5 } 9.84 = \$ 0 \quad \text{(a)}$$

#### 3 PV of periodic maintenance costs

Time zero 1st July in the year 2018

Periodic maintenance will be required in the following years:

Year	Type of maintenance	Amount \$	SPPWF	Present value

$$\text{Sum of PV of periodic maintenance } \$ 0 \quad \text{(b)}$$

#### 4 PV of the do-minimum

$$\text{(a)} + \text{(b)} = \$ 0 \quad \text{A}$$

Transfer the PV cost of do minimum **A**, to **A** on worksheet 1.

### 5P3 General road improvements

Spreadsheet v3 (27-March-2014)

#### Worksheet 3 - Cost of the option(s)

Worksheet 3 is used to calculate the PV costs of the different options. A separate Worksheet 3 is required for each option evaluated. To convert dollar values from different years to base date values, use the update factors in appendix A12.

Option name **Peacocke Arterial Roads (Part of Southern Links)**

#### 1 PV of estimated cost of proposed work (as per attached estimate sheet)

\$ 206,512,000 x 0.94 = \$ 194,121,280 **(a)**

#### 2 PV of maintenance in year 1

\$ **(b)**

#### 3 PV of annual maintenance and inspection costs following the work

USPWF yr 30 - yr 6

(years 6 to 30 inclusive) \$ 447,300 x 9.11 = \$ 4,075,082 **(c)**

#### 4 PV of periodic maintenance costs

Time zero

1st July in the year

2018

Year	Type of maintenance	Amount \$	SPPWF	Present Value

Sum of PV of periodic maintenance costs = \$ 0 **(d)**

#### 5 PV cost of additional annual maintenance

\$ x 14.25 = \$ 0 **(e)**

#### 6 PV of total costs of option

PV total costs **(a) + (b) + (c) + (d) + (e)** = \$ 198,196,362 **B**

Transfer the PV total costs for the preferred option **B**, to **B** on worksheet 1.

Attachment 4

Item 10



### SP3 General road improvements

Spreadsheet v3 (27-March-2014)

#### Worksheet 4 - Travel time cost savings

Worksheet 4 is used for calculating travel time cost savings.

1 Road category (Select)

Urban arterial

2 Travel time data

AADT (or the traffic volumes affected by the improvement)

30,500

Traffic growth rate (per annum)

% 1.00

Travel time cost (TTC) refer table A4.3

\$/hr 16.27

		Do-minimum		Option
Length of route (km)	$L^{dm}$	14.00	$L^{opt}$	14.00
Mean vehicle speed	$VS^{dm}$	32	$VS^{opt}$	50

3 Annual travel time costs for the do-minimum

$$\frac{AADT \times 365 \times L^{dm} \times TTC}{VS^{dm}} = \$ 78,590,663 \quad (a)$$

4 Annual travel time costs for the option

$$\frac{AADT \times 365 \times L^{opt} \times TTC}{VS^{opt}} = \$ 50,715,217 \quad (b)$$

5 Value of annual travel time cost savings

$$(a) - (b) = \$ 27,875,446 \quad (c)$$

6 PV of travel time cost savings

$$(c) \times DF = \$ 317,368,621 \quad c$$

Transfer the PV of travel time cost savings for the preferred option C, to C on worksheet 1

### SP3 General road improvements

Spreadsheet v3 (27-March-2014)

#### Worksheet 5 - Vehicle operating cost savings

Worksheet 5 is used for calculating vehicle operating cost (VOC) savings.

#### 1 Base data

Traffic growth rate (per annum) % 1.00  
AADT (or the traffic volumes affected by the improvement) 30,500

		Do minimum		Option
Length of route (km)	$L^{dm}$	14.00	$L^{opt}$	14.00
Roughness (IRI/NAASRA)		70.00		70.00
Roughness cost (table 4.6)	$CR^{dm}$	23.40	$CR^{opt}$	21.80
Mean vehicle speed	$VS^{dm}$	35	$VS^{opt}$	50
Gradient		0.00%		0.00%
Base cost (table 4.5)	$CB^{dm}$	32.54	$CB^{opt}$	33.40

#### 2 Annual vehicle operating cost for the do-minimum

$$\frac{L^{dm} \times (CR^{dm} + CB^{dm}) \times AADT \times 365}{100} = \$ 87,192,806 \quad \text{(a)}$$

#### 3 Annual vehicle operating cost for the option

$$\frac{L^{opt} \times (CR^{opt} + CB^{opt}) \times AADT \times 365}{100} = \$ 86,031,960 \quad \text{(b)}$$

4 Value of annual vehicle operating cost savings **(a) - (b) = \$ 1,160,846 (c)**

5 PV of vehicle operating cost savings **(c) x DF = \$ 19,163,939 D**

Transfer PV of vehicle operating cost savings for the preferred option **D**, to **D** on worksheet 1

Attachment 4

Item 10

### SP3 General road improvements

Spreadsheet v3 (27-March-2014)

#### Worksheet 6 - Crash cost savings

These simplified procedures are suitable only for **crash-by-crash analysis** (method A in appendix A6). There must be 5 years or more crash data for the site and the number and types of crashes must meet the specifications set out in appendix A6.1 and A6.2. If not, either the crash rate analysis or weighted crash procedure described in appendix A6.2 should be used. The annual crash cost savings determined from such an evaluation are multiplied by the appropriate discount factor and entered in worksheet 1 as total E. Evidence to support alternative analysis must be attached.

Movement category		All movements	Vehicle involvement		All vehicles
1	Do-minimum mean speed	32	Road category		Urban arterial
	Posted speed limit	50	Traffic growth rate %		1.00%
2	Option mean speed	50			

Do-minimum	Severity				
	Fatal	Serious	Minor	Non- injury	
3	Number of years of typical crash rate records				
4	No crash cost savings claimed - conservative				
4	Number of reported crashes over period				
5	Fatal/serious severity ratio (tables A6.19(a) to (c))				
6	Number of reported crashes adjusted by severity (4) x (5)				
7	Crashes per year = (6)/(3)				
8	Adjustment factor for crash trend (table A6.1(a))				
9	Adjusted crashes per year = (7) x (8)				
10	Under-reporting factors (tables A6.20(a) to (b))				
11	Total estimated crashes per year = (9) x (10)				
12	Crash cost, 100km/h limit (tables A6.21(e) to (h))				
13	Crash cost, 50km/h limit (tables A6.21(a) to (d))				
14	Mean speed adjustment = ((1) - 50)/50				
15	Cost per crash = (13) + (14) x [(12) - (13)]				
16	Crash cost per year = (11) x (15)				
17	Total cost of crashes per year (sum of columns in row (16) fatal + serious + minor + non-injury)				
Option					
18	Percentage crash reduction				
19	Percentage of crashes 'remaining' [100 - (18)]				
20	Predicted crashes per year (11) x (19)				
21	Crash cost, 100km/h limit (tables A6.21(e) to (h))				
22	Crash cost, 50km/h limit (tables A6.21(a) to (d))				
23	Mean speed adjustment = ((2) - 50)/50				
24	Cost per crash = (22) + (23) x [(21) - (22)]				
25	Crash cost per year = (20) x (24)				
26	Total cost of crashes per year (sum of columns in row (25) fatal + serious + minor + non-injury)				
27	Annual crash cost savings = (17) - (26)				
28	PV crash cost savings = (27) x DF				

Transfer PV of crash cost savings, E for the preferred option to E on worksheet 1

Item 10

Attachment 4

E

**SP3 General road improvements**

Spreadsheet v3 (27-March-2014)

**Worksheet 7 - BCR and incremental analysis**

Time zero                      1 July              2018  
Base date                    1 July              2017

BCR <sub>N</sub>	Do-minimum	Option A	Option B	Option C	Option A	Option B	Option C
Benefits		PV of user costs			PV of net benefits		
Travel time cost savings	0	460,184,500			460,184,500	0	0
OC and CO <sub>2</sub> savings		18,780,660			18,780,660	0	0
Rash cost savings					0	0	0
<b>V total</b>	0	478,965,160	0	0	478,965,160	0	0
Costs		PV of costs as calculated			PV of net costs		
Capital costs		194,121,280			194,121,280	0	0
Maintenance costs		4,075,082			4,075,082	0	0
<b>V total</b>	0	198,196,362	0	0	198,196,362	0	0
<b>BCR<sub>N</sub></b>					2.42		

Target incremental BCR (from appendix A12.4)

Base option for comparison			Next higher cost option			Incremental analysis		
Option	Total costs (1)	Total benefits (2)	Option	Total costs (3)	Total Benefits (4)	Incremental costs (5)=(3)-(1)	Incremental benefits (6)=(4)-(2)	Incremental BCR <sub>N</sub> (7)=(6)/(5)
						0	0	
						0	0	
						0	0	
						0	0	



Hamilton City Council - Housing Infrastructure Fund  
O Inputs

Hamilton City Council - Housing Infrastructure Fund					Inflation											
O Inputs					4.00%	8.58%	13.35%	15.85%	18.51%	21.36%	24.27%	27.38%	30.69%	34.22%		
Strategic Infrastructure Project	Description/ HCC ref.	Work Phase	Total No Inflation	Total Inflated	1.00 2018/19	2.00 2019/20	3.00 2020/21	4.00 2021/22	5.00 2022/23	6.00 2023/24	7.00 2024/25	8.00 2025/26	9.00 2026/27	10.00 2027/28	5% Percentile	95% Percentile
Mere Drive/ Sham Drive Overbridge	2A Strategic	Procure design consultant	0.00	0.00											0.00	0.00
		Investigation and Reporting	0.00	0.00											0.00	0.00
		Land procurement	0.00	0.00											0.00	0.00
		Design and Project Documentation	0.00	0.00											0.00	0.00
		Consenting/designation	0.00	0.00											0.00	0.00
		Construction	20000.00	20600.00	12500.00	8700.00									19760.00	29120.00
			20000.00	20600.00	12500.00	8700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	19760.00	29120.00
3 Intersection	1B Strategic Divon/Ohau RAB LTCCP 0676.1	Procure design consultant	0.00	0.00											0.00	0.00
		Investigation and Reporting	265.00	275.60	275.60										261.82	395.84
		Land procurement	365.00	379.60	379.60										360.62	531.44
		Design and Project Documentation	445.00	462.80	462.80										439.66	647.92
		Consenting/designation	0.00	0.00											0.00	0.00
		MSQA	255.00	276.87		276.87									263.03	387.62
		Construction	9183.00	9455.57		3455.97									3283.18	4838.36
	RAB to Shaw Wetland LTCCP 3123.1	Defects period supervision	66.00	74.81			74.81								71.07	104.74
		Investigation and Reporting	378.00	393.12	393.12										373.46	550.37
		Land procurement	1830.00	1945.07	951.60	993.47									1847.82	2723.10
		Design and Project Documentation	434.00	471.22		471.22									447.66	659.71
		Consenting/designation	0.00	0.00											0.00	0.00
		MSQA	257.00	291.52			291.32								276.75	407.86
		Construction	3206.00	3634.11			3634.11								3452.40	5087.75
		Defects period supervision	66.00	76.46			76.46								72.64	107.04
			10750.00	11736.95	2462.72	5197.53	4000.24	76.46	0.00	0.00	0.00	0.00	0.00	0.00	11150.10	16431.73
East-west arterial	2B Strategic Shaw wetland to N-S arterial LTCCP 3123.2	Procure design consultant	0.00	0.00											-	-
		Investigation and Reporting	435.00	493.09		493.09									468.4	690.3
		Land procurement	2019.00	2338.95			2338.95								2,222.0	3,274.5
		Design and Project Documentation	518.00	600.89			600.89								570.1	840.1
		Consenting/designation	0.00	0.00											-	-
		MSQA	283.00	335.39				335.39							318.6	469.5
		Construction	3526.00	4178.72				4178.72		80.09					3,909.8	5,860.2
	2B Strategic N-S arterial to collector LTCCP 3210.1	Defects period supervision	66.00	80.09											76.1	112.1
		Investigation and Reporting	518.00	587.17		587.17									557.8	822.0
		Land procurement	1774.00	2055.13			2055.13								1,952.4	2,877.2
		Design and Project Documentation	1052.00	1218.71			1218.71								1,157.8	1,706.2
		Consenting/designation	0.00	0.00											-	-
		MSQA	566.00	671.63				331.83	339.80						638.0	940.3
		Construction	6996.00	8390.56				4145.54	4245.83						7,971.0	11,746.8
	2B Strategic Arterial to Peacocks LTCCP 3210.2	Defects period supervision	66.00	82.82						82.82					77.9	114.8
		Investigation and Reporting	324.00	375.34			375.34								356.6	525.6
		Land procurement	2552.00	3097.00					3097.00						2,942.2	4,335.8
		Design and Project Documentation	652.00	791.24					791.24						751.7	1,107.7
		Consenting/designation	0.00	0.00											-	-
		MSQA	320.00	397.66					397.66						377.8	556.7
		Construction	3991.00	4959.55					4959.55						4,711.6	6,943.4
		Defects period supervision	66.00	84.07						84.07					79.9	117.7
			25718.00	30736.42	0.00	0.00	1080.26	6588.23	8991.48	9553.16	5489.23	84.87	0.00	0.00	29399.60	40850.98

Attachment 4

Strategic Infrastructure Project	Description/ HCC ref.	Work Phase	Total No Inflation	Total Inflated	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00	5%	95%
					2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	Percentile	Percentile
Waiere Drive Extension Waikato River Bridge	2A Strategic Waikato River Bridge	Procure design consultant	0.00	0.00											-	-
		Investigation and Reporting	910.00	930.40	530.40										503.9	742.6
		Land procurement	3277.00	3468.06	1704.04	1779.02									3,308.9	4,876.3
		Design and Project Documentation	751.00	815.41		815.41									774.6	1,141.6
		Consenting/designation	0.00	0.00											-	-
		MSQA	272.00	308.32			308.32								292.9	431.6
	LT CCP 3212.1	Construction	3399.00	3852.88			3852.88								3,660.2	5,394.0
		Defects period supervision	66.00	76.46				76.46							72.6	107.0
		Investigation and Reporting	2624.00	2726.36	2726.36										2,592.5	3,820.5
		Land procurement	9949.00	10574.59	5173.48	5401.11									10,045.9	14,804.4
		Design and Project Documentation	7061.00	7895.22		3833.28	4001.94								7,443.5	10,969.3
		Consenting/designation	0.00	0.00											-	-
	LT CCP 3212.2	MSQA	9466.00	6430.80				3178.84	3261.96						6,109.3	9,003.1
		Construction	66599.00	80989.87				39734.90	40648.09						76,364.7	112,537.4
		Defects period supervision	66.00	80.09						80.09					76.1	112.1
		Procure design consultant	0.00	0.00											-	-
		Investigation and Reporting	802.00	814.08	314.08										298.4	439.7
		Design and Project Documentation	304.00	330.07		330.07									313.6	462.1
	2A Strategic Waikato River Bridge	Consenting/designation	0.00	0.00											-	-
		MSQA	154.00	174.56			174.56								165.8	244.4
		Construction	1922.00	2178.65			2178.65								2,069.7	3,050.1
		Defects period supervision	54.00	62.56				62.56							59.4	87.6
		Investigation and Reporting	461.00	479.44	479.44										455.5	671.2
		Land procurement	1514.00	1609.20	787.28	821.92									1,528.7	2,252.9
LT CCP 0704.3	Design and Project Documentation	736.00	801.29		801.29									761.2	1,121.8	
	Consenting/designation	0.00	0.00											-	-	
	MSQA	467.00	595.18			264.68	270.50							508.4	749.3	
	Construction	5837.00	6689.22			3306.22	3381.00							6,354.8	9,364.9	
	Defects period supervision	66.00	78.22					78.22						74.3	109.5	
	Investigation and Reporting	66.00	68.64	68.64										65.2	96.1	
2A Strategic Peacockes Rd Nth	Land procurement	418.00	453.85		453.85									431.2	635.4	
	Design and Project Documentation	84.00	91.20		91.20									86.6	127.7	
	Consenting/designation	0.00	0.00											-	-	
	MSQA	42.00	47.61			47.61								45.2	66.7	
	Construction	513.00	588.30			588.30								558.9	829.6	
	Defects period supervision	54.00	62.56				62.56							59.4	87.6	
LT CCP 3209.1	Investigation and Reporting	138.00	143.52	143.52										136.3	200.3	
	Land procurement	0.00	0.00											-	-	
	Design and Project Documentation	188.00	204.12		204.12									193.9	285.8	
	Consenting/designation	0.00	0.00											-	-	
	MSQA	100.00	113.35			113.35								107.7	158.7	
	Construction	1239.00	1404.45			1404.45								1,194.2	1,966.2	
LT CCP 1303.1	Defects period supervision	54.00	62.56				62.56							53.4	87.6	
			116783.00	133592.69	11929.84	14631.27	16242.97	46829.46	43979.86	80.09	0.00	0.00	0.00	0.00	126913.06	187029.77
Peacockes Road Urban grade	2A Strategic RAB south LT CCP 0704.5	Procure design consultant	0.00	0.00											-	-
		Investigation and Reporting	399.00	433.22		433.22									411.6	606.3
		Land procurement	1002.00	1135.80			1135.80								1,079.0	1,590.1
		Design and Project Documentation	457.00	529.42				529.42							503.0	741.2
		Consenting/designation	0.00	0.00											-	-
		MSQA	292.00	346.05					346.05						328.8	484.5
	2A Strategic Intersection with E-W LT CCP 0704.6	Construction	3640.00	4313.02					4313.02						4,000.1	6,000.4
		Defects period supervision	66.00	80.09						80.09					76.1	112.1
		Investigation and Reporting	280.00	304.01	0.00	304.01									288.8	425.6
		Land procurement	946.00	1074.59			1074.59								1,020.9	1,504.4
		Design and Project Documentation	291.00	337.12				337.12							320.3	472.0
		Consenting/designation	0.00	0.00											-	-
		MSQA	170.00	206.30						206.30					196.0	288.8
		Construction	2114.00	2565.46						2565.46					2,437.2	3,591.6
		Defects period supervision	66.00	82.02							82.02				77.9	114.8
			9725.00	11407.91	0.00	737.23	2210.39	866.54	4659.88	285.186	82.02	0.00	0.00	0.00	10837.52	15971.08

Item 10

Strategic Infrastructure Project	Description/ HCC ref.	Work Phase	Total No Inflation	Total Inflated	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00	5%	95%
					2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	Percentile	Percentile
City south arterial land	28 Strategic land LTCCP 3200.2	Procure design consultant	0.00	0.00											-	-
		Investigation and Reporting	879.00	914.16	914.16										868.5	1,279.6
	28 Strategic land LTCCP 3200.3	Land procurement	6714.00	7136.18	3451.28	3644.50									6,775.4	9,950.6
		Investigation and Reporting	690.00	717.60	717.60										681.7	1,004.6
	28 Strategic land LTCCP 3200.4	Land procurement	4579.00	4971.70		4971.70									4,723.1	6,960.4
		Investigation and Reporting	404.00	420.16	420.16										399.2	588.2
	28 Strategic land LTCCP 3200.5	Land procurement	4145.00	4500.48		4500.48									4,275.5	6,300.7
		Investigation and Reporting	509.00	525.36	525.36										502.9	741.1
	LTCCP 3200.5	Investigation and Reporting	5616.00	6097.63		6097.63									5,792.7	8,536.7
		Land procurement														
			23536.00	25287.25	6072.56	19214.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24022.89	35402.16
			206512.00	233561.23	32965.12	48380.73	23533.85	54360.68	57630.41	11485.12	5521.25	84.07	0.00	0.00	221883.17	326985.72



**eacocke Housing Infrastructure Fund Proposal - Benefits and Cost Appraisal - Base Scenario based on Total HIF Yield**

SOLIM Adjustment 0.0%  
Benefits Adjustment 2016 - 2017 2.0%

All amounts in \$,000's

**Notes A1: Discounting and update factors**

vary of time streams of benefits and costs

Worksheet A1.1

Time (years from time zero)

Benefits (4)

Year

2016

2017

2018

2019

2020

2021

2022

2023

2024

2025

2026

2027

2028

2029

2030

2031

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2086

2087

2088

2089

NPV Benefits (\$,000's)	NPV Costs (\$,000's)	Base Benefit Cost Ratio
161,481.7	156,183.3	2.4

## Appendix F

### BCR Summary Calculations

**Relevance:**

Section 5: Economic Case

- Basis of assessment for wider economic benefits of delivery of more houses faster

Year Year #	Unit of measure	10-year total	30-year total	2019 1	2020 2	2021 3	2022 4	2023 5	2024 6
<b>Dwellings constructed</b>									
Status Quo	number	2,796	5,545	99	133	265	312	337	345
Peacocke	number	3,841	8,192	224	257	418	473	500	496
<b>Growth spend</b>									
Status Quo	000\$s	917,314	3,574,092	130,825	157,767	104,291	102,679	44,910	36,759
Peacocke	000\$s	993,770	2,965,600	129,532	185,691	126,035	119,757	98,915	48,673
<b>Real present value growth+maintenance spend</b>									
Status Quo	000s 2017\$s	631,030	1,336,883	114,490	129,198	79,936	73,674	30,189	23,148
Peacocke	000s 2017\$s	696,696	1,241,147	113,359	152,062	96,597	85,964	66,502	30,724
<b>Real present value transport benefits</b>									
Status Quo	000s 2017\$s	0	0	0	0	0	0	0	0
Peacocke	000s 2017\$s	109,030	378,231	0	0	0	0	0	17,268
<b>Real present value construction and expenditure GDP (incl multiplier) benefits</b>									
Status Quo	000s 2017\$s	1,614,368	4,312,479	143,241	165,870	129,820	166,114	141,533	146,906
Peacocke	000s 2017\$s	2,230,228	5,471,256	184,466	236,256	197,030	240,014	244,244	223,621
<b>Real present value rates and DC revenue GDP (incl multiplier) benefits</b>									
Status Quo	000s 2017\$s	18,696	97,613	170	363	607	1,080	1,602	2,127
Peacocke	000s 2017\$s	62,915	192,940	2,733	2,844	3,469	5,396	6,442	8,327
<b>Real present value dwelling appreciation</b>									
Status Quo	000s 2017\$s		69,671						
Peacocke	000s 2017\$s		98,511						
<b>Benefit/Cost ratio</b>									
Status Quo	ratio		3.35						
Peacocke	ratio		4.95						



Year Year #	Unit of measure	10-year total	30-year total	2025 7	2026 8	2027 9	2028 10	2029 11	2030 12
<b>Dwellings constructed</b>									
Status Quo	number	2,796	5,545	360	333	319	293	351	319
Peacocke	number	3,841	8,192	490	368	325	291	334	303
<b>Growth spend</b>									
Status Quo	000\$s	917,314	3,574,092	64,823	77,031	102,732	95,497	121,188	125,355
Peacocke	000\$s	993,770	2,965,600	50,985	60,207	95,581	78,394	88,798	116,314
<b>Real present value growth+maintenance spend</b>									
Status Quo	000s 2017\$s	631,030	1,336,883	38,230	42,580	53,218	46,367	55,136	53,464
Peacocke	000s 2017\$s	696,696	1,241,147	30,177	33,412	49,656	38,242	40,620	49,811
<b>Real present value transport benefits</b>									
Status Quo	000s 2017\$s	0	0	0	0	0	0	0	0
Peacocke	000s 2017\$s	109,030	378,231	16,568	26,291	25,039	23,865	22,744	21,673
<b>Real present value construction and expenditure GDP (incl multiplier) benefits</b>									
Status Quo	000s 2017\$s	1,614,368	4,312,479	168,849	181,133	189,154	181,747	186,819	196,441
Peacocke	000s 2017\$s	2,230,228	5,471,256	229,092	236,362	229,339	209,803	204,780	220,549
<b>Real present value rates and DC revenue GDP (incl multiplier) benefits</b>									
Status Quo	000s 2017\$s	18,696	97,613	2,621	3,057	3,397	3,673	3,878	4,125
Peacocke	000s 2017\$s	62,915	192,940	8,743	9,022	8,121	7,819	7,543	7,862
<b>Real present value dwelling appreciation</b>									
Status Quo	000s 2017\$s		69,671						
Peacocke	000s 2017\$s		98,511						
<b>Benefit/Cost ratio</b>									
Status Quo	ratio		3.35						
Peacocke	ratio		4.95						

Year Year #	Unit of measure	10-year total	30-year total	2031 13	2032 14	2033 15	2034 16	2035 17	2036 18
<b>Dwellings constructed</b>									
Status Quo	number	2,796	5,545	315	278	261	293	234	181
Peacocke	number	3,841	8,192	305	288	281	307	289	347
<b>Growth spend</b>									
Status Quo	000\$s	917,314	3,574,092	139,805	180,156	123,857	154,206	158,533	147,333
Peacocke	000\$s	993,770	2,965,600	110,388	151,874	109,704	101,302	151,625	121,653
<b>Real present value growth+maintenance spend</b>									
Status Quo	000s 2017\$s	631,030	1,336,883	55,904	67,565	43,586	50,904	49,110	42,833
Peacocke	000s 2017\$s	696,696	1,241,147	44,362	57,150	38,821	33,655	47,138	35,547
<b>Real present value transport benefits</b>									
Status Quo	000s 2017\$s	0	0	0	0	0	0	0	0
Peacocke	000s 2017\$s	109,030	378,231	20,617	19,562	18,546	17,553	16,614	15,724
<b>Real present value construction and expenditure GDP (incl multiplier) benefits</b>									
Status Quo	000s 2017\$s	1,614,368	4,312,479	193,913	204,630	174,285	177,480	178,257	162,354
Peacocke	000s 2017\$s	2,230,228	5,471,256	208,465	219,464	196,185	187,125	201,147	184,252
<b>Real present value rates and DC revenue GDP (incl multiplier) benefits</b>									
Status Quo	000s 2017\$s	18,696	97,613	4,297	4,435	4,508	4,543	4,593	4,571
Peacocke	000s 2017\$s	62,915	192,940	7,614	7,572	7,387	7,245	7,295	7,089
<b>Real present value dwelling appreciation</b>									
Status Quo	000s 2017\$s		69,671						
Peacocke	000s 2017\$s		98,511						
<b>Benefit/Cost ratio</b>									
Status Quo	ratio		3.35						
Peacocke	ratio		4.95						

Year Year #	Unit of measure	10-year total	30-year total	2037 19	2038 20	2039 21	2040 22	2041 23	2042 24
<b>Dwellings constructed</b>									
Status Quo	number	2,796	5,545	151	139	119	81	21	3
Peacocke	number	3,841	8,192	356	372	360	296	146	89
<b>Growth spend</b>									
Status Quo	000\$s	917,314	3,574,092	86,950	124,766	113,585	74,977	119,196	173,290
Peacocke	000\$s	993,770	2,965,600	73,269	104,735	83,464	69,707	64,841	97,151
<b>Real present value growth+maintenance spend</b>									
Status Quo	000s 2017\$s	631,030	1,336,883	23,747	31,953	27,310	16,945	25,256	34,443
Peacocke	000s 2017\$s	696,696	1,241,147	20,187	27,004	20,247	15,914	13,912	19,472
<b>Real present value transport benefits</b>									
Status Quo	000s 2017\$s	0	0	0	0	0	0	0	0
Peacocke	000s 2017\$s	109,030	378,231	14,870	14,040	13,256	12,506	11,798	11,130
<b>Real present value construction and expenditure GDP (incl multiplier) benefits</b>									
Status Quo	000s 2017\$s	1,614,368	4,312,479	134,186	135,569	126,116	110,181	111,124	110,878
Peacocke	000s 2017\$s	2,230,228	5,471,256	172,965	178,041	170,152	161,715	150,215	137,954
<b>Real present value rates and DC revenue GDP (incl multiplier) benefits</b>									
Status Quo	000s 2017\$s	18,696	97,613	4,493	4,385	4,267	4,134	3,977	3,784
Peacocke	000s 2017\$s	62,915	192,940	7,284	7,243	7,224	7,074	6,682	5,912
<b>Real present value dwelling appreciation</b>									
Status Quo	000s 2017\$s		69,671						
Peacocke	000s 2017\$s		98,511						
<b>Benefit/Cost ratio</b>									
Status Quo	ratio		3.35						
Peacocke	ratio		4.95						



Year Year #	Unit of measure	10-year total	30-year total	2043 25	2044 26	2045 27	2046 28	2047 29	2048 30
<b>Dwellings constructed</b>									
Status Quo	number	2,796	5,545	0	0	0	0	2	0
Peacocke	number	3,841	8,192	109	76	59	24	9	0
<b>Growth spend</b>									
Status Quo	000\$s	917,314	3,574,092	112,501	107,746	116,788	81,768	221,081	173,699
Peacocke	000\$s	993,770	2,965,600	19,991	58,027	67,128	79,982	147,953	153,925
<b>Real present value growth+maintenance spend</b>									
Status Quo	000s 2017\$s	631,030	1,336,883	21,022	18,912	19,260	12,685	32,109	23,710
Peacocke	000s 2017\$s	696,696	1,241,147	3,912	10,327	11,197	12,500	21,588	21,088
<b>Real present value transport benefits</b>									
Status Quo	000s 2017\$s	0	0	0	0	0	0	0	0
Peacocke	000s 2017\$s	109,030	378,231	10,500	9,906	9,345	8,816	0	0
<b>Real present value construction and expenditure GDP (incl multiplier) benefits</b>									
Status Quo	000s 2017\$s	1,614,368	4,312,479	91,858	85,513	82,070	71,970	87,919	76,549
Peacocke	000s 2017\$s	2,230,228	5,471,256	112,574	115,490	109,061	104,335	106,300	100,260
<b>Real present value rates and DC revenue GDP (incl multiplier) benefits</b>									
Status Quo	000s 2017\$s	18,696	97,613	3,590	3,403	3,226	3,059	2,900	2,750
Peacocke	000s 2017\$s	62,915	192,940	5,474	5,316	4,987	4,711	4,385	4,125
<b>Real present value dwelling appreciation</b>									
Status Quo	000s 2017\$s		69,671						
Peacocke	000s 2017\$s		98,511						
<b>Benefit/Cost ratio</b>									
Status Quo	ratio		3.35						
Peacocke	ratio		4.95						

## Appendix G

### Financial Summary

**Relevance:**

Section 6: Financial Case

- Key 10 Year Plan Assumptions for Financial case.

Appendix G – Key 10 Year Plan Assumptions

Assumption	Description
<b>General Assumptions</b>	
<b>Inflation – annual increases</b>	Provided by BERL with the national estimates doubled for infrastructure expenditure in the first three years.
<b>Debt to revenue limit</b>	The LGFA limit is 250%, however the prudent limit is 230% which has been adopted throughout this report.
<b>LTP Assumptions</b>	
<b>Growth in ratepayers</b>	12,466 new dwellings in the 10 years to 2028
<b>Rates Increases</b>	Year 1: 19.5%, Year 2-10: 3.8% pa
<b>Movement to Capital value</b>	\$49.0m cumulative additional revenue over the 10 years from moving from land value to capital value.
<b>Targeted Rates on developer ready land</b>	\$18.9m additional revenue from targeted rates applied to developer ready land.
<b>Activity revenue</b>	Inflationary growth
<b>Capital subsidies</b>	51% NZTA FAR subsidy assumed.
<b>Development Contributions</b>	Additional \$15.6m of other capital contributions over the 10 years. Current DC charges increased by \$3k for the uplift in city-wide expenditure. Peacocke modelled at \$34k based on modelling estimates. Leakage rate of 23% based on historical experience.
<b>Operating Result</b>	Annual operating surplus / (deficit) ranging between (\$14m) deficit in FY2019 to a \$24m surplus in FY2028.
<b>Community Capital Expenditure</b>	Funded by rates increases with increased debt capacity applied to growth.
<b>Access Hamilton Capital Expenditure</b>	Funded by rates increases with increased debt capacity applied to growth.
<b>Other Non-Discretionary Capex</b>	\$115m allowance for unidentified capital expenditure which cannot be deferred across the 10 year period.
<b>Asset sales and one-off receipts</b>	\$35.4m from contractual commitments and forecast sell down of leasehold land interests.
<b>Opening net debt</b>	Forecast to be \$392m on 1 July 2018
<b>HIF Assumptions</b>	
<b>Basis of cost estimates</b>	The costing estimates are based on 2017 dollars increased for inflation.
<b>Inflation</b>	Provided by BERL with the national estimates doubled in the first three years.
<b>Drawdowns</b>	Drawn down in accordance with construction timing estimates with repayment due 10 years from drawdown year (10 annual tranches assumed).



<b>Repayments</b>	<p>\$47.5m assumed to be repaid from development contribution receipts from FY2023 to FY2035 applied to the oldest loan first.</p> <p>The repayment represents the Peacocke catchment specific expenditure component of the total Peacocke DC charge only.</p>
<b>Present Value Discounting</b>	<p>Present value discount applied is the cost of debt, ranging from 4.7% to 5.0% per annum.</p>
<b>Final Repayment</b>	<p>Balance of each tranche repaid 10 years from drawdown.</p>

## Appendix H

### Schedule of Consents

1. Waikato Regional Council Consent HCC Mangakotukutuku Bridge
2. Waikato Regional Council Consent HCC Gardens Bridge
3. Waikato Regional Council Consent NZTA Narrows Bridge
4. Commissioners Decision Southern Links – Report confirming designation being approved by Southern Links

#### Relevance:

Section 7: Commercial Case  
Section 8: Management Case

- Summarises consent/designation status and requirements for infrastructure and development

**WAIKATO REGIONAL COUNCIL  
WAIKATO DISTRICT COUNCIL  
WAIPA DISTRICT COUNCIL  
and  
HAMILTON CITY COUNCIL**

**Item 10**

**Notices of Requirement and  
Application for Resource Consents  
in respect of  
Southern Links**

**Requiring Authorities  
NZ Transport Agency and Hamilton City Council**

**Resource Consent Applicants  
NZ Transport Agency and Hamilton City Council**

**Attachment 4**

**Volume 1**

**HEARINGS REPORT  
OF HEARINGS COMMISSIONERS**

**24th October, 2014**

**Phil Mitchell  
Consultant  
AUCKLAND**

**Doug Arcus  
Barrister  
HAMILTON**

**David Hill  
Independent Hearings  
Commissioner  
AUCKLAND**

**Shane Solomon  
Consultant  
TAUPIRI**

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## HEARINGS REPORT

### 1. INTRODUCTION

It was clear from the outset that the Southern Links Project as it was put to us was a *Future proof* or *Route Protection* designation. Ms Janissen made that point in her opening<sup>1</sup> and observed:

*It is unlike other recent projects in the Waikato Region, for which designations have been sought. Those other projects such as sections of the Waikato Expressway, have been progressed to a stage where a significant level of details and design exists. Subject to confirmation of the designations and the granting of necessary resource consent, construction occurs within a relatively short period of time.*<sup>2</sup>

We Commissioners sitting in respect of the Southern Links were the same constituted panel who heard and made recommendations/decisions in respect of alterations to the Waikato Expressway (Hamilton Section) earlier this year. We therefore understand and accept that submission.

As an integral part of the project being a future proof one, the lapse period for the designation was sought at 20 years. We deal with the lapse period in Section 9 of this Hearings Report but the lapse period is indicative of the future proofing of the project.

Future proofing in the manner proposed is not unusual. NZTA pointed to the Cambridge bypass which is currently in the course of construction but the route for which was designated as long ago as 1973. In addition, we note that in respect of the Waikato Expressway (Hamilton Section) designation alterations to which we have just considered, the initial route protection took place in 2004.

We accept that a designation for route protection only is a legitimate and appropriate planning step for requiring authorities to take.

However, as Ms Janissen observed in her reply:

*More recently in particular with the RONS (Roads of National Significance) projects, the trend has been to seek designation for major roading projects and, once confirmed, to commence construction shortly thereafter<sup>3</sup>. As a result, the concept of long term "future proofing" of alignments has become less common. More importantly, the public have developed expectations of more immediate construction timeframes for such projects, together with seeing a more detailed level of design than would be available for such projects.*

*To some extent it is those expectations which the requiring authorities in this case have had to grapple with, and explain that early construction and/or greater levels of detail are simply not applicable to this particular Project.*<sup>4</sup>

<sup>1</sup> Janissen opening submission para. 4

<sup>2</sup> Janissen opening submission para.5

<sup>3</sup> Examples include the Victoria Park tunnel, Waterview connection project and McKays to Peka Peka projects

<sup>4</sup> Janissen reply paras. 42 and 43

**Attachment 4**

In many respects the case the Requiring Authorities put before us was something of a hybrid in that it had significant elements of route protection but at the same time the conditions offered were more in the nature of resource consent conditions - more detailed than one might expect for an old-fashioned route protection designation but not enough to cover the detail of ultimate construction.

We accept that future proofing designations are a valid planning instrument today and because of the "*route protection*" nature of the proposal there is not as much detail as many submitters would have preferred.

Having said that, we acknowledge the legitimate concerns of many submitters who cannot presently have completely answered their detailed questions and concerns.

Throughout the whole of this case, we have been alert to the difficulty faced by the submitters having insufficient detail. We have therefore been seeking a balance between the level of detail required now while at the same time adequately addressing the legitimate concerns of submitters.

**Item 10**

## 2. PROCESS

### 2.1 Appointment

Pursuant to s34A of the Resource Management Act 1991 (RMA), we independent commissioners have been appointed as follows:

- Doug Arcus, David Hill, Philip Mitchell and Shane Solomon have been appointed by Waikato District Council (Waikato DC), Waipa District Council (Waipa DC) and Hamilton City Council (HCC) to hear and make a recommendation in respect of each of the Notices of Requirement (NoR) lodged by the NZ Transport Agency (NZTA) for the construction and operation of Southern Links; and
- The same commissioners have been appointed by HCC to hear and determine a NoR lodged by HCC for major and minor arterial routes in the Peacocke Area within Hamilton City; and
- Phil Mitchell and David Hill have been appointed by Waikato Regional Council (WRC) and Shane Solomon has been appointed by the Waikato River Authority (WRA) to hear and determine applications for resource consents made by NZTA and HCC in respect of the three bridges which are part of the Southern Links; Project.

Our delegations included all procedural matters associated with the primary delegations; and

We were to conduct a joint hearing.

### 2.2 Proposals

A summary of the proposals before us is set out in Section 3 of this Report.

### 2.3 Notification

The NoRs for Southern Links were lodged with HCC, Waikato DC and Waipa DC on 12<sup>th</sup> August 2013. On 20<sup>th</sup> September 2013 the requiring authorities provided a response to a request for further information from the councils.

Subsequently the five NoRs and resource consent applications to WRC for Southern Links were publically notified by the respective councils on 29<sup>th</sup> January 2014. The requiring authorities had previously provided approval for an extended notification period for submissions to close on 28<sup>th</sup> February 2014. We note this resulted in a notification period of 22 working days.

### 2.4 Submissions

By the close of the submission period:

- 81 submissions were received on the NoRs.
- A further six submissions were subsequently received over the following week.
- In addition a further submission appeared to have been lodged on time but was misplaced.

- 7 submissions were received on the resource consents, although 4 of these addressed matters that were the subject of the NoRs.

We deal with the late submissions in Section 5 of this Report.

## 2.5 Case Management

We had the matter under case management from April 2014 until the Hearings during which time we issued:

- (a) Directions dated 23.4.14 dealing with pre-Hearing evidence exchange;
- (b) Minute dated 24.4.14 relating to late submissions;
- (c) Amended directions dated 26.5.14 setting a new pre-Hearing evidence exchange timetable; and
- (d) Minute and directions dated 7.7.14 relating to delegations.

During the Hearing we issued a Minute dated 30<sup>th</sup> July 2014, recording our decision to adjourn the Hearing and providing Directions for the Reconvened Hearing.

## 2.6 Hearings

We conducted a joint hearing in respect of all matters before us at the Airport Hotel Conference Centre, Airport Road, Hamilton from Monday 21<sup>st</sup> July 2014 to Friday 25<sup>th</sup> July (inclusive) and Monday 28<sup>th</sup> July and Wednesday 30<sup>th</sup> July (the Substantive Hearing). In the course of this Substantive Hearing we heard:

- (a) NZTA submissions and evidence in support of its NoRs and its application to WRC;
- (b) HCC submissions and evidence in support of its NoR and applications to WRC; and
- (c) Submitters both for and against all matters before us.

At the Substantive Hearing we did not hear from the s42A Report authors or the Requiring Authorities in reply. For reasons which we record in our Minute and Further Directions dated 30<sup>th</sup> July 2014, we adjourned the Substantive Hearing prior to the s42A Reports being presented and the Requiring Authorities' reply.

We reconvened the Hearing on Monday 1<sup>st</sup> September 2014 in the Airport Hotel Conference Centre, Airport Road (the Reconvened Hearing). In the course of the Reconvened Hearing we heard:

- (a) The evidence of the Requiring Authorities on ecology, which was not presented at the Substantive Hearing due to illness of the witness;
- (b) The authors of the s42A Report including additional evidence relating to noise and ecology; and
- (c) The Requiring Authorities in reply including additional evidence relating to noise, ecology, social effects and conditions.

In the course of either or both of the Hearings we heard from the persons set out in Appendix 1.



## 2.7 Site Visit

During the course of the Substantive Hearing, several gaps in the proceedings provided us with the opportunity to undertake site visits of particular localities to better understand the evidence given by both the Requiring Authorities and the submitters. In particular we visited the following localities:

Raynes Road	Western Lea Drive
Narrows Road	Pencarrow Road
Middle Road	Day Road
Ohaupo Road	Tamahere Drive
Ingram Road	Proposed Site of the Mangakotukutuku Bridge
Peacockes Road	Proposed site of Gardens Bridge

## 2.8 Definitions

In this Hearings Report we use the following terms:

Applicants	NZ Transport Agency (NZTA) and Hamilton City Council (HCC);
CNVMP	Construction Noise and Vibration Management Plan;
EiC	Evidence in Chief;
Expressway	The Waikato Expressway – Hamilton Section running between Horotiu in the north and Tamahere in the south;
Future Proof	The growth management strategy for the territorial areas within the jurisdiction of Hamilton City Council and both Waikato and Waipa District Councils;
HCC	Hamilton City Council;
Hearings Report	This Report (Volume 1) which is part of and is common to Volumes 2-9 which follow so that all nine volumes are to be read together;
HNZ	Heritage New Zealand under the Pouhere Taonga Act 2014; (formerly New Zealand Historic Places Trust);
LGA	The Local Government Act 2002;
NoR	Notice of Requirement for a designation under RMA ss168 and 168A;
NZTA	NZ Transport Agency
Opus	Opus International Consultants Limited;
Peacocke Area	That area in the south of Hamilton City subject in the Hamilton Proposed District Plan to the Peacocke Structure Plan;
PSP	Peacocke Structure Plan
PWA	Public Works Act 1981;
Reconvened Hearing	That part of the Hearing conducted on 1 <sup>st</sup> September 2014;
Requiring Authorities	NZTA and HCC;
RMA	The Resource Management Act 1991 and its amendments;
RoNS	Roads of National Significance;

S42A Reports	The reports prepared in accordance with RMA s42A by: MWH in respect of the NZTA NoRs; MWH in respect of the HCC NoR; Mr Brian Richmond, WRC Consents Officer in respect of the applications to WRC;
SH	State Highway;
Southern Links	The proposed project of 32 kilometres (km) of future transport network, including 21 km of state highway and 11km of urban arterial roads in the south of Hamilton City but also including adjacent areas in both Waipa and Waikato Districts as described in Section 3 of this Report;
Substantive Hearing	That part of the Hearing conducted from 28 <sup>th</sup> - 30 <sup>th</sup> July 2014;
TPJV	Titanium Park Joint Venture;
Waikato DC	Waikato District Council;
Waipa DC	Waipa District Council
WRA	Waikato River Authority;
WRAL	Waikato Regional Airport Ltd;
WRC	Waikato Regional Council.

## 2.9 Format of these Decisions and Recommendations

The RMA matters before us are for a number of separate proposals which could be considered one by one. However, a number of expert disciplines cover more than one of the proposals. In addition we recognise that although there are several RMA matters before us, Southern Links is to be regarded as a single network. We have therefore adopted the approach of the Requiring Authorities of considering the matters before us discipline by discipline.

In addition, for legal and logistical reasons, we are required to arrive at several different recommendations and decisions namely a:

1. Recommendation in respect of the NoR lodged by NZTA for alterations to the existing State Highway designation within the HCC jurisdiction; and
2. Recommendation in respect of the NoR lodged by NZTA for a new regional strategic highway within the HCC jurisdiction; and
3. Recommendation in respect of the NoR lodged by NZTA for a new regional strategic highway within the Waipa DC jurisdiction; and
4. Recommendation in respect of the NoR lodged by NZTA for a new regional strategic highway within the Waikato DC jurisdiction; and
5. Decision on the NoR lodged by HCC for the arterial roads within Hamilton City (Peacocke area); and
6. Decision on the application for resource consent made to WRC by NZTA in respect of a bridge across the Waikato River at the Narrows; and
7. Decision on the application for a resource consent made to WRC by HCC in respect of a bridge across the Waikato River (Gardens Bridge); and

8. Decision on the application for a resource consent made to WRC by HCC in respect of a bridge across the Mangakotukutuku Stream (Mangakotukutuku Bridge).

Much of the evidence overlapped the jurisdiction for those various recommendations and decisions. We have therefore preferred to consider the case in totality in one Hearings Report and then follow the Hearings Report with a set (each contained in separate volumes) of individual Recommendations and Decisions based on this one Hearings Report. This Hearings Report (Volume 1) is part of and is common to Volumes 2-9 which follow so that all nine volumes are to be read together.

### 3. PROPOSAL

#### 3.1 Southern Links

Southern Links is a proposed project of 32 kilometres (km) of future transport network, including 21km of state highway and 11km of urban arterial roads in the south of Hamilton City but also including inter-connected roading corridors in adjacent areas in both Waipa and Waikato Districts. Once completed, the Project will link SH1 from Greenwood Street in Hamilton City (to the west), to Tamahere and the Waikato Expressway (in the east) and SH3 from the intersection of SH3/SH21 (in the south). The HCC urban arterial roads will establish the key transport network within the Peacocke Area and become the basis for future urban development there.

As we have observed in Section 1 of this Hearings Report, it was clear from the outset that the proposal ...is a "future proof" or route protection designation.<sup>5</sup>

#### 3.2 NoRs

The Project is covered by five Notices of Requirement as follows:

Reference	Requiring Authority	Description	Territorial Authority
81/E81	NZ Transport Agency	Notice of Requirement pursuant to section 181 of the RMA to alter the existing State Highway 1 designation on the western and eastern approaches to the Cobham Bridge to enable widening of the bridge and its approaches to four lanes.	Hamilton City Council
111	Hamilton City Council	Notice of Requirement pursuant to section 168A of the RMA to designate an arterial transportation network to and through the Peacocke Growth Area of Hamilton generally as provided for in the Peacocke Structure Plan, including provision for a bridge crossing the Waikato River from the Hamilton Ring Road Extension.	Hamilton City Council
112	NZ Transport Agency	Notice of Requirement pursuant to section 168 of the RMA to designate a new state highway route at the south-western edge of Hamilton City. This includes provision for a proposed at-grade roundabout at the intersection of Southern Links with Greenwood Street and Kahikatea Drive.	Hamilton City Council
DN/156	NZ Transport Agency	<p>Notice of Requirement pursuant to section 168 of the RMA to designate new state highway routes including:</p> <ul style="list-style-type: none"> <li>From the south-western edge of Hamilton City, across rural land traversing the existing State Highway 3 (Ohaupo Road) and State Highway 21 (Airport Road), to a bridge crossing the Waikato River; and</li> <li>From the existing State Highway 3 and State Highway 21 intersection north to meet Hamilton City Council's arterial transport network component of Southern Links.</li> <li>The east-west and north-south state highway alignments include provision for a central interchange, with the east-west alignment crossing over the north-south alignment with a bridge</li> </ul>	Waipa District Council

<sup>5</sup> Jannissen opening Para 4



**DES0018/13** NZ Transport Agency Notice of Requirement pursuant to section 168 of the RMA to designate a new state highway route from the bridge crossing the Waikato River through to the Waikato Expressway at Tamahere in the east. Waikato District Council

### 3.3 WRC Resource Consents

The Project also seeks from Waikato Regional Council resource consent applications for the construction of three new bridges associated with the project as follows:

Applicant's Name	Application Number	Activity Description
NZ Transport Agency	APP127679	To construct a bridge crossing the Waikato River at the Narrows
Hamilton City Council	APP127680	To construct bridges crossing the Waikato River east of Hamilton Gardens and over the Mangakotukutuku Stream

## 4. SUBMISSIONS

### 4.1 NZTA and HCC NoRs

As noted in Section 2, including the late submissions (which we consider in Section 5 following of this Hearings Report) there were 88 submissions to the NoRs. Although the content of any one submission may be directed at just one of the NoRs many submitters referred in their submissions to more than one or all of the NoRs. We were encouraged by the Requiring Authorities to regard Southern Links as one project. We have therefore preferred to view the submissions globally.

The S42A Report observed (and we agree) that:

*The matters raised in the submissions vary, which reflects the complexity and size of the project. Generally those matters raised in the submissions can be categorised as relating either to the effects of the proposed works including construction and operation and the effects of the proposed designations including the extended lapse period.<sup>6</sup>*

The S42A Report summarised the principal matters raised by submitters as follows:

- a) *Impacts on road networks as a result of the project;*
- b) *Vehicular access to property;*
- c) *Noise and vibration effects, both construction and operational;*
- d) *Social effects, including community severance and disruption;*
- e) *Visual and landscape effects of the project;*
- f) *Consequences of the 20 year lapse period such as blight and uncertainty for landowners;*
- g) *Air quality effects (dust during construction and vehicle emissions during both construction and operation);*
- h) *The necessity of the project and whether there has been adequate consideration of alternatives.<sup>7</sup>*

A summary table of the submissions was included in the S42A Report<sup>8</sup>

### 4.2 Applications to WRC

As also noted in Section 2.4, there were seven submissions lodged in respect of the WRC applications for three bridges, although 4 of these submissions addressed matters related to the NoRs. All submitters in respect of the WRC applications were also submitters to one or more of the NoRs. Four of the WRC submitters appeared before us<sup>9</sup>. One of the WRC submitters tabled a brief of evidence but did not appear (HNZ).

We gained the impression that, with the possible exception of Mangakotukutuku Stream Care Group, the submissions to WRC were essentially part of the wider concerns about the whole Southern Links project, and the WRC submissions were lodged for completeness rather than out of any particular concern about any of the three bridges. Certainly there was no expert evidence which challenged some aspect of any of the three bridges.

<sup>6</sup> S42A Report para.4.1

<sup>7</sup> Ibid para.4.2

<sup>8</sup> Ibid, Appendix C

<sup>9</sup> Submitters Bevan, Fletcher, Mangakotukutuku Stream Care Group and Riverside Golf Club

Accordingly we formed the view that the WRC consents should follow the outcome of the NoRs.

#### 4.3 Submissions in Support

A number of submissions were generally in support of the proposal.

Future Proof in particular was very keen that Southern Links and its key interchanges be completed for the reason that the Project is a key assumption underpinning the growth settlement plan for the sub region.

The National Road Carriers supported the proposal recognising the efficiencies it would create for its members.

#### 4.4 Consideration of Submissions

Rather than deal with the submissions submission by submission, we have considered effects in Section 6 of this Hearings Report under similar headings as were presented to us in evidence at the Hearings, as follows:

- (a) Transportation Planning & Traffic Management
- (b) Noise
- (c) Vibration
- (d) Visual & Landscape
- (e) Social
- (f) Ecology
- (g) Storm water & Drainage
- (h) Air
- (i) Contaminated Material
- (j) Aviation
- (k) Archaeology
- (l) Positive Effects

## 5. PRELIMINARY ISSUES

### 5.1 Late Submissions

The submissions lodged by the following were late:

Submission #74 Fletcher, Charles and Marion.  
Submission #75 Turner, Christine.  
Submission #76 Litchfield, Hugh William.  
Submission #77 Clentworth, Michael J.  
Submission #85 Harrison, Philip Andrew. And  
Submission #86 St Stephens Church Via Jane Manson.

We considered them and on 24<sup>th</sup> April, 2014 issued a Minute allowing those submissions and recording:

*Accordingly those submissions are valid and the submitters may participate in the proceedings accordingly.*

It was subsequently discovered that the submission of M N & M M Shaw had been lodged within the required time but had been misplaced (and was not therefore taken into consideration in the initial s42A Report).

When the circumstances were reported to us, we advised the Hearings Administrator that in our view the submission was valid and should be treated by all parties accordingly. We heard Mr Shaw at the Substantive Hearing.

### 5.2 Scope

Counsel for each of the requiring authorities made submissions in relation to “out of scope” matters. These arise in respect of:

- matters that are outside our jurisdiction under RMA;
- evidence that is given by a particular submitter which is outside the scope of that submitter’s formal submission.

#### (1) Jurisdiction

##### a) Public Works Act 1981 (PWA)

Several submitters saw the proceedings before us as a means to advance their case for compensation under the PWA in respect of land proposed to be taken, whether that be by way of timing or value.

Compensation to any directly affected landowner is dealt with either by negotiation between the parties or under the provisions of the PWA. Those submissions, discussions, negotiations and settlement arrangements have no place in the RMA jurisdiction.

Accordingly we take that issue no further in these proceedings.

##### b) Separate Approvals

There are a number of additional statutory approvals which will be required before the Project could proceed. Some of these are under RMA (consents for



earthworks, stormwater, discharge and the like). In that respect we recognise ecology will again be an issue in that process. As we observed in the Waikato Expressway Decision, in our view conditions relating to ecology may be better suited in resource consent conditions rather than a designation conditions. However, because those consents will not be sought until the detailed design stage (i.e. some years hence), we have included the relevant ecology conditions in the respective NoRs, noting that this is the approach adopted by the Requiring Authorities and the s42A Report writers.

Other approvals are required under separate legislative processes:

Heritage New Zealand approvals under the Heritage New Zealand Pouhere Taonga Act 2014;  
Department of Conservation under the Wildlife Act 1953; and  
Local Authority procedures under the Reserves Act 1977.

We have no jurisdiction to deal with any of those matters.

**c) Loss of Property Value**

A number of people expressed concern about their property values. However, there was no quantitative evidence tendered on that issue.

There is now significant case law in the Environment Court to confirm that any change of property valuation is likely to be as a result of an effect which we are duty bound to consider anyway. The movement in valuation is simply corroboration of that effect or effects. Were we to take into account property valuations as a separate issue then that may amount to “double counting”.

Ms Janissen put the position as follows:

*42.1 The potential impact of the Project on property values is better assessment as a reflection of effects (eg noise, landscape, vibration and dust), rather than attempting to speculate the market's response to these effect[s] as a resulting change in property value.*

*42.2 The proposed designation and resource consent conditions will adequately address the direct effects of the Project. Therefore, no additional compensation for reduced property values is required.<sup>10</sup>*

We accept that submission. We address property values no further.

**(2) Evidence Outside the Scope of a Formal Submission**

Hamilton City Council lodged a submission generally in support of Southern Links. The submission did not raise any concerns with the proposed Greenwood Street roundabout. However, evidence tendered by Mr Ryan from Hamilton City Council sought safety improvements on that roundabout along with a range of other amendments to the NoR conditions.

<sup>10</sup> Janissen Opening Submissions para.42

Ms Janissen submitted that Mr Ryan's evidence was out of scope because it was not within the HCC formal submission. Mr Ryan generally accepted that and withdrew various sections of his written statement. In our assessment, nothing turned on Mr Ryan's evidence and we do not need to discuss scope further.

### 5.3 Consultation

Several submitters suggested there had been a lack of consultation.

Evidence on consultation was given for the Requiring Authorities by Mr Eccles

We are satisfied that there has been more than adequate consultation, although, as might be expected, not every party consulted necessarily feels that has been the case. Furthermore, that consultation has been on-going.

We consider that adequate consultation has occurred in respect of all NoRs and consents before us, particularly in that it has allowed stakeholders to understand the proposal and afforded them the opportunity to raise their concerns with the Requiring Authorities and express those concerns in their submissions and at the Substantive Hearing.

Although there is no obligation to consult on an applicant for a resource consent nor on a requiring authority in respect of a designation<sup>11</sup>, we are also satisfied that parties with concerns about the proposal have been able to ensure that their issues have been identified and taken into account in our deliberations.

### 5.4 Witness Conflicts

In several instances in this case, witnesses who appeared at the hearing had appropriate qualifications and experience for them to be accepted as experts in a particular field but they also had either a personal interest in the outcome (e.g. an interest in affected property) or their employer as a party was advancing a particular position on the matters under consideration.

Counsel for HCC, Ms Le Bas drew our attention to *Briggs v Christchurch City Council*<sup>11</sup>, a case in which the Environment Court criticised one such expert for giving evidence as an expert when they were in a position of conflict or arguing their own cause.

Some of those experts at this hearing who had such a conflict (e.g. Mr Keyte) recognised the conflict and declared it. Furthermore, those witnesses did not claim to be an expert (despite their relevant expertise) and/or did not refer to the Court's Code of Conduct for expert witnesses. In addition, if they were a submitter, they did not pre-circulate their evidence (as there was no direction to pre-exchange any submitter evidence other than expert evidence).

The approach from some other expert witnesses with a potential conflict was not as careful or considered.

Where such a potential conflict arises, it does not go to admissibility of the evidence but rather to the weight to be accorded that evidence. What we say here therefore is

<sup>11</sup> RMA s36A

<sup>[1]</sup> Briggs v Christchurch City Council ENC C45/08, 24.4.08

that, where we perceived a potential conflict of the kind we identify in this Section of our Hearings Report, and whether or not a witness declared that potential conflict and/or took the appropriate steps in that regard, we took particular care in weighing the evidence of that expert.

#### 5.5 Decision Time Limits

Before us were five NoRs and three applications for resource consents. The RMA prescribes no time limits for delivering a recommendation or decision in respect of a NOR but RMA s115 requires that notice of a decision on a resource consent must be given within 15 working days after the end of the hearing. The Reconvened Hearing ended on 1st September, 2014. Accordingly notice of the decision in respect of the resource consents should have been given by the 22<sup>nd</sup> September, 2014.

Before the Reconvened Hearing ended, we intimated to the parties that we considered that because Southern Links was to be considered as one project, our decision on the WRC resource consents should be issued at the same time as the recommendations and decisions on the NoRs. Given that the Hearing had been lengthy and the issues of the whole Project relatively complex, we thought it unlikely that we could deliver a comprehensive report and decisions covering all matters (including the consents) within the time prescribed for the resource consents.

RMA s37 gives us power to extend any time limit under the act but if any extension is in excess of doubling the time limit then pursuant to RMA s37A(5) we must first have the approval of the Applicants/s to extend. We invited the Applicantss to consider and indicate their attitude to an extension of time under RMA s37 and 37A to the end of October 2014 to deliver our recommendations and decisions.

We record that before the end of the Hearing:

- Counsel for each of NZTA and HCC both agreed under RMA s37A(5) to the extension of time for notification of the WRC resource consent decision to 31<sup>st</sup> October, 2014.
- We therefore immediately made an oral decision granting a waiver accordingly.

## 6. EFFECTS

### 6.1 Approach

As we have recorded in Section 2 of this Hearings Report, the proposal under consideration involves five separate NORs by two different Requiring Authorities (NZTA and HCC) to three Territorial Authorities (HCC, Waikato DC, and Waipa DC), as well as three resource consent applications to WRC for bridge structures (one by NZTA and two by HCC). Whilst we are required to make separate decisions/recommendations on each NOR and resource consent application, the Southern Links proposal is an integrated, regional scale transportation project. We note that various issues have overlapping jurisdictional boundaries and hence are relevant to both the NoRs (territorial local authority jurisdiction) and the resource consents (WRC jurisdiction). In this section of the Hearings Report we have considered effects across all the matters before us discipline by discipline

### 6.2 Transportation Planning & Traffic Management;

While some Transportation Planning issues are relatively localised in scale (for example how the proposed Peacocke Structure Plan and Southern Links proposal need to inter-relate) the transport planning implications of Southern Links predominantly need to be considered and assessed in an integrated, overall manner.

A slightly different situation arises in respect of traffic safety and traffic management issues, because the associated effects occur at a variety of scales. That is to say that while the overall traffic flows and consequences need to be looked at in an integrated whole-of-proposal manner (because traffic management at one part of the transport network directly affects traffic management at other locations), a number of the traffic related effects are localised and site-specific and also need to be assessed at that scale.

Accordingly, we have considered transportation planning and traffic management issues at a variety of scales, dependant on the relevant circumstances relating to each matter, as we set out further below.

#### 6.2.1 The Requiring Authorities' Evidence

The high level rationale for the Southern Links Project was provided by Mr Robert Brodnax. He explained the importance of having an efficient roading network to cater for the on-going growth in the Waikato economy<sup>12</sup>. He also explained the relevant national and regional level statutory and policy context<sup>13</sup> whilst also explaining the importance of Southern Links in augmenting the current Waikato Expressway project and how Southern Links will bolster the overall benefits of the expressway and the benefits it will promote<sup>14</sup>. Whilst stressing the longer term benefits of the proposal, if it was ultimately constructed, Mr Brodnax acknowledged that there is currently no investment allocated in the 2012 National Land Transportation Programme for the design and construction of Southern Links, nor in HCC's Long Term Plan<sup>15</sup>. Mr Brodnax stated that investment in Southern Links will be strategically driven nationally to ensure optimal activities and timing, and that in the shorter term, central government investment will likely continue to focus on the so-called "Roads of National Significance", or RoNS, rather than Southern Links, the funding for which will be

<sup>12</sup> Brodnax EIC – paras 9 -15

<sup>13</sup> Ibid – paras 16-43

<sup>14</sup> Ibid – para 79

<sup>15</sup> Ibid – para 30



limited in the medium term<sup>16</sup>. He went on to explain<sup>17</sup> that the designation of the project route is necessary to achieve interim and long term protection of the land and that the short term goal is to route protection to safeguard the future transport corridor.

Mr Dowsett then set out the background to the project, noting that the origins of Southern Links derive from studies and investigations that were initiated in the early 1960's<sup>18</sup> and which had been updated and refocused at various times since then. He went on to refer to NZTA's objectives for Southern Links<sup>19</sup> which are to:

- *Contribute to the objectives of the New Zealand Transport Strategy, the LTMA and the WRLTS*
- *Contribute to the Transport Agency, HCC, Waikato District Council, Waipa District Council and Waikato Regional Council's strategic objectives for integrated land use planning, urban growth and economic development including Future Proof;*
- *Contribute to and support the HCC strategies, in particular Access Hamilton and Hamilton's Urban Growth Strategy;*
- *Support economic development for the Hamilton and southern/south-western Waikato sub-region, including appropriate provision for accommodating utilities and services within the road corridor;*
- *Contribute to the objectives of the Waikato Expressway (improve journey time and reliability, ease congestion, improve transport connections for economic growth, access to markets, transport efficiency and road safety);*
- *Develop an appropriate road hierarchy in the sub-region;*
- *Improve options for public transport, walking/cycling and demand management, both within Hamilton City and Waikato and Waipa District Council areas adjoining Hamilton City;*
- *Improve amenity and safety through reduced conflict and crash potential along the existing SH1, SH3, SH21, existing key arterial and collector routes within Hamilton City and key local roads;*
- *Minimise and mitigate adverse environmental, cultural and social effects; and*
- *Protect the long-term function of the State highway and the key arterial or collector road networks.*

He also explained that these objectives had been developed collaboratively with HCC<sup>20</sup>, noting that HCC had additional objectives for those elements of Southern Links that were within its jurisdiction. In that regard, Mr Denton stated as follows<sup>21</sup>:

23 ... [T]he delivery of the Project will facilitate the achievement of HCC's strategic objectives for facilitating economic development and the provision for integrated

<sup>16</sup> Brodnax EIC – para 34

<sup>17</sup> Ibid – paras 49 and 92

<sup>18</sup> Dowsett EIC – para 13

<sup>19</sup> NZTA NoR Para 3.3.2

<sup>20</sup> Dowsett EIC para 27

<sup>21</sup> Denton EIC – para 23 - 25

*land use planning and infrastructure to support the Peacocke Structure Plan and broader requirements for regional and city wide infrastructure.*

- 24 *The Project will provide the opportunity to complete HCC's strategic transport network. In doing so, this will enable the redistribution of freight and regional trips from the south (including the Waikato Regional Airport and Titanium Park) to appropriate corridors and improve connectivity around Hamilton which will reduce travel trips and demand on existing transport networks.*
- 25 *The use of the RMA designation tool clearly signals HCC's infrastructure intent and will secure sufficient land to facilitate the provision of an integrated transport system, three waters infrastructure network and associated network utilities to support the future urban development of the Peacocke Structure Plan Area and reduce the risk of 'build out' from ongoing development in the area.*

Whilst important in understanding the rationale for the project, these various objectives are also important in terms of the s171 and s168A evaluations we are required to exercise and we return to that matter later in this decision.

Mr Dowsett identified a number of issues associated with the Hamilton transport network, namely<sup>22</sup>:

- 29.1 *Much of the traffic from the south which travels along SH1 and SH3 has a destination within Hamilton City, causing congestion in the central business district.*
- 29.2 *The existing transport network in the south of Hamilton experiences congestion at peak times.*
- 29.3 *The current route for SH1, between Kahikatea Drive and the State Highway 26 roundabout at Hillcrest, does not adequately cater for the mix of heavy vehicles bound for the west of Hamilton City and local commuter trips.*
- 29.4 *SH3 between Airport Road and Lorne Street experiences congestion and conflict between freight and local journeys.*
- 29.5 *The southern access to the Hamilton Western Corridor is predicted to become progressively worse with sections of SH1 and SH3 experiencing unacceptable levels of service by 2020.*
- 30 *The pressure on the network from future growth is a concern for the economic performance of the region. Significant residential, commercial and industrial growth is planned in the Peacocke area and to the south of Hamilton. The forecasted increase will put a heavy strain on the roading network in the region.<sup>12</sup>*
- 31 *A "whole of network" approach is required to ensure this growth does not compromise access to commercial and industrial areas within Hamilton. This has been reinforced in Mr Brodnax's evidence.*

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<sup>22</sup> Dowsett EIC– para 29

32 *The Project will help to resolve existing issues, but more importantly, will help alleviate the predicted efficiency and capacity issues from future growth as forecasted in the Future Proof Strategy.*

Mr Dowsett then set out his assessment of why a 20 year lapse period for the NoRs was required. We discuss that in Section 9.1 of this Hearings Report.

In addition to setting out HCC's objectives for the project, Mr Denton explained to us:

- HCC's role in previous transport route assessments (as generally described by Mr Dowsett<sup>23</sup>)
- How roading was only part of the infrastructure requirements for the growth of Hamilton to the south of the current urban area in the Peacocke Structure Plan area, and that of similar importance are the "three waters" considerations (i.e. water supply, wastewater servicing, and stormwater management) and other utilities in that regard<sup>24</sup>. In response to our questions, Mr Denton explained the importance of the proposed new bridge adjacent to Hamilton Gardens in providing a platform to convey services from the north-east across the Waikato River.
- Although HCC currently has no funding budgeted to acquire land from the approximately 44 property owners directly affected by the HCC NoR, s 185 of the RMA is available to landowners at any time and HCC will likely include property purchase funding in its 2015 – 2025 Long Term Plan and 30 Year Infrastructure Plan, provided the HCC designation is confirmed<sup>25</sup>.

Against that background, a relatively high level framework, Mr Eccles explained to us the process that had been followed in identifying the specific route that was subject to the NORs and the alternatives that had been considered. In particular, he explained what is referred to as the "ACRE process", which starts with delineating the Area of interest (this being the "A" in ACRE). In that regard, Mr Eccles reminded us that the Southern Links network was required to connect to five points in the wider roading network, namely:<sup>26</sup>

- The Kahikatea Drive/Greenwood Street corner along the western industrial corridor of Hamilton.
- Cobham Drive (SH1) adjacent to Cobham Bridge where it leads directly to the Hamilton CBD.
- The designated Hamilton Ring Road connection point with Cobham Drive.
- State Highway 3 (SH3) generally in the vicinity of Airport Road (SH21).
- The Waikato Expressway (SH1).

Our understanding is that the first four of these identified locations are effectively fixed locations, while the fifth is an approximately 5km length of the Waikato Expressway extending southward from Tamahere.

<sup>23</sup> Denton EIC – paras 27 - 32

<sup>24</sup> Ibid – paras 33 - 38

<sup>25</sup> Ibid – paras 42 - 43

<sup>26</sup> Eccles EIC (First) – para 33

A constraints map of the wider area was then created, as was a series of 14 conceptualised roading networks (our term) in order to stimulate discussion at a series of workshops with a multi-disciplinary team of the Requiring Authorities' advisors<sup>27</sup>. By overlaying the range of networks and the constraints an overall area of interest was then delineated. No consultation was undertaken at this juncture<sup>28</sup>.

The second stage was undertaken at these same workshops and considered potential transportation Corridors (the C in ACRE) within the area of interest. The corridors were formulated by connecting the 5 "fixed" connection points with straight lines. The corridors were kept several kilometres wide to create a grid pattern<sup>29</sup>. The corridors to the western side of Hamilton and the southernmost east-west corridor were discounted because of social, environmental and cost factors and concerns as to whether any route there could meet the project objectives.<sup>30</sup>

The third stage was then to identify Routes (the R in ACRE) within the feasible corridors. The identified corridors and some potential route networks:

- Formed the basis of information for public open days;
- Were the basis for further consultation;
- Were noted as being illustrative; and
- Had to consider the practical and technical requirements of a roading network, which has particular geometric and design standards that need to be satisfied, meaning that while it may have been possible on paper to avoid all potential constraints and join the "best" alignments in different sectors of the network, such a route may not function in practice.<sup>31</sup>

A Multi Criteria Analysis (or MCA) methodology was then used to develop preferred routes. This process used a multi-disciplinary expert workshop approach that enabled NZTA's project team to discuss each of 12 potential routes within the identified corridors. The workshops drew on a wide range of information, including that provided by landowners.<sup>32</sup> Each route was evaluated and scored against a range of criteria and the top scoring route options were then assessed using a computerised transportation model to assist evaluation against the project objectives and this resulted in the selection of the preferred network route. This 400 – 500 metre wide route (increased in places where multiple constraints existed) allowed for further refinement later and was the subject of further public consultation.<sup>33</sup>

Stage 4 then involved the refinement of the route to select the areas of land that are the subject of the current Notices of Requirement. This is referred to as the Easement stage (the E in ACRE). The details of this process were addressed by Mr Eccles and included as Appendix D to the AEE.<sup>34</sup>

<sup>27</sup> Eccles EiC (First) – 34 - 40

<sup>28</sup> Ibid – para 41

<sup>29</sup> Ibid – para 43

<sup>30</sup> Ibid – para 46

<sup>31</sup> Ibid – paras 47 - 53

<sup>32</sup> Ibid – paras 54-55

<sup>33</sup> Ibid – paras 62 - 63

<sup>34</sup> Eccles EiC (First) – paras 64 - 76



Mr Eccles also explained<sup>35</sup> to us that a “Do-Minimum” package of works was developed by the requiring authorities to provide a baseline against which to compare network options and economics. The “Do-Minimum” network was the minimum package of works that would be required to maintain an acceptable level of service on existing routes in the Project area. That package of works was considered not to be satisfactory, because of various congestion, safety and logistical factors at various locations and, even if adopted, it too would have required route protection measures to be adopted for the major and minor arterial routes in the Peacocke Structure Plan area.<sup>36</sup>

NZTA and HCC also investigated options other than designation to protect the Southern Links network. After comparing a do-nothing and other planning tools that might be adopted, designation was preferred and adopted.<sup>37</sup> Travel Demand Management and enhanced Public Transport options were also assessed and found not, on their own, to be sufficient to meet the Project objectives.<sup>38</sup>

Mr Eccles also set out various alternative design aspects that were considered and rejected<sup>39</sup>, namely the location of the three key bridge crossings and the location and configuration of various intersection points.

He made particular mention of the proposed bridge crossing south of the existing Narrows Bridge (and which bisects the Narrows Golf Course), the crossing of the Mangakotukutuku Stream, and where full or partial interchanges or at grade intersections (including roundabouts) were preferred.

Mr Eccles' conclusions include the following:

- 155 *The requiring authorities adopted a systematic and best practice approach to developing the final network alignment. At that point the requiring authorities considered whether designation of the network was the most appropriate mechanism to achieve long term protection of the route, and confirmed that it was.*
- 156 *Adequate consideration was also given as to whether other methods could achieve the Project objectives, such as relying on enhanced public transport and TDM in the Project area.*
- 157 *In my opinion, the network identification and development process adopted therefore achieves the statutory requirements of evaluation of alternatives, as set out in sections 171(1)(c) and 168A(3)(b) of the RMA.*

We accept the thrust of Mr Eccles' evidence in this regard, noting in particular that certain aspects of the proposal are inevitably influenced by the need for Southern Links to join and integrate with the remainder of the roading network. The one possible exception to this concerns the connection to State Highway 1 where, at least in theory, a relatively long stretch between the Tamahere Interchange and the Cambridge Section of the Waikato Expressway is potentially available. We return to that point later.

<sup>35</sup> Ibid – para 77

<sup>36</sup> Ibid – para 81

<sup>37</sup> Ibid – para 82 - 85

<sup>38</sup> Ibid – paras 86 - 90

<sup>39</sup> Ibid – paras 91 - 102

Mr Lion-Cachet's evidence in chief set out the traffic modelling that had been undertaken in support of the Southern Links proposal. He concluded as follows:

- 184 *My evidence discusses the role of transport modelling in the selection of the preferred network. Significant consideration has been given to the strategic need, route selection, alignment, and form of intersections through the ACRE and MCA processes.*
- 185 *The preferred network provides significant additional capacity and route choice to traffic, as well as relieving congestion and delay, and improving travel times along key corridors and intersections. Network resilience is introduced through the new links, with improved access to Hamilton west (especially for freight traffic), and to the CBD.*
- 186 *The preferred network provides significant additional capacity and route choice to traffic, as well as relieving congestion and delay, and improving travel times along key corridors and intersections. Network resilience is introduced through the new links, with improved access to Hamilton west (especially for freight traffic), and to the CBD.*
- 187 *The peer reviewed economic evaluation and staging methodology has provided a robust but conservative BCR, using a transport model that has been declared fit for purpose.*
- 188 *Submissions were have been received which questioned or objected to the selection of the preferred network, the need for the project, the removal of the south facing ramps at the Tamahere Interchange, the traffic conditions on Tamahere Drive and other Tamahere local roads, Bader Street, economic evaluation and staging, and Hamilton Airport connections and staging. I have responded to each of the submissions in my evidence.*
- ...
- 190 *The implementation of the Project provides a road network that mitigates the effects of future traffic growth by providing high standard infrastructure, which allows the existing local infrastructure to be better suited to local functions.*

In response to our subsequent questions of the Requiring Authorities, Mr Lion-Cachet produced a second supplementary statement (his first supplementary statement addressed matters raised by the supplementary s42A Report writers and we consider those aspects later) that addressed two issues raised by us, namely:

- Whether or not modelling of Southern Links included the traffic generated by the Hamilton Section of the Waikato Expressway, which was expected to be operational prior to Southern Links being constructed; and
- The implications for traffic safety on the Southern Links with and without retention of the existing south facing ramps of the Tamahere Interchange. This matter was also addressed in some detail by submitter Mr Tony Keyte, and we refer to his evidence later.

Mr Lion-Cachet stated:

- 12 *In conclusion, the Project model includes the Waikato Expressway, and changes to the Waikato Expressway subsequent to the modelling have been assessed appropriately. No further modelling is required.*

...

- 20 *In conclusion, I reconfirm my previous evidence where I have determined that the impacts on Tamahere Drive are low, and that the impacts on the Tamahere Drive roundabout on the Eastern Section of the Project are low.*

- 29 *In conclusion, I confirm that the Project has assessed the Tamahere Drive roundabout with and without the Tamahere Interchange south facing ramps.*

...

34. *... [T]he expected traffic flows on Day Road as a result of the Project are expected to be low – less than 2000 vpd, or about 1 vehicle every 3 minutes. The Tamahere Interchange south facing ramps (whether open or closed) have no impact on the traffic flows on Day Road ... As a result the approximately 100 m separation between the Day Road intersection and the Tamahere roundabout will not lead to any safety or queuing issues, as claimed by Mr Keyte.<sup>40</sup>*

## 6.2.2 Submissions / Submitter evidence

### (a) Tamahere Expressway Connection

We deal firstly with the evidence of Mr Tony Keyte, insofar as it deals with transportation planning and traffic effects. Mr Keyte is a very experienced civil engineer, with specialist traffic engineering qualifications and experience. His firm also provides consulting advice to both NZTA and HCC.

However, Mr Keyte did not provide his evidence as “expert evidence”. We have commented on that in Section 5.4 of this Hearings Report.

Mr Keyte’s evidence was produced on behalf of the Keyte Family Trust, the owner of a lifestyle property at 36 Day Road which is some 65 metres from the designation boundary in the vicinity of the proposed Tamahere Drive roundabout. We deal with the wider aspects of his evidence elsewhere in this decision and address transportation planning / traffic effects below. We record that his evidence only concerned the portion of Southern Links between the State Highway 21 interchange and the State Highway 1 interchange.

Mr Keyte was concerned about the separation distances involved in the connection of Southern Links to State Highway 1, and considered that the selected route lacked good traffic and road safety principles and design and that an alternative route that joins with the Cambridge Section of the Waikato Expressway at the Pickering Road grade separated interchange was more appropriate.<sup>41</sup> He also considered that this option would ensure more appropriate separation distances between interchanges on

<sup>40</sup> Lion-Cachet 2<sup>nd</sup> Supp Ev.

<sup>41</sup> Keyte EIC – para 3.8

State Highway 1. Mr Keyte considered that the 600 metre separation distance between the south facing on-ramp at the Tamahere Interchange and the proposed Southern Links off-ramp was not desirable and would result in the unsafe process of traffic "weaving"<sup>42</sup>, which can be observed at some places on Auckland's Southern Motorway.<sup>43</sup> As a consequence Mr Keyte considered that although NZTA had advised the Commissioners that the closure of the Tamahere Interchange south facing ramps was not now part of the current proposal (and if proposed in future would be subject to a subsequent RMA process) any such future process would be largely predetermined, on safety grounds, if the Southern Links designations were confirmed<sup>44</sup>.

In response to this and other submissions, NZTA proposed more robust conditions regarding the south facing ramps at Tamahere. As summarised in Ms Janissen's closing submissions, NZTA now proposes the following condition (condition 23) on the Waikato NOR<sup>45</sup>:

***Tamahere Interchange South Facing Ramps***

*The NZ Transport Agency shall not commence Construction Works, construct or implement that part of the designation within the Waikato District area, including the roading sections located east of the Waikato River and the Waikato Expressway interchange until either:*

- a) *The Tamahere interchange south facing ramps are closed; or*
- b) *An independent Road Safety Auditor(s), appointed by the NZ Transport Agency and in consultation with Waikato District Council makes a road safety audit of the final design plans for construction (in accordance with the NZTA Road Safety Audit procedures) in relation to the adequacy and safety of the traffic operations as a consequence of the co-existence of the existing south facing ramps at the Tamahere interchange and the north facing ramps at the proposed Southern Links Waikato Expressway interchange. And, following receipt of the safety audit recommendations, and further designer comment on the audit recommendations, the NZ Transport Agency and Waikato District Council jointly determine the works can be implemented.*
  - i) *Where any such agreement is unable to be made between the NZ Transport Agency and Waikato District Council, the dispute resolution process set out at Condition 15.3 shall be applied.*
  - ii) *Where the NZ Transport Agency determines the ramps are to be closed, it will not make any application without first consulting with the Tamahere community on any proposed closure of the south facing ramps, irrespective of whether the process requires an Alteration to Designation, or whether some other publically notified process is to be followed.*

We asked Mr Apeldoorn, the traffic consultant advising the s 42A Report writers, whether he considered that the outcome of a safety audit of the Tamahere south facing ramps meant that closure would be inevitable if Southern Links was approved. He was firmly of the opinion that it would not be and we accept that.

<sup>42</sup> Ibid – paras 3.10 – 3.12 & 3.19 – 3.20

<sup>43</sup> Ibid – paras 3.10 – 3.12

<sup>44</sup> Ibid – para 3.3

<sup>45</sup> Janissen Reply para 194



Mr Keyte also questioned the accuracy of the traffic modelling that Mr Lion-Cachet referred to in his evidence. Mr Keyte's concerns centred around his opinion that as far as southbound traffic was concerned no east west link was included from the "Cherry Lane Interchange" (which we understood to refer to the Hamilton South Interchange) and the lack of an integrated assessment of the Waikato Expressway and Southern Links projects.<sup>46</sup> He estimated (acknowledging that he did not have the resources to calculate numbers exactly) that the southbound traffic volumes would be some 10 times higher than calculated by Mr Lion-Cachet once the south facing on ramps at Tamahere were removed<sup>47</sup> and that the data used in the model and the assumptions used were out of date with the factual situation<sup>48</sup>. As discussed above, we accept Mr Lion-Cachet's explanation as to the accuracy of the information used in his assessment.

Mr Keyte also observed that the Day Road, Pencarrow Road and Tamahere Drive circuit was utilised by pedestrians, cyclists and horse riders. He considered that such uses would be able to continue, provided that the traffic volumes assumed by NZTA were correct<sup>49</sup>, although he noted that the footpath linking Tamahere Drive to the Tamahere Section of the Waikato Expressway (which was to be used by cyclists) would be severed by Southern Links.<sup>50</sup>

We are satisfied that subject to the imposition of appropriate conditions that the adverse effects identified by Mr Keyte can be addressed appropriately.

#### **(b) Golf Course**

The selection of the alignment that connects Southern Links to State Highway 1 was also addressed in some detail by Ms M-A Gill the Chairperson of the Riverside Golf Club<sup>51</sup>. She considered that the selected alignment was not appropriate because it would, in effect, cut the golf course (the Narrows course) in two. We accept that the connection between Southern Links and SH1 will cause significant adverse effects on the Riverside course. However, we note that all potential linkages between Southern Links and SH 1 would need to pass through either the Narrows or adjacent Lochiel course. As such, while the effects on the golf course need to be acknowledged and appropriately addressed we are not satisfied that the selected route should be discounted because of those effects.

#### **(c) Titanium Park Access**

The Titanium Park Joint Venture ("TPJV") comprises Titanium Park Ltd (a subsidiary of Waikato Regional Airport Ltd), Todd Property and McConnell Property and was established to develop the Titanium Park Business Park that surrounds Hamilton Airport. That Business Park began development in 2008 following Plan Change 57 to the Waipa District Plan becoming operative. Counsel for TPJV, Mr Berry, advised us that whilst TPJV supports Southern Links, in principle, the manner in which its proposed "Western Precinct" would connect to the State Highway network before Southern Links is constructed is of particular concern. There were three key aspects in that regard:

- The need for an interim upgrade of the SH3 / SH 21 Intersection; and

<sup>46</sup> Keyte EIC – para 3.14

<sup>47</sup> Ibid – para 3.17

<sup>48</sup> Ibid – para 3.18

<sup>49</sup> Ibid – para 5.1

<sup>50</sup> Ibid – para 5.2

<sup>51</sup> Riverside Golf Club is the result of a merger between Narrows and Lochiel Golf Clubs

- The need to upgrade the SH3 / Ingram Road intersection, also for interim access reasons.
- The associated uncertainty that arises from a long lapse period;

Following directions from us, NZTA and TPJV filed a Joint Memorandum of Counsel<sup>52</sup> that set out a confirmed position in respect of the matters noted above. In short, that agreement has resulted in both parties agreeing a process for addressing the SH3 / Ingram Road issue and the wording of additional conditions regarding an interim arrangement at the SH3 / SH 21 intersection. As such, we see no need to refer to those matters any further, and consider the proffered conditions adequately address the matter. We consider the lapse period in Section 9 of this Hearings Report.

#### (d) Titoki Sands

Ms K Drew prepared a pre-circulated statement of evidence on behalf of Titoki Sands. She also presented a shorter written summary at the hearing. Her evidence addressed three issues of concern, namely:

- The closure of the south-facing ramps at the Tamahere Interchange;
- The need for a specific connection to allow Titoki Sands to effectively connect to Southern Links; and
- The associated uncertainty associated with a long lapse period.

Regarding the south facing ramps, Ms Drew supported the condition proffered by NZTA (see above), in principle and maintained that the safety audit required should be undertaken now to provide greater certainty to the Tamahere Community<sup>53</sup>. She also proposed an alternative to the condition proffered by NZTA. Ms Drew's proposal was as follows:

#### **Condition 23.1**

*A Stage 3 Road Safety Audit (in accordance with the NZ Transport Agency Road Safety Audit procedures applicable at the time) shall be carried prior to lodgement of the Outline Plan of Works for the final design. The Road Safety Audit shall be carried out by a suitably qualified and experienced independent practitioner jointly appointed by the NZ Transport Agency and Waikato District Council. The Road Safety Audit shall consider the adequacy and safety of the impacts of the north facing ramps of the Southern Links Waikato Expressway Interchange on the operational safety of the existing south facing ramps at the Tamahere Interchange.*

#### **Condition 23.2**

*Following receipt of the Road Safety Audit recommendations, and further design comments on the audit recommendations the NZ Transport Agency and Waikato District Council shall jointly determine whether the southern ramps of the Tamahere Interchange should be closed and only after consultation with the Tamahere community has been undertaken. Where any such agreement is unable to be made*

<sup>52</sup> Joint Memorandum of Counsel on behalf of NZ Transport Agency and Titanium Park Joint Venture Regarding Access to the Western Precinct of Titanium Park – 1 September 2014

<sup>53</sup> Drew Summary Ev – para 6

*between NZ Transport Agency and Waikato District Council, the dispute resolution process set out at Condition 1.10 shall be applied.*

For the reasons set out in paras 197 – 200 of Ms Janissen's submissions in reply, we do not consider it necessary to adopt Ms Drew's recommended conditions, noting also that an approval under the RMA will be necessary to allow those ramps to be removed and Mr Apeldoorn's advice that the results of the audit would not be a *fait accompli* if the NZTA Waikato NoR for Southern Links is confirmed.

Regarding the proposed alternative access sought by Ms Drew, she stated that this was closely related to the closure of the south facing ramps and that the Requiring Authorities' rebuttal evidence had gone some way to addressing her concerns.<sup>54</sup> Given that the south facing ramps issue will be addressed at a later date and in a separate forum, we do not think any further specific access arrangements need to be prescribed at this time.

#### **(e) Chinaman's Hill Designation**

Mr B Inger presented written evidence on behalf of Mr and Mrs Ingram, who are long term residents of Rukuhia adjacent to SH 3, and who also appeared at the hearing and spoke to a short written statement. From a traffic / transportation perspective, it was clear from both Mr Inger and Mr and Mrs Ingram that the relationship between the existing Chinaman's Hill designation on SH3 that currently affects their property and Southern Links was of concern. Resolution of this matter progressed considerably during the hearing and by the conclusion of the proceedings NZTA had confirmed that it will uplift that aspect of the Chinaman's Hill designation that affects the Ingram property. As we understand it, the only point of difference in that regard was that Mr and Mrs Ingram wanted this to occur within three months, while NZTA originally proposed 12 months. Ms Janissen advised us<sup>55</sup> that although 12 months is generally necessary for a designation to be uplifted, NZTA was prepared to accept a condition requiring this to be achieved within 6 months of the confirmation of the NORs. We consider that to be an appropriate timeframe in the circumstances.

#### **(f) Peacocke Area**

A number of submitters addressed the relationship between the Southern Links proposal and the land within the Peacocke Structure Plan (PSP) area within Hamilton City. In that regard, Mr N Savage, a Principal Planner employed by HCC, tendered evidence in which he presented the contents of the Structure Plan to us. That was a rather large amount of material (reflecting what appeared to us to be an exceedingly complicated set of planning provisions) and he helpfully highlighted what he considered to be the provisions that were directly relevant to Southern Links.

The Adare Company Limited is an extensive landowner in the Peacocke Area. Ms I Dowling prepared a pre-circulated statement of evidence concerning transportation planning and Mr D Serjeant prepared a pre-circulated statement on wider planning matters.

At the commencement of the presentation on behalf of Adare, Mr Serjeant advised us that Mr J Lunday (an urban design specialist who pre-circulated a statement of evidence) and Adare's legal counsel would not be attending the Hearing. Mr Serjeant stated that the reason for this was that Adare was relatively satisfied with the revisions

<sup>54</sup> Drew Summary Ev – para12

<sup>55</sup> Janissen Reply – para 170

to conditions proposed in the revised s 42A Report and that Adare's appearance at the Hearing was confined to suggesting a number of amendments to further enhance conditions.

Mr Serjeant stated that the conditions for Southern Links needed to be sufficiently broad in scope to allow for the flexibility to integrate with the development of the Peacocke area, and that he considered this to be the case. He also considered that the Master Plan for the Peacocke area needed to be taken into account when the detailed design of the Southern Links was being undertaken.

Ms Dowling presented a set of proposed conditions relating to the preparation of what she referred to as a "Traffic and Network Management Plan". We have considered those conditions but consider that they are unnecessary.

#### **(g) Middle Road and Narrows Road Severance**

The proposal would sever Middle Road half way between Narrows Road and Raynes Road. It also severs Narrows Road about 0.7km north of Ohaupo Road. This was of considerable concern to a number of submitters<sup>56</sup> and Ms Penn, on behalf of the Middle and Narrows Road Focus Group articulated those concerns at the Hearing. As a consequence, we were careful to inspect the areas concerned on our site visit.

As we understand it, residents of 8 dwellings on the southern end of Narrows Road will face an extra distance of 3-4 km for trips to and from the east but trips to and from other directions will be unaffected. For around 17 dwellings in the Narrows Road/Middle Road vicinity there will be an additional journey length of around 2km for local trips to and from the west and north and 4 km to and from the south.

Ms Penn also described that the loss of existing roading connections with neighbouring properties would adversely affect community well-being. One suggestion Ms Penn and the Middle and Narrows Road Focus Group made in that regard was to include a vehicle underpass on Middle Road if Southern Links were to proceed.

We acknowledge the disruption to those residents who currently utilise Middle and Narrows Roads. However, on balance we do not consider those effects to negate the wider benefits that Southern Links will provide. Nor do we consider the suggested underpass to be necessary.

#### **(h) Other Submissions**

A large number of submissions addressed matters that touched on transportation planning and traffic effects. We do not list all of them, nor address each and every submission specifically. Rather we deal with them thematically.

We firstly record that we have gained very clear first hand information about the concerns of property owners whose land is subject to the NORs – that is to say that is within the designation corridor and will potentially be subject to acquisition under the Public Works Act 1981. Many submitters considered that the selected roading alignments were inappropriate because of property acquisition and related issues. However, in Section 5.2 of this Hearings Report we have already accepted the submission by Ms Janissen<sup>57</sup>, that land acquisition involves a separate statutory

<sup>56</sup> Jacquilyn and Damian Dawson, Brian Roslyn and Carol Griffin, Leslie Hammond, Graeme and Julie Lucas, Middle and Narrows Road Focus Group, Penn Paterson Partnership, Qi Zha and Xianghua Yan

<sup>57</sup> Opening submissions for NZTA – para 38



process that is distinct from the RMA and matters relating to compensation and land acquisitions are outside our jurisdiction.

#### 6.2.3 S 42A Report

There was initially considerable differences of opinion between the applicants' witnesses and the s42A Reports authors regarding traffic planning matters, although that situation evolved during the course of the Hearings, and in particular during the adjournment.

It suffices to say that by the time of the Requiring Authority replies at the Reconvened Hearing, all traffic planning matters were agreed as between the applicants and the s42A Report writers, including in respect of conditions.

#### 6.2.4 Findings

For all the reasons set out above, we are satisfied that the Requiring Authorities have given adequate consideration to alternative sites, routes and methods and that the proposal is reasonably necessary to meet their objectives for the proposal.

We consider that the conditions which we now impose relating to Transportation Planning & Traffic Management appropriately avoid, remedy or mitigate adverse effects.

#### 6.3 Noise

The tension evident throughout the hearing regarding what level of assessment is required for and what conditions should be placed on a designation for works that are to be undertaken a likely minimum of 15 years hence, as opposed to that on a resource consent or designation that is to be commenced in short order, arose again in respect of noise and vibration.

Mr Vincent Dravitzki and Dr Stephen Chiles were engaged jointly by the two Requiring Authorities, NZTA and HCC.

Mr Christian Vossart and Mr Jon Styles were jointly engaged as part of the s42A reporting team on behalf of the respective Territorial Authorities - HCC, Waipa DC and Waikato DC.

A substantial amount of evidence was provided by the acoustic witnesses, much of which need not be repeated because by the end of the hearing the differences between them had been significantly narrowed to the following principal matters:

- (a) Whether it was sufficient to set the "future" operational noise limits based on the present incomplete design and a yet-to-be-determined Best Practicable Option (BPO) as provided for under the road noise Standard, NZS 6806: 2010 ("NZS 6806");
- (b) Whether it was necessary for the territorial consent authority to approve future site-specific BPO decisions; and
- (c) What form should post-construction noise monitoring should take.

We record that the Joint Witness Statement (not dated, but the construction and operational noise and vibration conferencing occurred on 25 July 2014) clearly

indicated the areas of agreement and disagreement between these acoustic witnesses.

#### 1. BPO

Mr Dravitzki noted that NZTA had adopted NZS 6806 for all *new* roading projects. Regardless, Mr Dravitzki had also taken into account the existing noise environment (noting that the North Island Main Trunk rail line and the Hamilton International Airport were in or in the vicinity of the project area, and trains and planes added to that noise environment), and the effect of changes generated by already permitted activities. His overall conclusion was that short sections of quieter roading surfaces and / or lengths of noise barriers would generally reduce noise effects to acceptable levels<sup>58</sup> (defined either by reference to NZS 6806 or the noise criteria of relevant district plans (which he opined embodies the expectations of the community<sup>59</sup>)). In that regard we note that HCC's proposed District Plan, on which decisions on submissions have been released, adopts NZS 6806.

With respect to construction noise, Mr Dravitzki was satisfied that NZS 6803 at the "typical duration" rather than "long-term duration", and with appropriate adjustments for hours and days of work, provided appropriate noise limits, and recommended their adoption. He also recommended the preparation of a comprehensive Construction Noise and Vibration Management Plan (CNVMP) to deal with the more specific, and site specific, details, recognising that the 5 NoRs that constitute the Southern Links project, would likely proceed at different times and stages.

Mr Dravitzki's noise measurements, undertaken in March / April 2012 at 21 locations, indicated a range of average 24 hr noise environments from typically quiet rural environments (between 46 and 50 dB), through the majority of the project area (between 50 and 55 dB), to noisier environments close to major roads such as Cobham and Kahikatea Drives (60 -70 dB).

Future developments anticipated by Mr Dravitzki included the Peacocke Structure Plan area, large lot residential near Houchens Road, and continued rural lifestyle lot development in the Tamahere and Hamilton International Airport areas.

Mr Dravitzki provided an overview of NZS 6806. He advised that NZS 6806 applies to buildings used for noise sensitive activities, described as "Protected Premises and Facilities" (PPF) to which noise criteria are applied and, if necessary because the defined target noise levels are not achieved, mitigation options assessed to determine the BPO – through an integrated design process broadly set out in the standard. Some 230 properties were identified<sup>60</sup> as PPFs requiring reassessment when the future noise assessment is undertaken, and these are proposed to be formally listed by way of an annexure to conditions.

NZS 6808 sets the applicable noise criteria for altered and new roads with predicted traffic volumes of the sort anticipated for the Southern Links at design year 2041 as follows:

Category	Altered dB LAeq(24h)	New
A (primary free-field external noise criterion)	64	57
B (secondary free-field external noise criterion)	67	64

<sup>58</sup> Dravitzki EIC, para 77

<sup>59</sup> Ibid, para 48

<sup>60</sup> Dravitzki, Supplementary Evidence, para 15

C (Internal noise criterion)

40

40

Mr Dravitzki also noted that he had included PPFs identified 200m+ distant from the edge of the designation in most places (and prepared a graphic illustrating this including, by colour code, the NZS 6806 free field criteria<sup>61</sup>).

At this point the noise witnesses disagreed as to what precise assessment is necessary and sufficient for the purpose of confirming this aspect of the designations sought.

The s42A authors wanted more specifics regarding individual properties, their existing ambient noise environment, and more certainty regarding what the future noise environment with the operational road would be. The Requiring Authorities' noise witnesses considered that they had done enough to demonstrate that the future noise environment would comply with or could be mitigated to comply with NZS 6806, and that the future assessment and BPO processes set out in NZS 6806 were appropriate for the circumstance when the actual work, some 15 years in the future, would commence.

At the heart of the issue between these witnesses, as we understood their positions, was the question as to whether, despite some acknowledged limitations, we should accept NZS 6806 (as interpreted by the witnesses, noting that we were not provided with actual copies of the standard) as a satisfactory vehicle for resolving any uncertainties that remain such that the NoRs could be confirmed or recommended for confirmation.

We inquired into the current status of the standard and the means by which it was developed and the final drafting agreed. It was clear that a broad process of expert and interested party involvement was put in place and, while there will always be a level of dissatisfaction with the outcome of such processes, the standard is robust. Furthermore we were addressed on the way in which both the Courts and Boards of Inquiry have made findings around the standard and again, despite some criticisms and findings of short comings, those authorities appear to have determined the relevant matters in general accordance with NZS 6806.

A related, and second, matter in dispute noted above, concerned whether any site specific BPO determined under NZS 6806 should be reviewed by the Territorial Authority prior to adoption. The s42A witnesses were adamant it should; Dr Chiles was equally adamant that it was unnecessary because, in short, NZS 6806 sets up the BPO assessment process from which the answer necessarily falls out and is a transparent process involving multiple disciplines. By way of example we were told that a landscape assessment could be involved so that the perverse BPO of a large sound wall-type structure which completely blocked someone's views to a point of interest would be taken into account.

## 2. Monitoring

During the hearing Mr Styles proposed a new condition to capture his concerns as follows:

### ***Operational Noise Limits***

***Notwithstanding conditions 4.1 to 4.5, the Noise Assessment Report and the final design of the Detailed Mitigation Options:***

<sup>61</sup> Joint Memorandum of Counsel, 27 July 2014, Annexure B – Figure 5 of Vince Dravitzki's Noise Assessment (with scale)

- a) Shall not permit the noise level at any PPF to exceed LAeq(24hr) 57dB;  
or:
- b) The noise level shall not exceed the level that is predicted for the most effective Structural Mitigation measure as set out in the Original Noise Report

whichever level is higher.

**Operational Noise Monitoring**

- (a) Prior to construction, the NZTA shall arrange for a suitably qualified and experienced acoustics specialist approved by Hamilton City Council's Chief Executive Officer or nominee to undertake a minimum of 10 (ten) representative measurements of ambient noise levels. Measurements shall be undertaken in accordance with the requirements of Section 5.2 of NZS6806:2010.
- (b) Following completion of the work, the NZTA shall arrange for a suitably qualified and experienced acoustics specialist approved by the [City/District] Council's Chief Executive Officer or nominee to undertake traffic noise monitoring at the same sites surveyed in Condition ...b(a) above, within 2 years following completion of construction of the Project, and following the application of any low noise road surfaces that are required. Measurements shall be undertaken in accordance with the requirements of Section 5.2 of NZS6806:2010.
- (c) The results of the noise level monitoring in accordance with Condition ...b(b) above shall be used to verify the computer noise model of the Detailed Mitigation Options. Where monitoring identifies that the applicable standards of Condition ...a above are not being met, the NZ Transport Agency shall undertake mitigation measures to ensure compliance is achieved as soon as practicable.
- (d) A report describing the findings of monitoring required by conditions ...b(b) and ...b(c) shall be provided to Hamilton City Council's Chief Executive Officer or nominee within one month of the measurements in 4.5(b) being completed. The Report shall include (as a minimum):
  - i. Comparison of the results to the computer noise model of the Detailed Mitigation Options;
  - ii. Identification of where compliance with the requirements of Condition ...a have been achieved;
  - iii. Identification of where compliance with the requirements of Condition ...a have not been achieved and the mitigation measures proposed to ensure compliance is achieved as soon as practicable

That condition was criticised by Dr Chiles and Mr Dravitzki as being:

- (a) Impractical; primarily on the ground that Mr Dravitzki had cited published research undertaken by himself demonstrating the uncertainties inherent in operational road noise measurements; and
- (b) contrary to the BPO basis of NZS 6806 in capping noise received at any PPF at 57dB LAeq(24 hr).

Instead Dr Chiles proposed a compromise condition, accepting that it was important to establish that the noise mitigation put in place was implemented properly and that the



modelling for that mitigation was correct. That condition establishes a post-construction noise review requiring a number of verification checks and actions, including a requirement for remedial action in the event that the monitoring identifies issues.

These alternate conditions helpfully crystallise the remaining difference between the witnesses.

Mr Dravitzki also identified the following submitter properties as likely to require some form of additional noise mitigation because the assessed noise level at the dwelling exceeds the NZS 6806 Category A upper noise threshold for *new roads* of 57dB LA<sub>eq(24h)</sub>:

- Dan and Kylie Harcourt, 194 Houchens Road (60dB LA<sub>eq(24h)</sub>);
- Guy Young, 175 Narrows Road (61.5dB LA<sub>eq(24h)</sub>); and
- Margaret and Murray Shaw, 143 Hall Road (61dB LA<sub>eq(24h)</sub>);
- Paul Le Miere, 35 Middle Road (59.5dB LA<sub>eq(24h)</sub>).

### 3. Findings

While we have some sympathy with what the s42A witnesses were presumably seeking to infuse, i.e. greater certainty well ahead of time for potentially adversely affected residents, we find it untenable to turn our backs on a recently promulgated technical standard, specifically designed for this very purpose, and with which other competent authorities having seemingly come to terms. We also note that over the course of the next decade it is highly likely that the standard will be reviewed and amended if the apparent shortcomings are found to be material. To that end we recommend that the relevant conditions contain the phrase "or successor standard" (or similar) so that the condition is not fixed to the 2010 edition.

On the question of the BPO, we agree (as did Dr Chiles and Mr Dravitzki) that an *independent pair of eyes* is not unreasonable. Furthermore, we note that proposed NoR Noise Assessment Report condition (where applicable) identifies the inclusion of *a suitably qualified planner* approved by the Territorial Authority as part of the BPO determination panel, and the submitting of the resultant report to the Council. However, as drafted that condition does not require any other action by Council. We think it prudent that Council be required to certify that the Selected Options accord with the relevant conditions of the designation, and impose / recommend accordingly.

Having found that NZS 6806 provides sufficiently for the future noise assessment, we cannot accept Mr Styles proposed conditions as they clearly restrict the matters over which the standard speaks. Furthermore we accept Dr Chiles evidence, *pace* Mr Dravitzki, that uncertainties inherent in measuring operational road noise for the purpose of establishing benchmarks (which must be unchallengeable) makes that an unreliable method and, accordingly, we prefer and impose Dr Chiles' alternate conditions.

### 6.4 Vibration

Mr Peter Cenek, Opus Research, and Dr Chiles gave vibration evidence for the Requiring Authorities. Mr Vossart and Mr Styles responded for the s42A team.

Mr Cenek<sup>62</sup> applied a prediction model based on a 44 tonne truck travelling 70km/h on a road surface with an average roughness value of 140 NAASRA counts/km. This, we were told, corresponds to the maximum guideline average value for local urban roads. The model predicted that vibration effects will not be felt at or in dwellings located further than 6m from the road edge (and he advised that all dwellings in the three residential areas concerned are at least 8m from an existing road edge).

For his assessment Mr Cenek used guidelines given in British Standard BS5228 2:2009, *Code of practice for noise and vibration control on construction and open sites – Part 2: Vibration*, and German Standard DIN 4150-3:1999, *Structural vibration – Part 3: Effects of vibration on structures*. This provided the methodology for considering both human comfort and cosmetic building damage. He also referred to the Norwegian Standard NS 8176.E (2005): *Vibration and Shock: Measurement of vibration in buildings from landbased transport and guidance to evaluation of its effects on human beings*, to confirm that the disturbance threshold he arrived at, being 0.3 mm/s PPV, was “more stringent” than the relevant Norwegian criterion<sup>63</sup>.

Mr Cenek concluded<sup>64</sup> that damage to buildings could occur from earthmoving equipment operating within 10m of the designation boundary, and identified 10 properties in the Montgomery Crescent, Wingate Street, Riley Place and McEwen Place area where buildings are only 8m away. He proposed a suite of optional measures to mitigate that eventuality that must be addressed through the proposed Construction Noise and Vibration Management Plan (CNVMP). Mr Cenek also included the following properties as vibration sensitive locations to be addressed in the CNVMP:

- Martin and Deborah Swann, 157A Tamahere Drive;
- Dan and Kylie Harcourt, 194 Houchens Road; and
- All properties within 50m (general construction) and 100m (piling) where construction takes place on areas of peat.

Mr Cenek supported the use of schedules rather than council-approved Activity Specific CNVMPs (ASCNVMP) as recommended in the s42A Report (and discussed by Dr Chiles).

The main point of difference between the Requiring Authorities' witnesses and the s42A witnesses in relation to both noise and vibration<sup>65</sup> related to the matter of whether site specific solutions for those situations and contingencies where the noise and/or vibration limits would likely be exceeded, should be subject to review by the respective Territorial Authority. There was no disagreement that council should certify the “parent” CNVMP. The respective positions were clearly stated in the Joint Witness Statement.

Dr Chiles told us that it was his experience that the production of detailed schedules covering solutions to likely exceedance events at specific locations and lodging these with council for the record was a practical and expeditious method, which allowed work to proceed uninterrupted while providing council with a transparent record about what measures were to be undertaken. Dr Chiles also opined that the council-approval step did not necessary lead to the best environmental outcome, and referred to a number of construction projects where the alternative approach had been followed.

<sup>62</sup> Cenek, EIC, paras 21 - 23

<sup>63</sup> Ibid, para 34

<sup>64</sup> Ibid, paras 47 - 48

<sup>65</sup> Except within Hamilton City where the issue was related solely to vibration

In the condition he proposed, condition 5.6, the schedules are to be provided to council 5 days in advance of the work being carried out. In his second statement of supplementary evidence Dr Chiles accepted<sup>66</sup>, as a less preferred option, that if council is to have a formal role it should be limited to certifying that the schedules have been prepared in accordance with the condition, not an approval role.

We sought, and were provided with, examples of the sort of schedules intended by Mr Chiles' condition.

Mr Styles explained his position (and proposed condition) regarding the recommendation to provide council with a formal approval step in terms of his experience that this incentivised a more thorough exploration of mitigation options in order to speed up the approval process, and thereby resulted in a lower noise (and vibration) level across the project. He gave his opinion, based on involvement in over 80 such plans, that the practical difficulties claimed by Dr Chiles were exceptions and that the process, if managed properly, could run very smoothly once what was required was properly understood. Mr Styles also indicated that the external approval step provided some additional confidence that the BPO determined had been thoroughly evaluated and was the most appropriate in the circumstance.

#### Findings

While we agree with Dr Chiles that technical and practical solutions should be able to be implemented without the imposition and cost of undue process delays that afford no additional value, we are not persuaded that a process with no further effective scrutiny by the council for activities that exceed the limits provided under the designation is appropriate. Such may be appropriate where the time gap between confirming a designation and works commencing is relatively short but where a significant time gap exists and finalising the detailed design is still some time away, we are not so persuaded.

Whether the resultant documents are called ASCNVMPs or Schedules is not a matter that we have a particular view upon. We accept that NZTA appears to have a schedule process and a preference for that term. We see no sensible objection to that. However, we are persuaded that an "approval" step by council (acting in a certification capacity) is appropriate and it follows that such must also entail the ability to stop proceeding with a proposed solution that it determines falls outside the parameters of the designation conditions. In that sense, of course, a certification role is a de facto approval step but we agree with Dr Chiles that such is necessarily limited by the conditions within which the particular requirement sits. It is not a *carte blanche*.

Accordingly we impose / recommend Dr Chiles' condition with the rider of a certification provision in favour of council.

#### 6.5 Visual / Landscape

Mr Adrian Morton gave landscape evidence for the Requiring Authorities. Mr Rob Pryor, an experienced landscape architect, was engaged by the s42A team.

Mr Morton classified the project area of the NoRs (and resource consents) into 4 sectors for the purpose of his analysis, corresponding with the topography, land use and land cover, as follows:

- Sector 1: Kahikatea Drive to Central Interchange;

<sup>66</sup> Chiles, Second statement of supplementary evidence, para 29

Attachment 4

- Sector 2: Central Interchange to SH1 Interchange;
- Sector 3: Cobham Drive South; and
- Sector 4: Central Interchange to Southern Interchange.

Mr Morton's descriptions and analysis are set out in fully in his Landscape Assessment (Appendix T to the AEE) and companion Urban and Landscape Design Framework (Appendix H to the AEE), and further summarised in his evidence. Visualisations, concept landscape plans, and an arborist's report on 4 registered trees at 3019 Ohaupo Road were provided.

As Mr Morton's overall assessment was not the subject of significant challenge the details in those documents is not repeated here. Suffice to say that his conclusion, that the greatest degree of landscape and visual change would occur at the 4 interchanges and the formation of the carriageway south of Cobham Bridge, is accepted. Clearly a road (and bridges) will modify the landscape and have widespread localised effects in what is, overall, a relatively flat and open landscape. Furthermore, vegetation loss will be significant overall but relatively localised in its context (for example at the crossing point in Mangakotukutuku Gulley). However, as discussed elsewhere in this Hearing Report, much of the vegetation loss is of comparatively low ecological value. Nonetheless a significant amount of landscaping is proposed, details of which will be finalised in consultation through a Landscape Management Plan – a concept plan of which was prepared for the Hearing.

Mr Morton reviewed the landscape / visual effect submissions and concluded that, pre-mitigation planting, the following properties would experience a moderate to high visual effect (though most are, in his opinion, able to be mitigated appropriately):

- Teresa and Russell Porritt, 54 Raynes Road;
- Dan and Kylie Harcourt, 194 Houchens Road;
- Jeff Myles, 148 Tamahere Drive;
- Erkkila Family Trust, 397 Airport Road;
- Keyte Family Trust, 36 Day Road;
- Martin and Deborah Swann, 157A Tamahere Drive;
- Rosemary Couper, 130B Pencarrow Road;
- Grant Patrick, 77 Middle Road;
- Cairns family Trust, Northview, Ohaupo / Dixon Roads;
- Findlay Family Trust / J A Alderton JV, Houchens Road, [Part];
- Paul Le Miere, 35 Middle Road;
- Shona and Grant Mackintosh, 84 Weston Lea Drive;
- Residents of Narrows and Middle Roads.

Representatives of all of the above named affected persons appeared before us at the Hearing.

We did not require expert conferencing of the landscape witnesses as the two expert witnesses were substantially in agreement by the end of the Hearing – with the exception of the issue as to whether an independent review (appointed by agreement

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with the relevant council) of the required Landscape Management Plan was necessary.

Mr Morton's opinion was that this was unnecessary as the conditions require the developer of the plan to be a competent professional and, as with all management plans, council has a certifying role in the process.

We understood Mr Pryor (and Ms Hunter's) reason for proposing this review was to provide added confidence to parties consulted in the development of the Plan.

### Findings

We accept that there are landscape solutions to many but not all of the matters raised, and that the road(s) will "settle" into the landscape over time. For some this may not achieve completely satisfactory resolution but we find the conditions imposed sufficient for the purpose.

We are not persuaded that an independent review of the landscape plan is necessary. We note that the condition requires the plan to be prepared by an appropriate professional and, as with all required management plans, be submitted to council for certification, with a time period for addressing any matters arising. Furthermore we note the consultation and other processes proposed which provide a structured avenue for matters to be raised. We think that sufficient.

## 6.6 Social Effects

Ms Linda Chamberlain, a planning consultant who prepared the social impact assessment, gave evidence for the Requiring Authorities about the positive and adverse social effects of the NoRs.

Ms Chamberlain stated<sup>67</sup> that the SIA conducted was a "high level assessment", and described the five categories used (way of life, wellbeing, environment and amenity, community, and personal and property rights) and her 8-step methodology<sup>68</sup>. From this she concluded<sup>69</sup> as follows:

### ***Beneficial Effects:***

- *Improved connections to the Waikato Expressway;*
- *Improved safety and faster access for motorists to the CBD and developing commercial and industrial areas, for example Titanium Park;*
- *Reduced congestion and commuter conflict on SH3;*
- *Infrastructure supporting development and future sources of employment at Te Rapa and Crawford Street Inland Port, through the provision of a western connection;*
- *Improved access to Hamilton Airport and Mystery Creek Events Centre;*
- *Potential improved amenity around local parks as traffic is taken away from the regular routes and diverted onto the link road. Thus reducing traffic around neighbourhood parks and recreational spaces; and*
- *Most of the schools in the region will benefit from improved accessibility as a consequence of the Project.*

<sup>67</sup> Chamberlain, EIC, para 25

<sup>68</sup> Ibid para 28

<sup>69</sup> Ibid, paras 29 - 30

**Adverse effects:**

- *Severance of farm land and loss of productive farm land as a result of the alignment, particularly at Narrows and Middle Road;*
- *Facilitation of a change in character of the surrounding environment from rural to semi-rural / urban (noting however that in parts of the Project area, i.e. Peacocke, this change has been contemplated for some years);*
- *Loss of private property, including homes, due to the alignment of the Project. 129 separate properties will be directly affected through land acquisition by the Crown and HCC (either acquisition of a part of the property or the whole of the property);*
- *Uncertainty for property owners as a result of the timing of property acquisition;*
- *Localised effects on the amenity of specific properties due to noise, visual effects, and perceived and actual severance; and*
- *Potential effects associated with construction of the Project, including noise, vibration and changes to air quality.*

Ms Chamberlain's overall conclusion<sup>70</sup> was that the positive effects outweigh the adverse social effects, noting that:

*While there are localised areas that are impacted by the Project, I consider that the scale of the potential effects has been reduced early on in the Project by selecting a corridor that avoided, as far as possible any community facilities, homes and sensitive ecological and cultural areas. The scale of adverse effects also needs to be considered within the strategic planning context for the Project area as a whole which has been identified for many years as an area for growth, development and change.*

*A number of mitigation measures have been proposed ... which in my opinion, will go as far as practicable to mitigating the adverse social effects of the Project.*

We note that the initial s42A Report raised issues about the adequacy of the social impact assessment work undertaken<sup>71</sup> and the fact that recommendations for additional work to be undertaken covered areas that, the authors felt, should have been undertaken as part and parcel of the NoR assessments and, furthermore, that many of the mitigation measures recommended had not found their way into the Requiring Authorities' proposed designation conditions.

In their Supplementary Section 42A Report, the authors were still not satisfied with the responses made by Ms Chamberlain in her evidence, noting<sup>72</sup> that:

*The reasons for requesting this information, explanations and updates was that we were struggling to identify the facts that should underpin some of the opinions and conclusions contained in the SIA.*

The authors still sought a condition requiring a Social Impact Monitoring Plan - whose need had been rejected by Ms Chamberlain – now reframed as a Social Impact Assessment and Mitigation Plan (**SIAMP**).

Come the Second Supplementary Section 42A Report, and following considerable planning expert conferencing, agreement had been reached by the planners that an

<sup>70</sup> Chamberlain, EIC, paras 74 - 76

<sup>71</sup> s42A report, section 23.5

<sup>72</sup> Supplementary s42A report, page 29

amended series of conditions relating to the proposed Community Liaison Group, communications, and management plan preparation would render the requirement for an SIAMP no longer necessary. Accordingly a set of agreed conditions was proposed.

We record that we were of a similar mind as the s42A authors that the social effects assessment, undertaken at the scale it was, and in light of the submitter representations made, over-simplified both the concerns raised, and the micro-structure of the communities of interest and their interactions – factors that we would have expected a robust social assessment to have addressed. It is trite to observe that if an assessment is done at a sufficiently high level on a major roading project, the benefit balance will always outweigh individual and small community dis-benefits.

Furthermore, a number of submitters appeared to provide details of concerns which did not appear to have been captured but, rather, “explained away” – for example the dislocation concerns of Middle Road residents which was answered in terms of travel time calculations rather than social convenience.

### Findings

Put simply, we found the social effects assessment to have shortcomings. We accept the apparent position finally reached by the s42A authors that, going forward, social process conditions might make up for any deficiencies in analysis. For example, to respond to the Riverside Golf Club’s concerns by diminishing its recreational value on the basis that it is a “private club”<sup>73</sup> is clearly to misunderstand its 79-year history and just how many people (membership of c.1000) in the community actually contribute to and use that facility and, in turn, its socio-functional place in the wider community<sup>74</sup>. Fortunately, we understand, more solution-based discussions were entrained subsequently.

As discussed earlier, and reflected in statements made by the Requiring Authorities throughout, the long-term lapse duration of 20 years sought and the estimated 15 years to project construction, seems to have focussed the social effects “minds” of Ms Chamberlain and Mr Eccles on the over-arching matter of “uncertainty” of timing and, even, whether the project(s) would ever eventuate. While that was clearly a matter of concern to those submitters we heard from, the more pressing uncertainty was in terms of having their issues understood and resolved. By the end of the Hearings we are confident that their issues were heard. We can be less confident that they will be resolved in all cases in the manner sought – in large part because future final designs and alignments may change some of those effects. In that regard, and reminding ourselves that we are dealing (in the main) with NoRs, we find that the suite of social conditions finally proposed provide a strong basis for addressing adverse social effects even though some of those may not be evident from the analyses thus far undertaken.

## 6.7 Ecology

### (a) The Requiring Authorities’ evidence

The Requiring Authorities called evidence from Mr John Turner regarding ecological matters. His evidence stated as follows:<sup>75</sup>

<sup>73</sup> Chamberlain, EIC, para 43

<sup>74</sup> Gill, PowerPoint presentation, 25 July 2014

<sup>75</sup> Evidence of Mr J Turner – paras 10, 14, 15, 16, 17, 18, 19, 20, 23 & 24

- 10 *The Project area encompasses a landscape that has been highly modified by human activity. However, there are a number of ecological features that support significant ecological value. These can be summarised as:*
  - 10.1 *The Waikato River and riparian corridor;*
  - 10.2 *Various gullies with their associated riparian corridors;*
  - 10.3 *Remnant stands of indigenous vegetation, including relatively isolated stands of kahikatea and native bush remnants associated with the Waikato River corridor and the gullies; and*
  - 10.4 *Various lakes and ponds.*
- ....
- 14 *While efforts have been made to minimise adverse effects of the Project through the design of the footprint, there will still be adverse ecological effects of the Project including small losses of significant indigenous vegetation, notably from the riparian margin of the Waikato River and losses and fragmentation of significant habitat of indigenous fauna, notably from the margins of the Waikato River and the gullies crossed by the Project footprint.*
- 15 *Most of the areas of vegetation impacted by the Project footprint, including areas within the gullies, consists of few native plants and is highly modified from its original state, which for the most part would have been forest. However, despite the highly modified nature of most of the vegetation along the Waikato River corridor and the gullies within the Project area, these corridors, along with some of the larger stands of native and exotic mature trees present in the wider landscape, provide important habitat for long-tailed bats, a nationally threatened species. In addition, these habitats also provide habitat for avifauna, reptiles and invertebrates. These are mainly common non-threatened species. However in combination with the value for bats and fish, the Waikato River and gullies are important ecological features within this landscape.*
- 16 *The Project will result in the loss of habitat from the riparian margins of the River and from the gullies. It will also result in fragmentation of habitat that is likely to have significant adverse effects on long-tailed bats.*
- 17 *The loss of habitat from the gullies and riparian margins of the River have been quantified and it is proposed that these are replaced at a ratio of 1:1. This ratio recognises the fact that most of the vegetation lost is non-native and of relatively low ecological value. It is proposed that areas of gully and riparian margin of the River be restored back to a vegetation type that is much closer to the original and which will have much higher ecological value than that lost. Importantly, the proposed conditions for the HCC designation in the Peacocke Structure Plan, which will have the greatest ecological impact, provide for the early development of an Ecological Management and Monitoring Plan (EMMP) in consultation with key stakeholders. The EMMP condition includes a requirement to identify areas for advanced restoration. This advanced restoration will go a long way towards mitigating the effects of the Project before they occur and help to reduce the usual time lag between development and time when mitigation becomes effective.*



- 18 *The effects of the Project on long-tailed bats are much more difficult to quantify and predict. Up until now little research has been undertaken of the effects of roads on long-tailed bats. The effects of roads on this species is poorly understood. As a consequence, until such research is undertaken, predictions of effects have to be extrapolated from the incomplete knowledge that exists concerning long-tailed bat behaviour and also bat/road studies that have been undertaken on other species overseas, noting that individual species of bats can react to roads in different ways. While observations of long-tailed bats close to existing roads to the south of Hamilton suggest a degree of tolerance to disturbances associated with roads (light, noise and vehicle movements), the potential for significant adverse effects remains. With uncertainties concerning the nature and significance of effects of roads on bats, it follows that the methods of avoidance, remediation, mitigation and offset recommended carry with them significant uncertainty in terms of their necessity, suitability and likely effectiveness.*
- 19 *Avoidance of known or likely bat habitat was a key consideration during the design of the Project footprint, particularly in the Peacocke Structure Plan Area, and many of the larger stands of mature trees which constitute bat habitat were successfully avoided. However, the crossings of the Waikato River and the gullies were inevitable and not all key bat habitat could be avoided. There are therefore likely to be significant adverse effects on bats as a result of habitat loss and fragmentation, particularly in the Peacocke Structure Plan Area where construction of the Project will be followed by urban development.*
- 20 *HCC's proposed EMMP condition requires detailed plans to be developed to minimise and mitigate the effects of the Project on long-tailed bats, including undertaking further baseline surveys. The EMMP condition specifies, but is not limited to, the inclusion of the following measures:*
- 20.1 *Standards for tree roost identification and removal in advance of construction;*
- 20.2 *Provisions for alternative roost sites including exotic and indigenous trees and artificial roosts;*
- 20.3 *Measures to minimise habitat fragmentation e.g through use of bridges and baffled lighting;*
- 20.4 *Establishment of buffer zones and hop-overs to direct flight paths over the roads; and*
- 20.5 *Details of measures to minimise disturbance to roosting bats during construction.*
- ...
- 23 *The Transport Agency is also proposing a designation condition requiring the development and implementation of an Ecological Management and Restoration Plan (ERMP) to avoid, remedy and mitigate adverse effects on long-tailed bats and address matters of indigenous vegetation and habitat loss. The Transport Agency condition does not require the advance mitigation/habitat restoration required by the HCC condition. This reflects the fact that vegetation and habitat losses associated with the Transport Agency's designation are much less extensive and significant than those associated with the HCC designation. The Transport Agency designation also has significantly less impact on critical bat habitat. Importantly construction of those parts of the Project which are the*

responsibility of the Transport Agency will occur in predominantly rural areas which will not be accompanied by the scale of urban development expected to occur in HCC's Peacocke area.

- 24 Overall, apart from the uncertainties concerning effects on longtailed bats and the effectiveness of mitigation, I anticipate that ecological effects of the Project will be adequately avoided, remedied or mitigated and that proposed conditions provide an opportunity to enhance and create habitats that will be significantly higher quality than most of those lost to the Project footprint. [Our emphasis]

Immediately prior to the closing of the Requiring Authorities' case, Mr Turner presented a second supplementary statement of evidence. In that statement, he stated:<sup>76</sup>

- 9 For the reasons already stated in my EIC<sup>1</sup> and first Supplementary Statement of Evidence<sup>2</sup>, I disagree with the Reporting Team's proposal to impose the same ecological conditions on both the Transport Agency designations and the HCC designation.

- 10 With respect to the ecological conditions relating to the HCC designation, while I agree in principle with many of the comments made in Mr Kessels' evidence, I have concerns about how this has been translated into recommended conditions by Mr Kessels.

- 11 The key matters I have addressed in this supplementary evidence relate to:

- 11.1 **Habitat restoration areas** - where I have accepted in part Mr Kessels' approach to the calculation of areas to be restored i.e. that a 3:1 ratio be adopted for high value habitat (indigenous forest, wetland seeps and springs) but that pasture, weed communities and ornamental planting be excluded from calculation;

- 11.2 **Animal pest control** – where I have reaffirmed my previous support for targeted animal pest control, but not for a minimum area over which animal pest control must be applied; and

- 11.3 **Bat monitoring** – where I agree in principle with the need for monitoring the effects of roads on bats. However, I am concerned that one of the objectives as proposed by Mr Kessels places an unreasonable and disproportionate burden on the Requiring Authorities to address matters that are not the result of the Project (baseline decline) and to achieve outcomes which may prove elusive and very open ended.

Regarding compensation “multipliers” he stated<sup>77</sup>

- 20 I agree in principle that, in some instances, a higher than 1:1 ratio is appropriate. In the case of this Project, because the area meriting a higher ratio was a very small proportion of the total (in my opinion limited to regenerating native forest), I did not use this approach. Instead I chose to apply a 1:1 ratio across all habitats impacted by the Project footprint within the gullies, the margins of the Waikato River and stands of mature trees.

<sup>76</sup> Second supplementary evidence of Mr J Turner

<sup>77</sup> Second supplementary evidence of Mr J Turner

- 21 *The approach I used was conservative because it included, in some instances, areas of pasture and weed communities within gullies of low ecological value. I took the view that the inclusion of these areas would provide a counter balance to not providing a higher ratio for higher value vegetation and habitat. I note that Mr Kessels, and also Dr Baber, have discounted these low ecological value vegetation types from their calculations. However I am still of the opinion that the wetlands impacted by this Project do not merit a 3:1 compensation ratio given their highly modified condition.*
- 22 *Notwithstanding, the result of applying Mr Kessels' method leads to a total restoration figure not dissimilar to my own total which is stated in the Requiring Authorities' conditions (19.5ha using my approach and 20.3ha using Mr Kessels' approach). I am therefore happy to accept the use of a higher multiplier for wetlands and native forest, while excluding pasture, weed communities and ornamental planting. However, I consider that exotic forest replacement within the affected Significant Natural Areas ('SNAs') should be at a 1:1 ratio as the habitat value of the impacted vegetation is similar to the exotic forest located outside SNAs.*

We discuss this matter and the other matters raised by Mr Turner below when we summarise our findings.

**(b) Submissions / Submitter evidence**

Submissions on ecological matters were made by 12 parties. 5 of these submissions related to site specific issues<sup>78</sup>, while 7 related to the proposal as a whole.<sup>79</sup> We also note that although the submission of Mr and Mrs Bevan focussed on drainage-related effects, a key element of that related to the effects of drainage changes on the ecological values of their property, particularly those areas that they have rehabilitated over many years. In a similar vein, Mr Tony Keyte highlighted the rehabilitation works that his family had undertaken on their property and expressed the opinion that ecological mitigation works associated with Southern Links should be integrated with those works.<sup>80</sup>

Because these various submissions touch on common themes we address the submissions thematically, rather than individually.

Ms Kirsty Graveling presented evidence on behalf of the Waikato Regional Council. That evidence addressed a number of ecological matters, but because her evidence was largely concerned with planning matters (particularly the Proposed Waikato Regional Policy Statement) and conditions we address those matters later in this document when we deal with those specific matters.

Evidence on behalf of the Mangakotukutuku Stream Care Group ("MSCG") was presented by Mr Grant Blackie and Dr Kevin Collier. We see both of these witnesses as being subject to the comments we made in Section 5.4 of this Hearings Report. We have weighed it accordingly.

Mr Blackie explained the importance of implementing ecological mitigation works as early as possible, given the timeframes for such works to become established.<sup>81</sup> He

<sup>78</sup> Kirker, Myles, Drury, Sharpe, Healy and Keyte Family Trust

<sup>79</sup> Waikato Regional Council, Spencer and Jovicic, Mangakotukutuku Stream Care Group, Department of Conservation, James and Harrison

<sup>80</sup> Keyte EIC – Section 11

<sup>81</sup> Blackie EIC – Section 4

also provided<sup>82</sup> the locations of land owned by HCC in the Peacocke Area that was identified as being suitable for rehabilitation activities, and the MSCG's current initiatives and proposals in that regard<sup>83</sup>.

The key points stressed by Mr Blackie, were as follows<sup>84</sup>:

- A lack of information as to the effects of the proposal.
- Failure to satisfy the requirements of various statutory planning documents.
- A lack of detail as to proposed mitigation and monitoring measures.
- Because the necessary resource consents had not been sought at this juncture, an integrated assessment of effects was not available.
- These deficiencies were such that he considered that the NORs should not be confirmed, but if they were then conditions needed to be improved.

Dr Kevin Collier's evidence set out the values of the Mangakotukutuku Stream and the effects of the proposal and how they are to be mitigated. He summarised the situation, as follows<sup>85</sup>, noting verbally that he endorsed the evidence of the Department of Conservation (which we address later in this section):

- 4.1 *The Mangakotukutuku Stream provides important habitat for freshwater fish and the Peacockes Branch supports sensitive invertebrate communities. In addition, we note the important roles that seepages and wetlands provide for invertebrate biodiversity, and that springs play in providing stable thermal refuges for aquatic life during summer. These values are significant within the context of Hamilton City and the surrounding area, and the presence of threatened species triggers proposed criteria for determining significant indigenous biodiversity in the Waikato Region draft Regional Policy Statement.*
- 4.2 *The Mangakotukutuku Stream Care Group is concerned about (i) loss of stream habitat due to culverting, (ii) loss of vegetation, both native and introduced, alongside streams, (iii) loss of wetland areas which may include seepages and springs, and (iv) effects of stormwater and proposed on-line stormwater treatment systems.*
- 4.3 *While some of these effects can be mitigated as indicated in paragraphs 3.3 and 3.4 of my evidence, lack of information about the values of wetland habitats under threat, including springs and seepages, precludes assessment for mitigation or whether effects should be avoided. The Mangakotukutuku Stream Care Group is concerned that designating the route and stormwater pond locations now in the absence of this information will preclude future options for avoidance should this be appropriate.*
- 4.4 *The Mangakotukutuku Stream Care Group considers the same principles for stormwater treatment in the Peacockes catchment for urban development should also be applied to roading developments, in keeping with Low Impact or Water*

<sup>82</sup> Ibid – Appendix 1

<sup>83</sup> Mangakotukutuku Stream Project C Restoration Plan - May 2014 – Prepared for MSCG by Tonkin and Taylor

<sup>84</sup> Blackie EIC – Section 3

<sup>85</sup> Collier EIC – Section 4



*Sensitive Design in the Peacocke Structure Plan, as noted in 18.6 d of the Section 42 report.*

- 4.5 *In our submission we proposed that a Mangakotukutuku Stream and Gully Restoration strategy be drawn up which identifies priority areas and locations for specific types of restoration activities. We note from the Section 42 report that this was considered "a useful approach and should be prepared". The stream care group is willing to assist with the development of this strategy to provide a co-ordinated plan for restoration and mitigation activities in the catchment. Our group has already commissioned several restoration plans for specific areas, some of which have been implemented and some of which remain to be implemented but are available for consideration.*

Mr Dean van Mierlo presented legal submissions on behalf of the Director-General of Conservation ("DoC"). In respect of the technical evidence adduced by DoC, he stated, as follows:

14. *The Director-General's overall position in relation to the designations sought for the Southern Links Projects is that appropriate conditions can be developed and implemented to enable the Project to proceed while adequately addressing the overall impact of the project on the environment, including the protection of significant indigenous vegetation and significant habitats of indigenous fauna.*
15. *Having said that however, it is considered that the conditions proffered by NZTA in particular, fall short of what can, and should be expected, given the potential magnitude of effects of the Project on matters identified in the Act as being of national importance.*
16. *In these circumstances, in the absence of improved conditions being proffered or imposed, it is submitted that assessment of the NOR's against the relevant statutory considerations leads to the conclusion that it should be recommended to the requiring authorities that the notices of requirement be withdrawn.*
- .....
67. *It is submitted that improvements to conditions are necessary, so as to ensure the NOR's sought reflect the requirements of the Act, and constitute sustainable management.*
68. *While there are acknowledged positive land transport effects of the road proposal, that does not obviate the need for robust conditions to address adverse ecological effects, in particular in relation to the Hamilton long tailed bat population.*
69. *The proposed designation alignment passes through significant long tailed bat habitat, the protection of which is a matter of national importance under s6(c) of the Act.*
70. *In order to avoid, remedy and mitigate the adverse ecological effects of the Project, and to safeguard the life supporting capacity of the ecosystems affected, revised conditions are required. In particular conditions prohibiting the felling of occupied roost trees, encouraging the relocation of recently occupied communal roost trees, and requiring restoration planting (using multipliers) and predator control to address adverse effects, including cumulative and potential*

*effects are necessary such that the Project will truly constitute sustainable management.*

*71. Such conditions can be recommended. If they are not, it is submitted that the requiring authorities should be recommended to withdraw the NORs for the reason that they do not;*

- Avoid remedy or mitigate the adverse ecological effects, or*
- Safeguard the life supporting capacity of ecosystems, or*
- Recognise and provide for the protection of significant habitat of indigenous fauna,*

*And accordingly, do not accord with Part 2 of the Act, or constitute sustainable management.*

In response to questions from us, Mr van Mierlo acknowledged that there was a degree of subjectivity when considering the quantum of ecological mitigation required and that this inevitably involved decision-makers having to make value judgements. In that regard, he submitted that the experience and qualifications of the expert witnesses needed to be considered when weighing evidence, and pointed to the calibre of the DoC witnesses accordingly.

Dr Matthew Baber addressed ecological issues on behalf of DoC, other than in respect of long tailed-bats, which were addressed by Dr Colin O'Donnell (whose evidence we discuss later in this section). His primary evidence concluded as follows:<sup>86</sup>

*10.1 Commendably, in the response to comments from Council's Section 42 report, the Applicants have made a number of significant improvements to the original NOR ecological assessment, in terms of the information provided (Appendix L of the Southern Links AEE). That said, I consider it unlikely that the adverse ecological effects resulting from these Projects will be adequately addressed based on the proposed 1:1 mitigation / compensation multiplier that has been proposed due to:*

- The failure to account for indirect adverse effects on terrestrial and wetland non-aquatic ecology values;*
- The absence of a contextual assessment of the significance of habitat loss in regards to local, regional or national rarity or threat status; and*
- The inappropriate use of a one-size-fits-all multiplier and the near absence of information to explain and justify how adverse effects for each habitat type or species will be adequately addressed.*

*10.2 To adequately demonstrate that adverse residual effects are addressed I recommend the Applicants provide multipliers for each of the habitat types that will be affected and base these on the criteria provided in Section 7 above.*

<sup>86</sup> Baber EIC – Section 10

### ***Freshwater ecology***

*10.3 Adverse effects on freshwater ecology have not been provided for in the proposed designation consent conditions in regard to the proposed mitigation/compensation multipliers (Appendix A).*

Dr Baber's primary statement stopped short of proposing specific "multipliers" to be applied to ecological mitigation/compensation. However, in his supplementary statement, he had done so and produced a table in which multipliers for specific habitat types was included.<sup>87</sup> That table included a breakdown of the various factors he used to derive the multipliers, but for our purposes, it suffices to list the final multipliers, which he proposed, as follows:

Habitat Type	Proposed Compensation Multiplier
Native Forest	10
Exotic Forest	4
Gully Wetland	4
Restoration planting	3
Native regeneration	3
Stream habitat	3
Ephemeral wetland	2
Artificial pond	1

Dr Colin O'Donnell's evidence for DoC addressed long-tailed bats. He explained<sup>88</sup> that:

- The species is threatened.
- The presence of a population and habitats within the Southern Links area is significant in terms of section 6(c) of the RMA and triggers significance criteria in the operative and proposed Waikato Regional Policy Statements.
- Long-tailed bats are "absolutely protected wildlife" under the Wildlife Act 1953.
- The Hamilton population is distinctive, nationally important and restricted to the southern extremes of Hamilton' City.

<sup>87</sup> Supplementary evidence of Dr M Baber – Table 1

<sup>88</sup> O'Donnell EIC – Section 3

Attachment 4

- There is a lack of background research to identify significant bat sites and hence the effects assessments are uncertain.
- The Requiring Authorities' assessments has underestimated the potential impact on bats.
- The adverse effects on bats are likely to be major and largely irreversible, and of a much larger scale than for other sections of the Waikato Expressway.
- The effects of Southern Links are cumulative with those for other roading projects.
- If bat roost trees are removed will result in as net loss of habitat and the proposal to provide artificial bat roosts has not been successful elsewhere. The proposal to replace feeding habitat by replanting is unlikely to provide viable alternative habitat for more than 50 years.
- The only way to resolve potential impacts is to remove the significant uncertainty through identification and protection of bat roosts.

In his supplementary evidence Dr O'Donnell responded to matters raised by the applicant and the s42A Report writers, particularly Mr Kessels. He summarised the situation as follows:<sup>89</sup>

1. *The area affected by this section of the proposed Hamilton Expressway is very significant and nationally important for long-tailed bats (my EIC section 6). The Southern links Project area appears to traverse the core of the Hamilton long-tailed bat habitat area, with bats occurring through most parts of the Mangakotukutuku gully system-as indicated by Mr Turner's Figure 9 (Annexure 1 EIC) and Appendix F Addendum to Ecology Technical Specialist Report, Kessels Ecology (Supplementary s42A Report)*
2. *Overall, because of the uncertainties noted in my EIC and that of Mr Turner, and even given strengthening of conditions as I have suggested, there may be important residual adverse effects on the long-tailed bat population and I do not consider that it possible to say with any confidence that proposed actions along the Southern Links routes would achieve "no net loss ... of biodiversity"; as is the aim of conditions proposed by Mr Eccles (his rebuttal Annexure A, Condition 12.2) or that the effects will be "adequately avoided, remedied, or mitigated" (Mr Turner para 17 in rebuttal). In fact, Mr Turner clearly states that the likely effectiveness of the proposed mitigation measures "is not known" (para 72 his rebuttal) and "there is uncertainty in terms of effects and also effectiveness of mitigation" (para 85 his rebuttal).*
3. *After reading Mr Turner's rebuttal I still contend that:*
  - a. *More could be done to reduce uncertainty about the precise impacts of the proposed expressway on long-tailed bats (by better identification of bat habitats and applying the revised conditions and tree felling protocols I discuss in this supplementary evidence).*

<sup>89</sup> O'Donnell Supp Ev- Summary section

Item 10



- b. *Still more can be done, and relatively easily, to identify and avoid long-tailed bat habitats once identified (by small adjustments to the road footprint within the designation alignment or route realignments);*
  - c. *Although it is sensible to assume that some of the habitat restoration will eventually create new feeding habitats, there is no guarantee that this will happen in relation to the critical roosting habitats.*
  - d. *It is unlikely that proposed mitigation will recreate roosting habitat unless done at a significantly greater compensatory scale (>100:1 ratio for roost trees) because only a tiny proportion of trees have a chance of developing into bat roosts.*
  - e. *Proposed mitigation still does not address where the bats will go in the long lag between tree felling and the development of new habitat.*
  - f. *Proposed mitigation does not deal with maternity roosts that may be vacant at the time of proposed felling- these are just as critical to sustaining bat populations.*
  - g. *The cumulative effects of additional sections of the Hamilton expressway being developed are not being addressed.*
49. *The effect of all the uncertainty about impacts and the usefulness of proposed mitigation come down to a critical issue. If breeding roosts are located on the proposed route and felled during construction then all or a high proportion of bats in Hamilton could be affected either directly or indirectly because all or a high proportion of breeding bats may lose critical shelters and breeding sites resulting in reductions in survival and breeding ability. It will not matter if there are still foraging sites or other roosts outside the expressway footprint if this happens.*

**(c) S42A Report**

The reports prepared by the Territorial Authorities and WRC are both relevant and we address each in turn.

The WRC s42A Report was written by Mr Brian Richmond. He concluded that that ecological effects (that were within that Council's jurisdiction) were able to be addressed by conditions. We agree, noting, as Mr Richmond did, that further consents would be required from the WRC before construction works could commence.

Mr Gerry Kessels was the ecologist advising the Territorial Authorities' s42A Report authors. At the time he wrote his initial report (to inform the initial s42A Report), Mr Kessels concluded, as follows:<sup>90</sup>

*My conclusions of the section 92 further information request still largely stands after my review of this notified version of the EAR and AEE pertaining to the project. That is:*

*"In summary, even though I acknowledge that the vast majority of the proposed NoR traverses a landscape devoid of any significant ecological value, I do not consider that the EAR provides sufficient information or analysis to allow me to understand the scale and intensity of potential ecological effects on those features that are left. It does not support the assessments and recommendations with sufficient scientific evidence by the way of literature review, site specific surveys and associated robust analysis of data to allow for an accurate assessment of ecological effects, nor provide suitably detailed and specific mitigation and monitoring measures."*

<sup>90</sup> Section 42A Report – Appendix F prepared by Gerry Kessels

*The 'bones' of an assessment of ecological effects and workable set of consent conditions relating to ecology are contained in the information supplied in the EAR and AEE, but further detailed information and consultation with the key submitters is required before I am in a position to be able to provide further substantive advice concerning the extent and magnitude of the ecological effects of the Project and the efficacy of the proposed consent conditions in the NOR.*

By the time the s42A Report writers were due to report to the Reconvened Hearing, Mr Kessels had considerably more information available to him, noting that substantive discussions between him and Mr Turner had not been possible previously due to Mr Turner's ill-health.

Mr Kessels raised a number of matters when he summarised his final evaluation of the proposal based on all the information provided. Of particular importance were the following:

- His opinion that the use of compensation multipliers was the crudest and most rudimentary approach to determining mitigation quantum<sup>91</sup> but, absent more detailed ecological knowledge, are a commonly used default option.<sup>92</sup>
- The Business Biodiversity Offset Programme (BBOP) draws upon a considerable amount of literature and research to discuss the application of multipliers.<sup>93</sup>
- Despite various limitations, multipliers are entirely appropriate in this case.<sup>94</sup>
- Rather than planting a very large area of land (i.e. using a very large multiplier) and hoping for the best, a varied portfolio of offsets is desirable, and for monitoring to be undertaken.<sup>95</sup>

In respect of the multipliers he considered appropriate, he recommended the following:<sup>96</sup>

- A 3:1 compensation multiplier for a wetland/native forest replanting programme, equating to 8.25 ha in total, to account for the loss of significant wetland habitat (1.1 ha + 1.4 ha – see paragraph 15 above) and indigenous forest (0.25 ha – see column 1 of Table 1 of Dr Baber's supplementary evidence), on the provision that this works is applied to both the Transport Agency and HCC sections of the NORs which starts at least several years before construction begins, and that the area replanted is legally protected in perpetuity;*
- A 1:1 replanting programme equating to 12.05 ha (14.8 ha – 2.75 ha) to account for the loss of other gully vegetation, on the provision that this works is applied to both the Transport Agency and HCC sections of the NORs, which starts several years before construction begins, and that the area replanted is legally protected in perpetuity;*
- A 5:1 compensation multiplier for a targeted animal pest control programme to compensate for the removal of 14.8 ha of long-tailed bat habitat, equating to*

<sup>91</sup> Evidence of Mr G Kessels – para 16

<sup>92</sup> Ibid – para 17

<sup>93</sup> Ibid – para 18

<sup>94</sup> Ibid – para 22

<sup>95</sup> Ibid – paras 23 and 24

<sup>96</sup> Ibid para 26

*targeted animal pest control over at least 74 ha of Hamilton gully habitat for a period of 20 years; ....*

In overall summary, Mr Kessels concluded:<sup>97</sup>

35. *All of the ecological experts have acknowledged that the effects will be significant and require a number of substantive measures to minimise these adverse ecological effects. Despite the scale of ecological effects associated with the Project I am largely satisfied that the recommended designation conditions will allow for the design and implementation of a range of reasonably well proven avoidance, remediation and mitigation measures to address any adverse effects relating to aquatic biota, indigenous vegetation and a range of terrestrial indigenous fauna, such as birds and lizards. I acknowledge that resource consents required by the Regional Council will further ensure that effects on aquatic ecology are adequately addressed. I also endorse the approach offered by the Requiring Authorities to commence gully revegetation well in advance of the works occurring, which will allow for notable 'runs on the board' before the project starts to cause a biodiversity 'deficient' during the construction phase.*
36. *Concerning long-tailed bats, the Ecological Assessment (Appendix L of the AEE, page 2), states that: "the measures proposed to avoid, remedy or mitigation effects carry with them significant uncertainty in terms of their necessity, suitability and likely effectiveness. Therefore, the ability of the Project to avoid, remedy and mitigate adverse effects on this species [long-tailed bats] is similarly uncertain, as is the Projects ability to achieve "no net loss" as required by the Proposed National Policy statement on Biodiversity and NZTA's own Environmental Plan objectives."*
37. *These concerns have been reinforced by the evidence of Dr O'Donnell, who is one of New Zealand's leading experts on these animals and their habitat requirements. Nonetheless, I provided evidence at the hearing for the East West Link Road (as part of the Hamilton Bypass project), that bats appear to be able to cross roads and are adaptable to human induced changes in the landscape (refer in particular to Annexure 2 of my Evidence in Chief for that project: "Assessment of Ecological Effects on Long-tailed Bats – Survey of Tauwhare Road" dated April 2014).*
38. *While fully acknowledging the scientific uncertainty around bats, their habitat requirements, how roads will affect them and the effectiveness of avoidance, remediation and mitigation measures, I am satisfied that the set of conditions recommended pertaining to this species reflects the best possible approach at this point in time. However, they need to be viewed as an integrated package rather than in isolation of each other for their full benefit to be realised.*
39. *I have experience in applying the pre tree felling protocols and consider they are effective in avoiding direct mortality of bats and isolating potential occupied roost trees; and I have some evidence for the Tauwhare Road study and subsequent work on Cobham Drive, as well as a review of overseas literature, that long-tailed bats will cross busy roads on a regular basis and that vegetated 'hop-overs' and lighting design will reduce the risk of vehicle mortality and fragmentation effects. However, these measures in themselves, while partly avoiding and remedying some of the effects on bats, do not avoid, remedy or mitigate for all of the adverse effects on bats associated with roads.*

<sup>97</sup> Ibid paras 35 - 41

40. *Therefore, I do not consider that merely invoking a set of avoidance measures during construction and then planting vast areas of gully habitat is the sole solution to addressing potential adverse effects on bats and their habitats. The approach of the recommended conditions is to switch part of the gully revegetation focus to targeted animal pest control, thereby offsetting the effects on bats caused by loss of roost trees and fragmentation, as well offset for possible mortality due to tree felling and vehicle strike. The animal pest control will also likely benefit a host of other indigenous fauna groups, such as birds and lizards, as well as aid the natural regeneration of native plants by reducing fruit, seed and foliage browsing.*
41. *Also critical to the success of the conditions recommended is ensuring that long-term monitoring and conservation management research is undertaken, which then can be directly applied to developing and refining mitigation measures. Given the time lapse period before construction is likely to commence, this project presents an opportunity to ensure that proper studies into the effects of roads are undertaken and that this research can be applied in terms of understanding what measures are required to avoid, remedy or mitigate these effects and how, when and where best to apply them (such as research of the efficacy of the habitat enhancement techniques shown in Attachment 2).*

In answer to our questions, Mr Kessels acknowledged that the BBOP approach had attracted some criticism, as it was not developed under an RMA framework that requires adverse effects to be “avoided, remedied, or mitigated”. He also accepted that there was an inherent degree of subjectivity involved in selecting multipliers and considerable judgement was required.

Also, in answer to our questions, he agreed that ecological mitigation need not be undertaken in the district in which any particular effect occurred, but rather the mitigation of the effects of the Southern Links project should be undertaken in the locations that are most ecologically appropriate, irrespective of which district they are located in.

#### **(d) Findings**

Overall, we are satisfied that the ecological effects of the proposal can be appropriately managed by the imposition of conditions.

First and foremost, we acknowledge the uncertainties surrounding the effects on long-tailed bats, and how such effects might best be managed. In that regard, we have reached the conclusion that the protection of this species requires a multi-agency, whole of region approach. While NZTA and HCC have an important role to play in that regard, they are but a part of a much wider whole. We acknowledge the commitment by NZTA and HCC to participate in such a “whole of region” approach, and the inclusion of an advice note to that effect in the NOR conditions they have proposed. Whilst not enforceable, this is a very public signal of the commitment to participate in that process, and one which we anticipate being followed through. We applaud that.

For the reasons explained by Mr Kessels, we are not convinced that Dr Baber’s use of large multipliers (relative to those proposed by the other ecologists) is appropriate, being mindful that the RMA is not a “no effects statute” and that all effects need to be



addressed by way of mitigation, offset or compensation<sup>98</sup>. We acknowledge Dr O'Donnell's expertise regarding bats, and his expertise has been helpful in framing certain monitoring conditions. However, it is a wider judgement, framed in RMA terms, that dictates the level to which uncertainties and risk need to be managed. In that regard, the following statement from Dr O'Donnell is telling:

*Overall, because of the uncertainties noted in my EIC and that of Mr Turner, and even given strengthening of conditions as I have suggested, there may be important residual adverse effects on the long-tailed bat population and I do not consider that it [is] possible to say with any confidence that proposed actions along the Southern Links routes would achieve "no net loss .....of biodiversity ...."*<sup>99</sup>

We do not accept the proposition that the "no net effects" is an RMA bottom line – it is not. In respect of mitigation we prefer the approach of Mr Kessels and Mr Turner.

We consider that the overall approach to ecological mitigation should follow the rationale explained by Mr Kessels, but on balance, consider the multipliers recommended by Mr Turner to be sufficient and appropriate. They are aimed at achieving "no net loss of biodiversity", but, properly in our assessment, do not require that the risks of not achieving this be fully internalised by a project proponent, particularly where these effects involve actions and activities clearly beyond the field of influence of the subject project.

We were surprised and impressed with the number of people who, entirely on their own initiative, have been undertaking ecological enhancements on their own properties. Understandably, they are now concerned about the effects of Southern Links on those enhancements and the incentives to continue with them. Some examples are the initiatives being planned by the MSCG and the initiatives undertaken by the Keytes, James, Shaws and Bevans. We think it important the ecological mitigation undertaken for Southern Links appropriately recognises the existence of those enhancements and attempts to integrate with them.

We consider that this is an important matter to record in conditions, noting that we have made several changes to conditions in this regard – firstly to ensure consistency between the two Requiring Authorities and secondly to make it more explicit that to achieve the best overall outcome ecological effects should be addressed across the whole Southern Links project, rather than on an NoR by NoR basis.

## 6.8 Stormwater & Drainage

### (a) The Requiring Authorities' evidence

Mr Christopher Hardy presented evidence for the applicant on stormwater management, drainage design and flooding for the Requiring Authorities. He stated<sup>100</sup> that

- 9 *The Project is mainly located in undeveloped rural land so the effect on existing built stormwater infrastructure is minor. More than 90% of the Project designation is within rural or undeveloped land. The Project will discharge stormwater from the road into natural waterways including the Waitawhiriwhiri Stream, Mangakotukutuku Stream, Mangaonua Stream and the Waikato River. The three*

<sup>98</sup> *Royal Forest and Bird Protection Society of New Zealand Inc v Buller District Council (No 2)* [2013] NZHC 1346, [2013] NZRMA 293 - para 52

<sup>99</sup> O'Donnell Supp Ev – Summary section – para 2

<sup>100</sup> Hardy EIC– paras 9 - 15

*streams discharge to the Waikato River. The Project also crosses several rural drainage areas administered by Waipa District Council.*

- 10 *The effect on the natural environment from stormwater discharges will be managed through water quality and quantity control prior to discharge.*
- 11 *Water quality and quantity effects will be mitigated by designing stormwater infrastructure to comply with best practice, local and regional council requirements and the needs of the Transport Agency and HCC. The final detail and approach to stormwater treatment will be subject to detailed design and a resource consent process.*
- 12 *The relevant design guidelines of HCC, the Transport Agency, KiwiRail and the Waikato Regional Council (WRC) have been considered in developing the conceptual layout of the drainage system. The design standards have been applied to a degree suitable to determine location and size for designation purposes. Comprehensive design requirements have been set out for use in future design with flexibility to change to meet new requirements at the time of the design.*
- 13 *Detailed design at a later stage will enable the Project to comply with all relevant design guidelines, integrated catchment management plans and best practice at the time. I believe this is appropriate given the expected construction start date in approximately 15 years time.*
- 14 *It is not practical to design all aspects of the drainage system in detail at this time. Detailed design at a later date will provide maximum benefit in terms of integration and the use of contemporary solutions. I am confident that the extent of the designation for the purpose of stormwater treatment and control has been adequately defined based on current information.*
- 15 *The detailed design stage will seek to identify potential effects and the proposed solutions to address them. This will be carried out as part of a WRC stormwater discharge consent process during which affected parties will be consulted and the proposed stormwater design will be technically reviewed and approved.*

#### **(b) Submissions / Submitter evidence**

A number of submitters expressed concerns about stormwater management<sup>101</sup>. While the individual submissions and related evidence focussed on particular geographical areas, a number of common themes emerged, including:

- The size and locations of individual stormwater detention ponds.
- Whether the land being designated was large enough to adequately manage stormwater flows.
- The design criteria for the proposed stormwater infrastructure and a lack of detail as to what is being proposed.

<sup>101</sup> Waikato Regional Airport Ltd, Tsai, Tseng & Chao, Todd, Adare Company Limited, Cairns Family Trust, Harcourt, Sharpe, Sharpe Estate, Healy, KiwiRail, Findlay Family Trust and Findlay Family Trust & JA Alderton Trust Joint Venture, Bevan, Dawson, Griffin, Hammond, Lucas, Middle Road and Narrows Road Focus Group, Penn Patterson Partnership, Zha & Yan.

- Effects of altered drainage patterns on water tables.
- Effects on existing drainage patterns and the potential to exacerbate existing drainage/flooding problems.
- How drainage from Southern Links will affect drainage associated with land development and *vice versa*.
- The effects of modified drainage on ecological values, particularly those having high values whether natural or enhanced.
- The effects of the discharge of contaminants on waterways.

The individual submitters provided us with a large amount of “local knowledge” regarding their own individual situations, which we found to be of considerable assistance.

We make two fundamental points regarding these matters.

The first is that water related issues will need to be the subject of future resource consent applications to WRC. Those applications are proposed to be made at the time the design of the project is being undertaken – likely to be some considerable time in the future. As such, that is the time at which the efficacy of what was being proposed would be assessed, and consents would only be able to be granted if those effects were considered to be acceptable. Also, if at that time it was found that, for example, insufficient land had been designated to adequately manage stormwater flows, that is a matter that the Requiring Authorities would have to address if it wanted to implement Southern Links.

The second issue relates to how, and the extent to which, these water related matters are addressed now, as part of the current process. That is a matter of conditions, and it suffices to say that we consider the conditions proposed by Mr Richmond relating to the bridge-related resource consents and Mr Eccles in respect of the NoRs to be appropriate and sufficient in this regard.

#### (c) S 42A Report

At the time of writing the s42A Report, the authors concluded that there was limited information in the NoR AEE, and no information in the proposed conditions proffered by the Requiring Authorities, directly related to the management of flooding and drainage effects.<sup>102</sup>

By the time of the Reconvened Hearing, further technical discussions between the Requiring Authorities and the s42A Report authors had occurred to the point that by the time Ms Hunter addressed us at the Reconvened Hearing,<sup>103</sup> she was able to confirm that agreement had been reached between Mr Hardy and Mr Leahy (the contributor to the s42A Report on drainage and stormwater matters) as to the conditions that should be attached to the NORs.

<sup>102</sup> Section 42A Report – Section 18.6

<sup>103</sup> Second Supplementary Section 42A Report

#### (d) Findings

For all the reasons set out above, we are satisfied that these water-related aspects are able to be dealt with by way of conditions on the individual NORs, to the extent that this is appropriate to do so, given that such matters will be addressed in considerable detail when the resource consent applications needed to authorise water related activities are sought subsequently from WRC.

#### 6.9 Air

##### (a) The Requiring Authorities' evidence

Mr Kvatch's evidence on behalf of the Requiring Authorities stated the following:<sup>104</sup>

- 8 *I have undertaken an assessment on the air quality effects associated with the Project. The assessment area extended over all areas potentially affected by the Project, as well as the major arterial and local roads that would experience changes in traffic flows as a result of the Project, which could have effects on the local air quality.*
- 9 *The results show that the effects of the Project on the local air quality range from insignificant to minor, depending on the location, and concentrations of the relevant contaminants considered. Predicted concentration of particulates (PM10 and PM2.5), Nitrogen Dioxide (NO2), and Carbon Monoxide (CO) all remain well below the relevant standards and guidelines assessment criteria.*
- 10 *My Assessment Report shows that after completion of the Project, the local air quality will remain within the same Waikato Regional Air Quality Category (Waikato Regional Plan, Air module, 6.1.3 Policies, Table 6-2), as if the Project was not built.*
- 11 *The construction works for the Project may have potential short term dust nuisance effects in the areas located close to the construction sites. These effects will be mitigated by best practice methods that will be specified in a Dust Management Plan (DMP), a sub-management plan of the Construction Management Plan (CMP), which will be required by the proposed designation conditions.*

##### (b) Submissions / Submitter evidence

A total of sixteen submissions<sup>105</sup> raised specific concerns regarding the adverse effects of dust drift or dust nuisance effects from construction activities. Of particular concern was the potential contamination of drinking water due to several properties sourcing their domestic supply off their roofs.

Eleven submissions<sup>106</sup> raised concerns about the air quality (vehicle emission) effects of construction and/or operation of the Southern Links network. Specifically, a number of submissions from the Narrows Road area state that the air quality modelling undertaken for the project has not taken into account the effect of living in the apex of two major roads (headed by two interchange systems) plus being sheltered by

<sup>104</sup> Kvatch EIC – paras 8 - 11

<sup>105</sup> Porritt, Snowball, Vollebregt, Drury, Erkkila, Swann, Martinus, Cairns Family Trust, Findlay Family Trust, Dawson, Griffin, Lucas, Hammond, Middle Road and Narrows Road Focus Group, Penn Paterson Partnership, Qi Zhu and Xianghua Yan

<sup>106</sup> Kirker, Drury, Erkkila, Swann, Dawson, Griffin, Lucas, Hammond, Middle Road and Narrows Road Focus Group, Penn Paterson Partnership, Qi Zhu and Xianghua Yan

surrounding ridges which limit airflow. Consequently, the maximum possible air quality control is sought through high landscaping or other means.

**(c) S 42A Report**

Dr Paul Heveldt assessed air quality issues on behalf of the s42A Report authors. His review concluded<sup>107</sup> that:

*The impacts of vehicle emissions from the operation of the Southern Links roading network have been conclusively shown by the modelling and assessment work carried out by Opus to result in no more than minor adverse air quality effects.*

*Dust emissions during construction can be appropriately managed by the application of best practice dust mitigation methodologies, as proposed by Opus to govern the works. These suggested measures are supported by MWH.*

*The recommendation by Opus for the incorporation of comprehensive air quality management mechanisms and practices within a CMP is endorsed. Such a plan should be certified as being comprehensive and suitable in content. The CMP should set out all the necessary parameters to ensure effective dust control during construction, although the conscientious application of the details of such plans is always the key factor in their effectiveness. This can be ensured by regular inspection checks on construction activities.*

*On the above basis, it is anticipated that the construction of the project can be carried out with confidence that the*  
We concur with these conclusions.

**(d) Findings**

For all the reasons set out above, we are satisfied that the *environment, human health and amenity values will each be satisfactorily protected in relation to air quality.*

Based on his assessment the s42A Report authors concluded that the air quality effects associated with the project have been adequately addressed and can be appropriately avoided, remedied or mitigated through the imposition of appropriate conditions.<sup>108</sup>

effects of the proposal on air quality, both during construction and once it is operational, can be addressed by the inclusion of appropriate conditions. We are satisfied that those conditions proposed by the Requiring Authorities are appropriate in that regard.

<sup>107</sup> S42A Report – Appendix I – Section 5

<sup>108</sup> S42 A Report – Section 15.6



#### 6.10 Contaminated Material

##### (a) The Requiring Authorities' evidence

Mr Ken Read presented evidence on behalf of the Requiring Authorities regarding contaminated land. His evidence stated:<sup>109</sup>

- 16 *The rural nature of much of the area under consideration means that the majority of potential contaminants arise from the use of agrichemicals (residual pesticides and herbicides) and farm waste disposal (offal pits and farm tips).*
- 17 *Some commercially derived contamination is possible at the northern end of State Highway 3 (SH3), and industrial derived contamination may be present at the junction of the east west link with the existing State Highway 1 intersection of Kahikatea Drive and Greenwood Street.*
- .....

19 *I consider that provided further investigation and assessment of potentially contaminated properties is made at the detailed design stage, and that it is undertaken in accordance with the relevant legislation and guidance that applies at the time, the potential hazards posed by soil contamination to the environment and human health arising from the Project can be appropriately mitigated and managed.*

20 *I have reviewed the s42A Report and, subject to minor amendments, support the inclusion of a Contaminated Soil Management Plan (CSMP). I consider that any contaminated land effects will be adequately avoided, remedied or mitigated through the implementation of the CSMP.*

##### (b) Submissions / Submitter evidence

No submissions were made on this matter.

##### (c) S 42A Report

Land contamination was addressed on behalf of the s42A Report authors by Dr Heveltdt<sup>110</sup>.

Based on his review, the s42A Report authors concluded that the contaminated land effects associated with the project have been adequately addressed and can be appropriately avoided, remedied or mitigated through the imposition of conditions.<sup>111</sup>

##### (d) Findings

For all the reasons set out above, we are satisfied that the contaminated land effects of the proposal can be addressed by the inclusion of appropriate conditions and that those proposed by the Requiring Authorities are appropriate.

<sup>109</sup> Read EIC – paras 16 - 17 & 19 -20

<sup>110</sup> S42A Report – Appendix J

<sup>111</sup> Ibid – para 16.6

## 6.11 Aviation

Part of the east-west route between the central interchange and the Waikato River (NZTA NoR Waipa DC) traverses around the north end of the proposed extended runway of the Hamilton Airport. The extended runway and appropriate airport operational controls were the subject of a plan change and designations all of which were confirmed in July 2011<sup>112</sup>.

Hamilton Airport is owned and controlled by Waikato Regional Airport Limited (WRAL) which lodged a submission seeking to ensure that the NZTA proposed route in the vicinity of the Airport did not adversely affect the operation of the Airport or compromise the designations and planning controls which supported it.

Mr Olliver, planner for WRAL, gave evidence in support of WRAL's position. The key outcomes sought by WRAL were:

- a) *The highway being positioned on a lower part of the site, well below the Obstacle Limitation Surfaces.*
- b) *The highway being placed as far away from the end of the runway as practicable, thereby minimising the risk of an aircraft accident (a very low probability) affecting the highway.*
- c) *The highway running perpendicular [sic at right angles] to the High Intensity Approach lights, thereby minimising the risk of headlight glare affecting them.*<sup>113</sup>

By the time of the Substantive Hearing there was complete agreement between WRAL and NZTA on how those outcomes were to be achieved. The only issue was the wording of the appropriate conditions.

We have already observed that because the matters before us were to future proof the proposed routes without anticipating construction in the near future, some of the detail of the proposal was not as precise as it could be. For our part we needed assurance that the generality of the conditions (particularly Condition 1 – generally in accordance with) did not remove the obligation on the requiring authority to completely meet the requirement of WRAL in all respects.

We received that assurance in the submissions of Ms Janissen in reply for NZTA. She pointed out that:

- The generality of Condition 1 is modified by any more specific following conditions;
- Proposed Condition 15 specifically deals with the Airport issues. In addition Proposed Condition 9 also allows WRAL to be involved in landscaping associated with the project in that locality;
- In any event the WRAL designations were confirmed before the designations now sought and for that reason the NZTA designation will require WRAL's written approval under RMA ss 176(1)(b) or 177(1)(a)<sup>114</sup>.

We are satisfied that with the conditions proposed, the legitimate concerns of WRAL will be met.

<sup>112</sup> Waipa DC Plan Change 69 and Designation DN156

<sup>113</sup> Olliver WRAL EIC para 3.3

<sup>114</sup> Janissen Reply paras. 108 - 116

#### 6.12 Archaeology – Archaeology and Historic Heritage

Mr Nick Cable provided evidence on archaeology and Mr Ian Bowman on historic heritage for the requiring authorities. Mr Warren Gumbley reported for the s42A team.

Dr Rachel Darmody gave evidence for Heritage New Zealand Pouhere Taonga.

No other party raised specific matters of an archaeological or heritage nature.

Mr Cable noted that 18 archaeological sites were initially identified within the broader project area, this was reduced to 9 sites<sup>115</sup> once the road corridor selection process had been completed, four of which were entirely within the corridor and five partly so. In addition, four areas of pre-European gardening soils were identified. Three pa sites (Whatukoruru, Te Nihinihi and unnamed) were assessed as being of high significance; five of moderate significance (borrow pits and Glenhope Homestead); and one of low significance (farm building). The gardening soils were assessed as being of moderate significance.

Mr Bowman provided detailed evidence relating to Glenhope Homestead and NZTA's intended relocation to a site within the original 1873 350 acre farm owned by the Hunt and Way families. Mr Bowman<sup>116</sup> assessed the historic heritage value as having regional heritage significance for architectural, technological, rarity and historic associative values. He proposed a series of mitigation measures as conditions.

As a result of the expert conferencing undertaken on 22 July 2014, Mr Cable and Mr Gumbley agreed a set of conditions – particularly with respect to the content requirements of the Heritage and Archaeological Site Management Plan, Conservation Plans for significant sites, a Dwelling Conservation Plan for Glenhope Homestead, and an Accidental Discovery Protocol. Mr Bowman indicated his agreement with those conditions.

Dr Rod Clough peer reviewed the reports and evidence of Messrs Cable, Gumbley and Bowman for the Requiring Authorities and concluded that the issues covered and final set of conditions proposed were appropriate.

We understood Dr Darmody also to accept those conditions, while noting that subsequent authorities from Heritage New Zealand would be required (for example for demolition of the Glenhope Homestead outbuildings).

#### Findings

We find that the conditions proposed will ensure that archaeological and heritage matters are addressed appropriately during construction works, and will facilitate the protection of those significant features that remain post-construction.

#### 6.13 Positive Effects

Confirming the NoRs and granting the resource consents (subject to conditions) would have the effect of achieving the objectives of the Southern Links Project as identified at the outset by NZTA. We consider that will provide significant public benefits.

<sup>115</sup> Cable, EIC, Annexures B and C

<sup>116</sup> Bowman, EIC, para 27

## 7. PLANNING INSTRUMENTS

### 7.1 Relevant RMA Instruments

Mr Grant Eccles identified<sup>117</sup> the following statutory planning documents / instruments as relevant to the NoRs:

- National Policy Statement for Freshwater Management 2011
- Operative Waikato Regional Policy Statement (including the Vision and Strategy for the Waikato River) 2000;
- Proposed Waikato Regional Policy Statement (including the Vision and Strategy for the Waikato River) 2012;
- Operative Waipa District Plan 1997;
- Proposed Waipa District Plan 2012;
- Operative Hamilton City District Plan 2012;
- Proposed Hamilton City District Plan 2012; and
- Operative Waikato District Plan.

Mr Eccles also identified<sup>118</sup> the following additional planning documents for the three restricted discretionary activity bridges (The Narrows Bridge, Gardens Bridge and Mangakotukutuku Bridge) resource consents (with which Mr Brian Richmond concurred):

- Operative Waikato Regional Policy Statement (including the Vision and Strategy for the Waikato River) 2000;
- Proposed Waikato Regional Policy Statement (including the Vision and Strategy for the Waikato River) 2012; and
- Waikato Regional Plan 2012 (reprinted).

### 7.2 Other Non-RMA Instruments

Mr Eccles also accepted the following documents as relevant section 104(1)(c) and 171(1)(d) *other matters*:

- Government Policy Statement on Land Transport Funding 2012;
- Government Policy Statement on Land Transport Funding 2012;
- National Infrastructure Plan 2011;
- Waikato Regional Land Transport Strategy (2011-2041);
- Access Hamilton 2010;
- Waipa Integrated Transport Strategy 2010;
- Waikato Expressway Network Plan 2010
- New Zealand Rail Strategy;

<sup>117</sup> MacMurray, EIC, paras 143 – 158 and AEE Section 9

<sup>118</sup> AEE, Volume 4, Appendix N: Resource Consent Applications, section 9.0

- Waikato Regional Passenger Transport Plan 2007;
- Waikato Regional Walking and Cycling Strategy (2009-2015);
- Waipa Integrated Transport Strategy 2010;
- Future Proof Growth Strategy 2009;
- Hamilton Urban Growth Strategy 2010;
- Waipa District Growth Strategy 2009;
- Waikato District Growth Strategy 2009 and Related Documents;
- Hamilton City Council – Vista 2007; and
- New Zealand Energy 2011 and New Zealand Energy Efficiency and Conservation Strategy 2011.

### 7.3 Assessment

A fuller assessment of the applications(s) against the relevant provisions of the above documents was provided in the application documents – particularly:

- *Volume 1 – Hamilton Southern Links Investigation - Assessment of Environmental Effects and Supporting Information, Section 9.0 Statutory Planning Assessment;*
- *Volume 4, Appendix N: Resource Consent Applications, and*
- *Volume 5: Appendix P – District Plan Objectives.*

In addition because the applications for consent are for restricted discretionary activities, RMA s104C will apply to restrict us to considering only those matters over which the Waikato Regional Plan (Rule 4.2.8.3) specifies should be considered, being:

- The design and location of the bridge including size of the span and the positioning of piers to avoid, remedy or mitigate any potential adverse effects of the structure.*
- The potential effects on bed and bank stability and water quality.*
- Measures to control the effect of the activity on upstream or downstream properties.*
- Effects on any waahi tapu or other taonga from the activity.*
- Effects on the relationship of tangata whenua and their culture and traditions with the site and any waahi tapu or other taonga affected by the activity.*
- Effects on the ability of tangata whenua to exercise their kaitiaki role in respect of any waahi tapu or other taonga affected by the activity.*
- Measures to ensure the safe passage of fish both upstream and downstream.*
- Measures to control the effects of the activity on any lawfully established structure.*
- Measures to control suspended solids discharges.*
- Measures to avoid, remedy or mitigate adverse effects on the natural character of the beds of rivers and lakes.*
- Measures to ensure consistency with criteria as set out in any applicable Water Management Class in this Plan.*



- xii. *Measures to control the effect of the activity on areas of significant indigenous vegetation and significant habitats of indigenous fauna.*

In the interest of brevity we do not repeat the detail of that material and, as the relevance or applicability of those documents and their provisions was not contested in any material way by any party, we adopt that assessment – noting that some witnesses contested the interpretation and weight to be afforded particular provisions.

#### 7.4 Peacocke Area

One matter that did require our attention related to HCC's Peacocke Structure Plan (PSP), which is a Proposed District Plan Decisions Version provision (9 July 2014) which sets up a special character zone – one of 6 such zones under the Plan – the intention of which<sup>119</sup> is to protect, maintain and enhance the respective "special" characteristics of those areas. Specifically the Peacocke Character zone (PCZ) comprises three discretely identified areas – Terrace, Gully and Hill.

This matter had been raised, in particular, by Adare Company Limited (Adare), a submitter with substantial (though not exclusive) landholding within the PCZ, and was concerned about the potential for the relevant NoRs and Garden Bridge consent to compromise the planning intention for that area – which we understood from the evidence of witnesses for Adare to be to create a subdivision in line with certain urban design principles whereby roads and stormwater associated infrastructure respond to the proposed built environment rather than the other way around (as alleged). In particular Adare sought that the NoR and consent processes be made subject to the master-planning exercise required for each of the 16 neighbourhood areas under the plan provisions (otherwise activities are generally non-complying in the absence of a Master Plan).

Mr David Serjeant, Adare's planning witness, noted<sup>120</sup> that the detailed cross-section and intersection drawings supplied with the application documentation effectively fixed the form of the designated works, and that this was inappropriate both at this stage but also in terms of the PSP requirements.

Ms Le Bas, counsel for HCC, in her opening legal submissions, noted<sup>121</sup> that:

*It is a very clear principle in both law and planning that a designation takes the lead, it is not lead (sic).*

*... The Commissioners are not required to direct or remind HCC as the relevant Territorial Authority that amendment of the Peacocke Structure Plan and the District Plan will be necessary if HCC's NoR is confirmed. The Commissioners can rest assured that the Territorial Authority, as promulgator of the Hamilton District Plan, has this matter in hand.*

Furthermore, in closing submissions, Ms Le Bas noted, among other things, that the drawings submitted were, in any event, subject to final design; an Outline Plan of Works would be required (and for each stage if staged); and that Adare does not own all the land within the PCZ<sup>122</sup> meaning that HCC needs to maintain its overall

<sup>119</sup> Savage, EIC, Annexure A, section 5.1 - Purpose

<sup>120</sup> Serjeant, EIC, para 13

<sup>121</sup> Le Bas, Opening Submissions, paras 20 - 21

<sup>122</sup> At the hearing Adare's landholdings were identified in 8 of the 16 neighbourhood areas, only 2 of which (Areas 7 and 8) represented "complete" ownership.

responsibility for matters relating to the arterial network. Accordingly she rejected Mr Serjeant's condition amendments.

Our attention was also drawn to a PSP provision under section 3.4.3(e) *Transport Network*, which states quite explicitly:

*Furthermore uncertainty around the precise form and function of the Southern Links state highway network also means the roading network needs to be responsive to changing circumstances and priorities. The final alignment of the arterial network within Peacocke will be established through the designation process. Therefore the alignment of some of the arterial routes is highly indicative, especially the southern section of the central major arterial route ...*

#### 7.5 Findings

On the general plans and provisions we accept the evidence of the respective planning witnesses regarding the relevant documents, and adopt those, as there was no material disagreement about them.

On the matter of the PSP and PCZ, we note that the provisions themselves anticipate the need for accommodating the outcome of the Southern Links NoR process, which, as Ms Le Bas notes, drives rather than follows the process. We add that we accept the point made by Ms Le Bas regarding the fact that HCC is on notice regarding the potential need to review the planning provisions once the detailed alignment and final design etc are available. Whether that will require substantial amendment is not something on which we can usefully speculate in this decision.

## 8. STATUTORY FRAMEWORK

### 8.1 Introduction

Before us are no less than eight proposals under three separate sets of RMA processes:

- Three Notices of Requirement by NZTA and one Notice of Requirement by HCC for new designations;
- One Notice of Requirement by NZTA for an alteration to an existing designation;
- Three resource consent applications for the three bridges.

Different statutory criteria apply to each set. We deal in this Section of our Hearings Report with each of them separately. We identify criteria for each process as follows:

Designations	- Sections 8.2 to 8.7 of this Hearings Report;
Resource consent applications	- Section 8.8 of this Hearings Report.

Both sets of criteria are subject to RMA Part 2 (see Section 8.9 of this Hearings Report).

### 8.2 Designation Formalities

Pursuant to RMA s166 NZTA (formerly Transit New Zealand) has been given the status of a requiring authority for the purposes of RMA<sup>123</sup>.

The form and content of the NoRs lodged under RMA ss168 and 168A are set out in the prescribed form. There was no challenge either evident in the written submissions or placed before us in evidence about the formal content of any of the NoRs.

We accept that the NoRs are appropriate in form and substance.

### 8.3 Alteration to Designations

One of the NoRs lodged by NZTA is for an alteration to an existing designation. RMA s181 deals specifically with alterations to a designation. RMA s181(2) imports into the alteration procedure the same process as if the designation had been a new one. RMA ss168 to 179 therefore apply with all necessary modifications.

### 8.4 Designation Criteria

The NZTA NoRs are made under RMA s168 while the HCC NoR is made under RMA s168A. The criteria for the former is set out in RMA s171(1) while the criteria for the latter is set out in RMA s168A(3). However, the considerations are the same.

The matters for consideration of each of the requirements are:

*When considering a requirement and any submissions received, a territorial authority must, subject to Part 2, consider the effects on the environment of allowing the requirement, having particular regard to-*  
*(a) any relevant provisions of-*

<sup>123</sup> Gazette Ref 1992/348 & 20/978

- (i) a national policy statement
- (ii) ....
- (iii) a regional policy statement or a proposed regional policy statement
- (iv) a plan or proposed plan; and
- (b) whether adequate consideration has been given to alternative sites, routes or methods of undertaking the work if-
  - (i) the requiring authority does not have an interest in the land sufficient for undertaking the work; or
  - (ii) it is likely that the work will have a significant effect on the environment; and
- (c) whether the work and designation are reasonably necessary for achieving the objectives of the requiring authority for which the designation is sought; and
- (d) any other matter the territorial authority considers reasonably necessary in order to make a decision on the requirement.

We consider that “*having particular regard to..*” means that we must turn our mind to each of the matters listed but it is not necessary for all of the criteria to be fulfilled.<sup>124</sup>

In respect of the designations, the essential matters for consideration are accordingly:

- RMA Part 2. We address that in Section 8.9 of this Hearings Report following.
- Effects on the Environment. We have addressed that in Section 6 of this Hearings Report.
- Planning instruments. We have addressed that in Section 7 of this Hearings Report.
- Alternative sites or methods. We have addressed this in Section 6.2, and 8.5 following of our Hearings Report.
- Reasonably necessary. We have addressed this in Section 6.2 and 8.6 following of our Hearings Report.
- Any other matter: We have addressed that in Section 7 and 8.7 following of this Hearings Report.

#### 8.5 Alternative Sites or Methods

RMA s171(1)(b) requires us to have regard to alternatives but only in the event that one of two prerequisites applies.

The first of those prerequisites is if the Requiring Authority does not have sufficient land to undertake the work. Neither NZTA nor HCC has sufficient land to undertake all the work covered by the NoRs.

The second prerequisite applies if any adverse effects are likely to be significant. On the face of it, some of the effects may well be described as significant.

In considering the NoRs we must therefore consider alternatives. We have done that in Section 6.2 of this Hearings Report.

Given those considerations, we are satisfied from all the evidence that adequate consideration has been given by the requiring authorities to alternatives in respect of their respective NoRs.

<sup>124</sup> Quay Property Management Ltd v Transit NZ (W028/00) at paras.111-112

## 8.6 Reasonably Necessary

In respect of the NoRs, good reason was provided by the requiring authorities in respect of each NoR proposed. We have considered that in Section 6.2 of this Hearings Report. Without traversing the detail of that, it is sufficient to say that we are satisfied that in each case the NoRs are reasonably necessary.

## 8.7 Designation Options for Designations

In respect of an NOR pursuant to RMA s168 (relevant to the NZTA NoRs), RMA 171(2) provides:

*The territorial authority may recommend to the requiring authority that it—*

- (a) confirm the requirement:*
- (b) modify the requirement:*
- (c) impose conditions:*
- (d) withdraw the requirement.*

Furthermore, RMA s168A(4) (relevant to the HCC NoR) provides:

*The territorial authority may decide to—*

- (a) confirm the requirement:*
- (b) modify the requirement:*
- (c) impose conditions:*
- (d) withdraw the requirement.*

Based on our delegations pursuant to RMA s34A described in Section 2.1 of this Hearings Report, we accordingly have the same options in respect of these NoRs.

## 8.8 Resource Consent Criteria

RMA s104 sets out the matters to be considered when assessing a resource consent. That section requires that, subject to Part 2 (Purpose and Principles), regard must be had to a number of matters of which the following are relevant in this case:

- (a) any actual and potential effects on the environment of allowing the activity; and*
- (b) any relevant provisions of—*
  - (i) a national environmental standard:*
  - (ii) other regulations:*
  - (iii) a national policy statement:*
  - (iv) a New Zealand coastal policy statement:*
  - (v) a regional policy statement or proposed regional policy statement:*
  - (vi) a plan or proposed plan; and*
- (c) any other matter the consent authority considers relevant and reasonably necessary to determine the application.*

In addition, as we have already observed in Section 7 of this Hearings Report, because the applications for consent are for restricted discretionary activities, RMA s104C will apply to restrict us to considering only those matters over which the



Waikato Regional Plan specifies should be considered. We have itemised those in Section 7 and considered them in Section 6.

We have considered effects in Section 6 of this Decision. We have considered the relevant planning instruments in Section 7 of this Decision.

Several *other matters* were advanced as being matters to which we should have regard. We deal with those matters in Section 7 of this Hearings Report .

#### 8.9 RMA Part 2

All RMA processes before us are subject to RMA Part 2.

8.9.1 The purpose of the RMA as set out in s5 is *"to promote the sustainable management of natural and physical resources"*. Sustainable management is then defined.

8.9.2 RMA s6 sets out matters of national importance which are to be recognised and provided for. The matters of national importance under s6 which are relevant to the consideration of the matters before us are:

- (a) *the preservation of the natural character of ..., wetlands, ... and their margins, and the protection of them from inappropriate subdivision, use, and development:*
- (b) *...*
- (c) *the protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna:*
- (d) *the maintenance and enhancement of public access to and along ... lakes, and rivers:*
- (e) *the relationship of Māori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga:*
- (f) *the protection of historic heritage from inappropriate subdivision, use, and development:*
- (g) *...*

8.9.3 RMA s7 sets out other matters to which we are to have particular regard. The matters in s7 which may be of relevance to the matters before us include:

- (a) *kaitiakitanga:*
- (aa) *the ethic of stewardship:*
- (b) *the efficient use and development of natural and physical resources:*
- (ba) *the efficiency of the end use of energy:*
- (c) *the maintenance and enhancement of amenity values:*
- (d) *intrinsic values of ecosystems:*
- (e) *...*
- (f) *maintenance and enhancement of the quality of the environment:*
- (g) *any finite characteristics of natural and physical resources:*
- (h) *...*
- (i) *the effects of climate change:*
- (j) *...*

8.9.4 Section 8 requires us to take into account the principles of the Treaty of Waitangi.

8.9.5 Leaving aside for the moment the Māori provisions of Part 2 (ss6(e), 7(a) and 8), the AEE, each of the planners for the Requiring Authorities as well as each of the authors of the s42A Reports undertook a detailed analysis of the proposals before us in relation to each of the elements of Part 2, as we have set them out above.

We are satisfied that the proposals achieve the purpose of the RMA and that there is nothing in ss 6 – 8 that undermines that position, provided that appropriate conditions attach to the NoRs and resource consents.

We have discussed in Section 6.7 of this Hearings Report the position relating to matters of ecology. Our conclusions there do not alter the conclusions relating to Part 2.

8.9.6 In respect of the Māori provisions of Part 2, no submissions were received to the proposal before us in relation to Māori issues. However, on the information before us Māori have provided a Position Statement dated 5 August 2013, which is set out in full in the NoRs (Appendix F).

As recorded in the Position Statement, Tangata Whenua is Waikato-Tainui represented by Waikato-Tainui Te Kauhanganui Incorporated Society, the mandated iwi authority. The Society has delegated its authority to be represented on the proposals to four of its hapuu, Ngaati Haua, Ngaati Koroki Kahukura, Ngaati Mahanga and Ngaati Wairere, collectively referred to as the Tangata Whenua Working Group (TWWG).

TWWG has recorded in the Position Statement that *“Tangata Whenua acknowledge that some significant effects on ecological areas and sites of significance are unavoidable (e.g Hamilton Gardens bridge crossing, Mangakotukutuku Gully crossing) in order for the project to be achieved. In those areas Tangata Whenua believe that measures to mitigate the environmental and cultural effects of the project are possible and practicable to implement.”*

TWWG will be involved in all aspects of the proposal in a consultative capacity. In closing submissions NZTA at paragraph 42 advised that *“...condition 9 has since been amended to specifically require that the CLMP and the LMP be prepared in consultation with TWWG.”*

We note that the appropriate provision is included in conditions for each NoR.

On the information provided we consider that the provisions of Part 2 relating to Māori have been satisfied.

## 9. LAPSE and STAGING

The related issues of the lapse period for the NoRs and the extent to which the staging of Southern Links project should be subject to conditions were a central issue at the Hearings. We deal with each of them in turn.

### 9.1 Lapsing

We summarised the Requiring Authorities' position on the lapse period in Section 6.2 of this Hearings Report. We repeat it here for ease of reference. Put simply, for each NoR a 20 year lapse period has been requested because:

- The time needed to investigate, fund and construct the project<sup>125</sup>
- To protect the route from development<sup>126</sup>
- To provide certainty for landowners and to enable landowners to avail themselves of s 185 of the RMA if they satisfy the relevant procedural requirements<sup>127</sup>
- To futureproof a significant transportation network to meet strategic growth needs<sup>128</sup>.

Ms Janissen advised us that an indicative project schedule had been prepared<sup>129</sup> which shows that construction may not have commenced even after 15 years.

A significant number of submitters opposed a 20 year lapse period<sup>130</sup> (and proposed alternatives of between 5 and 15 years). We do not need to refer to these submissions individually, as the rationale for opposing a 20 year lapse period were all along similar lines. In summary, the submitters opposed the 20 year lapse period for a number of reasons, principal amongst them being so-called "designation blight". This encapsulates a number of aspects, including:

- Uncertainty for property owners;
- Business interruption effects;
- Restrictions on the use of private land during the lapse period;
- Inability to sell property, or to receive a fair price when doing so; and
- The lack of any certainty the project will ultimately proceed, given a lack of financial support for the project by either Central Government (in respect of NZTA's NORs) or HCC.

<sup>125</sup> Evidence of Mr B Dowsett – paras 48 - 49

<sup>126</sup> Ibid – paras 50 - 52

<sup>127</sup> Ibid – paras 53-58

<sup>128</sup> Ibid – paras 59 - 62

<sup>129</sup> Opening submissions for NZTA – paras 9 -13

<sup>130</sup> Jeff Myles, Lynda and Kevin Drury, Tamahere Community Committee, J and C Erkkila Family Trust, John and Heather Healy, Ronald and Carolyn Ingram, Roy and Patricia Teague, Titanium Park Joint Venture, Titoki Sands, Richard and Elizabeth Ward, Martin and Deborah Swann, Eman Property Trust, Rowena Robinson, Cairns Family Trust, Findlay Family Trust, Charles and Marion Fletcher, Jacquilyn and Damian Dawson, Brian Roslyn and Carol Griffin, Leslie Hammond, Graeme and Julie Lucas, Middle and Narrows Road Focus Group, Penn Paterson Partnership, Qi Zha and Xianghua Yan

The issue of potential “designation blight” was acknowledged by both Requiring Authorities<sup>131</sup>. Right from the outset of this Hearings Report (Section 1 - Introduction) we recognised the issues in that regard.

Initially, the s42A Report authors were unable to recommend a particular lapse period, given their belief that further information was necessary to enable them to do so.<sup>132</sup> By the time the Section 42A Supplementary Report was prepared, Ms Hunter stated that she had sufficient information to allow her to recommend a lapse period of at least 15 years and suggested the Requiring Authorities provided a simple timeline to demonstrate the tasks to be undertaken and their potential timing in order to justify the 20 year lapse period.

We record that for us, the term of the lapse period was an issue that was “live” throughout the Hearings. The position of the s42A Report writers evolved as further information became available. By the time they prepared the Second Supplementary s42A Report, Ms Hunter was satisfied that a 20 year lapse period was appropriate, provided a comprehensive set of conditions was imposed, noting that this was also recorded in the Planning Joint Witness Statement prepared by Ms Hunter and Mr Eccles.

We accept that position and consider that it is appropriate for the route to be protected for the period realistically required to give effect to the designations. Based on the evidence before us, that period is 20 years. That said, we agree with Ms Hunter and Mr Eccles that robust conditions are also required, particularly in relation to consultation and for there to be stakeholder input to the various environmental management plans that will be prepared at the detailed design stage. We return to the matter of conditions later.

We acknowledge that this is not an outcome that will find favour with those submitters who considered that a shorter timeframe was appropriate. However, imposing a shorter term will not necessarily be the end of the matter if the designations are “not given effect to” by the prescribed lapse date, as the Requiring Authorities could still apply under s184 of the RMA for the lapse period to be extended. That extension would be granted if the Territorial Authority was satisfied that “substantial progress or effort has been made towards giving effect to the designation and is continuing to be made.” Such applications are processed on a procedural basis, meaning there are no rights of public participation, and as such a similar situation to that being sought by the Requiring Authorities might still arise.

## 9.2 Staging

We now deal with staging. The s42A Report authors considered that a condition should be included that obliged the Requiring Authorities to, within five years of confirmation of the designations, prepare a preliminary programme that sets out the likely staging of the project works and anticipated timelines for such works and to update the programme at five yearly intervals. The condition would require that the preliminary programme and five yearly updates be provided to the Territorial Authorities and the Community Liaison Groups that were proposed to be established. Ms Hunter considered that a condition establishing a formal and structured process for the Requiring Authorities to provide reasonably regular updates to the Territorial Authorities and the Community Liaisons Groups on progress towards giving effect to

<sup>131</sup> e.g. Evidence of Mr B Dowsett – para 54 and Evidence of Mr T Denton – para 57

<sup>132</sup> Section 42A Report – Section 23

the designations would assist in addressing the issues of uncertainty associated with a 20 year lapse period. Some of the submitters have indicated their support for the programme staging condition, including the Titanium Park Joint Venture and Future Proof.

Mr Eccles considered that other conditions that require the Requiring Authorities to provide regular updates on project progress were more appropriate and that a specific staging programme condition was not therefore necessary.

By the conclusion of the Hearings, Ms Hunter's thinking had evolved to the point where she "preferred" that a staging condition be included, but that it was not a "drop dead issue" for her.

We are not persuaded that a formal staging condition is needed, and agree with Mr Eccles that other conditions, which we address later, are more appropriate.

### 9.3 Findings

For all the reasons set out above, we are satisfied that it is appropriate to:

- Include a 20 year lapse period on all the NORs, but only provided that a comprehensive suite of conditions is imposed that provide opportunities for landowners and stakeholders to be well informed of plans for the implementation of Southern Links and to have input at appropriate points in the detailed design process, and in particular when site-specific management plans are being prepared.
- Not include the staging condition proposed by Ms Hunter, but again require the inclusion of appropriate conditions that achieve much the same end result, as generally proposed by the Requiring Authorities.



## 10. CONCLUSIONS

- 10.1** In Section 6 of this Hearings Report we have considered the effects on the environment of the matters before us and the extent to which proposed conditions may avoid, remedy or mitigate those adverse effects.

In that regard, we are satisfied that the adverse effects of the proposal can be appropriately managed, by the imposition of a robust set of conditions, as discussed elsewhere.

- 10.2** In Section 7 of this Hearings Report we have considered the relevant planning instruments and have concluded that the proposals before us are generally consistent with relevant provisions of the various planning instruments.

- 10.3** In Section 8 of this Hearings Report we have considered the statutory framework and have concluded that the proposals before us generally meet the statutory criteria.

- 10.4** Exercising a broad overall judgement, we consider that we should approve each of the eight matters before us, each subject to a separate set of conditions. We discuss the conditions in detail next.

## 11. CONDITIONS

### 11.1 Proposed Conditions

It is not unusual in a case of the size and complexity of the matters before us that conditions become an iterative process. That occurred in this case and it became all the more complex as on each occasion we were dealing with not one but multiple sets of conditions. In addition, in respect of the NoRs there remained for a substantial part of the case, differences between the s42A authors and the Requiring Authorities.

In contrast there was little if any comment on the proposed WRC conditions in respect of the three bridges.

In respect of the NoRs:

- (a) With each of the NoRs lodged by both NZTA and HCC the Requiring Authorities submitted a set of proposed conditions;
- (b) The initial s42A Report in respect of the NoRs proposed a revised set of conditions
- (c) In the Evidence in Chief of each of the Requiring Authorities a further updated set of conditions were produced;
- (d) The Supplementary s42A Report lodged just prior to the Substantive Hearing offered a fresh set of conditions using the sets proposed by the Requiring Authorities as a base;
- (e) In the rebuttal evidence further amendments to each set of conditions were proposed;
- (f) During the Substantive Hearing some further alterations were proposed to individual conditions;
- (g) In addition, during the Substantive Hearing, we ourselves raised a number of issues relating to conditions;

We have recorded in Section 2.6 of this Hearings Report that we adjourned the Hearings for a period with the primary objective of allowing at least the Requiring Authorities and the s42A authors further time to consider and hopefully agree on appropriate conditions.

We were hugely encouraged at the Reconvened Hearing to find that substantial progress had been made towards that objective. In addition the Requiring Authorities had given further detailed consideration to some the concerns raised by submitters in the course of the Substantive Hearing.

A further set of conditions was tendered by Mr Eccles at the Reconvened Hearing.

The net result is that the proposed conditions now before us are in our view significantly different and far more appropriate than the ones offered with the original NoRs. We are satisfied that the final set of conditions offered by Mr Eccles as part of the Requiring Authorities' replies are, for the most part, appropriate. Nevertheless there remained by the end of the Reconvened Hearing several outstanding issues in relation to conditions. In Section 6 of this Hearings Report we have considered each of those issues and have arrived at what we consider to be an appropriate set of conditions.

## 11.2 Final Conditions

In our deliberations it has been necessary to make decisions on the remaining outstanding issues relating to conditions. These have been in relation to

- Traffic – Section 6.2
- Noise – Section 6.3
- Ecology – Section 6.7

We consider that the conditions which we now adopt adequately avoid remedy or mitigate the adverse effects identified by all the parties in this case.

## 12. RECOMMENDATIONS AND DECISIONS

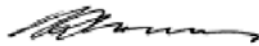
### 12.1 Designations

The following separate Recommendations and Decisions are made by the Commissioners Arcus, Hill, Mitchell and Solomon in respect of each of the designations set out in Volumes 2, 3, 4, 5, and 6 following.

### 12.2 Resource Consents

Commissioners Mitchell, Hill and Solomon grant the resource consents subject to conditions as set out in Volume 7, 8 and 9 following.

DATED this 24<sup>th</sup> day of October, 2014



.....  
**C. D. Arcus**  
Joint Hearings Commissioner  
Chairman



.....  
**P.H. Mitchell**  
Hearings Commissioner  
Chair of Waikato Regional Council Hearings Panel

### 13. APPENDIX 1

#### Schedule of Appearances

**(a) Requiring Authorities:**

*NZ Transport Agency and Hamilton City Council*

Ms Suzanne Janissen	(Counsel)	NZTA
Ms Jo Bain	(Counsel)	NZTA
Ms Theresa Le Bas	(Counsel)	HCC
Ms Katia Fraser	(Counsel)	HCC
Mr Robert Brodnax	(Planning & Investment)	NZTA
Mr Barry Dowsett	(Project Manager)	NZTA
Mr Tony Denton	(City Development)	HCC
Ms Amanda Hampton	(Principal Property Manager)	NZTA
Mr Grant Eccles	(Consultation/Alternatives)	AECOM
Mr Dave van Staden	(Concept Design Philosophy)	AECOM
Mr Shaun Lion-Cachet	(Traffic/Transportation)	AECOM
Mr Vince Dravitzki	(Noise)	Opus
Mr Peter Cenek	(Vibration)	Opus
Dr Stephen Chiles	(Road-Traffic Noise/Vibration)	Chiles Ltd
Mr Igor Kvatch	(Air Quality)	Opus
Mr Adrian Morton	(Landscape/Visual/Urban Design)	Opus
Mr John Turner	(Ecology)	Opus
Mr Nick Cable	(Archeology)	Opus
Mr Ian Bowman	(Built Heritage)	Ian Bowman Architect & Conservator
Mr Ken Read	(Contaminated Land)	Opus
Mr Chris Hardy	(Stormwater drainage)	AECOM
Ms Linda Chamberlain	(Social)	Opus
Mr Grant Eccles	(Planning)	AECOM

*Evidence tabled from:*

Mr Dave Park	(Aviation Safety and Design)	Astral Ltd
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**(b) Submitters**

Adare Company Limited	Ms Ida Dowling, Transportation engineer
	Mr Dave Serjeant, Planner
Ms J M Bailey	Mr M Barker
Bartley Family Trust	Mr J Bartley
P & B Bevan	In Person
	Mr N J Bevan (James Bevan?)
Cairns Family Trust	Mr Peter Findlay
Director General of Conservation	Mr D van Mierlo (Counsel)
	Dr Matt Baber, Ecologist
	Dr Colin O'Donnell, Ecologist
	Mr Wade Hill, planner
Kevin & Lynda Drury	In person
J & C Erkkila	Ms Christine Erkkila
C & M Fletcher	Mr Charles Fletcher
Findlay Family Trust	Mr Peter Findlay
Future Proof	Mr Ken Tremaine, Planner
Hamilton City Council	Mr Paul Ryan, Planner



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Mr L D Hammond	Mr Nathaneal Savage
Mr Rex Hannam	Mr Toby Braun, (Counsel)
D & K Harcourt	In person
J M & H M Healy	Ms Jaime Bright (Counsel)
R & C Ingram	In person with Mr Shaun Healy
Keyte Family Trust	Mr Ben Inger, Planner
Ms H Kirker	Mr Tony Keyte
Mr Hugh Litchfield	In person
G & J Lucas	Ms Jaime Bright (Counsel)
S M & G Mackintosh	Mr Toby Braun, (Counsel)
Mangakotukutuku Stream Care Group Inc	Mr Peter Skilton, Planner
	Dr Kevin Collier, ecologist
	Mr Grant Blackie,
Meridian 37 Ltd	Mr Ian Johnson, Planner
	Mr Brian Hermann
Middle Road and Narrows Focus Group	Ms E Penn
National Road Carriers	Mr G E Turner (Executive Officer)
E Penn & J Paterson	Mr Toby Braun, (Counsel) with
	Ms Elaine Penn
T & R Porritt	Ms Jaime Bright (Counsel) and
	In person
RJ Prenter	Ms Christine Turner
R & E Rimmington	Mr Russ Rimmington
Riverside Golf Club Inc	Ms Mary Anne Gill (Secretary)
D L & R K Sharpe	Ms Diane Sharpe
M N & M M Shaw	Mr Murray Shaw
Ms R J Robinson	In person
G M & R J Spencer	Mr Geoffrey Spencer
Ms Marion Sullivan	Roger Clark (Counsel)
M & D Swann	In person
Tainui Group Holdings	Mr Richard Douch, (Planner)
Tamahere Community Committee	Mr Dallas Fisher (Chairman)
R & P Teague	Mr Michael Grayson (Counsel)
Titoki Sands Ltd	Ms Kathryn Drew, Planner
	Mr Russell Fergusson
Titanium Park Joint Venture	Mr Simon Berry, Counsel
	Mr George Clark, General
	Manager, WRAL
	Mr Aidan Donnelly, McConnell Property
	Ltd,
	Mr Cameron Inder, Transportation
	Engineer
	Mr John Olliver, Planner, Waikato
Tsai, Lee, Tseng and	Mr Ian Johnson, Planner
Hsueh Chu Chao	In Person
CJ Turner	Mr John Tylden
J & R Tylden	Ms Kirsty Graveling
Waikato Regional Council	Mr John Olliver, Planner
Waikato Regional Airport Ltd	Ms Jaime Bright (Counsel)
R & E Ward	

**(c) Evidence tabled from:**

Titanium Park Joint Venture  
Heritage New Zealand

Mr Brent Wheeler, Economist  
Dr Rachel Darmody, HNZ

**(d) Statement tabled from:**

Qi Zhu

**(e) Email tabled from:**

Ms Marie Snowball

**(f) RMA s42A Reports**

NORs

Ms Paula Hunter, Planner, MVH  
Mr Chris Scrafton, Planner, MVH  
Mr Gerry Kessels, Ecologist, Kessels  
Ecology  
Mr Mark Apeldoorn, Transportation  
Engineer, TDG  
Mr Jon Styles, Acoustic Consultant,  
Styles Group

WRC

Mr Brian Richmond, Consents Officer,  
WRC

Item 10

Attachment 4

Attachment 4

**WAIKATO REGIONAL COUNCIL  
WAIKATO DISTRICT COUNCIL  
WAIPA DISTRICT COUNCIL  
and  
HAMILTON CITY COUNCIL**

**Notices of Requirement and  
Application for Resource Consents  
in respect of  
Southern Links**

**Requiring Authorities  
NZ Transport Agency and Hamilton City Council**

**Resource Consent Applicants  
NZ Transport Agency and Hamilton City Council**

Item 10

**Volume 7**

**NZTA APPLICATION FOR RESOURCE CONSENT  
(Narrows Bridge)  
DECISION  
OF HEARINGS COMMISSIONERS**

**24<sup>th</sup> October, 2014**

**Phil Mitchell  
Consultant  
AUCKLAND**

**Doug Arcus  
Barrister  
HAMILTON**

**David Hill  
Independent Hearings  
Commissioner  
AUCKLAND**

**Shane Solomon  
Consultant  
TAUPIRI**

**Waikato Regional Council  
Decision  
Consent Application 127679.01.01**

Having had regard to the provisions of the Resource Management Act 1991; and

Having considered the effects on the environment; and

Having considered the submissions and evidence of the Applicants in respect of the proposal now before us, the submissions lodged in respect of that application, and the evidence tendered in support of those submissions, and the reports provided under RMA s42A; and

Acting under a delegation from Waikato Regional Council to hear and determine the applications; and

For the reasons set out in the Hearing Report contained in Volume 1 which is the basis for, and forms part of this decision; and

Making a broad overall judgement; and

Pursuant to Sections 104, 104B, 105, 107 and 108 of the Resource Management Act, 1991,

**The Waikato Regional Council (as consent authority) grants consent to the application by the New Zealand Transport Agency for the following Resource Consent subject in each case to the consent conditions set out in the respective schedules thereto.**

**DATED** this 24<sup>th</sup> day of October, 2014



.....  
**C. D. Arcus**  
Joint Hearings Commissioner  
Chairman



.....  
**P H Mitchell**  
Hearings Commissioner  
Chair of Waikato Regional Council Hearings Panel

## Resource Consent Conditions (consent application 127679.01.01)

### General

1. The Waikato River Bridge at The Narrows authorised by this resource consent shall be designed, located and constructed in general accordance with the document entitled "*Hamilton Southern Links - Waikato Regional Council Resource Consent Applications – Bridge Structures*", prepared by AECOM dated 7 August 2013, and all supporting documentation except where otherwise required in the resource consent conditions below. Where there is any discrepancy between the application documents and the resource consent conditions then the conditions below shall prevail.
2. The consent holder shall appoint a representative prior to commencement of any works authorised by this resource consent, who shall be the Waikato Regional Council's principal contact person in regard to matters relating to this consent. The consent holder shall inform the Waikato Regional Council of the representative's name and how they can be contacted prior to this consent being exercised.
3. The consent holder shall be responsible for all contracted operations relating to the exercise of this resource consent, and shall ensure contractors are made aware of the conditions of this consent and ensure compliance with those conditions.
4. The consent holder shall inform the Waikato Regional Council in writing, at least 10 days prior to any work commencing, of the start date of the works authorised by this resource consent.
5. A copy of this resource consent shall be kept onsite at all times that the works authorised by this consent are being undertaken, and shall be produced without unreasonable delay upon request from a servant or agent of the Waikato Regional Council.

### Design

6. The consent holder shall retain an appropriately qualified and experienced professional to develop the final detailed design of the bridge, which shall include pier location, height of the bridge above maximum water levels and erosion protection works.
7. The final detailed design of the bridge shall be forwarded for approval to the Waikato Regional Council - acting in a technical certification capacity, at least 40 working days prior to works commencing. The basis for the Regional Council's approval shall be limited to an assessment of whether the design, if complied with, will satisfy the conditions of this consent.
8. The consent holder shall exercise this consent in accordance with the design approved under condition 7 of this consent.
9. The consent holder shall ensure that unimpeded access is maintained along the Waikato River outside working hours except through areas where the safety of the public would be endangered as a result of the works.
10. The consent holder shall ensure that the bridge structure authorised by this consent is undertaken in such a manner so as to avoid increasing flooding effects on adjacent and downstream land.
11. The consent holder shall be held responsible for maintaining the bridge structure clear of debris and other obstructions through the full term of this consent.

### Water Quality

12. Construction works on the bridge structure shall not commence until approval to the final detailed design has been approved under condition 7.



13. The consent holder shall provide the Waikato Regional Council with a finalised **Erosion and Sediment Control Plan (ESCP)**, at least 40 working days prior to the commencement of activities authorised by this consent. The objective of the ESCP shall be to minimise sediment discharge from the site to the extent practicable over the earthworks period.
  14. The consent holder shall ensure that sediment losses to natural water arising from the exercise of this resource consent are minimised during the duration of the works and during the term of this consent.
  15. The consent holder shall ensure that all erosion and sediment controls are inspected and in good working order prior to, and immediately after rain events. The consent holder shall further ensure that all erosion and sediment controls are maintained such that optimal sediment capture efficiency is achieved at all times.
  16. All construction, operation and maintenance works shall be executed in a manner which minimises disturbance of soil surfaces and vegetation.
  17. All disturbed soil surfaces that result from the construction and installation of the permanent bridge structure shall be stabilised immediately on completion of the works.
  18. No excess vegetative material or soil disturbed as the result of the exercise of this consent shall be left on the banks of the Waikato River.
  19. The consent holder shall ensure that all clean water run-off from stabilised surfaces including catchment areas above and around the site shall be diverted away from the earthworks area via a stabilised diversion system. The consent holder shall also ensure the outfall(s) of these systems incorporate adequate protection against erosion.
  20. Any future protection and/or erosion control works or associated maintenance that becomes necessary as a result of the exercise of this consent shall be the responsibility of the consent holder and shall be carried out to the satisfaction of the Waikato Regional Council.
- Advice Note:** *A separate resource consent may be required as a result of the need to undertake erosion control works. Any such consent shall be obtained by the consent holder at their sole expense prior to any works being undertaken.*
21. The discharge of untreated surface runoff from any area where soil has been disturbed as a result of the exercise of this resource consent shall only occur after consultation and the prior written approval of the Waikato Regional Council acting in a technical certification capacity. In this regard, the main issues that will be considered by the Waikato Regional Council include:
    - a. The quality of the stabilisation and/or covering vegetation;
    - b. The quality of the water discharged from the rehabilitated land; and
    - c. The quality of the receiving water.
  22. All earthmoving machinery, pumps and generators shall be operated in a manner which ensures that spillages of fuel, oil and similar contaminants are prevented, particularly during refuelling and machinery servicing and maintenance. Refuelling and lubrication activities shall be carried out away from any surface water such that any spillage can be contained and does not enter any surface water.
  23. Prior to entering the site all machinery shall be appropriately cleaned and inspected to minimise foreign plant species being introduced to the site.
  24. Stormwater from the completed bridge deck shall be directed to the river bank and discharged beyond the abutments in a manner that does not cause bank or abutment erosion.

25. The consent holder shall ensure that the bridge is constructed in a manner that avoids the deposition of construction materials into the Waikato River channel under normal conditions, taken as low winter flow of RL 11.39m.

#### Ecological Restoration and Mitigation

26. The consent holder shall retain an appropriately qualified and experienced ecologist to prepare a detailed **Ecological Restoration and Mitigation Plan** (ERMP) or version thereof. The EMRP's objective shall be to avoid, remedy, or mitigate adverse ecological effects associated with the bridge construction on flora and fauna habitats, and in particular long-tailed bats. The EMRP shall be submitted to the Waikato Regional Council for written approval prior to commencement of the construction activities authorised by this resource consent.

#### Cultural and Archaeological

27. The consent holder shall ensure that the exercise of this resource consent does not disturb sites of cultural significance to Tangata Whenua. In the event of any archaeological artefacts being discovered the works shall, in the vicinity of the discovery, cease immediately and the Waikato Regional Council shall be notified within 24 hours. Works may recommence on the written approval of the Waikato Regional Council after considering:
- Tangata Whenua interests and values;
  - Protocols agreed upon by Tangata Whenua and the consent holder;
  - The consent holders interests;
  - Any Heritage New Zealand authorisations; and
  - Any archaeological or scientific evidence.

#### Review

28. The Waikato Regional Council may at any time two months either side of January of 2020, 2025, 2030, 2035, 2040 and 2045, serve notice on the consent holder under section 128(1) of the Resource Management Act (1991), and commence a review of the conditions of this resource consent for the following purposes:
- to review the effectiveness of the conditions of this resource consent in avoiding or mitigating any adverse effects on the environment and if necessary to avoid, remedy or mitigate such effects by way of further or amended conditions; or
  - if necessary and appropriate, to require the holder of this resource consent to adopt the best practicable option to remove or reduce adverse effects on the surrounding environment due to the discharge of stormwater to surface water; or
  - to review the adequacy of and the necessity for monitoring undertaken by the consent holder, and if necessary, to amend and/or introduce new conditions to monitor any adverse effects on the environment that result from the exercise of this resource;

**Advice Note:** Costs associated with any review of the conditions of this resource consent will be recovered from the consent holder in accordance with the provisions of section 36 of the Resource Management Act 1991.

#### Administration

29. The consent holder shall pay to the Waikato Regional Council any administrative charge fixed in accordance with section 36 of the Resource Management Act 1991, or any charge prescribed in accordance with regulations made under section 360 of the Resource Management Act 1991.

#### Lapse Period

30. In accordance with section 125 RMA, this resource consent shall lapse twenty (20) years after the date on which it was granted unless it has been given effect to before the end of that period.

#### Advice Notes

1. Where a resource consent has been issued in relation to any type of construction (e.g. dam, bridge, jetty) this consent does not constitute authority to build and it may be necessary to apply for a Building Consent from the relevant territorial authority.
2. This resource consent does not give any right of access over private or public property. Arrangements for access must be made between the consent holder and the property owner.
3. This resource consent is transferable to another owner or occupier of the land concerned, upon application, on the same conditions and for the same use as originally granted (s.134-137 RMA).
4. The consent holder may apply to change the conditions of the resource consent under s.127 RMA.
5. The reasonable costs incurred by Waikato Regional Council arising from supervision and monitoring of this/these consents will be charged to the consent holder. This may include but not be limited to routine inspection of the site by Waikato Regional Council officers or agents, liaison with the consent holder, responding to complaints or enquiries relating to the site, and review and assessment of compliance with the conditions of consents.
6. Note that pursuant to s332 of the RMA 1991, enforcement officers may at all reasonable times go onto the property that is the subject of this consent, for the purpose of carrying out inspections, surveys, investigations, tests, measurements or taking samples.
7. If you intend to replace this consent upon its expiry, please note that an application for a new consent made at least 6 months prior to this consent's expiry gives you the right to continue exercising this consent after it expires in the event that your application is not processed prior to this consent's expiry.

Attachment 4

**WAIKATO REGIONAL COUNCIL  
WAIKATO DISTRICT COUNCIL  
WAIPA DISTRICT COUNCIL  
and  
HAMILTON CITY COUNCIL**

**Notices of Requirement and  
Application for Resource Consents  
in respect of  
Southern Links**

**Requiring Authorities  
NZ Transport Agency and Hamilton City Council**

**Resource Consent Applicants  
NZ Transport Agency and Hamilton City Council**

Item 10

**Volume 8**

**HCC APPLICATION FOR RESOURCE CONSENT  
(Gardens Bridge)  
DECISION  
OF HEARINGS COMMISSIONERS**

**24<sup>th</sup> October, 2014**

**Phil Mitchell  
Consultant  
AUCKLAND**

**Doug Arcus  
Barrister  
HAMILTON**

**David Hill  
Independent Hearings  
Commissioner  
AUCKLAND**

**Shane Solomon  
Consultant  
TAUPIRI**

**Waikato Regional Council  
Decision  
Consent Application 127680.01.01**

**Item 10**

Having had regard to the provisions of the Resource Management Act 1991; and

Having considered the effects on the environment; and

Having considered the submissions and evidence of the Applicants in respect of the proposal now before us, the submissions lodged in respect of that application, and the evidence tendered in support of those submissions, and the reports provided under RMA s42A; and

Acting under a delegation from Waikato Regional Council to hear and determine the applications; and

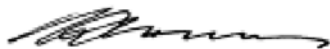
For the reasons set out in the Hearing Report contained in Volume 1 which is the basis for, and forms part of this decision; and

Making a broad overall judgement; and

Pursuant to Sections 104, 104B, 105, 107 and 108 of the Resource Management Act, 1991,

The **Waikato Regional Council** (as consent authority) **grants consent** to the application by the **Hamilton City Council** for the following **Resource Consents** subject in each case to the consent conditions set out in the respective schedules thereto.

**DATED** this 24<sup>th</sup> day of October, 2014



.....  
**C. D. Arcus**  
Joint Hearings Commissioner  
Chairman



.....  
**P H Mitchell**  
Hearings Commissioner  
Chair of Waikato Regional Council Hearings Panel

**Attachment 4**



## Resource Consent Conditions (consent application 127680.01.01)

### General

1. The Waikato River Bridge east of Hamilton Gardens authorised by this resource consent shall be designed, located and constructed in general accordance with the document entitled *"Hamilton Southern Links - Waikato Regional Council Resource Consent Applications – Bridge Structures"*, prepared by AECOM dated 7 August 2013, and all supporting documentation except where otherwise required in the resource consent conditions below. Where there is any discrepancy between the application documents and the resource consent conditions then the conditions below shall prevail.
2. The consent holder shall appoint a representative prior to commencement of any works authorised by this resource consent, who shall be the Waikato Regional Council's principal contact person in regard to matters relating to this consent. The consent holder shall inform the Waikato Regional Council of the representative's name and how they can be contacted prior to this consent being exercised.
3. The consent holder shall be responsible for all contracted operations relating to the exercise of this resource consent, and shall ensure contractors are made aware of the conditions of this consent and ensure compliance with those conditions.
4. The consent holder shall inform the Waikato Regional Council in writing, at least 10 days prior to any work commencing, of the start date of the works authorised by this resource consent.
5. A copy of this resource consent shall be kept onsite at all times that the works authorised by this consent are being undertaken, and shall be produced without unreasonable delay upon request from a servant or agent of the Waikato Regional Council.

### Design

6. The consent holder shall retain an appropriately qualified and experienced professional to develop the final detailed design of the bridge, which shall include pier location, height of the bridge above maximum water levels and erosion protection works.
7. The final detailed design of the bridge shall be forwarded for approval to the Waikato Regional Council - acting in a technical certification capacity, at least 40 working days prior to works commencing. The basis for the Regional Council's approval shall be limited to an assessment of whether the design, if complied with, will satisfy the conditions of this consent.
8. The consent holder shall exercise this consent in accordance with the design approved under condition 7 of this consent.
9. The consent holder shall ensure that unimpeded access is maintained along the Waikato River outside working hours except through areas where the safety of the public would be endangered as a result of the works.
10. The consent holder shall ensure that the bridge structure authorised by this consent is undertaken in such a manner so as to avoid increasing flooding effects on adjacent and downstream land.
11. The consent holder shall be held responsible for maintaining the bridge structure clear of debris and other obstructions through the full term of this consent.

### Water Quality

12. Construction works on the bridge structure shall not commence until approval to the final detailed design has been approved under condition 7.
13. The consent holder shall provide the Waikato Regional Council with a finalised **Erosion and Sediment Control Plan (ESCP)**, at least 40 working days prior to the commencement of activities authorised by this consent. The objective of the ESCP shall be to minimise sediment discharge from the site to the extent practicable over the earthworks period.
14. The consent holder shall ensure that sediment losses to natural water arising from the exercise of this resource consent are minimised during the duration of the works and during the term of this consent.

15. The consent holder shall ensure that all erosion and sediment controls are inspected and in good working order prior to, and immediately after rain events. The consent holder shall further ensure that all erosion and sediment controls are maintained such that optimal sediment capture efficiency is achieved at all times.
16. All construction, operation and maintenance works shall be executed in a manner which minimises disturbance of soil surfaces and vegetation.
17. All disturbed soil surfaces that result from the construction and installation of the permanent bridge structure shall be stabilised immediately on completion of the works.
18. No excess vegetative material or soil disturbed as the result of the exercise of this consent shall be left on the banks of the Waikato River.
19. The consent holder shall ensure that all clean water run-off from stabilised surfaces including catchment areas above and around the site shall be diverted away from the earthworks area via a stabilised diversion system. The consent holder shall also ensure the outfall(s) of these systems incorporate adequate protection against erosion.
20. Any future protection and/or erosion control works or associated maintenance that becomes necessary as a result of the exercise of this consent shall be the responsibility of the consent holder and shall be carried out to the satisfaction of the Waikato Regional Council.

**Advice Note:** A separate resource consent may be required as a result of the need to undertake erosion control works. Any such consent shall be obtained by the consent holder at their sole expense prior to any works being undertaken.

21. The discharge of untreated surface runoff from any area where soil has been disturbed as a result of the exercise of this resource consent shall only occur after consultation and the prior written approval of the Waikato Regional Council acting in a technical certification capacity. In this regard, the main issues that will be considered by the Waikato Regional Council include:
  - a. The quality of the stabilisation and/or covering vegetation;
  - b. The quality of the water discharged from the rehabilitated land; and
  - c. The quality of the receiving water.
22. All earthmoving machinery, pumps and generators shall be operated in a manner which ensures that spillages of fuel, oil and similar contaminants are prevented, particularly during refuelling and machinery servicing and maintenance. Refuelling and lubrication activities shall be carried out away from any surface water such that any spillage can be contained and does not enter any surface water.
23. Prior to entering the site all machinery shall be appropriately cleaned and inspected to minimise foreign plant species being introduced to the site.
24. Stormwater from the completed bridge deck shall be directed to the river bank and discharged beyond the abutments in a manner that does not cause bank or abutment erosion.
25. The consent holder shall ensure that the bridge is constructed in a manner that avoids the deposition of construction materials into the Waikato River channel under normal conditions, taken as low winter flow of RL 11.39m.

#### **Ecological Restoration and Mitigation**

26. The consent holder shall retain an appropriately qualified and experienced ecologist to prepare a detailed **Ecological Restoration and Mitigation Plan (ERMP)** or version thereof. The ERMP's objective shall be to avoid, remedy, or mitigate adverse ecological effects associated with the bridge construction on flora and fauna habitats, and in particular long-tailed bats. The ERMP shall be submitted to the Waikato Regional Council for written approval prior to commencement of the construction activities authorised by this resource consent.

#### **Cultural and Archaeological**

27. The consent holder shall ensure that the exercise of this resource consent does not disturb sites of cultural significance to Tangata Whenua. In the event of any archaeological artefacts being discovered the works shall, in the vicinity of the discovery, cease immediately and the Waikato Regional Council shall be notified within 24 hours. Works may recommence on the written approval of the Waikato Regional Council after considering:

- a. Tangata Whenua interests and values;
- b. Protocols agreed upon by Tangata Whenua and the consent holder;
- c. The consent holders interests;
- d. Any Heritage New Zealand authorisations; and
- e. Any archaeological or scientific evidence.

#### Review

28. The Waikato Regional Council may at any time two months either side of January of 2020, 2025, 2030, 2035, 2040 and 2045, serve notice on the consent holder under section 128(1) of the Resource Management Act (1991), and commence a review of the conditions of this resource consent for the following purposes:

- a. to review the effectiveness of the conditions of this resource consent in avoiding or mitigating any adverse effects on the environment and if necessary to avoid, remedy or mitigate such effects by way of further or amended conditions; or
- b. if necessary and appropriate, to require the holder of this resource consent to adopt the best practicable option to remove or reduce adverse effects on the surrounding environment due to the discharge of stormwater to surface water; or
- c. to review the adequacy of and the necessity for monitoring undertaken by the consent holder, and if necessary, to amend and/or introduce new conditions to monitor any adverse effects on the environment that result from the exercise of this resource;

**Advice Note:** Costs associated with any review of the conditions of this resource consent will be recovered from the consent holder in accordance with the provisions of section 36 of the Resource Management Act 1991.

#### Administration

29. The consent holder shall pay to the Waikato Regional Council any administrative charge fixed in accordance with section 36 of the Resource Management Act 1991, or any charge prescribed in accordance with regulations made under section 360 of the Resource Management Act 1991.

#### Lapse Period

30. In accordance with section 125 RMA, this resource consent shall lapse twenty (20) years after the date on which it was granted unless it has been given effect to before the end of that period.

**Advice Notes**

1. Where a resource consent has been issued in relation to any type of construction (e.g. dam, bridge, jetty) this consent does not constitute authority to build and it may be necessary to apply for a Building Consent from the relevant territorial authority.
2. This resource consent does not give any right of access over private or public property. Arrangements for access must be made between the consent holder and the property owner.
3. This resource consent is transferable to another owner or occupier of the land concerned, upon application, on the same conditions and for the same use as originally granted (s.134-137 RMA).
4. The consent holder may apply to change the conditions of the resource consent under s.127 RMA.
5. The reasonable costs incurred by Waikato Regional Council arising from supervision and monitoring of this/these consents will be charged to the consent holder. This may include but not be limited to routine inspection of the site by Waikato Regional Council officers or agents, liaison with the consent holder, responding to complaints or enquiries relating to the site, and review and assessment of compliance with the conditions of consents.
6. Note that pursuant to s332 of the RMA 1991, enforcement officers may at all reasonable times go onto the property that is the subject of this consent, for the purpose of carrying out inspections, surveys, investigations, tests, measurements or taking samples.
7. If you intend to replace this consent upon its expiry, please note that an application for a new consent made at least 6 months prior to this consent's expiry gives you the right to continue exercising this consent after it expires in the event that your application is not processed prior to this consent's expiry.

**WAIKATO REGIONAL COUNCIL  
WAIKATO DISTRICT COUNCIL  
WAIPA DISTRICT COUNCIL  
and  
HAMILTON CITY COUNCIL**

**Notices of Requirement and  
Application for Resource Consents  
in respect of  
Southern Links**

**Requiring Authorities  
NZ Transport Agency and Hamilton City Council**

**Resource Consent Applicants  
NZ Transport Agency and Hamilton City Council**

**Volume 9**

**HCC APPLICATION FOR RESOURCE CONSENT  
(Mangakotukutuku Bridge)  
DECISION  
OF HEARINGS COMMISSIONERS**

**24<sup>th</sup> October, 2014**

**Phil Mitchell  
Consultant  
AUCKLAND**

**Doug Arcus  
Barrister  
HAMILTON**

**David Hill  
Independent Hearings  
Commissioner  
AUCKLAND**

**Shane Solomon  
Consultant  
TAUPIRI**



**Waikato Regional Council  
Decision  
Consent Application 127680.02.01**

Having had regard to the provisions of the Resource Management Act 1991; and

Having considered the effects on the environment; and

Having considered the submissions and evidence of the Applicants in respect of the proposal now before us, the submissions lodged in respect of that application, and the evidence tendered in support of those submissions, and the reports provided under RMA s42A; and

Acting under a delegation from Waikato Regional Council to hear and determine the applications; and

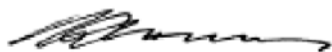
For the reasons set out in the Hearing Report contained in Volume 1 which is the basis for, and forms part of this decision; and

Making a broad overall judgement; and

Pursuant to Sections 104, 104B, 105, 107 and 108 of the Resource Management Act, 1991,

The **Waikato Regional Council** (as consent authority) **grants consent** to the application by the **Hamilton City Council** for the following **Resource Consents** subject in each case to the consent conditions set out in the respective schedules thereto.

**DATED** this 24<sup>th</sup> day of October, 2014



.....  
**C. D. Arcus**  
Joint Hearings Commissioner  
Chairman



.....  
**P H Mitchell**  
Hearings Commissioner  
Chair of Waikato Regional Council Hearings Panel

**Resource Consent Conditions (consent application 127680.02.01)**

**General**

1. The Gully Bridge (3A) over the Mangakotukutuku Stream authorised by this resource consent shall be designed, located and constructed in general accordance with the document entitled "*Hamilton Southern Links - Waikato Regional Council Resource Consent Applications – Bridge Structures*", prepared by AECOM dated 7 August 2013, and all supporting documentation except where otherwise required in the resource consent conditions below. Where there is any discrepancy between the application documents and the resource consent conditions then the conditions below shall prevail.
2. The consent holder shall appoint a representative prior to commencement of any works authorised by this resource consent, who shall be the Waikato Regional Council's principal contact person in regard to matters relating to this consent. The consent holder shall inform the Waikato Regional Council of the representative's name and how they can be contacted prior to this consent being exercised.
3. The consent holder shall be responsible for all contracted operations relating to the exercise of this resource consent, and shall ensure contractors are made aware of the conditions of this consent and ensure compliance with those conditions.
4. The consent holder shall inform the Waikato Regional Council in writing, at least 10 days prior to any work commencing, of the start date of the works authorised by this resource consent.
5. A copy of this resource consent shall be kept onsite at all times that the works authorised by this consent are being undertaken, and shall be produced without unreasonable delay upon request from a servant or agent of the Waikato Regional Council.

**Design**

6. The consent holder shall retain an appropriately qualified and experienced professional to develop the final detailed design of the bridge, which shall include pier location, height of the bridge above maximum water levels and erosion protection works.
7. The final detailed design of the bridge shall be forwarded for approval to the Waikato Regional Council - acting in a technical certification capacity, at least 40 working days prior to works commencing. The basis for the Regional Council's approval shall be limited to an assessment of whether the design, if complied with, will satisfy the conditions of this consent.
8. The consent holder shall exercise this consent in accordance with the design approved under condition 7 of this consent.
9. The consent holder shall ensure that unimpeded access is maintained along the Waikato River outside working hours except through areas where the safety of the public would be endangered as a result of the works.
10. The consent holder shall ensure that the bridge structure authorised by this consent is undertaken in such a manner so as to avoid increasing flooding effects on adjacent and downstream land.
11. The consent holder shall be held responsible for maintaining the bridge structure clear of debris and other obstructions through the full term of this consent.

**Water Quality**

12. Construction works on the bridge structure shall not commence until approval to the final detailed design has been approved under condition 7.

13. The consent holder shall provide the Waikato Regional Council with a finalised **Erosion and Sediment Control Plan (ESCP)**, at least 40 working days prior to the commencement of activities authorised by this consent. The objective of the ESCP shall be to minimise sediment discharge from the site to the extent practicable over the earthworks period.
  14. The consent holder shall ensure that sediment losses to natural water arising from the exercise of this resource consent are minimised during the duration of the works and during the term of this consent.
  15. The consent holder shall ensure that all erosion and sediment controls are inspected and in good working order prior to, and immediately after rain events. The consent holder shall further ensure that all erosion and sediment controls are maintained such that optimal sediment capture efficiency is achieved at all times.
  16. All construction, operation and maintenance works shall be executed in a manner which minimises disturbance of soil surfaces and vegetation.
  17. All disturbed soil surfaces that result from the construction and installation of the permanent bridge structure shall be stabilised immediately on completion of the works.
  18. No excess vegetative material or soil disturbed as the result of the exercise of this consent shall be left on the banks of the Mangakotukutuku Stream.
  19. The consent holder shall ensure that all clean water run-off from stabilised surfaces including catchment areas above and around the site shall be diverted away from the earthworks area via a stabilised diversion system. The consent holder shall also ensure the outfall(s) of these systems incorporate adequate protection against erosion.
  20. Any future protection and/or erosion control works or associated maintenance that becomes necessary as a result of the exercise of this consent shall be the responsibility of the consent holder and shall be carried out to the satisfaction of the Waikato Regional Council.
- Advice Note:** *A separate resource consent may be required as a result of the need to undertake erosion control works. Any such consent shall be obtained by the consent holder at their sole expense prior to any works being undertaken.*
21. The discharge of untreated surface runoff from any area where soil has been disturbed as a result of the exercise of this resource consent shall only occur after consultation and the prior written approval of the Waikato Regional Council acting in a technical certification capacity. In this regard, the main issues that will be considered by the Waikato Regional Council include:
    - a. The quality of the stabilisation and/or covering vegetation;
    - b. The quality of the water discharged from the rehabilitated land; and
    - c. The quality of the receiving water.
  22. All earthmoving machinery, pumps and generators shall be operated in a manner which ensures that spillages of fuel, oil and similar contaminants are prevented, particularly during refuelling and machinery servicing and maintenance. Refuelling and lubrication activities shall be carried out away from any surface water such that any spillage can be contained and does not enter any surface water.
  23. Prior to entering the site all machinery shall be appropriately cleaned and inspected to minimise foreign plant species being introduced to the site.
  24. Stormwater from the completed bridge deck shall be directed to the river bank and discharged beyond the abutments in a manner that does not cause bank or abutment erosion.

25. The consent holder shall ensure that the bridge is constructed in a manner that avoids the deposition of construction materials into the Mangakotukutuku Stream channel under normal conditions, taken as low winter flow of RL 11.39m.

#### Ecological Restoration and Mitigation

26. The consent holder shall retain an appropriately qualified and experienced ecologist to prepare a detailed **Ecological Restoration and Mitigation Plan** (ERMP) or version thereof. The EMRP's objective shall be to avoid, remedy, or mitigate adverse ecological effects associated with the bridge construction on flora and fauna habitats, and in particular long-tailed bats. The EMRP shall be submitted to the Waikato Regional Council for written approval prior to commencement of the construction activities authorised by this resource consent.

#### Cultural and Archaeological

27. The consent holder shall ensure that the exercise of this resource consent does not disturb sites of cultural significance to Tangata Whenua. In the event of any archaeological artefacts being discovered the works shall, in the vicinity of the discovery, cease immediately and the Waikato Regional Council shall be notified within 24 hours. Works may recommence on the written approval of the Waikato Regional Council after considering:
- a. Tangata Whenua interests and values;
  - b. Protocols agreed upon by Tangata Whenua and the consent holder;
  - c. The consent holders interests;
  - d. Any heritage New Zealand authorisations; and
  - e. Any archaeological or scientific evidence.

#### Review

28. The Waikato Regional Council may at any time two months either side of January of 2020, 2025, 2030, 2035, 2040 and 2045, serve notice on the consent holder under section 128(1) of the Resource Management Act (1991), and commence a review of the conditions of this resource consent for the following purposes:
- a. to review the effectiveness of the conditions of this resource consent in avoiding or mitigating any adverse effects on the environment and if necessary to avoid, remedy or mitigate such effects by way of further or amended conditions; or
  - b. if necessary and appropriate, to require the holder of this resource consent to adopt the best practicable option to remove or reduce adverse effects on the surrounding environment due to the discharge of stormwater to surface water; or
  - c. to review the adequacy of and the necessity for monitoring undertaken by the consent holder, and if necessary, to amend and/or introduce new conditions to monitor any adverse effects on the environment that result from the exercise of this resource;

**Advice Note:** Costs associated with any review of the conditions of this resource consent will be recovered from the consent holder in accordance with the provisions of section 36 of the Resource Management Act 1991.

#### Administration

29. The consent holder shall pay to the Waikato Regional Council any administrative charge fixed in accordance with section 36 of the Resource Management Act 1991, or any charge prescribed in accordance with regulations made under section 360 of the Resource Management Act 1991.

#### Lapse Period

30. In accordance with section 125 RMA, this resource consent shall lapse twenty (20) years after the date on which it was granted unless it has been given effect to before the end of that period.

#### Advice Notes

1. Where a resource consent has been issued in relation to any type of construction (e.g. dam, bridge, jetty) this consent does not constitute authority to build and it may be necessary to apply for a Building Consent from the relevant territorial authority.
2. This resource consent does not give any right of access over private or public property. Arrangements for access must be made between the consent holder and the property owner.
3. This resource consent is transferable to another owner or occupier of the land concerned, upon application, on the same conditions and for the same use as originally granted (s.134-137 RMA).
4. The consent holder may apply to change the conditions of the resource consent under s.127 RMA.
5. The reasonable costs incurred by Waikato Regional Council arising from supervision and monitoring of this/these consents will be charged to the consent holder. This may include but not be limited to routine inspection of the site by Waikato Regional Council officers or agents, liaison with the consent holder, responding to complaints or enquiries relating to the site, and review and assessment of compliance with the conditions of consents.
6. Note that pursuant to s332 of the RMA 1991, enforcement officers may at all reasonable times go onto the property that is the subject of this consent, for the purpose of carrying out inspections, surveys, investigations, tests, measurements or taking samples.
7. If you intend to replace this consent upon its expiry, please note that an application for a new consent made at least 6 months prior to this consent's expiry gives you the right to continue exercising this consent after it expires in the event that your application is not processed prior to this consent's expiry.



## Appendix I

### Risk and Assurance Plan

**Relevance:**

Section 6: Financial Case  
Section 7: Commercial Case  
Section 8: Management Case

- Presents HCC's "three levels of protection" approach to risk management and assurance
- Identifies key risks and proposed controls

# *Hamilton City Council Housing Infrastructure Fund Risk Review*

*Final Report  
3 November 2017*

## **CONFIDENTIAL**

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**pwc**



Kelvyn Eglington  
General Manager City Growth  
Hamilton City Council  
Private Bag 3010  
Hamilton 3240  
New Zealand

***Housing Infrastructure Fund Risk Review***

3 November 2017

Dear Kelvyn,

In accordance with our Contract dated 1 July 2017 and the Terms of Reference dated 18 September 2017, we are delighted to report the findings and recommendations arising from our risk review of the Housing Infrastructure Fund project for Hamilton City Council.

We would like to extend our appreciation for the assistance provided by staff and management in the completion of this engagement.

Yours faithfully

Sharon Cresswell  
Partner  
PricewaterhouseCoopers  
Hamilton, New Zealand

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## *Executive Summary*

### Introduction

The Housing Infrastructure Fund (HIF) is a government initiative to provide a one-off contestable fund through which councils in high-growth areas could apply for funding to bring forward the transport and water infrastructure required for new housing. This allows up-front investment in infrastructure to ensure more housing can be built sooner and assists councils in managing their key constraints in financing this infrastructure.

Hamilton City Council was one of five councils that were successful with their Indicative Business Case and were allocated \$272 million. Hamilton City Council is now preparing its Detailed Business Case and PwC will assist this process through undertaking a risk management and control evaluation assessment.

### Scope

The objective and scope of this phase of the engagement was in two-parts:

1. We performed a risk and control assessment to determine the current level of risk, control and assurance over the HIF project, and to highlight gaps in controls and assurance. The risk and control assessment was based upon existing risk registers and focussed on key project risks (those rated extreme).
2. We facilitated workshops to develop the material risk register for the operational risks associated with infrastructure for the HIF project, which can be used as the basis for reporting to stakeholders and for key input into the risk statement and assessment for the Detailed Business Case.

An evaluation of the control design effectiveness will be performed as a second-phase.

### Approach

Our approach included:

#### **1. Risk and Control Assessment**

- a) Facilitating workshops where appropriate members of the project management team and our subject matter experts considered the strategic risks facing the HIF project from a number of different angles. To identify the key controls that mitigate those risks.
- b) Reviewing the risk register and HIF material prepared by Hamilton City Council and the output of the workshop to identify the key risks to be considered in the Risk Control Assurance map.
- c) Meetings with management to identify the sources of assurance over controls.
- d) Developing an assurance map to highlight gaps in controls and assurance and areas of duplicate assurance.

## 2. Risk Register

- a) Facilitating a workshop with appropriate members of the project management team and engineers to identify:
  - the infrastructure risks associated with the project. This included the evaluation of risks already identified from pre-existing risk registers (e.g. Southern Links).
  - the controls in place and/or the potential treatment options to mitigate these risks.
- b) Workshopping with management and engineers the priority and rating of the risks identified in the first workshop utilising NZTA's risk management methodology.
- c) Documenting the findings as a base risk register for HIF project team to use to inform the Detailed Business Case and the project going forward.

HCC is responsible for reviewing and finalising the risk register and content for the Detailed Business Case.

### Key messages

The risk, control and assurance mapping process undertaken was forward focussed, in that it has been performed during the development of the Detailed Business Case for the HIF project. Therefore, the controls identified that relate to the delivery of the project are not necessarily in place now, although Hamilton City Council has existing systems, processes and procedures that will be utilised by the project if the Detailed Business Case is successful. Accordingly, some of the assurance elements, especially at level 1 are focussed towards confirming that the controls are put in place and these would no longer be relevant once the project is up and running. These have been identified in the Appendices.

A common set of controls was identified throughout the workshops with the key controls being the:

- Need for a dedicated project team to deliver HIF funded growth projects
- Development of stakeholder engagement and communications plans and the need for early engagement
- Execution of private developer agreements
- Integration into the long term planning process and consultation
- Detailed Business Case process itself
- Project management and procurement processes already in place at Hamilton City Council.

The preliminary Risk Control Assurance Map (Appendix I) aligns to those key risks that had been classified as extreme both from the original detailed HIF Final Proposals Risk Register (we note these aligned with the output from the strategic workshop) and the operational infrastructure risk register developed as part of this work. Hamilton City Council's risk framework (Appendix II) was used in assessing the risks.

The Detailed Risk Register (forwarded as a separate document) contains the operational infrastructure risks as identified by operational management and engineers with the risk ratings being assessed using the New Zealand Transport Agency (NZTA) risk rating criteria.



### Next Steps

The preliminary Risk Control Assurance Map is used during the development of the Detailed Business Case to provide guidance on the risks Hamilton City Council need to consider regarding the HIF process and guidance on how these are mitigated.

If the Detailed Business Case is successful, then the preliminary Risk Control Assurance map should be utilised and updated by the project team to provide guidance on the controls that need to be put in place to mitigate the key risks to the project.

The ownership of the Risk Control Assurance Map should be assigned to the Project Sponsor and they should assign responsibility for the risks and assurance tasks to individuals.

The HIF project team need to take ownership of the detailed risk register in order to complete the detail for the controls and treatment plans, assign ownership of the risks, maintain it, ensure that it is regularly updated as the project progresses, and it should form the basis for reporting to the project control group and the Council.

The control design effectiveness phase of this engagement should be undertaken once the project is operational to ensure that all the key controls and assurance activities have been implemented.

### Limitations

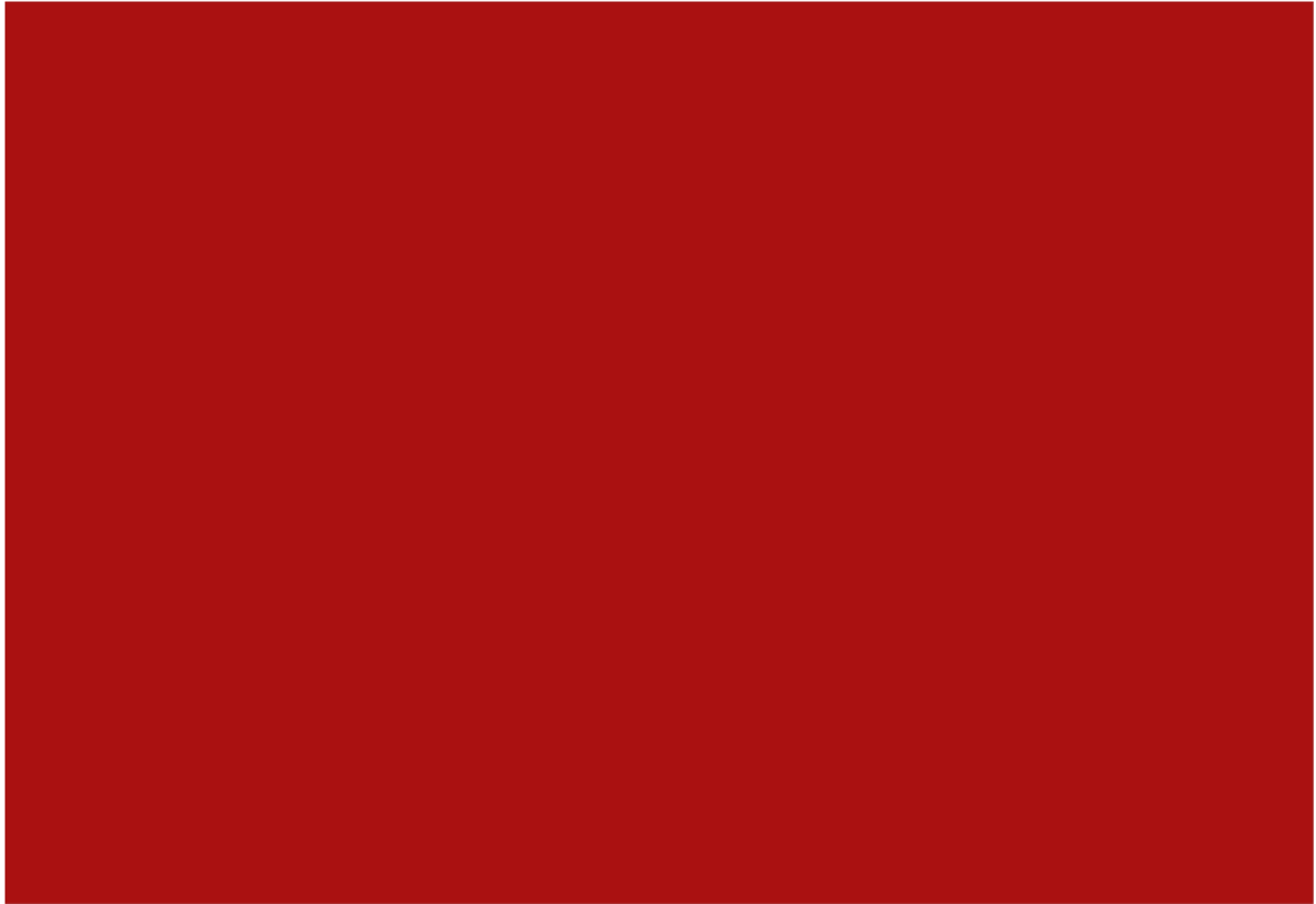
Our engagement does not constitute a statutory audit, the objective of which is the expression of an opinion on the financial statements, or an assurance engagement, the objective of which is the expression of an opinion on management's assertions. Accordingly, we will not express such an opinion at the conclusion of our work, or provide assurance.

We have not independently verified the accuracy of information provided to us. Accordingly, we express no opinion on the reliability, accuracy, or completeness of the information provided to us and upon which we have relied.

The statements expressed herein have been made in good faith, and on the basis that all information relied upon is true and accurate in all material respects, and not misleading by reason of omission or otherwise.

Attachment 4

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# Appendix I

## Preliminary Risk, Control & Assurance Map

A preliminary Risk, Control & Assurance map has been prepared to show the key controls and sources of assurance mitigating key project risks (those rated extreme) in the areas of reputation, people, project, political, financial, strategic, compliance and regulatory and operational.

Pre-existing controls are identified as blue coloured text, those controls that are currently operating for the detailed business case are in red coloured text. Controls to be established are identified in black text, with the adjacent Level 1 Assurance identifying initial processes to confirm the control is in place.

### HCC HIF Risks – Reputation Risks

Key risk description	Key controls	Assurance		
		Level 1: Project management oversight and capability & experience	Level 2: Project governance (internal)	Level 3: Independent and objective assurance
Lack of or loss of public support for HIF projects following approval of Detailed Business Case (DBC).	<b>Stakeholder Management and Communications Plan</b> <ul style="list-style-type: none"> <li>Communications plan developed encompassing all internal and external communications (who, when, how, frequency).</li> <li>Dedicated communications manager appointed who manages and monitors all media communications.</li> <li>Stakeholder Liaison appointed to manage the interaction and communications with stakeholders.</li> <li>Regular media monitoring undertaken to identify public feedback.</li> <li>Communications prepared for multiple scenarios.</li> </ul>	<b>Stakeholder Management and Communications Plan</b> <ul style="list-style-type: none"> <li>Experienced stakeholder liaison and communications manager positions appointed.</li> <li>Stakeholder needs analysis undertaken and stakeholder management plan developed.</li> <li>Communications plan developed and regularly updated.</li> <li>Communications reviewed and approved.</li> </ul>	<b>Regular meetings updating elected members</b> <p>Establish a regular briefing timetable for the HIF project with Council.</p>	

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Attachment 4

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Key risk description	Key controls	Assurance		
		Level 1: Project management oversight and capability & experience	Level 2: Project governance (internal)	Level 3: Independent and objective assurance
Conflict of interests are not managed resulting in a heightened risk of fraud/collusion, lowering HCC reputation.	<b>Long Term Plan (LTP) consultation process</b> LTP includes HIF funded projects in sufficient detail to allow for public feedback on the options and impacts of accelerating the growth projects per the IBC.	<b>LTP consultation process</b> Internal LTP review process considering whether adequate information is included in LTP to inform public of the options (DBC)	<b>Long Term Plan</b> Feedback from public during LTP consultation process received and reported to Council as part of the LTP management process.  <b>Council approval of DBC / LTP</b> Approvals follow Council Delegated Authority and procedures.	<b>Audit NZ review of LTP (limited)</b>
	<b>Detailed Business Case</b> The DBC presents all the options, impacts, assumptions, reasoning and benefits for the acceleration of the HIF funded projects and the use of HIF funding to allow a decision to be made.	<b>Detailed Business Case</b> The business case provides a compelling case that supports the use of HIF funding to accelerate growth projects.	<b>Benefits Realisation Plan</b> Approval of DBC and reporting of achievement of the benefits to Council.  <b>Council approval of DBC / LTP</b> Approvals follow Council Delegated Authority and procedures.	<b>Review by MBIE</b> MBIE review and approve the DBC.  <b>Peer review of Detailed Business Case</b>
	<b>HCC Conflict of Interest Policy</b> Conflict of Interests declaration and management plan.		Notification and approval of conflicts of interest and management plan.	<b>Procurement Process</b> Probity auditor for major procurements.
	<b>Project Management</b> On a periodic basis: <ul style="list-style-type: none"> <li>Report any breaches of conflicts of interest policy</li> <li>regularly remind the Project Team of their responsibilities</li> <li>conflict of interest management plan to be developed</li> </ul> Conflicts of interest and confidentiality statements and expectations for the Project team, HCC contractors and Developers.	<b>Project Management</b> <ul style="list-style-type: none"> <li>Review of conflict of interest declarations and signed off by the Project Sponsor.</li> <li>Management plan for any identified conflicts.</li> <li>Confidentiality process monitored by the Project Manager.</li> </ul>	Notification and approval of conflicts of interest and management plan.	

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Key risk description	Key controls	Assurance		
		Level 1: Project management oversight and capability & experience	Level 2: Project governance (internal)	Level 3: Independent and objective assurance
	<b>HCC Procurement Policy and Procedures Manual</b> <i>Conflict of Interests during procurement processes for staff and for suppliers to declare any conflicts of interest.</i>	<b>Procurement Process</b> <ul style="list-style-type: none"> <li>Project sponsor sign off on conflict of interest management plan</li> <li>Procurement manager review of conflict of interest forms.</li> </ul>	Notification and approval of conflicts of interest and management plan.	<b>Procurement Process</b> Probity auditor for major procurements.

### *HCC HIF Risks – People risks*

Key risk description	Key controls	Assurance		
		Level 1: Project management oversight and capability & experience	Level 2: Project governance (internal)	Level 3: Independent and objective assurance
Inadequate people (internal and consultants) resources / structure and competing priorities impact on delivery of growth projects, leading to delays.	<b>Dedicated Project Team</b> <ul style="list-style-type: none"> <li>Establishment of a dedicated project team focussed purely on delivery of the growth projects.</li> <li>Resource analysis and job sizing undertaken to identify key skills required.</li> <li>Project roles identified and filled.</li> <li>Outsource skills not available or unable to be filled from in-house.</li> <li>Backfill positions so that project staff do not have competing demands.</li> <li>Team will include all functions necessary to deliver growth projects including consents, infrastructure etc.</li> </ul>	<b>Project Management</b> <ul style="list-style-type: none"> <li>Resourcing monitored by the Project Manager.</li> <li>It will include (but not limited to) a Project Manager, Project Administrator, Project Finance administrator, Water, Wastewater, Stormwater, Roding, Consenting, Communications / Stakeholder Management staff members.</li> </ul>	<ul style="list-style-type: none"> <li>Resourcing adequacy monitored (project reporting).</li> <li>Project structure/team approved by senior management (SLT) following standard SLT approval process and appropriate HCC Delegated Authority. <ul style="list-style-type: none"> <li>Project Control Group in place</li> <li>PCG membership selected by SLT and Governance Charter developed and approved by SLT.</li> <li>Reporting arrangements between PCG and Project Team agreed in line with PMO guidance.</li> </ul> </li> <li>Project Management Office review of structure and resourcing.</li> <li>Council approval of project team and necessary resources and budgets.</li> </ul>	NZTA/MBIE review as required.

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Key risk description	Key controls	Assurance		
		Level 1: Project management oversight and capability & experience	Level 2: Project governance (internal)	Level 3: Independent and objective assurance
Failure to create and maintain a safe environment resulting in a serious harm or fatal incident.	<b>Procurement Process</b> <ul style="list-style-type: none"> <li>Professional services identified and procurement undertaken to secure appropriate staff.</li> <li>Use of Professional Services Panel to source consultants.</li> </ul>	<b>Procurement Process</b> <ul style="list-style-type: none"> <li>Procurement follows HCC Professional Services Panel requirements and Government Rules of Sourcing for panels is followed.</li> </ul>		NZTA endorsed approach taken to procure professional services.
	<b>Health and Safety Processes</b> <ul style="list-style-type: none"> <li>Project follows HCC H&amp;S processes and these are regularly reviewed.</li> <li>Dedicated H&amp;S role in project team.</li> </ul>	<b>Project Management</b> <ul style="list-style-type: none"> <li>Individual dedicated H&amp;S plans: <ul style="list-style-type: none"> <li>All project activities need to have a H&amp;S plan as appropriate.</li> <li>Each developer and contractor must have a pre-approved H&amp;S Plan registered with HCC and this is a pre-requisite of contracting to Council.</li> </ul> </li> <li>H&amp;S project team role assigned.</li> <li>Process/procedures in place to ensure that H&amp;S culture is embedded into project team.</li> <li>The Project Team has a dedicated H&amp;S advisor and audit process dedicated to ensuring the developers and contractors maintain their approved H&amp;S processes.</li> </ul>	Monitoring of H&S and reporting to the SLT and Council committees on a regular basis as part of the standard monitoring report.	Compliance with any corporate process requiring an independent review of H&S.

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### HCC HIF Risks – Project risks

Key risk description	Key controls	Assurance		
		Level 1: Project management oversight and capability & experience	Level 2: Project governance (internal)	Level 3: Independent and objective assurance
<p>Failure to secure Private Developer Agreements (PDAs) to take up the capacity of HIF under terms that meet the Business Case results in lack of certainty over:</p> <ul style="list-style-type: none"> <li>Development take up and timing</li> <li>Contributions amount (\$ and infrastructure).</li> </ul>	<p><b>Private Developer Agreements</b> Council uses a pro forma PDA for the HIF that is:</p> <ul style="list-style-type: none"> <li>Reviewed by HCC Legal advisors against DBC.</li> <li>Clearly understood by Project Team.</li> </ul>	<p><b>Private Developer Agreements</b> Review of deviations from proforma agreement.</p> <p>Review of PDA by Hamilton City Council Solicitor's.</p>	<p>Review and approval of PDAs by appropriate Delegated Authority.</p>	<p>Independent legal review if required.</p>
	<p><b>Stakeholder Management</b></p> <ul style="list-style-type: none"> <li>Early engagement with developers Gain an understanding of the drivers for the developers.</li> <li>Ongoing communications with developers.</li> </ul>	<p><b>Stakeholder Management</b></p> <ul style="list-style-type: none"> <li>Ongoing liaison with developers</li> <li>Stakeholder needs analysis</li> </ul>		
	<p><b>Detailed Business Case</b></p> <ul style="list-style-type: none"> <li>Financial modelling of cost vs benefit including different scenarios and sensitivity analysis</li> <li>Go / No Go processes.</li> </ul>	<p>Management review and approval of cost and benefits defined in DBC. Cost analysis peer reviewed.</p>	<p>Council approval of DBC. Senior Leadership Team approval of DBC.</p> <p><b>Benefits Realisation plan</b></p> <ul style="list-style-type: none"> <li>Approval of DBC and reporting of achievement of the benefits to Council.</li> <li>Briefings/workshops undertaken with Elected Representatives to define benefits.</li> </ul>	<p>Peer review of DBC. NZTA / MBIE review / approval of DBC. NZTA Post Implementation Review of planned benefits and costs compared to those actually delivered.</p>
HIF Cost / Benefits poorly defined leading to under delivery of outcomes.	<p><b>Project Management</b></p> <ul style="list-style-type: none"> <li>Periodic assessments that the anticipated benefits remain valid.</li> <li>Framework for measuring and tracking project benefits</li> </ul>		<p><b>Benefits Realisation plan</b> Approval of DBC and reporting of achievement of the benefits to Council.</p> <p>Reporting of progress against defined benefits to Council.</p>	<p>NZTA Post Implementation Review of planned benefits and costs compared to those actually delivered.</p>

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Key risk description	Key controls	Assurance		
		Level 1: Project management oversight and capability & experience	Level 2: Project governance (internal)	Level 3: Independent and objective assurance
HIF project is exposed to uncertain economic /growth circumstances that delays or stops project delivery.	<b>Detailed Business Case</b> <ul style="list-style-type: none"> <li>Modelling of the impacts of different economic / growth / financial circumstances consistent with 2018 LTP.</li> <li>HIF funding agreement terms only commit Council to a ten year yield only.</li> </ul>	<b>Detailed Business Case</b> Funding agreement terms agreed at ten years.		Peer review of DBC. NZTA / MBIE review.
	<b>Private Developer Agreements</b> Private developer agreements lock the developers in to delivering the development within the timeframe required by Council.	<b>Developer Agreements</b> Developer agreements in place and have appropriate clauses to allow for fluctuations in demand.		
	<b>Project Management</b> <ul style="list-style-type: none"> <li>On-going monitoring of economic and growth statistics to identify trends and compare against forecasted rates.</li> <li>Design of the infrastructure allows for scale back of growth areas to meet demand.</li> <li>Project planning.</li> </ul>	<b>Project Management</b> <ul style="list-style-type: none"> <li>Stage gates on project delivery</li> <li>Notification of changes in economic / growth circumstances that may impact on HIF.</li> </ul>	PCG reporting showing: <ul style="list-style-type: none"> <li>Development cell staging updates</li> <li>Dependencies</li> </ul> Progress reporting. Regular updates on economic indicators/growth forecasts compared to DBC base lines.	
	<b>Stakeholder Management Plan</b> Ongoing liaison with developers.	<b>Stakeholder Management Plan</b> Regular meetings with developers		
Development in other areas reduces HIF ability to fulfil planned developer yield to repay HIF loan.	<b>Long Term Plan</b> Communicates to the community the direction Council is taking for the next ten years.	<b>Long Term Plan</b> Long Term Plan focussed on HIF related projects.	Council approval of DBC / LTP: <ul style="list-style-type: none"> <li>Approvals following the standard Council process.</li> </ul> Council informed of impact of other Council decisions that may impact on HIF.	

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Key risk description	Key controls	Assurance		
		Level 1: Project management oversight and capability & experience	Level 2: Project governance (internal)	Level 3: Independent and objective assurance
Contractor capacity affects project delivery (timeframe) and cost.	<b>Council Planning Controls</b> District Plan restricts where development can occur. Peacocks is already zoned residential. Council control over release of land through zoning or SHA applications.		All SHA applications consider HIF implications.	
	<b>Stakeholder Management</b> Liaison with developers.	<b>Communications Plan</b> Growth project managers have an update process to inform HIF of dependency task changes. Co-ordination and communication between/across growth projects/groups: <ul style="list-style-type: none"> <li>Growth project leaders forum where projects are discussed.</li> </ul>		
	<b>Project Management</b> Monitoring of consents issued against growth forecasts. Monitoring of development across the HCC area and adjacent areas.	<b>Stakeholder management plan</b> Regular meetings with developers.		
	<b>Procurement Processes</b> <ul style="list-style-type: none"> <li>Develop Procurement Strategy through assessment of procurement options to determine the most appropriate options.</li> <li>Contractor capacity analysis to identify what level of activity the market can cope with.</li> <li>Pre-qualification process to identify suitable contractors.</li> <li>Registration of Interest undertaken in order to pre-qualify contractors without committing to further procurement processes.</li> <li>Early engagement with contractors to give them certainty over work.</li> </ul>	<b>Project Management</b> HIF project identifies dependencies from other developments.	<b>Procurement Processes</b> Management approval of procurement strategy, methodology and contracts.	Procurement strategy approved following Council Delegated Authority and procedures.  NZTA review of transport procurement processes.

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Key risk description	Key controls	Assurance		
		Level 1: Project management oversight and capability & experience	Level 2: Project governance (internal)	Level 3: Independent and objective assurance
Not all of the necessary land is controlled to deliver the infrastructure included in the HIF bid. The PWA may be required to be used to secure the required land which adds costs and significant delays to the whole of scope costs.	<b>Project Management</b> <ul style="list-style-type: none"> <li>Project plan/timeline that provides certainty over volume and timing of work.</li> <li>Contract management processes in accordance with HCC Procurement Manual.</li> </ul>			
	<b>Project Management</b> <ul style="list-style-type: none"> <li>Land Procurement strategy</li> <li>Property Consultant</li> <li>Purchase land in advance</li> </ul>	Land Procurement Strategy is reviewed and approved. All necessary land is owned by Council.		
	<b>Council Planning Controls</b> <ul style="list-style-type: none"> <li>Transport designation.</li> <li>Resource Management Act / Public Works Act processes.</li> </ul>			
	<b>Stakeholder Management Plan</b> Liaise with Tainui on First Right of Refusal.	Agreement made with iwi on the purchase of land for key infrastructure.		

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### HCC HIF Risks – Political risks

Key risk description	Key controls	Assurance		
		Level 1: Project management oversight and capability & experience	Level 2: Project governance (internal)	Level 3: Independent and objective assurance
HCC doesn't commit to the HIF through the 2018 - 2028 Long Term Plan process.	<b>Long Term Plan Process</b> The LTP process will show the impact that the HIF funded projects will have on other programmes and projects and allow for public feedback through the consultation process.	<b>Long Term Plan</b> LTP and HIF alignment: <ul style="list-style-type: none"> <li>HIF funded projects included in LTP process</li> <li>The key DBC information is included in the LTP, including modifying any existing programme timetables and scheduling of existing plans to take into account the advancement of the HIF areas</li> <li>HIF project team review of LTP.</li> </ul>		LTP consultation feedback.
	<b>Detailed Business Case</b> <ul style="list-style-type: none"> <li>Process already undertaken through HUGS/IBC supports the DBC.</li> <li>Robust Contract – Council/NZTA/MBIE means that HCC is committed to HIF.</li> <li>Planned stage approach – sensitivity testing, growth modelling, scenario planning to support the business case recommendations.</li> <li>Detailed financial modelling shows the cost/benefits of using the HIF funding.</li> </ul>	<b>Detailed Business Case</b> <ul style="list-style-type: none"> <li>DBC clear on implications of HIF / HIF on HCC projects both financially and ability to deliver/priorities.</li> <li>DBC reviewed by management.</li> </ul>		Peer review of DBC. Support from MBIE and NZTA.

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Key risk description	Key controls	Assurance		
		Level 1: Project management oversight and capability & experience	Level 2: Project governance (internal)	Level 3: Independent and objective assurance
	<b>Stakeholder Management and Communications Plan</b> Education/briefings of elected members is part of this to bring them on the journey.  Communications to the public.		<b>Stakeholder Management and Communications Plan</b> <ul style="list-style-type: none"> <li>Councillor briefings:               <ul style="list-style-type: none"> <li>Establish a regular briefing timetable for the HIF Road project with Council.</li> </ul> </li> <li>Council approval of Detailed Business Case by appropriate Delegated Authority process.</li> <li>NZTA / MBIE in front of elected members.</li> <li>Key project briefing of HIF Road HIP with Project Team, Project Sponsor, MBIE and NZTA.</li> <li>Focus on particular growth areas as agreed by DBC and LTP.</li> <li>Communications to the community are clear and consistent.</li> <li>HIF working group (including MBIE &amp; NZTA) from across Council.</li> </ul>	Support from MBIE and NZTA.
NZTA / MBIE don't approve of DBC and/or Government don't approve of the funding agreement.	<b>Stakeholder Management</b> Regular meetings with MBIE and NZTA to keep up-to-date with their thinking on the DBC process / requirements.	<b>Stakeholder Management</b> <ul style="list-style-type: none"> <li>Identified HCC staff delegated to talk to NZTA and MBIE.</li> <li>Minutes of meetings with NZTA / MBIE.</li> </ul>	Briefings/workshops with Councillors. Council approval of DBC by appropriate Delegated Authority process.	NZTA Board approval of DBC MBIE approval of DBC
HIF financial implications inconsistent or breach HCC financial strategy as determined by the 2018 – 2028 LTP.	<b>Detailed Business Case</b> Financial modelling shows the impact of different options/scenarios on the debt levels. Regular growth reporting using NPS and G&I quarterly growth report to monitor.	Management review of LTP decisions that impact on the HIF DBC.		Review by NZTA / MBIE.

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Key risk description	Key controls	Assurance		
		Level 1: Project management oversight and capability & experience	Level 2: Project governance (internal)	Level 3: Independent and objective assurance
Lack of quality information impacts on decisions.	<b>Project Management</b> Project reporting includes impact on debt levels of HIF funding. Reforecasting of debt to revenue budget vs actual Private Developer agreements.		Project Control Group monitoring of project financials and implications.	Reporting to MBIE.
	<b>Finance</b> HCC financial reporting monitors financial ratios.		Regular reporting of monitoring of ratios to Senior Leadership Team. Regular reporting of monitoring of ratios to Council's Committee as appropriate.	Audit New Zealand financial audit
	<b>Detailed Business Case</b> <ul style="list-style-type: none"> <li>Peer review of the DBC.</li> <li>Briefing and workshop with the elected members.</li> <li>All assumptions included in the DBC.</li> <li>Team of Council/external experts preparing DBC.</li> </ul>	Peer review by Council areas impacted but independent of those involved in DBC.	Project Control Group review.	Independent peer review of DBC.
	<b>Long Term Plan Process</b> <ul style="list-style-type: none"> <li>LTP process involves critical review / challenge sessions on projects to ensure that they are of sufficient quality.</li> <li>LTP follows HCC's standard quality review process</li> </ul>	LTP consultation process.		

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### HCC HIF Risks – Financial risks

Key risk description	Key controls	Assurance		
		Level 1: Project management oversight and capability & experience	Level 2: Project governance (internal)	Level 3: Independent and objective assurance
Uncertainty in costs assumptions may lead to budget over spend.	<b>Detailed Business Case</b> <ul style="list-style-type: none"> <li>Peer review of the business case costs and assumptions.</li> <li>Contingency sum structures put in place to reduce impact of uncertainties.</li> <li>Financial modelling of different scenarios, sensitivity analysis of uncertainties.</li> <li>Listing of all assumptions so that decision-makers have all available information.</li> </ul>	<b>Detailed Business Case</b> Detailed financial modelling list all assumptions and sensitivity analysis.		NZTA/MBIE review Peer review of costs/assumptions HIF panel review
	<b>Project Management</b> <ul style="list-style-type: none"> <li>Design gates to review designs to ensure that they are not over-engineered.</li> <li>Project Reporting of budget vs actual.</li> <li>Reforecasting project costs.</li> <li>Project critical path analysis.</li> </ul>	<b>Project Management</b> <ul style="list-style-type: none"> <li>Stage gate approvals.</li> <li>Budget vs Actual monitoring by management.</li> </ul>	PCG project financial reporting. Review of Project status including financials by Finance department, Council Committees and Council as part of normal Council reporting structure.	Audit NZ financial audit
	<b>Procurement</b> <ul style="list-style-type: none"> <li>Engineer estimates / project budgets used to ensure that prices received represent good value for money.</li> <li>Use of contingency sums to reduce uncertainty when pricing assumptions.</li> </ul>			Peer review of costs/assumptions where appropriate.
	<b>Contract management</b> <ul style="list-style-type: none"> <li>Managing contracts on a no surprises basis.</li> <li>Financial monitoring.</li> </ul>	Engineer to contract review of contractor claim.		

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Key risk description	Key controls	Assurance		
		Level 1: Project management oversight and capability & experience	Level 2: Project governance (internal)	Level 3: Independent and objective assurance
Development Contribution revenue leakage (consent applied period end 30/6/18) results in not enough revenue to cover HIF repayments.	<b>Development Contribution Policy</b> <ul style="list-style-type: none"> <li>Accelerate review of Development Contribution policy.</li> <li>Interim development contributions.</li> </ul>	<b>Development Contribution Policy</b> Update DC policy in time for its application to the HIF.	Approval of updated DC policy in line with the appropriate Council process.	Legal review of development contribution policy/process. Peer review of development contribution policy.
HIF assumes developers will take financial responsibility to provide infrastructure to support their development and the HIF proposal.	<b>Developer Agreements</b> Developer agreements are put in place.  Other mechanisms to prevent Development Contribution leakage including targeted rates.	<b>Developer Agreements</b> Developer agreements that reflect the actual growth costs of the HIF.		
	<b>Private Developer Agreements</b> <ul style="list-style-type: none"> <li>Memorandum of Understanding with developer(s).</li> <li>Private Developer Agreement include requirement for developers to fund development infrastructure.</li> </ul>	<b>Private Developer Agreements</b> Developer agreement covers infrastructure by developers.	Approval of PDA's following appropriate Council process.	
	<b>Detailed Business Case</b> Includes assumption that developers fund infrastructure to support their development.			
	<b>Development Contribution Process</b> Consent process captures consequential infrastructure charges.			
NZTA Funding Assistance Rates alter from the assumptions made in the DEC leading to a shortfall in funding.	<b>Stakeholder Management and Communications Plan</b> <ul style="list-style-type: none"> <li>Close communication with NZTA by HIF Project team.</li> <li>FAR reporting NZTA / MBIE co-ordinated to maximise funding received.</li> </ul>	<b>Stakeholder Management and Communications Plan</b> <ul style="list-style-type: none"> <li>Regular meetings with NZTA               <ul style="list-style-type: none"> <li>Programme of meetings linked to Project decision milestones</li> </ul> </li> <li>Agreement with NZTA on FAR impacts for HIF               <ul style="list-style-type: none"> <li>FAR rates set in the HIF contract.</li> </ul> </li> </ul>	<b>Stakeholder Management and Communications Plan</b> Regular meetings with NZTA and PCG linked to key Project milestones.	

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Key risk description	Key controls	Assurance		
		Level 1: Project management oversight and capability & experience	Level 2: Project governance (internal)	Level 3: Independent and objective assurance
HCC financially exposed by Government funding agreement.	<b>Detailed Business Case</b> Financial modelling reflects actual FAR for HIF and impacts of changes in FAR. Funding Agreement Lock in FAR rate for HIF period.	<b>Detailed Business Case</b> FAR information included in DBC.		NZTA review of DBC.
	<b>Project Management</b> <ul style="list-style-type: none"> <li>Legal review of contract to ensure that HCC is not exposed to unnecessary risk.</li> <li>HCC approval of contract based upon financial delegations.</li> <li>Term of contract agreed that ensures that HCC is not exposed to additional costs (10 year term).</li> <li>Out clauses in contract that allow for flexibility if conditions change over time (e.g. growth rates).</li> </ul>	<b>Project Management</b> <ul style="list-style-type: none"> <li>Project Team negotiation subcommittee.</li> <li>Understand implications of contract terms through legal advice.</li> <li>Briefing to Project Team.</li> </ul>	Council approval of DBC and funding agreement by appropriate Delegated Authority process. Briefing to SLT, Project Team and Elected Representatives.	

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### HCC HIF Risks – Strategic

Key risk description	Key controls	Assurance		
		Level 1: Project management oversight and capability & experience	Level 2: Project governance (internal)	Level 3: Independent and objective assurance
Tainui strategic relationship + First Right of Refusal (land). Matters of Cultural significance.	<b>Stakeholder Management and Communication Plan</b> <ul style="list-style-type: none"> <li>Early engagement with iwi to get them on board.</li> <li>Ongoing Iwi liaison.</li> <li>JMA board meetings</li> <li>THAW – (engagement process with iwi)</li> </ul>	Management monitor the outcomes of the meetings with iwi.	Co-governance meetings (iwi).	

### HCC HIF Risks – Operational risks

Key risk description	Key controls	Assurance		
		Level 1: Project management oversight and capability & experience	Level 2: Project governance (internal)	Level 3: Independent and objective assurance
Other Waikato Council decisions / relationships impact on delivery.	<b>Stakeholder Management and Communications Plan</b> Liaison with adjacent councils briefing them of the HIF project.  <b>Council Planning Processes</b> Other Councils are aware of HCC plans and vice-versa through the various planning documents: <ul style="list-style-type: none"> <li>HUGS</li> <li>District Plans</li> <li>LTP</li> <li>RLTP.</li> <li>Futureproof recognises Peacocks</li> </ul>	<b>Stakeholder management and Communications plan</b> Regular meetings with other Councils		

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Key risk description	Key controls	Assurance		
		Level 1: Project management oversight and capability & experience	Level 2: Project governance (internal)	Level 3: Independent and objective assurance
No Masterplan in place in a timely manner to enable land development.	<b>Private Developer Agreements</b> Private Developer Agreements in place covering masterplans.	HIF project team actively manages masterplan requirements with developers.	PCG monitors masterplan development.	
	<b>Stakeholder Engagement</b> Engagement with developers on masterplans. MOU with developers that covers masterplans.	HIF project team actively manages masterplan requirements with developers.	PCG monitors masterplan development.	
	<b>Project Management</b> Council led master planning.		PCG monitors masterplan development.	

### *HCC HIF Risks – Compliance and regulatory*

Key risk description	Key controls	Assurance		
		Level 1: Project management oversight and capability & experience	Level 2: Project governance (internal)	Level 3: Independent and objective assurance
Environmental issues negatively affect Business case/ delivery of projects (native animals, snails, bats, cat free 'areas') by consents/permits not being granted.	<b>Stakeholder Management Plan</b> Liaison with Department of Conservation, Waikato Regional Council, NZTA, NLTF, NZ Heritage.	<b>Stakeholder Management Plan</b> Agreement/approval from respective parties.		
	<b>Project Management</b> <ul style="list-style-type: none"> <li>Upfront monitoring to establish necessary history for meeting consent / environmental requirements.</li> <li>Ongoing monitoring to meet consent / environmental requirements.</li> </ul>	<b>Project Management</b> Monitoring of conditions <ul style="list-style-type: none"> <li>Monitoring reports to Project Team and respective parties</li> </ul> Risk management: <ul style="list-style-type: none"> <li>Project risk registers maintained through the project management process by the Project Team, and to the HCC Risk Management policy.</li> </ul>	Review results of monitoring.	

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Key risk description	Key controls	Assurance		
		Level 1: Project management oversight and capability & experience	Level 2: Project governance (internal)	Level 3: Independent and objective assurance
Changes in government legislation or regulation may impact on HIF.	<b>Detailed Business Case</b> List all known environmental issues that may affect the HIF projects and potential impact and mitigation strategies.  Include discussion on wildlife permit process.			NZTA / MBIE review / approval of DBC.
	<b>Project Management</b> <ul style="list-style-type: none"> <li>Workstream to identify all legislation associated with the HIF.</li> <li>Legislative Compliance programme developed and maintained.</li> <li>Monitoring of legislative changes that impact on HIF</li> <li>Legislative timings all known and planning to meet them</li> <li>Membership of Local government professional groups</li> </ul>	<b>Project Management</b> Legislative compliance work stream: <ul style="list-style-type: none"> <li>Key Council officers responsible for their staff complying with legislation</li> <li>Self-assessment of compliance by responsible officers</li> <li>Incident reporting process</li> </ul>	<b>Project Management</b> Key Legislative Compliance breaches reported to Senior Leadership Team.	Independent legal advice if required.
	<b>Stakeholder Management Plan</b> <ul style="list-style-type: none"> <li><a href="#">Liaison with MBIE and NZTA.</a></li> <li>HIF / MBIE team brokering role on legislation changes.</li> </ul>	<b>Stakeholder Management Plan</b> Regular meetings with MBIE / NZTA	<b>Stakeholder Management Plan</b> Regular meetings with NZTA / MBIE	

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# Appendix II: HCC Risk assessment framework

The following tables provide the limits within HCC's overall risk threshold which the organisation is expected to operate within and expected responses for each level of risk.

		CONSEQUENCE				
		Minor	Moderate	Serious	Major	Catastrophic
LIKELIHOOD	Certain	H	H	VH	E	E
	Almost certain	M	H	VH	VH	E
	Likely	L	M	H	VH	VH
	Unlikely	L	M	M	H	VH
	Highly unlikely	L	L	L	M	H

This matrix is used to map the likelihood and consequence levels of a risk and provide a pictorial representation of the relativity of that risk to other risks within an Activity Group or Project, and can also be used for mapping key risks across HCC.

## Action Required Table

The following table details the required actions for each risk:

ACTION REQUIRED FOR RISK	
E	<b>Extreme Risk</b> – Immediate action required: Risk escalated as appropriate. Action plans and management responsibility specified with close scrutiny required. Only the Chief Executive and/or Council can accept this level of risk.
VH	<b>Very High Risk</b> – Senior Leadership Team attention advised. Action plans and management responsibility specified with periodic scrutiny required. The relevant GM, sponsor, risk manager and programme manager can accept this level of risk.
H	<b>High Risk</b> – Senior Leadership Team attention advised. Action plans and management responsibility specified with periodic scrutiny required. The relevant GM, sponsor, risk manager and programme manager can accept this level of risk.
M	<b>Medium Risk</b> – Management responsibility specified. Managed by specific monitoring and procedures. The relevant programme, unit manager or risk manager can accept this level of risk.
L	<b>Low Risk</b> – Manage by routine procedures. Unlikely to require specific application of resources. The relevant activity manager can accept this level of risk.



## *Appendix III: Glossary*

DBC = Detailed Business Case

Growth projects = All projects identified as growth projects in the LTP

HCC = Hamilton City Council

H&S = Health & Safety

HIF = Housing Infrastructure Fund

HUGS = Hamilton Urban Growth Strategy

IBC = Indicative Business Case

ICMP = Integrated Catchment Management Plan

LGA = Local Government Act

LTMA = Land Transport Management Act

LTP = Long Term Plan

MBIE = Ministry of Business, Innovation and Employment

NZTA = New Zealand Transport Agency

PCG = Project Control Group

PDA = Private Developer Agreement

PMO = Project Management Office

PWA = Public Works Act

RLTP = Regional Land Transport Plan

RMA = Resource Management Act

SHA = Special Housing Area

SLT = Senior Leadership Team

WRC = Waikato Regional Council

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## Appendix J

### Risk Register

**Relevance:**

Section 6: Financial Case  
Section 7: Commercial Case  
Section 8: Management Case

- Presents risk registers developed through DBC process
- This risk register provides the foundation for risk management in implementation

## HIF Bid Risk Register

			Status	Threat or Opportunity	Existing Controls								
No	Name	Description				Consequence Description	(C)	Likelihood Description	(L)	Score	Proposed Treatment Summary	Rank	
A Client Risk & Organisational Risks													
A1	HCC/NZTA relationship	A combined project client may generate different funding abilities between them causing one to require different project aspects to be accelerated or one to drop out affecting the project scope, programming or viability	E	O	None	Major	70	Unlikely	2	140	High	Continue to engage in dialogue at high levels within both MBIE and NZTA.	32
A2	Teamwork & project management	Inefficient or constrained teamwork or management implementation may lead to poor team performance causing extra project costs or missed delivery deadlines	E	T	Clear project management and team structure	Minor	10	Rare	1	10	Low	Clear governance role	67
A3	Project team, stakeholders & communication	Miscommunication between the project team and the stakeholders may result in mixed messages causing project delays	E	T	Stakeholder management plan Communications plan	Minor	10	Rare	1	10	Low	Regular fortnightly and monthly meetings. Regular on-going communications (telephone and email)	67
A4	Integration with other Hamilton City assets and projects	Timing and staging of the proposal with other parts of Hamilton City's infrastructure may result in unintended network issues needing to be addressed which would increase whole of life delivery costs and/or the viability of the project.	E	T	Masterplans for water and wastewater Transport plans Long term Plan decisions (timing and delivery)	Minor	10	Likely	5	50	Moderate	Continue to engage at both a high level and at a team level with the Waikato Expressway team and within the wider NZTA business and Hamilton Council	49
A5	Operational Scope and Budgets	The impacts of significantly advanced infrastructure may lead to operational costs not currently allowed for, which will increase the whole of scope costs	E	T	Long Term Plan decisions	Minor	10	Likely	5	50	Moderate		49
A6	Effect of Council restructuring	Water CCO potential implication – resource impact	E	T	None	Minor	10	Unlikely	3	30	Moderate	Dedicated HIF project team Manage timing – e.g. Waipa in Dec	56
A7	Managing HCC quality expectations with developers	Developers chase lower cost solutions resulting in higher whole of life costs to Hamilton City	E	T	Infrastructure technical measures Development consent conditions	Medium	40	Rare	1	40	Moderate	Private Developer Agreement HIF standalone team – otherwise absorbed by CCO	53
A8	Planned housing density	Changed assumed density (more or less houses) based on the wrong design assumption	E	T	District plan	Major	70	Quite Common	4	280	Very High	Private Developer Agreement Masterplan for growth cells stress testing during preliminary design	5
A9	Sequencing of infrastructure to support development cells	Timing – infrastructure may need to be designed and constructed before surrounding land development is planned or delivered, leading to limited access to that infrastructure or rework to reconfigure it to the actual development design.	E	T	District plan	Medium	40	Unlikely	3	120	High	Staging Master planning Private Developer Agreement	34
A10	Land availability	Lack of land and procurement strategy limits supply of land for infrastructure.	E	T	Designation for transport RMA/Public Works Act	Substantial	100	Likely	5	500	Extreme	Land Procurement Strategy and team	1
A11	Cost Estimates	Land purchase rates are increasing which would make the infrastructure more expensive to deliver, making the whole of scope more expensive and potentially unaffordable.	E	T	Peer reviews Parallel estimates	Major	70	Quite Common	4	280	Very High	Land Procurement Strategy and team Advance land \$ & engage property consultant – actively acquire or defer con	5
A12	Cost Estimates	Inaccurate/Underestimated Construction costs.	E	T	Peer reviews Parallel estimates	Substantial	100	Quite Common	4	400	Extreme		3

## HIF Bid Risk Register

No	Name	Description	Status	Threat or Opportunity	Existing Controls	Consequence		Likelihood		Score		Proposed Treatment Summary	Rank
						Description	(C)	Description	(L)				
A13	Implementation of HIF Infrastructure	Perceived lack of transparency as HCC is Requiring Authority vs regulator.	E	T	Business Case process NZTA/MBIE steering group Council processes Outsource regulatory function where Council is the applicant	Minor	10	Rare	1	10	Low		67
A14	Master plan	No Master plan in place in a timely manner to enable land development that meets Hamilton City requirements.	E	T	Engagement with substantial developers	Substantial	100	Likely	5	500	Extreme	Council led master planning Engagement with stakeholders Developer MOU Private Developer Agreements HIF Programme Plan	1
A15	Utilities Engagement	Lack of engagement with other utility organisations, power, gas, communications leading to inefficient staging.	E	T	Designation	Minor	10	Unusual	2	20	Low	Stakeholder and Communications Plan	62
A16	Private Developers Agreement	Not establishing Private Developers Agreements leads to developments that do not meet Hamilton City, MBIE or NZTA requirements.	E	T	Engagement with substantial developers	Substantial	100	Unlikely	3	300	Very High	Stakeholder and Communications Plan PDA	4
A17	Other HCC projects	HIF commitment uses resources needed of other HCC and NZTA projects, compromises other areas and projects.	E	T	None	Medium	40	Quite Common	4	160	Very High	HIF Programme Plan Establish HIF project team Stakeholder and Communications Plan	21
A18	Resourcing	Multiple elements happening together limiting available resources	E	T	None	Minor	10	Likely	5	50	Medium	HIF Programme Plan Establish HIF project team Stakeholder and Communications Plan	49
A19	Southern links	Southern links designation provisions conflict with HIF timing for delivery of: Time Outcomes Changes to design Wildlife	E	T	Work has started on implementation of designation provisions	Medium	40	Likely	5	200	Very High	HIF Programme Plan HIF Procurement Plan - Land procurement strategy & team	19
A20	Skill shortage	Internal and consultants skill shortage means delays or limits options for HIF technical decisions	E	T	Detailed business case Professional Services Panels	Medium	40	Quite Common	4	160	Very High	HIF Programme Plan procurement strategy	21
A21	Skill shortage	Contractor skills, capacity, materials may not be available at the right time and cost	E	T	Procurement strategy	Medium	40	Unlikely	3	120	High	HIF Programme Plan HIF Procurement Plan - Land procurement strategy & team	34
A22	Enabling Investigations, land, consent	Hamilton City / NZTA / MBIE fund enabling Investigations, land, consent to accelerate HIF works to encourage developers programmes	E	O	Discussions with NZTA/MBIE	Substantial	-100	Unlikely	2	-200	Very High	Stakeholder and Communications Plan Report to Council	19

## HIF Bid Risk Register

			Status	Threat or Opportunity	Existing Controls								
No	Name	Description				Consequence		Likelihood		Score	Proposed Treatment Summary	Rank	
						Description	(C)	Description	(L)				
B Consents & Designations													
B1	Designations	Land not currently designated for wastewater is now needed for wastewater Infrastructure but may meet resistance from neighbours	E	T	None	Major	70	Unusual	2	140	High	Designation Buy land	32
B2	Consents	Consenting requirements for much of the infrastructure are not yet clear, if insufficient information exists to support advanced consenting, it may mean delays while consents are gained.	E	T	Some consents exist	Medium	40	Unlikely	3	120	High	Identify sensitive environmental areas early and seek to avoid wherever possible	34
B3	Designations / building consents / regional council / outline plans, wildlife permits / Archaeology	Designations / building consents / regional council / outline plans, wildlife permits / Archaeology Impacts on the delivery of the HIF	E	T	None	Medium	40	Quite Common	4	160	Very High	Enabling plan above	21



## HIF Bid Risk Register

			Status	Threat or Opportunity	Existing Controls	Consequence		Likelihood		Score	Proposed Treatment Summary	Rank	
No	Name	Description				Description	(C)	Description	(L)				
C Drainage & Ecological													
C1	Environmental Including Offset Commitments	Significant ecological and environmental offsetting is required throughout greenfield areas but is not identified. Full understanding of the extent of mitigation is yet to be fully understood, which when quantified, could increase costs or introduce delays.	E	T	None	Minor	10	Likely	5	50	Moderate	Purchase of land	49
C2	Environmental Effects and Stormwater Quality	The impact of drainage design on the surrounding environment may have adverse effects on the catchment causing consents to be rejected or delayed, requiring redesign and additional costs	E	T	ICMPs are being developed for greenfield areas which will establish catchment objectives.	Minor	10	Quite Common	4	40	Moderate	Undertake design that provides stormwater treatment to current standards	53
C3	ICMP timing	Delayed ICMP could affect development, compromise integration, required for consents timing	E	T	Developers developing own sub catchment – see stream below Co-ordinated approach with WRC Separate sub catchment ICMP ICMP's being developed	Medium	40	Quite Common	4	160	Very High	ICMP Agree ICMP parameters with WRC Early start and delivery of ICMP process Integrate all utilities (where possible) e.g. storm water, waste water pumping stations, reserves, transport Council led master planning/collaboration with developers Consent process	21
C4	Climate change guidelines	Sea level rise	E	T	ICMP methodology based upon current standards Technical specifications	Medium	40	Unlikely	3	120	High	ICMP completed	34
C5	Land requirement	Land required for development cells – Impact on cost, location and subsequent yield for developers	E	T	Designation process Benefits reporting/realisation/modelling	Medium	40	Quite Common	4	160	Very High	Masterplan	21
C6	HIF timeframes	HIF timeframes not aligned to developing best stormwater solutions	E	T	Started one ICMP	Medium	40	Quite Common	4	160	Very High	Developer agreements Programme risk reporting structure to governance Integrated cross-activity programme management to consolidate road, development, environmental stormwater needs	21
C7	Stakeholder expectations	Enhanced stakeholder expectations (Streamcare, Doc, IWI, WRC) increase time and/or cost	E	T	Started one ICMP's Establishment of THAW group Environmental report for the designated land	Medium	40	Quite Common	4	160	Very High	Early stakeholder's engagement Stakeholders management plan Comms. Strategy Developer agreements Programme risk reporting structure to governance	21
C8	Riverbank stability	Riverbank instability for bridge has adverse environmental impact,	E	T	Geotechnical Investigations Concept design	Major	70	Unlikely	3	210	Very High	Detailed bridge design	15
C9	ICMP	Complete reliance on private developer to deliver adequate ICMP/sub for Peacocke A catchment	E	T	ICMP standard operating procedure	Major	70	Unusual	2	140	High	ICMP Early start and delivery of ICMP process Developer agreements	32
C10	Stream environment	Mangaturutuku stream environment requires higher standard of stormwater management than anticipated	E	T	None	Medium	40	Quite Common	4	160	Very High	ICMP's	21
C11	Discharge points	Planned discharge points affecting receiving environment	E	T	None	Medium	40	Quite Common	4	160	Very High	Developer agreements Early ecological/WQ investigations ICMP	21
C12	Catchment needs	Wide-catchment needs beyond growth cell. Pre-development or post-development out of district?	E	T	Started ICMP process	Medium	40	Quite Common	4	160	Very High	MOU/Agreement with WRC/WDC/Waipia on cross boundary SW issues – who's doing what BAU Southern Links pre-designation works/maintaining	21

## HIF Bid Risk Register

No	Name	Description	Status	Threat or Opportunity	Existing Controls	Consequence		Likelihood		Score	Proposed Treatment Summary	Rank
						Description	(C)	Description	(L)			

## HIF Bid Risk Register

			Status	Threat or Opportunity	Existing Controls	Consequence		Likelihood		Score	Proposed Treatment Summary	Rank	
No	Name	Description				Description	(C)	Description	(L)				
D Environment & Social													
D1	Bat habitat	A more extensive bat habitat than previously thought may require further mitigation causing increased costs or may derail the ability to obtain consents for parts of the project	E	T	An area wide project has been undertaken (Project Echo) to assess the bats in the area. This remains a high risk as there is no current strategy on mitigation measures	Major	70	Quite Common	4	280	Very high	Refer to O1	5
D2	Environmental Interests	Environmental Interest groups may cause disagreement about environmental standards leading to the need for increased mitigation, or more complicated consenting steps	E	T	Extensive consultation undertaken in the scheme phase will help minimise this. The feedback through consultation suggests there will be little environmental interest/opposition coming through	Minor	10	Unusual	2	20	Low	Accepting that environmental offsets may be required and minimise disagreements between parties through consultation	62
D3	Structures & environment requirements	Extra environmental requirements/urban design around structures may require larger or more sophisticated structures causing an increase in cost	E	T	Structures have been designed with current knowledge of environmental requirements	Major	70	Quite Common	4	280	Very high	Accept that structures may need to be designed to minimise environmental effects Procurement strategy	5
E Economics, Estimates & Costs													
E1	Cost Estimates	Evolving knowledge of the project scope escalation or inflation may lead to mis-estimated costs impacting the project viability or requiring scope reduction	E	T	The project scope has been better refined and is no longer evolving. Parallel estimate has been completed.	Medium	40	Quite Common	4	160	Very high	Manage HIF contingency across whole of scope	21
E2	Project benefits	Omission of unquantifiable project benefits or imperceptible immediate benefits may result in a low BCR causing reduced justification for the project or an uneconomic project.	E	T	Evaluation of benefits has been undertaken as part of the scheme phase. Wider Economic Benefits have also been considered.	Minor	10	Unusual	2	20	Low	Economic analysis has been externally peer reviewed.	62
E3	Staged construction	Staging of funding or construction may lead to complexity in cost estimates and route function causing changes in economic viability or costly interim works	E	T	The Scheme Assessment has considered some possibilities of staging and funding. It is recognised that the assumptions may not be applicable down the track	Medium	40	Unlikely	3	120	High		34
F Geotechnical, Structures & Pavements													
F1	Poor ground conditions	Poor ground conditions may lead to more expensive Infrastructure construction costs.	E	T	Designation - preliminary geotechnical undertaken	Major	70	Quite Common	4	280	Very high		5
F2	River bank stability	Riverbank instability for bridge leads to extra design and construction costs	E	T	Geotechnical Investigations Concept design	Major	70	Unlikely	3	210	Very high	Detailed bridge design	15
G Cultural													
G1	Historic and IwI sites around bridge sites	High historic and IwI presence around bridge sites may lead to complications causing increased mitigation costs and requiring more consultation / time	E	T	On-going discussions with IwI indicate pragmatic decisions are acceptable	Medium	40	Unlikely	3	120	High		34
G2	Unknown / Unrecorded Pre-European Archaeology Sites	The discovery of unknown or unrecorded sites in the study area may lead to programme delays from redesign, additional investigation or consultation, and an increase in costs	E	T	None	Medium	40	Unusual	2	80	High	Archaeological desktop review of the area has been completed. Appropriate conditions on designation. Arch survey to be undertaken Tanga Whenua agreement	41
H Landscape / Urban Design / Visual													

## HIF Bid Risk Register

			Status	Threat or Opportunity	Existing Controls	Consequence		Likelihood		Score	Proposed Treatment Summary	Rank
No	Name	Description				Description	(C)	Description	(L)			
I Property and Land Issues												
I1	Land Purchase	Not all of the necessary land is controlled to deliver the Infrastructure Included In the HIF bid. The PWA may be required to be used to secure the required land which adds costs and significant delays to the whole of scope costs.	E	T	Extensive consultation that has occurred with property owners during scheme phase will minimise this risk	Major	70	Quite Common	4	280	Very high	5
I2	Right of First Refusal	Significant amounts of the land required in HIF is subject to FRR which has does not currently have a path to certainty of outcome, which could lead to significant delays, or even being unable to achieve the objectives.	E	T	None	Major	70	Quite Common	4	280	Very high	5
I3	Property not owned by developer	Some land owners are not seeking to develop. Requiring the cooperation in terms of land purchase and access to construct Infrastructure can be expensive and introduce delays while tools such as the PWA are used.	E	T	None	Medium	40	Rare	1	40	Moderate	53
J Stakeholder Engagement & Consultation												
J1	Services	The project requires consideration of services to the Southern Links area. There are risks in terms of the relationship with service providers (HCC, Transpower, gas, telecom etc.), their ability to provide information and future networks required to service the area to the project in general. This may cause a delay to the project or lead to under or mis estimation of costs	E	T	Management structure includes major utilities as stakeholders Consent mapping	Medium	40	Unusual	2	80	High	41
J2	Consultation	Consultation requirements under the RMA for various necessary processes could result in significant objection which would lead to delays or increased mitigation costs.	E	T	None	Medium	40	Unusual	2	80	High	41
K Design												
K1	Existing assets	The assumed design integration with existing assets may end up being less suitable than anticipated which would result in unintended works being required, which would result in increase costs to deliver the whole of scope.	E	T	Master plans (E), stormwater mgmt plan (reqd), 30 year infrastructure plan	Minor	10	Unusual	2	20	Low	62
K2	Preliminary and Scheme design appropriateness	Advancing a significant physical works programme based on preliminary scheme designs could result in significant costs increases as detailed design is progressed and actual design constraints become known.	E	T	Procurement selection Business case Independent peer reviews (technical) for Input Into business case	Major	70	Rare	1	70	High	47

[illegible]



## HIF Bid Risk Register

No	Name	Description	Status	Threat or Opportunity	Existing Controls	Consequence		Likelihood		Score	Proposed Treatment Summary	Rank
						Description	(C)	Description	(L)			
O Transport												
O1	BATS vs Roads	DoC Engagement breaks down leading to delays or failure obtain wildlife permits.	E	T	None	Major	70	Unlikely	3	210	Very High Seeking Government support for positive HCC / DoC relationship Early outline plan Access Consent Investigation / research Upfront monitoring Early engagement with DoC	15
O2	Bridge	Bridge – river design leads to significant change in costs or delays: o Timing and delay o Politics o Community Bridge structural form – demand for aesthetics Bridge – political – stakeholders expectations – DoC – community – Iwi - consideration of their requests will Impact on delivery	E	T	Draft Procurement strategy	Major	70	Unlikely	3	210	Very High Procurement Strategy Iwi and DoC engagement Communication Plan Council commitment to process	15
O3	Designation	Value engineering may adversely / potentially impact on the designation	E	T	None	Medium	40	Unusual	2	80	High Early outline plan Access Consent Investigation / research	41
O4	NZTA programme	Enhanced risk of access to resources if NZTA advance their programme	E	T	Draft Procurement Strategy NZTA Liaison	Major	70	Rare	1	70	High Procurement Strategy refinement with contractors	47
O5	Public transport	Not identifying sufficient land for public transport (not main PT corridor)	E	T	None	Medium	40	Unusual	2	80	High Meaningful engagement with Councillors and Regional Council Regional Public Transport Plan Early outline plan, Access, Consent, Investigation/research Buy land	41
O6	Bridge and roads construction	Management of construction effects of bridge & roads Transport network performance during construction degrades Impact on existing network due to construction	E	T	None	Medium	40	Unlikely	3	120	High Early outline plan, Access, Consent, Investigation/research Build Cobham Interchange and Bader Buy land Sediment in stormwater Noise Communication Plan	34
O7	Designation	Wider designation requirement conflict with HIF	E	T	None	Medium	40	Unusual	2	80	High Develop Action Plan from gaps in mapping Mapping the consent requirements Early Outline Plan Access Consent Investigation/research	41

## HIF Bid Risk Register

No	Name	Description	Status	Threat or Opportunity	Existing Controls	Consequence		Likelihood		Score	Proposed Treatment Summary	Rank	
						Description	(C)	Description	(L)				
P Wastewater													
P1	Construction timetable	River crossing does not match timing solution for road	E	T	None	Medium	40	Likely	5	200	Very High	Establish dedicated project team Peer review solution Co-ordinating infrastructure location with others utilities e.g. roads, reserves. Alternative interim solution + staged delivery e.g. river xing, Cambridge options Refine route + staging in pre-implementation Primary waste water service across river – Interim solution required Adare expectation – integration with HIF – partnership arrangement Coordinate option decisions - balanced expertise in PM, steering team (Cambridge option)	19
P2	Walpa treatment	Alignment with Walpa treatment solution heads to change to wastewater design.	E	T	Reviewed proposal against sub-regional wastewater mgt solutions	Minor	10	Rare	1	10	Low		67
P3	Treatment standards, systems, return period	Changes in treatment standards, systems, return period leads to redesign or rework, increasing cost and delivery time.	E	T	None	Minor	10	Unlikely	3	30	Moderate	Stress testing solution. Providing future upgrade	56
P4	Development timing	Timing of delivery of infrastructure delays housing timing.	E	T	None	Major	70	Quite Common	4	280	Very High	Private Developer Agreement Stress testing solution. Providing future upgrade	5
P5	Development timing	Development starts ahead of HIF.	E	T	None	Major	70	Quite Common	4	280	Very High	Private Developer Agreement Developer engagement	5
P6	Design Conflict	Developer solution is inconsistent with HIF wastewater scheme design	E	T	None	Major	70	Quite Common	4	280	Very High	Private Developer Agreement Developer engagement	5
P7	Designation	Designation for Waste Water Challenges Environment CT	E	T	None	Minor	10	Unusual	2	20	Low	Coordinate option decisions Detailed design + investment Buyland Land ownership or availability Stress testing solution. Providing future upgrade	62

SUMMARY	3	Very High
	30	High
	18	Moderate
	18	Low
	9	Negligible
	0	
	73	

## Appendix K

### Peacocke Growth Cell Acquisition Strategy

**Relevance:**

Section 7: Commercial Case  
Section 8: Management Case

- Property strategy for land required for infrastructure.



**REPORT TO:**

Hamilton City Council

*Peacocke Growth Cell Acquisition Strategy*

October 2017

Prepared by: Chris Farrell  
General Manager Waikato/Bay of Plenty Region

Reviewed by: Kevin O'Brien  
Manager Special Projects

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Appendix 1 - Compulsory Acquisition Timeline



## EXECUTIVE SUMMARY

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Hamilton City Council (Council) submitted a proposal to the Minister of Business, Innovation and Employment (MBIE) for access to the New Zealand Government's Housing Infrastructure Fund (HIF) to advance the development of strategic infrastructure necessary to develop two growth cells within Hamilton City.

In July 2017, the Government announced that Council had been invited to present a detailed business case in relation to the Peacocke Growth Cell (the Project) that considers the economic, commercial and financial effects of developing the Project.

The proposal will include Council building a new bridge over the Waikato River and strategic infrastructure such as new roads and services required to support the development of in excess of 8000 houses over a 30 year period.

We are advised that the detailed business case is to be submitted to MBIE later this year, and provided approval is received, funding for property purchase, design and construction will be available from 1 July 2018.

We understand Council's initial priority is to secure all of the land from the proposed road that runs east to west from the Dixon Road/State Highway 3 intersection through to Peacocks Road, north to the Cobham Drive/Wairere Drive intersection (stage one).

We are advised that some private interests have been purchased in advance in terms of Council's Property Acquisition and Management Engagement Practice (PAMEP) process, with the remaining land interests within stage required within 12 months of funding being secured, or circa mid-2019.

There is a particular emphasis on urgently securing access to the land on either side of the Waikato River between Cobham Drive and Peacockes Road to accommodate the proposed new bridge and the land earmarked for the proposed pump station, which will be severed on the acquisition of the required land from the owner.

Council has engaged The Property Group Limited (TPG) to provide a **brief** Property Acquisition Strategy for the timely delivery of the property component prior to the commencement of construction. More specifically, we have been asked to comment on the following matters;

1. Process
2. Timing
3. Betterment
4. Statutory Impediments (Crown Land)
5. Resourcing
6. Other Areas of Risk.

In total approximately 25 properties are required for stage one of the project comprising a mix of predominantly small to medium sized rural holdings and lifestyle blocks.

The acquisition strategy proposed in this report caters for all required properties within stage one to be acquired by mid-2019 and will require implementation of an aggressive approach to ensure this timeframe can be achieved.

This report should be read in conjunction with TPG's report to Council dated June 2012.

## 1. PROCESS

---

From a property acquisition perspective, this is a medium scale project with inflexible linear land requirements, has a short lead-in time to construction, a strong relative level of certainty, contains some reasonably complex properties and is subject to some public and political pressures.

Given these attributes, our view is that the Project is well suited to an acquisition programme incorporating the Public Works Act 1981 (PWA) and its compulsory acquisition provisions.

We are acutely aware that Councils are often reluctant to invoke the compulsory process as it can be perceived as being a “blunt instrument” and not particularly politically correct given that it involves dispossessing individuals of their land, which in some cases may hold significant emotional value or affect their livelihoods. The use of compulsory acquisition should not be considered just a negotiating tactic but more a reluctant but necessary step to ensure that the Project successfully proceeds from inception through to completion.

Our recommended acquisition method is therefore based around good faith negotiations, commencing as soon as possible right through to construction, but running alongside a comprehensive compulsory acquisition programme.

The benefit of running a dual approach is that where negotiations go well with co-operative owners they can be signed up relatively quickly, on the other hand where dealings become difficult or owners do not wish to engage, the time to secure the land in time for a project can be minimised. The process often serves to focus the owner on the task at hand and confirms certainty of timing about a project, where in this case, previously owners had been lead to believe construction of Peacocks was many years away.

We do not believe other methods, such as commercial negotiation, will be successful in delivering the Project's property requirements. It would be almost impossible to secure 100% of the properties by negotiation within a reasonable time and cost threshold without adding additional and unwanted risk to the Project. Landowners in this area, especially given the nature of properties, may seek to maximise compensation and leverage off Council's absolute requirement for the land within a reasonably short timeframe.

Timeframes need to be considered carefully to factor in relocations and measures to ensure the continuance of the affected landowner operations.

In recommending this strategy we have considered the unique characteristics of the Project, the availability of funding, the timing for construction, the status of the designation and applied TPG learnings from past projects of a similar scale and nature.

### **The key reasons for this methodology are detailed below:**

- It provides the highest level of certainty that the Project's significant land requirements will be acquired within a reasonable time and cost threshold
- Council has access to the PWA powers for such purposes and is required to act in a fiscally responsible manner

- The property requirements are linear and inflexible so are vulnerable if alternative methodologies are used
- Given the number of properties to be purchased and the associated complexity, it is unlikely that all interests would be able to be acquired by negotiation without recourse to the PWA
- It provides maximum motivation for property owners to enter negotiations
- Compulsory acquisition 'runs with the land' so will not be disrupted like standard negotiations should a property transfer/transmit to new owner mid-way through negotiations
- It gives property owners time to negotiate a fair and reasonable agreement
- It treats owners in a consistent and uniform fashion.

#### **1.1 Mitigation Strategy**

1. Engage experts to undertake this process who have experience with similar scale projects.
2. Engagement with landowners in terms of the PAMEP and Council's Pre-Construction Consultation and Communication Plan.

## 2. TIMING

---

### 2.1 Property Purchase

Given the complexity of some of the properties required and the possibility that interests may need to be relocated or reconfigured, we recommended that Council proactively commences negotiations with **all property owners as soon as possible**. The relocation process can be extremely time-consuming and stressful, especially if there is a lack of cooperation from owners or a shortage of reasonably comparable properties available on the open market for rent or sale.

A typical example of a Crown purchase using the provisions of the PWA is detailed further on the Gantt Chart attached at **Appendix 1**.

The estimated timeframe to complete a compulsory acquisition is around 12 months provided there are no objections to the Environment Court. If the owners object, the process could take up to 2-3 years to complete, allowing for various rights of appeal.

It is important to consider that objections cannot relate to disagreements over compensation.

We understand that there is an urgent need to secure the properties required for the pumping station and footings for the new bridge, so resources, focus and funding should be directed to purchasing these properties now in anticipation provided there is sufficient comfort that the Project will be funded.

We are aware that the land required for the pumping station has not yet been designated, which presents some risk to the Project in the event the owners have a strong desire to retain it. Presumably Council is going through a process of designating the land to ensure the prospect of objection by the owner to the compulsory acquisition process is minimised.

Further support to the purchase is available provided the cost to provide access to the severance exceeds the value of the land (*Kett v Attorney General*), which is possible as we understand direct road access to the severance will not be available following construction.

#### 2.1.1 Mitigation Strategy

1. The required land is designated so the grounds for appeal to the compulsory purchase process are limited
2. If an objection is received and of a spurious nature with no prospect of success (eg a negotiating tactic), make it clear that Council will seek a costs award from the Environment Court to recover costs
4. If an objection appears valid or has a prospect of proceeding to a hearing, focus resources into resolving the matter or come to some acceptable compromise
5. Request urgent Environment Court hearings
6. Commence the compulsory acquisition process as soon as possible, preferably no later than January 2018



7. Designate the proposed pump station site
8. Initiate purchase of the pump station site and properties required for the footings of the bridge now.

## 2.2 Funding

We are concerned that Council's timeframe for completing property purchase is not entirely aligned with the availability of funding. As set out above, a **minimum** lead in time of 18 months is desirable for a project of this size and scale, so there remains a significant risk that property funding will not be available for settlements that occur within the first 6 months of the property acquisition process.

There may also be instances where owners request that Council purchase the balance of their properties where they "become significantly more costly to retain or less useful to that person" as provided for by section 34 PWA. In those cases, Council may be obliged to purchase more land than was originally budgeted for so there is merit in developing a proactive disposal program where property purchase is unanticipated and where disposal can readily and quickly be achieved.

### 2.2.1 Mitigation Strategy

1. Delay the settlement of any agreements reached with owners in the first 6 months until after 1 July 2018
2. Consider whether funding can be brought forward for strategic purchases, smaller settlements or where owners are unwilling to delay settlement
3. Ensure that Council has sufficient funding available to accommodate purchases outside of the designation where an owner reasonably requests it
4. Proactively dispose of land not required for the Project where it is prudent to do so and can easily be achieved.

### **3. BETTERMENT AND IMPACT OF WORKS ON LEVEL OF COMPENSATION PAYABLE**

Betterment arises when the Council has formed a new road or widened a road and applies where land is taken or purchased from an owner for the new road (or road widening) and the balance of the owner's land has access to the new road.

Where the value of the balance of the owner's land has increased by virtue of having access to the Project, the increase in the value of the balance of their can be charged against the owner as betterment. The value of the owner's land lost to the new road must also be taken into account.

The betterment is the increase in land value over and above any compensation payable for loss of land and injurious affection. Care must be taken in the assessment of compensation under the PWA for the acquisition of the land required for road, if it is intended that betterment under the LGA is to be charged once the road is formed.

We are aware from a current project Council is purchasing land for, that owners often are reluctant to accept that they may be liable for a payment to Council where they are being dispossessed of land due to the construction of a public work. This can be perceived as being unfair where owners of adjacent land not affected by the work are deriving significant benefit due to the presence of the work without being liable for the payment of betterment on the basis that there is no land requirement.

We understand prior property estimates were prepared on the basis that construction of the Southern Links project was still a number of years away. In the event construction of the Peacockes Growth Cell is to be advanced, we expect that there will be significant betterment to the balance of some affected owners properties, and in that case some of the initial estimates will be inaccurate.

For this reason we recommend Council obtains advice from a suitably qualified legal practitioner to provide direction on the assessment of betterment, and then for Council to establish a position on whether it is prepared to charge landowners betterment as part of the compensation negotiations.

On receipt of advice and following the Council decision it will be important to update property compensation estimates for the Project.

#### **3.1 Mitigation Strategy**

1. Obtain legal advice from a planning/property legal practitioner to provide a basis for instructing valuers
2. Ensure Council has a firm position as to whether it proposes to claim betterment from owners for the Project under the LGA
3. Update the property compensation estimates
4. Consult with owners early to ensure their expectations are aligned and to reconfirm the benefits of the Project on the value of the balance of their properties.

#### **4. STATUTORY IMPEDIMENTS FOR LAND BY THE CROWN**

---

We are aware that there are a number of areas of land located on either side of Cobham Drive that are Crown derived reserve held in trust by Council in terms of section 28 of the Reserve Act 1977 (RA). The reserves were vested in Council “for the better carrying out of the purposes of any reserve” so any use that is inconsistent with this purpose could result in cancellation of the appointment resulting in the freehold interest reverting to the Department of Conservation.

To add to the complexity, the land is residual Crown land and is therefore subject to the right of first refusal provisions of section 11 of the Waikato Raupatu Claims Settlement Act 1995 (WRCSA).

Council has received advice from both TPG and its corporate legal counsel on this matter previously and there is no need to repeat this advice, other than to highlight the complex manner in which the land is held and the challenges that Council face navigating arrangements with both DOC and Waikato-Tainui.

We are also aware that there is a difference of opinion on the status, and therefore ownership, of the section of legal road that extends from Peacockes Lane in a north-westerly direction towards the Waikato River. While we do not expect that there will be a financial consequence for Council in the event it is found to be Crown owned, there is a risk that Waikato-Tainui could view its use for local road as being a breach of its rights under the WRCSA.

Again, the parties are taking external advice on this matter but we record it as a possible impediment in the event it is established that a right of first refusal to Waikato-Tainui prevails.

## **5. OTHER AREAS OF RISK**

---

### **5.1 Negative Exposure and Media Risk**

The compulsory acquisition process can be seen as heavy handed particularly by those owners directly affected by the Project and where land acquisition can involve the acquisition of their private property. The compensation provisions are also limited to 'fair' compensation which means they are unable to profit from a project, as would be the case if a private developer required their property for a large scale project.

While there are arguments either way, media attention tends to favour the individual owner and can make for emotive reading. As compulsory acquisition has become more common we have noticed a reduction in this type of media, but they do still appear from time to time.

#### **5.1.1 Mitigation Strategy**

1. It is important that Council is well prepared for these events and has robust communication plans and protocols in place to deal with any enquiries and fallout. As per usual protocol all media enquiries should be dealt with by single point of contact, generally the Project's communications or public relations manager.
2. The acquisition process to be followed should also be communicated with owners at an early stage so that there is a clear document trail and there can be no legitimate claims of surprise or lack of transparency.
3. The Project team should work on a "no surprises" basis so that the prospect of any such incident is known and can be planned for at the earliest stage where possible.

### **5.2 Rogue Professional Advisors**

Under the PWA a landowner is entitled to receive professional advice and the requiring authority is required to reimburse these costs if they are reasonable. While this process generally works satisfactorily by ensuring owners are informed and treated in a fair and reasonable manner, a number of consultants, lawyers and valuers operate in what could be best described as 'grey areas'. These advisors have developed businesses to advocate on behalf of owners with a view to inflating compensation and in some cases accumulating large fees.

This can have the effect of unfairly raising owner's compensation expectations, which when undelivered cause relationship difficulties between the project and the owners.

#### **5.2.1 Mitigation Strategy**

1. Obtain legal advice from an influential and experienced legal practitioner in advance of instructing valuers to provide guidance on how betterment should be considered

2. Compulsory acquisition should be used to protect project timelines and ensure delay tactics cannot be used to leverage compensation. An all-encompassing approach should be used where all owners are served PWA notices to avoid situations where such advisors are engaged mid process and disrupts existing good faith negotiations
3. Early consultation with owners to ensure Council's expectations around use of landowner advocates by owners is clear
4. Ensure that all suppliers used by Council are experienced and are held in high regard within the industry in which they operate
5. Where the valuation is likely to be complex, suggest that the valuers meet in advance and agree on base data. In some cases it may be possible to align methodology
6. Where a significant variance is present the valuers should meet to discuss their assessments, test assumptions and where possible find common ground.

## 6. RESOURCING

---

TPG is well known to Council and is the NZ Transport Agency's largest provider of property acquisition services not only within the Waikato and Bay of Plenty, but across New Zealand. We have a team of 20 experienced staff located within our region, 13 of whom are located within our Hamilton office.

If successful, TPG proposes that Chris Farrell leads the acquisition process on behalf of Council supported by members of the Hamilton team. Chris is based in TPG's Hamilton Office and is responsible for the day to day management of the Waikato and Bay of Plenty region.

He has provided acquisition services to both Council and the Transport Agency for over 20 years and has worked on a number of significant projects including most sections of the Waikato Expressway, the Te Rapa Bypass, Resolution Drive and the purchase of land for a number of properties for Borman Road from the Resolution Drive round-a-bout to Gordonton Road.

We are able to provide a separate proposal setting out TPG is able to assist with the property purchase component of the Project if required.

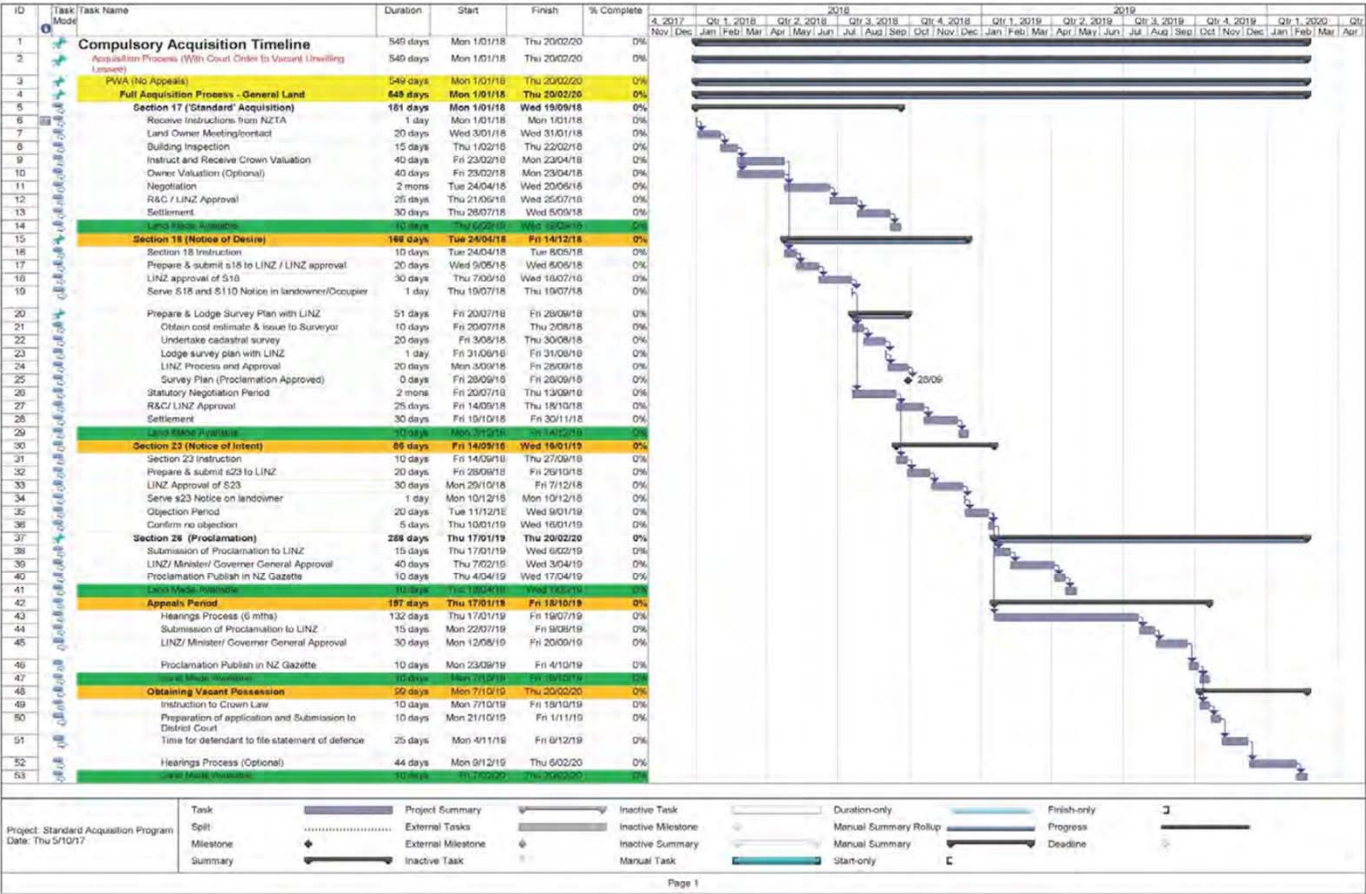
Yours sincerely



**CHRIS FARRELL**  
General Manager Waikato/  
Bay of Plenty Region



Appendix 1 - Typical Acquisition Timeline



## Appendix L

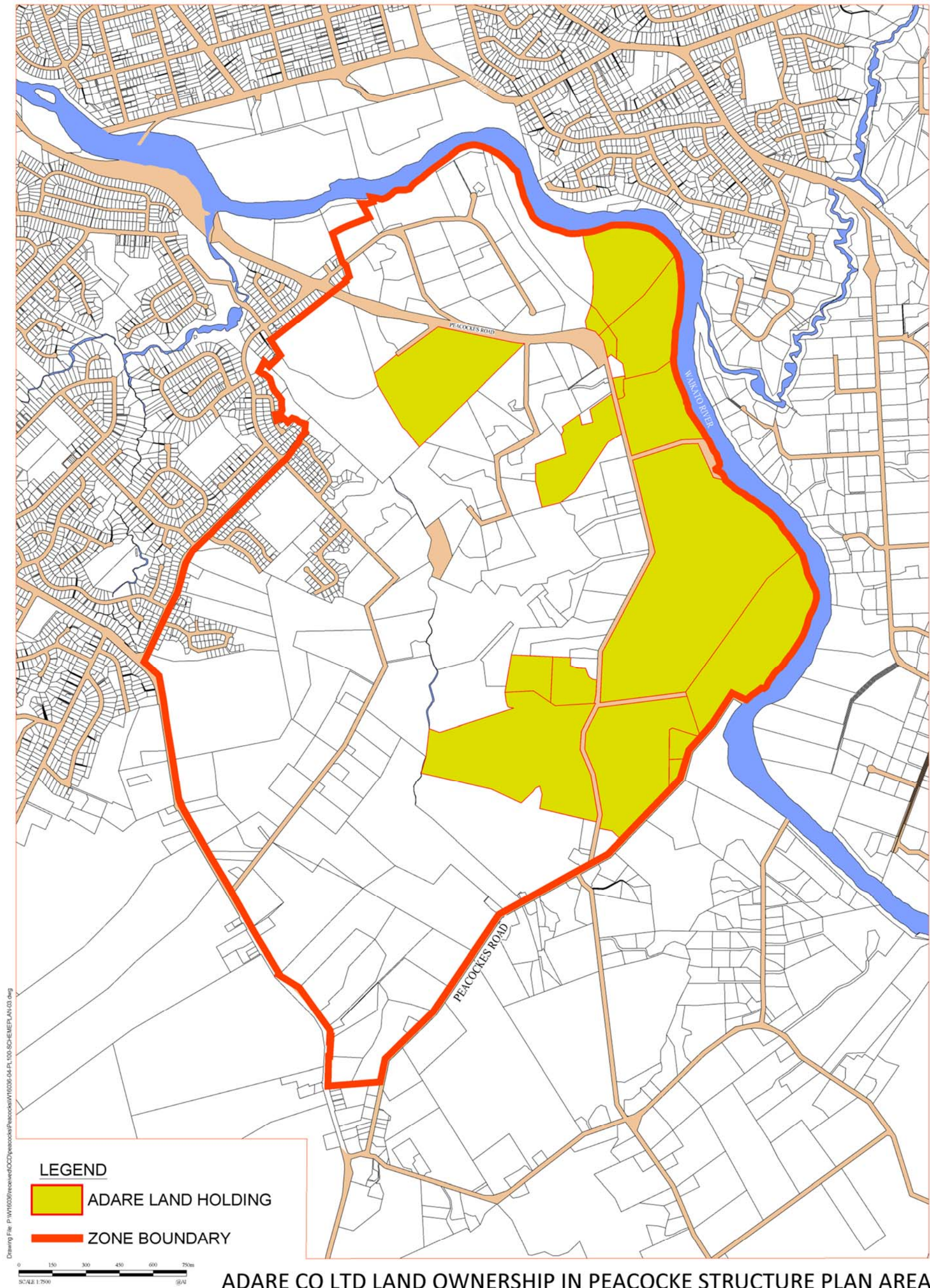
### Adare Land Holding Map

**Relevance:**

Section 7: Commercial Case

- Shows extensive area under single control with active developer.
- This supports reasoning for selection of gateway infrastructure and subsequent development sequencing





ADARE CO LTD LAND OWNERSHIP IN PEACOCKE STRUCTURE PLAN AREA

FIGURE 1  
ISSUE 1





## Appendix M

### Procurement Strategy

**Relevance:**

Section 7: Commercial Case  
Section 8: Management Case

- Assessment of market, development of sequencing and packaging of projects
- Selection of procurement models and development of management structure
- Start of action plan for implementation to inform Management Case

**Peacocke Housing Infrastructure Detailed Business Case  
Preliminary Procurement Strategy**

Hamilton City Council



ISSUE 1, 30 OCTOBER 2017



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Item 10

Attachment 4

## EXECUTIVE SUMMARY

### Project Scope and Scale

Peacocke is a residential zone 5km south of Hamilton's City Centre. The infrastructure funded by the Housing Infrastructure Fund is a \$306M (including inflation) integrated programme of works that will allow accelerated growth in the development of Peacocke. It includes gateway infrastructure comprising road and utility access across the Waikato River and the strategic Peacocke wastewater transfer pump station and rising main to Crosby Road. Other infrastructure needed to service development in the Peacocke area includes strategic arterial roads that form part of Southern Links and internal water and wastewater connections. The accelerated growth will yield 3,753 dwellings within 10 years and 8,103 dwellings within 30 years.

The project has professional services spend in the order of \$10 – 20M year in the first few years and construction spend up to \$60M/year in the early stages.

### Preferred Approach

The preferred procurement method is to have a design process and consultant separate from the construction contractor (traditional approach) because it:

- = Provides faster delivery for gateway infrastructure, unless a very early decision is made for early contractor involvement.
- = Retains quality certainty for HCC for high risk wastewater operational factors (e.g. being able to swap pumps) and aesthetics for the river bridge.
- = Provides funding certainty and demonstrable value for money through tendering.
- = Reduces the risk of tender costs and delays deterring tenderers with design build.

These outcomes outweigh the relatively small potential for significant innovation and cost savings that design build options offer. The programme's staged delivery and the package's scale not being big enough to deliver savings based on the typical \$300M threshold makes the public-private partnership model unlikely to be cost-effective. HCC will consider mixed options such as early contractor involvement in detailed investigation and design.

The preferred approach is to use:

- = Established procedures including the HCC Panel (or LASS PSP Panel) for Professional Services (including price quality tenders for major packages)
- = NZTA Procurement Policy for Physical Works (adapted as necessary to suit wastewater and water activities).
- = Private Development Agreements for physical works where there are clear advantages.

The early delivery components (Cambridge – Cobham interchange and SH3/east-west link roundabout) are already committed to traditional procurement, with design under way.

The smaller packages such as the Peacocke urban upgrade, the east-west arterial, local road upgrades and water/wastewater packages are lower risk, provide fewer opportunities for innovation, are likely to be phased to match development and can be delivered in stages. This means that the more advanced procurement models are less likely to contribute to value for money, budget certainty and are likely to limit the contractor supply market.

## 1. PURPOSE

The purpose of this procurement strategy is to:

- = document the key considerations made in the selection of delivery models for the programme of works required to construct the infrastructure proposed in Peacocke to be funded by the Housing Infrastructure Fund (HIF);
- = confirm the high level details in the approach to be taken to procurement; and,
- = set out the first actions in the pre-implementation and implementation processes.

## 2. PROJECT OVERVIEW

### 2.1. Project Summary

Peacocke is a residential zone 5km south of Hamilton's City Centre.

The infrastructure funded by the Housing Infrastructure Fund is a \$308M<sup>1</sup> (including inflation) integrated programme of works that will allow accelerated growth in the development of Peacocke. It includes gateway infrastructure comprising:

- = Road and utility access across the Waikato River
- = The strategic Peacocke transfer wastewater pump station and rising main to Crosby Road

Other infrastructure needed to service development in the Peacocke area includes strategic arterial roads that form part of Southern Links and internal water and wastewater connections.

The accelerated growth will yield 3,753 dwellings within 10 years and 8,103 dwellings within 30 years.

### 2.2. Peacocke Growth Cell – All Infrastructure

The infrastructure needed to service development in the Peacocke growth cell includes:

- = HCC strategic infrastructure (which the HIF infrastructure is part of)
- = Arterial roads, strategic water and wastewater external connections and internal networks
- = Trunk utility service connections such as for power, gas and telecom/data
- = Local and collector roads, generally incorporating utility services (gas, power, telecom/data) as well as HCC water and wastewater services

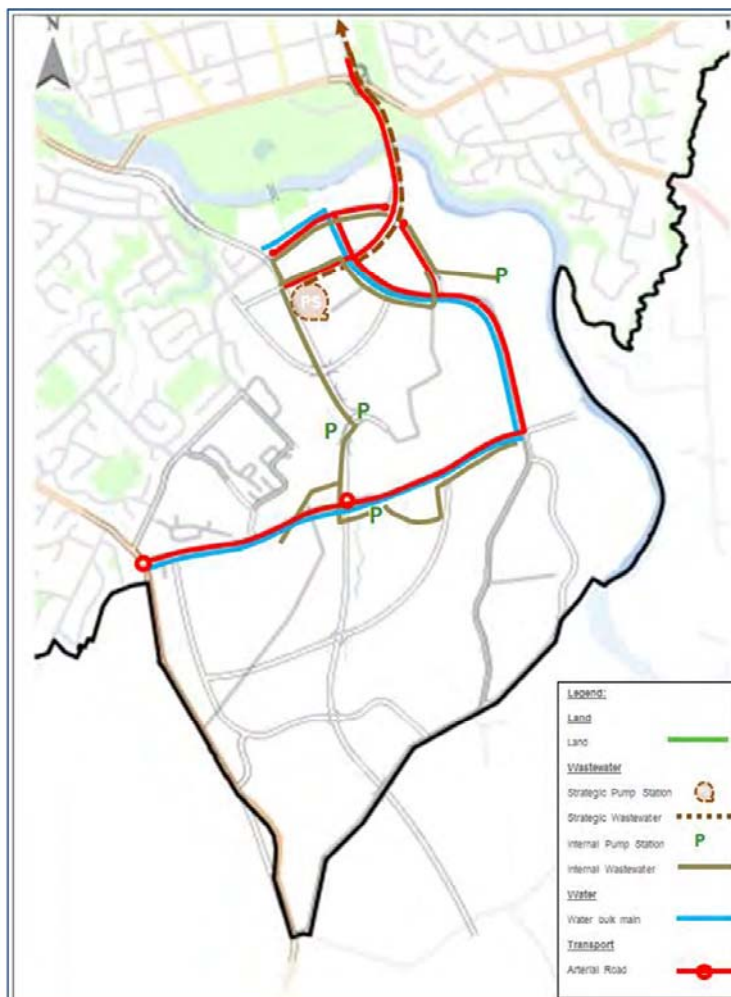
In addition, there is likely to be significant earthworks and infrastructure construction as part of subdivision development. This can provide opportunities for cost saving through savings from scale, or coordination.

Although some of the infrastructure is not part of the Housing Infrastructure Fund strategic infrastructure projects there are local infrastructure connections required to service development that will be necessary for access to development or achieve construction efficiencies if implemented at the same time. These are mainly options for the internal networks rather than the strategic external connections.

<sup>1</sup> \$271.8M in 2017 dollars, as set out in the HIF Indicative Business Case.

### 2.3. Proposed Housing Infrastructure Fund Projects

The key components of the Peacocke housing infrastructure proposal are shown in Figure 1 below and listed in Table 2.



**Figure 1: Strategic Infrastructure - Peacocke Strategic Utility and Transport Network**

STRATEGIC INFRASTRUCTURE ELEMENT	EST. (\$M, 2017)	RISK/COMPLEXITY	WITH INFLATION
Wairere Drive/Cobham Drive overbridge	\$20.0M	Medium	\$20.8M
Wairere Drive extension and Waikato River bridge	\$116.8	High	\$133.6M
Peacocke Road urban upgrade	\$9.7M	Low	\$11.4M
SH3 intersection and east-west arterial	\$36.5M	Medium	\$42.5M
Wastewater strategic storage and pressure main	\$44.2M	High	\$50.3
North-south arterial land	\$23.5	Low	\$25.3
Internal strategic wastewater network	\$15.4M	Medium	\$17.7M
Internal strategic water distribution main	\$5.7M	Low	\$6.6M
Total	\$271.8M		\$308.2M

**Table 1: Summary of Infrastructure Projects**

### 3. CONTEXT – PROCUREMENT FRAMEWORK

#### 3.1. Government Rules of Sourcing

HCC as a territorial authority are encouraged to use the rules of sourcing. However, for activities where HCC receives Financial Assistance from the National Land Transport Fund, the NZ Transport Agency policy and manual are applicable.

NZ Transport Agency as a Crown Agency is required to apply the rules of sourcing and does so through their procurement policy and manual.

#### 3.2. HCC Procurement Policy and Procedures

HCC's procurement policy and procedures (Procurement Policy and Procedures Manual, Version 3, 2012) are consistent with the Government Rules of Sourcing. These have been accepted by NZ Transport Agency as suitable for activities that qualify for financial assistance through NZ Transport Agency from the National Land Transport Fund, requiring demonstration of value for money.

HCC operates a Professional Services Panel (PSP) Framework Contract for a wide range of services including those necessary for the Peacocke housing infrastructure. A similar arrangement is available through the Waikato Local Area Shared Services (LASS) PSP Framework Contract. Council has contractual arrangements for legal services with a number of providers including Tompkins Wake and Lachlan Muldowney. Independent legal advice will be obtained throughout the project where appropriate.

For large construction projects with a transport component, procurement is generally managed to satisfy the requirements of the NZ Transport Agency Procurement Manual.

HCC's policy on delegations includes financial delegations applicable to contracts (up to \$3M) and purchase/sale of land (\$3M). Implementation may require special delegations to facilitate delivery to programme. HCC has completed a governance and assurance review including risk management to cover the Peacocke housing infrastructure projects.

An independent probity auditor will be appointed to oversee the project, and to provide an independent sign off that the correct processes and procedures have been followed. This probity assurance is designed to assist the Council to ensure the procurement process is conducted in accordance with good procurement practice and that the issue of probity is appropriately addressed to ensure the integrity and consistency of the project so that no parties are unfairly treated.

The Probity Auditor will provide independent, high-level opinion and advice to Council on the probity of the project, the management of probity and conflicts of interest, audit the procurement processes, and report to Council and its stakeholders regarding the compliance of these processes with the Government's Principles and Rules of Sourcing and best practice regarding probity.

#### 3.3. NZTA Procurement Policy and Manual

Consistency with the NZ Transport Agency Procurement Manual is desirable for activities funded through the National Land Transport Programme. It contains procurement procedures approved by the NZ Transport Agency for use by approved organisations when purchasing infrastructure, planning and advice, and public transport services.

This includes guidance on procurement method selection (See section 5 below)



#### 3.4. Private Development Agreements

In some circumstances, such as road earthworks during subdivision earthworks, etc. HCC can achieve substantial savings by coordinating works with developers as part of private developer agreements or other contract arrangements.

These will be considered for works other than the gateway infrastructure required for access (bridge, pump station and rising main to Crosby).

#### 3.5. Preferred Approach

The preferred approach is to use the established procedures as follows:

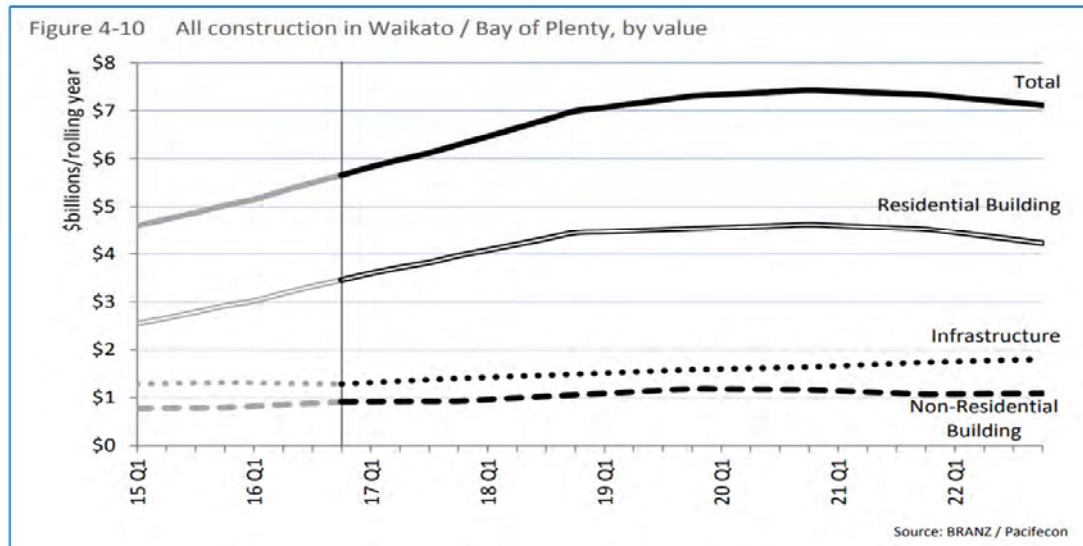
- = HCC Panel (or LASS PSP Panel) for Professional Services
- = HCC Procurement Policy and Procedures for Physical Works (adapted as necessary to suit wastewater and water activities).
- = Private Development Agreements for physical works where there are clear advantages.



#### 4. CONTEXT – EXPECTED CONSTRUCTION INDUSTRY MARKET CONDITIONS

##### 4.1. Waikato/BOP Construction Projections

The MBIE Construction Pipeline Report 2017 (See Figure 2 below) states that the Waikato/BOP infrastructure activity is expected to grow steadily year on year totalling 40% growth from 2016 to 2022.



**Figure 2: Projected construction value – Waikato BOP (MBIE)**

The market in which the projects are likely to be procured and delivered is therefore likely to remain one where the construction industry resources are stretched for professional services and construction. This constraint on supply means that there is a risk of costs increasing and direct price competition being less likely to provide value for money.

##### 4.2. Major projects affecting market context

By the time Peacocke housing infrastructure construction starts, the current major infrastructure projects affecting the Waikato should be complete. These include:

- = Waikato Expressway – Huntly (\$400M), Rangiriri (\$125M), Hamilton (\$650M)
- = Ruakura Inland Port – likely to continue (\$3B over 50 years)
- = Hamilton western wastewater interceptor (\$9M)

Planned infrastructure projects that may affect market conditions and resourcing include:

- = Waikato Expressway – Cambridge to Piarere (\$400M)
- = Hamilton Southern Links State Highway Sections (\$400M) – Significant consideration for joint delivery

As well as the major infrastructure projects, developments that may affect implementation include:

- = Waikeria Prison expansion (\$570M)
- = Horotiu Inland Port (\$Value not known)

## 5. PROCUREMENT OBJECTIVES

HCC has selected the following procurement objectives and evaluation criteria to guide the selection of delivery models.

OBJECTIVE	EVALUATION CRITERIA
1. Complexity and uncertainty	The level of complexity relates to structural and technical complexity: Structural: the number of varied components and the interdependence. Technical: the extent to which untested or new technical issues need to be addressed in delivering the activity. Uncertainty is present when it is impossible to exactly describe the existing state or future outcome, or assess the probability of a future outcome occurring.
2. Scale	Will contract size have an impact on the type of supplier or groups of suppliers sought to deliver the activity?
3. Design control	The extent to which the procurement option provides certainty in the output to allow for consistency across engagements/projects and HCC to achieve the urban design, amenity and aesthetic outcomes it seeks.
4. Flexibility to change scope	The extent to which the procurement option offers flexibility for cost-effective scope change during the process.
5. Opportunity for innovation	The extent to which the procurement option maximises the opportunity for design, construction and financing innovation.
6. Value for money to Hamilton City Council	The extent to which the procurement option offers value for money to HCC, considering: market tension/competitive tendering whole of life costs minimising project development and tendering costs for both HCC and Contractors
7. Budget certainty	The extent to which the procurement option reduces the risk of cost over-runs during both the design and construction phases.
8. Supplier market: Contractor/Consultant availability and interest	The extent to which the procurement option will attract a high level of market interest during both the design and construction phases. The following should be taken into account: project size versus market capacity success of the procurement model for other projects in the region. Minimising the risk that high tendering costs could potentially be unrecoverable.
9. Timing and urgency/delivery	Does the expected timeframe for project delivery meet HCC requirements?
10. Effective risk management	The extent to which the procurement option reduces risks and allocates risk to the party best able to manage them. The extent to which the procurement model reduces HCC's risk profile.
11. Performance/quality/durability	The extent to which the procurement option increases the probability of a high quality/durable product with high "whole of life" performance. interest during both the design and construction phases. The following should be taken into account: = success of the procurement model for other projects in the region. = Have quality projects been delivered or has the procurement model led to perceived loss of quality?

**Table 2: Procurement Objectives**



## 6. INFRASTRUCTURE NEEDED FOR DEVELOPMENT IN PEACOCKE

### 6.1. Scope

The HIF funding is applied to only a part of the investment required to develop in Peacocke. Figures 2- 4 show the proposed infrastructure separately for wastewater, water and transport, with HIF funded components highlighted. These show all projects for which HCC is responsible.

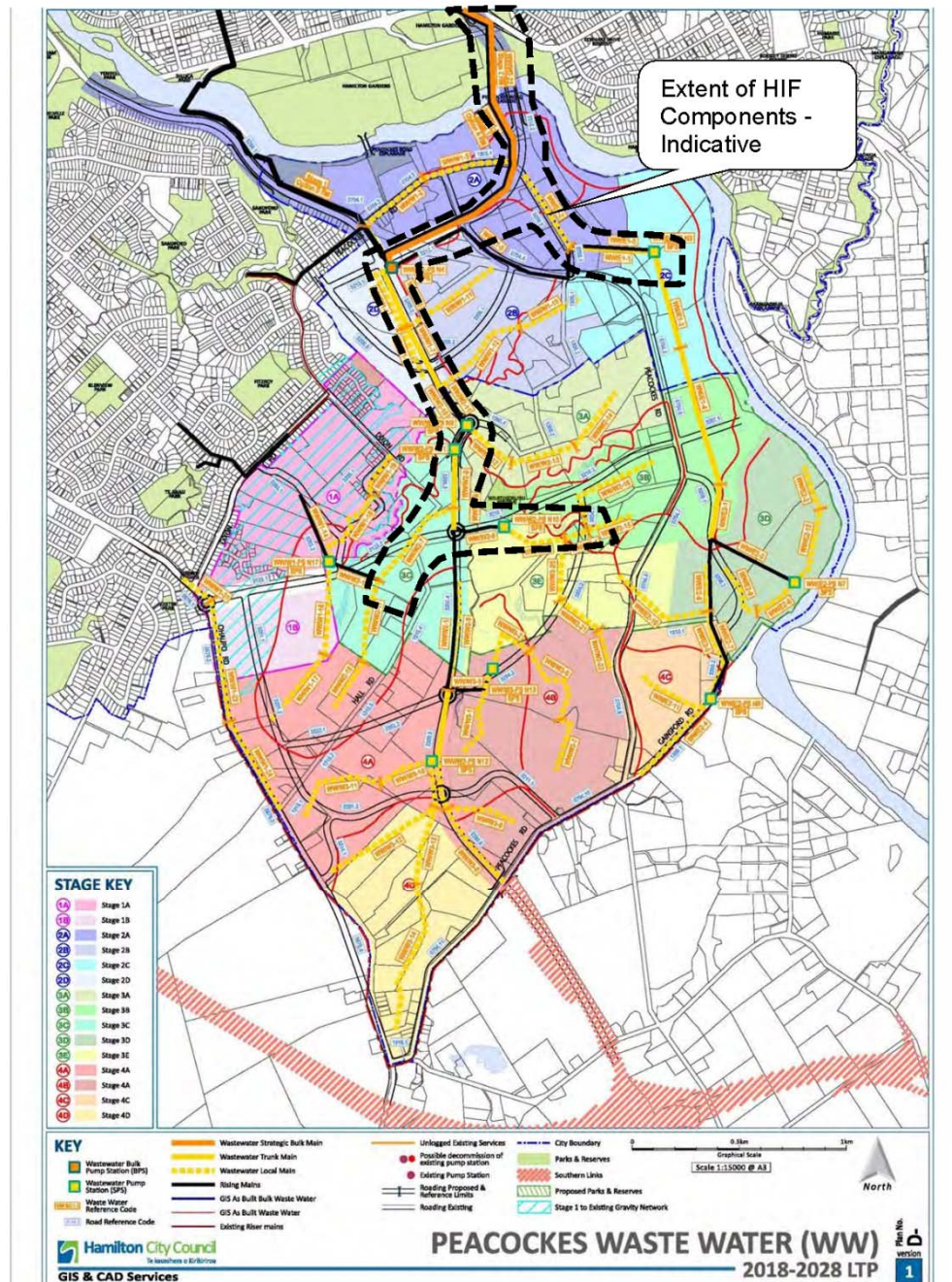


Figure 3: Peacocke 2018 – 2028 Waste Water Programme (\$68M)



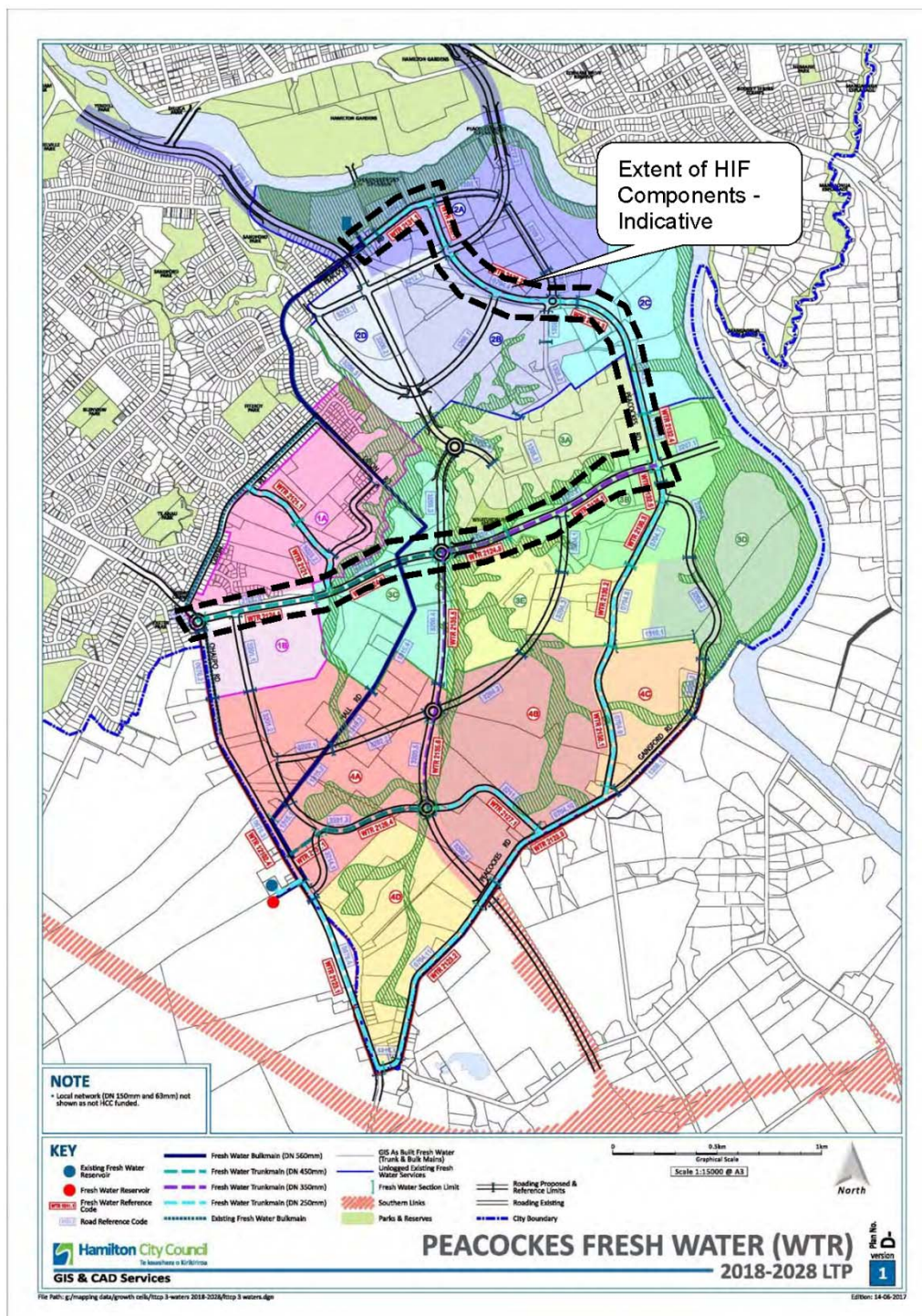


Figure 4: Peacocke 2018 – 2028 Water Programme (HIF Components \$6.6M)



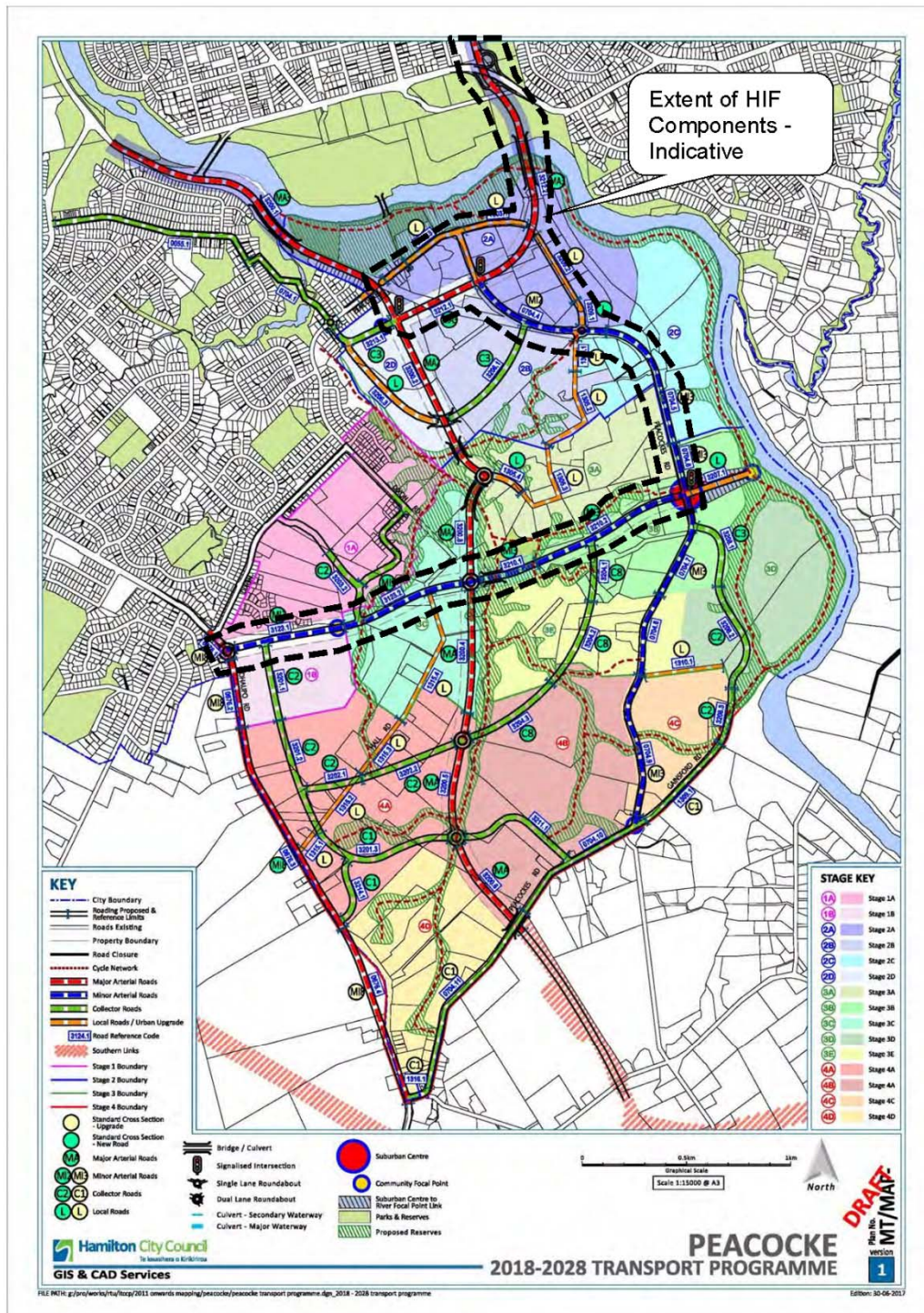
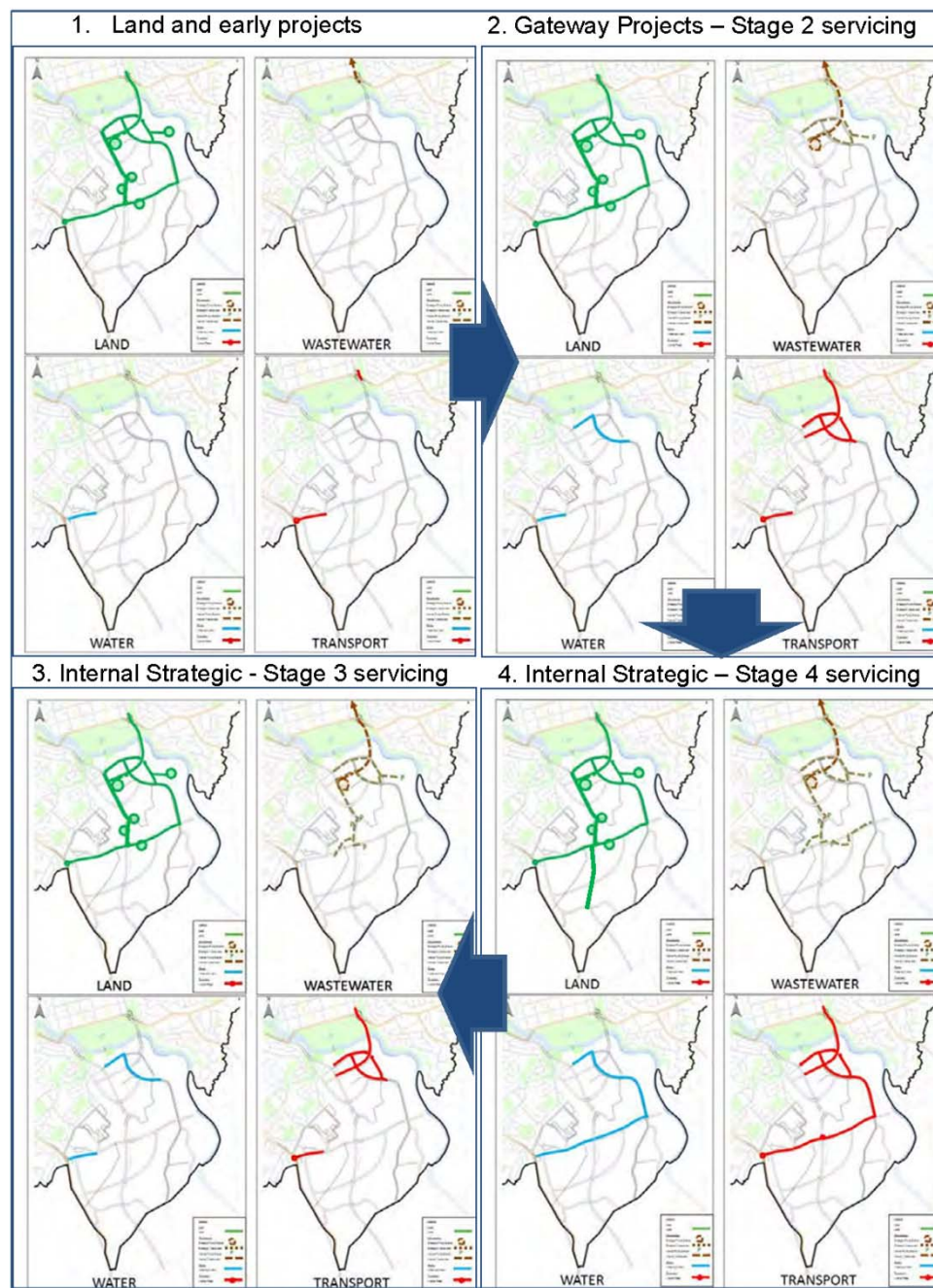


Figure 5: Peacocke 2018 – 2028 Transport Programme (\$HIF Components \$233MM)



## 7. PROGRAMMING/URGENCY

The purpose of the HIF is to get more houses in Peacocke, faster. Figure 6 illustrates progressive implementation. Land is presumed to be a single early phase.



**Figure 6: Conceptual Illustration of Progressive implementation (Clockwise from top left)**

The start time for the programme is dependent on funding commitment. Funding commitment will not be available until 1 July 2018 after confirmation of the Hamilton Long Term Plan, NZ Transport Agency's National Land Transport Programme and completion of the agreement for HIF funding. A summary programme is shown in Figure 7 below.



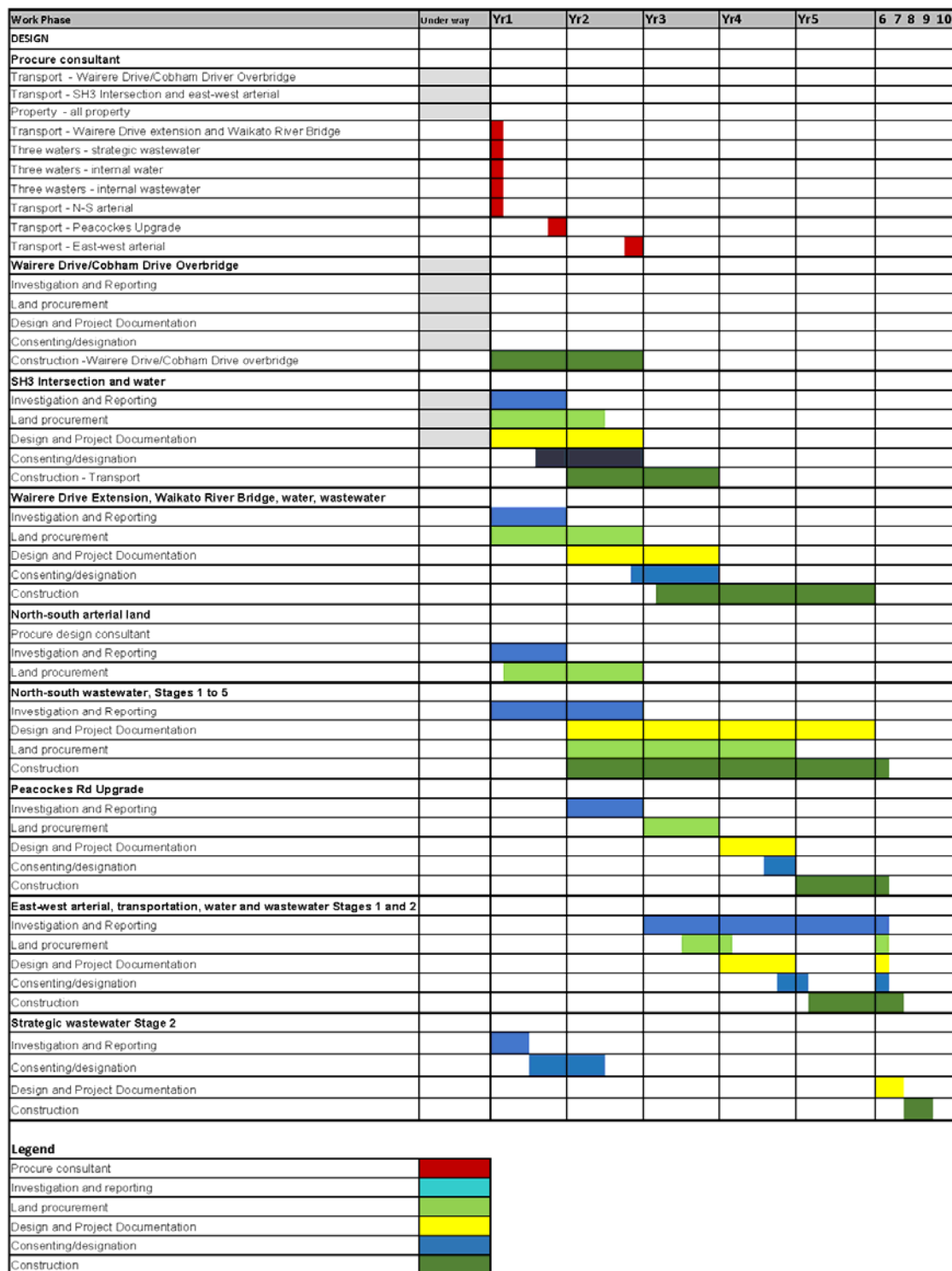


Figure 7: Programme Overview

Stormwater management infrastructure and consents will be significant influences on design and implementation for subdivision development. Coordination of Integrated Catchment Management Plans, Catchment Management Plans, master planning and consenting is dealt with separately in the Consenting Strategy but present time and potential cost risks for delivery.

A detailed programme and spend breakdown by time is attached at Appendix B. Two projects are more advanced than the others, with design and construction planning under way. Funding for these is also part of the HIF, and HCC is pursuing early delivery. They are:

- = Wairere Drive/Cobham Drive overbridge (funding top-up for grade-separation); and
- = SH3/Ohaupo Road/East-West Arterial roundabout and leg into the east-west arterial.

Two major gateway projects form part of the business case infrastructure, without which there will be significant constraints on development or increased costs and risks from interim solutions. These are:

- = Bridge over the Waikato River and associated new transport link; and
- = Strategic wastewater transfer pump station, storage and rising main to Crosby Road.

Early development may be possible without the bridge if lower levels of service are tolerable for transport and an interim wastewater solution is acceptable. Options would be developer led and will rely on design for permanent solutions being available to avoid risks and high future costs. Early engagement is needed to coordinate development with utility providers for trunk connections.

## 8. PROPOSED APPROACH - GENERAL

The proposed approach is to focus on the physical works implementation and develop the procurement plan in a way that best meets HCC's procurement objectives. To avoid conflict during construction, the works will be grouped in packages based on location, rather than by infrastructure type. The proposed construction packages are shown in Figure 8 and tabulated below with their link to the individual components.

HIF INFRASTRUCTURE COMPONENTS		PROPOSED CONSTRUCTION PACKAGES (REFER FIG 6)					
		1. CB – Cobham I/C	2. Wairere Extn, Bridge, Pump Stn & Rising Main.	3. Peacocke Rd Upgrade, W+ WW	4. SH3 Roundabout +W	5. N-S Strategic Land and Waste	6. East West Arterial, W +WW
W1a	Strategic WW storage and Pump Station	✓	✓			✓	
W1b	Rising Main		✓	✓			
W2a	Internal W/Water		✓	✓			✓
W2b	N-S Wastewater (incl. Land)					✓	
W3	Internal Water		✓	✓			✓
T1	Cambridge – Cobham interchange						
T2	SH3 Intersection and E-W Arterial				✓		✓
T3a	Wairere Dr Ext'n & Waikato River Bridge		✓		✓		
T3b	Associated local roads		✓	✓			
T4	Peacocke Road			✓			
T5	N-S Arterial Land					✓	
Package Costs (Including land)		\$20.8M	\$183M	\$12.6M	\$12.6M	\$36.4M	\$34.1M

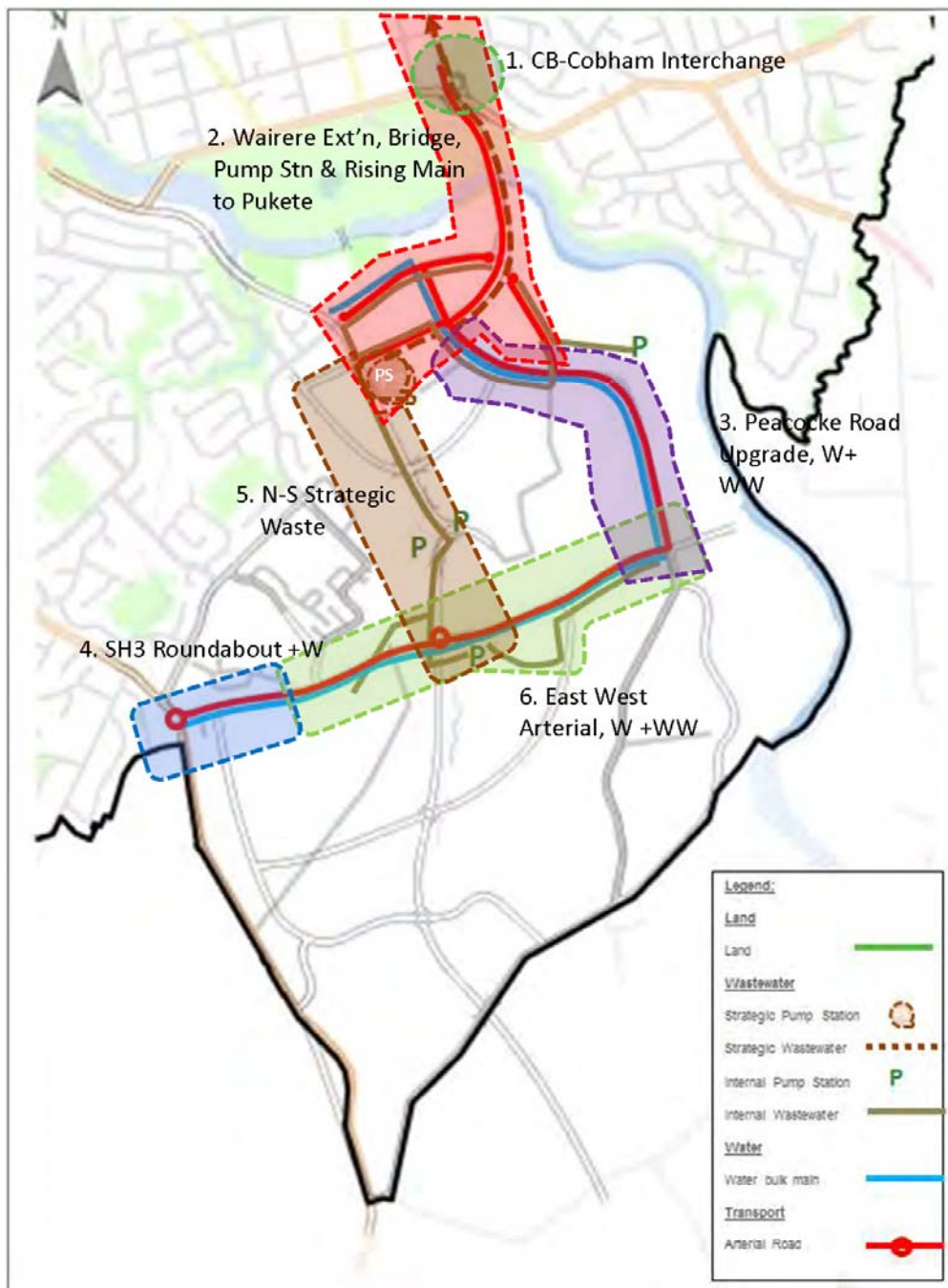
**Table 3: HIF Infrastructure Components and Proposed Construction Packages (Excludes internal strategic water and wastewater upsizing and Wastewater strategic storage and pressure main stage 2)**

The package comprising the Wairere Drive Extension, strategic wastewater pump station, storage and rising main to Pukete, is likely to be split into separate contracts for delivery, such as the rising main at the Cobham interchange, its connection to the north, and the pump station and storage. Planning for implementation based on a package approach reduces the risk of conflict between separate components with significant overlap such as interaction with construction of the Waikato River Bridge and approach roads, and in design for the combination of design decisions balancing storage, pump capacity and rising main configuration.

The full procurement strategy will be detailed for the initial phases and gateway projects, and provide a framework for subsequent phases that are generally dependent on subdivision timing and locations.

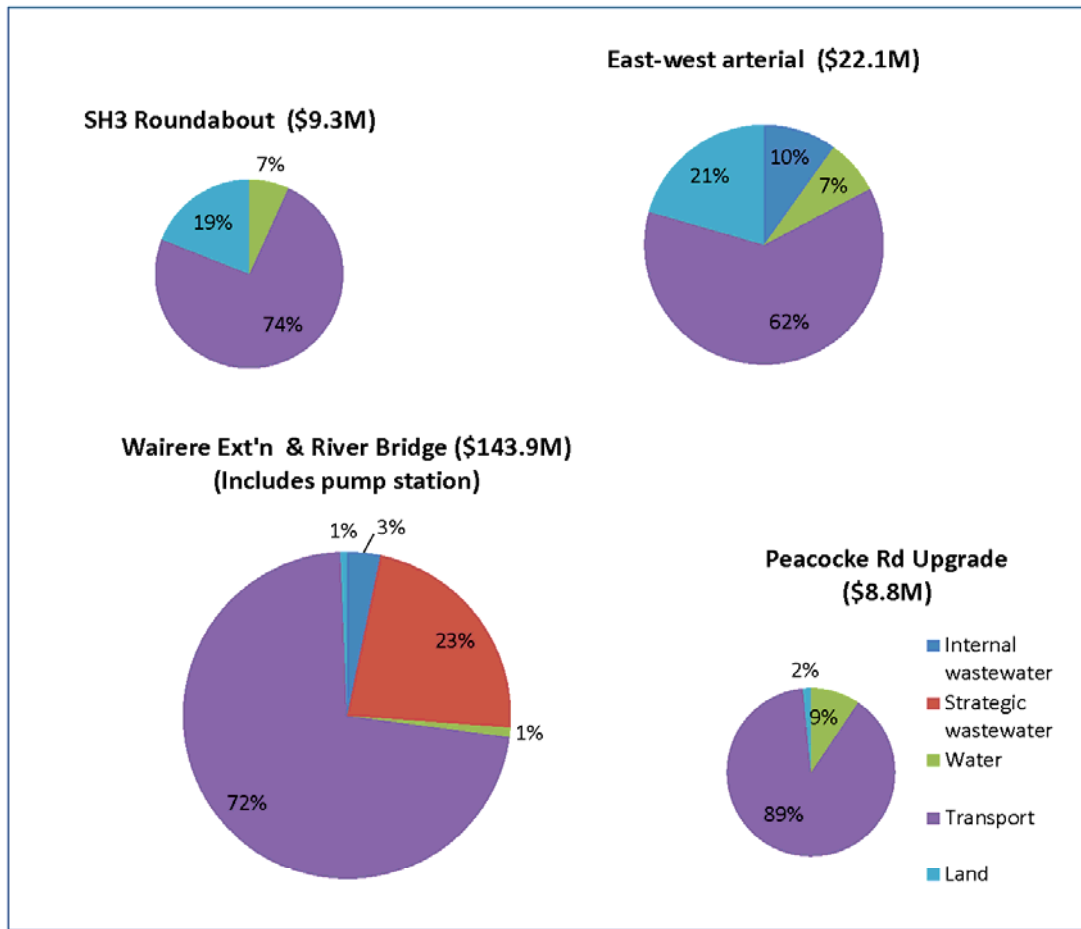
These packages are detailed and assessed against the procurement objectives in Appendix 3.

Collector upsizing/upgrades and internal water and wastewater networks are likely to be developer driven and will be assessed on a case by case basis as they arrive. They are likely to be traditional measure and value contracts or delivered by the developer as part of a development agreement.



**Figure 8: Proposed Packages**

Figure 9 shows the split between construction disciplines for the packages (Including professional services but excluding land). Transport investments dominate the packages.



**Figure 9: Construction disciplines split (\$2017 uninflated excluding land)**

The N-S strategic wastewater package (\$9.1M) is expected to be wholly wastewater unless additional detailed design for road is required.

The very large Wairere extension, river bridge, strategic pump station and rising main to Crosby is likely to be delivered through separate contracts where practicable. This is likely to be:

- = Strategic pump station and storage
- = Waikato River Bridge and rising main to Cobham Interchange
- = Cobham Interchange strategic wastewater
- = Rising main north of Cobham to Crosby



## 9. SPEND PROFILE

Delivery of the infrastructure associated with the HIF results in a construction spend starting at \$20M in year 1 (funding top up for the Cambridge-Cobham interchange already under way) and rising to around \$50M/year in years 3 and 4. Professional services start at around \$18M in year 1 and reduce steadily to leave around \$1M/year or less in construction observation and management from years 5 to 9.

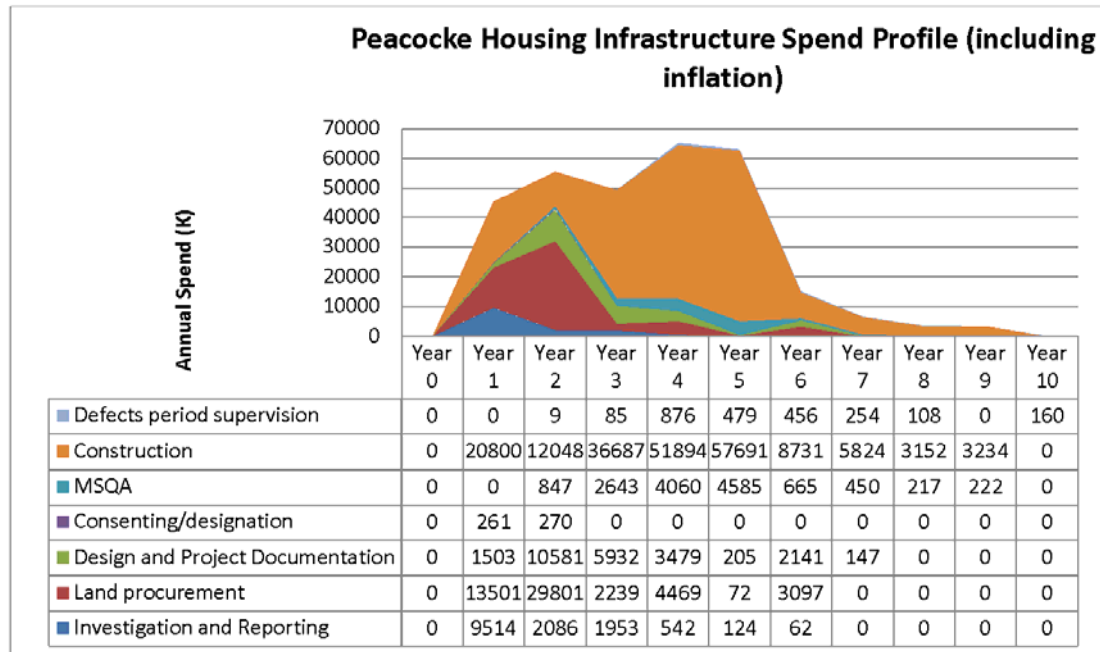


Figure 10: Overall Spend Profile

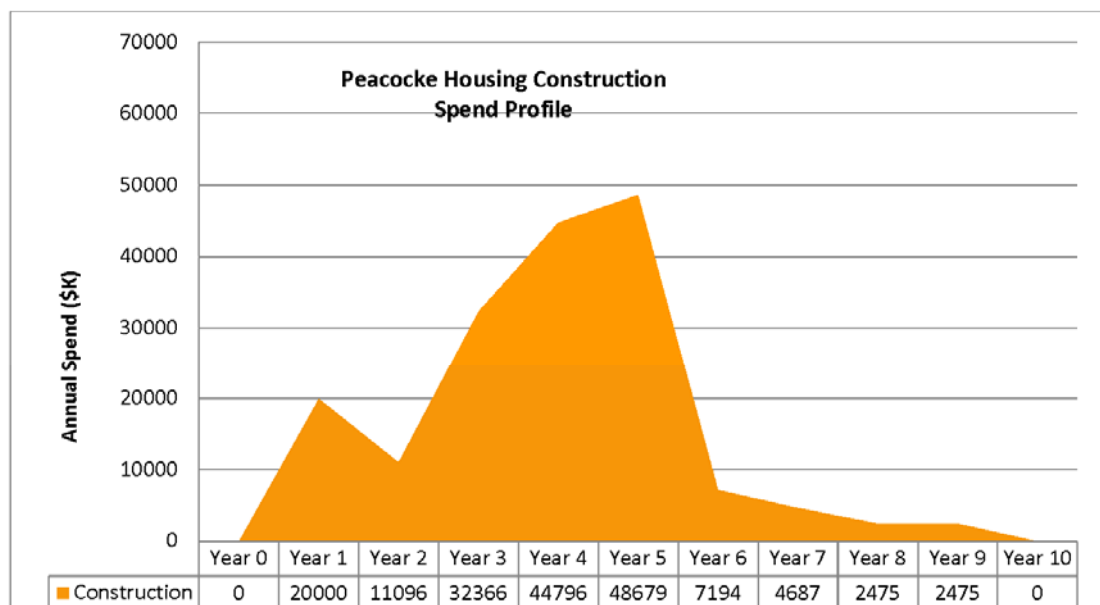
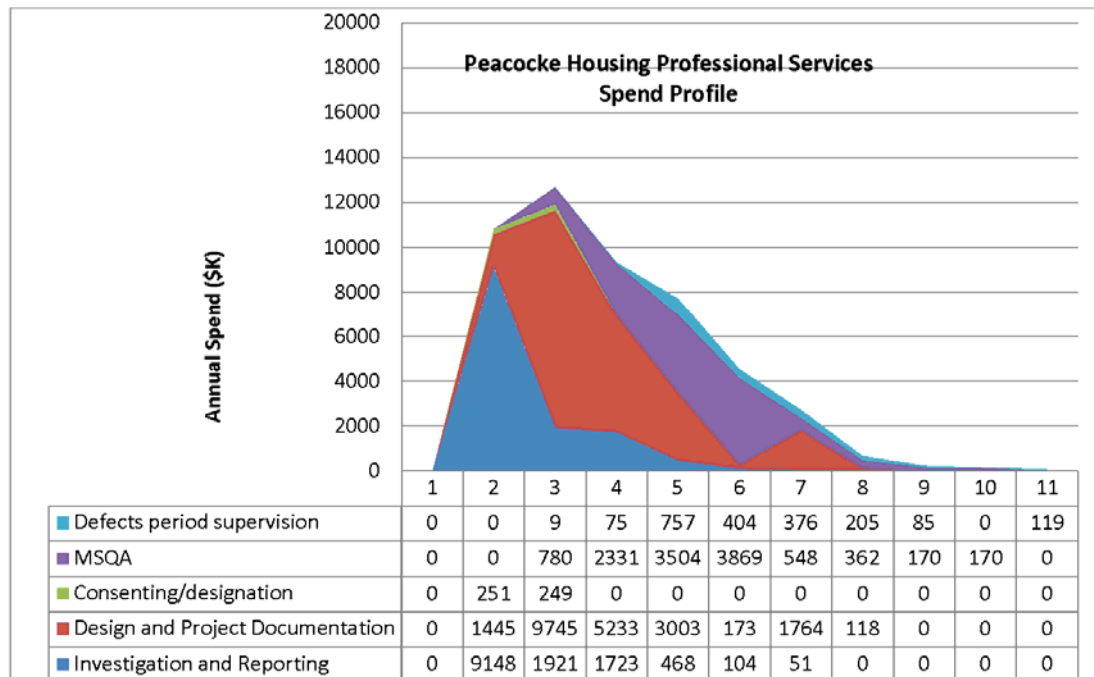


Figure 11: Construction Spend Profile

In comparison, HCC currently spends around \$60M (including \$25M on asset renewal) on capital construction for water, wastewater and transport annually (2015 – 2025 LTP).



**Figure 12: Professional Service Spend Profile**

## 10. DELIVERY MODEL ASSESSMENT - GENERAL

The preferred approach for the HIF infrastructure is a traditional model. Selection of the optimum delivery models has been based on evaluation of each package considering how well each option contributes to the procurement objectives taking into account the characteristics of each package.

Figure 13 illustrates this conceptually.

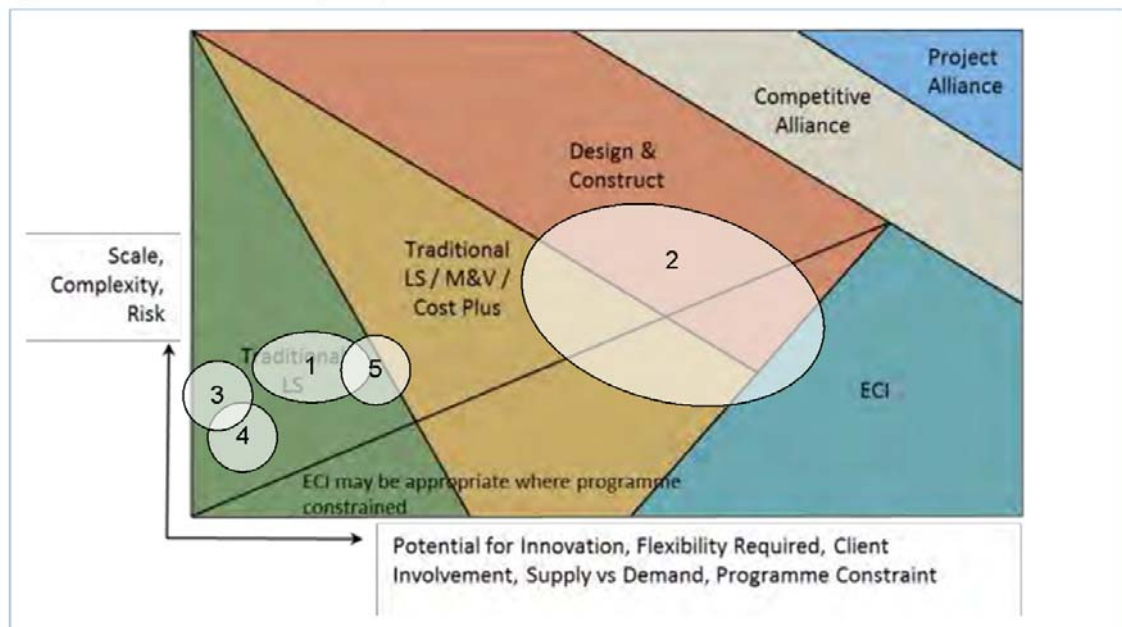


Figure 13: Delivery Model – Conceptual Assessment (Source – NZTA)

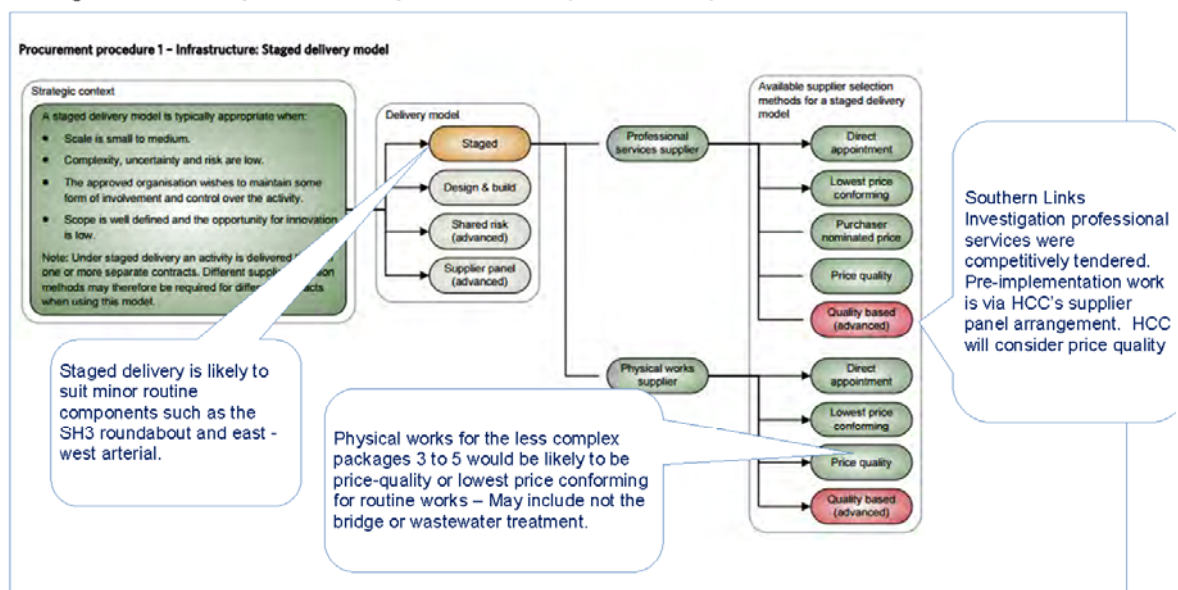
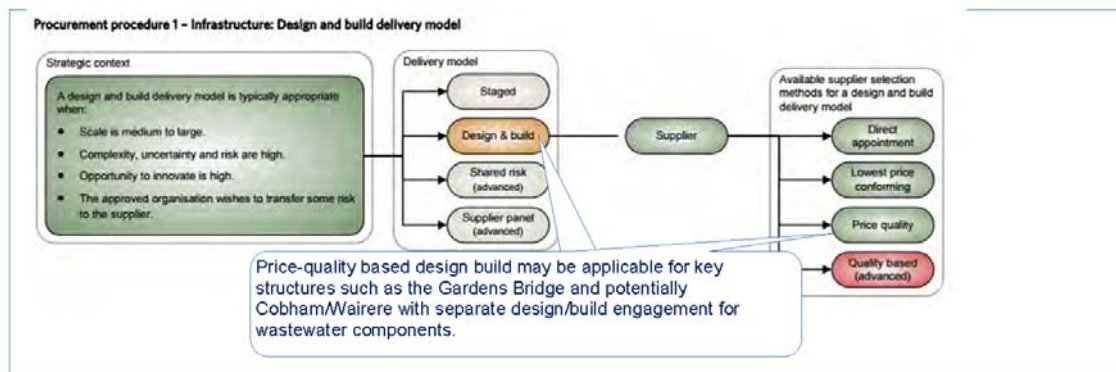
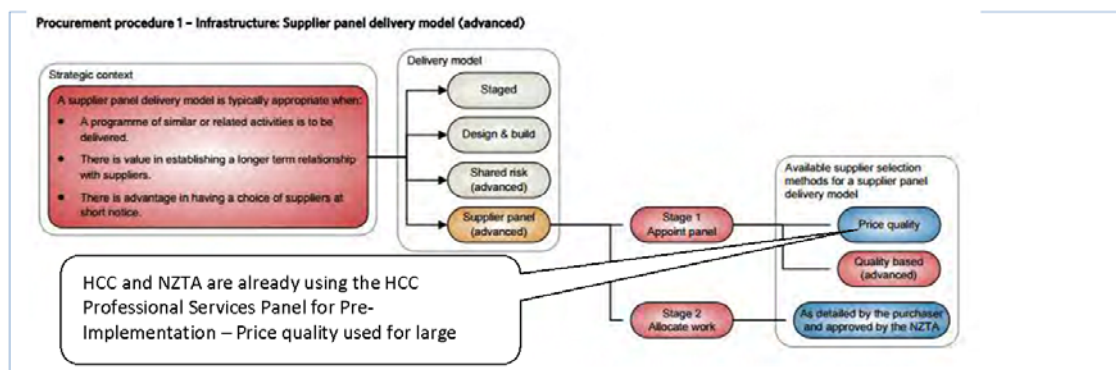


Figure 14: Procurement Planning - Staged



**Figure 15: Procurement Planning – Design and Build**



**Figure 16: Procurement Planning – Supplier Panel**

The majority of activities are routine, low complexity and low risk, with limited potential for innovation. The two gateway projects merit additional consideration and assessment.

KEY CHARACTERISTICS	2A: RIVER BRIDGE	2B. STRATEGIC WASTEWATER	OTHER ROADS	OTHER WASTE/WATER
Scale.	\$113.0M	\$43.3M	<\$10M	<\$10M
Complexity/Scope for innovation.	Medium	Medium	Low	Low
Programme constraint.	High	High	Low	Low
Market conditions.	Limited capacity	Limited capacity	Small – medium contractors available/interested	
Risk (quantum and type).	High - Aesthetic	High - Performance	Low	Moderate
Stakeholders.	HCC, Tangata Whenua, DoC, NZ Heritage, WRC, WRA		Similar but less sensitive More developer options	
Client involvement, control and capability.	High	High	Low	Moderate
Focus on non-cost success (e.g. social and environmental).	High	High	Moderate	Moderate
Tangible demonstration of value for money.	Medium	Medium	Medium	Medium
Flexibility to deal with change.	Low tolerance	Low tolerance	Low	Low

**Table 4: Key Characteristics of Construction Packages**

The early delivery components (Cambridge – Cobham interchange and SH3/east-west link roundabout) are already committed to traditional procurement, with design under way. The programme's staged delivery and the package's scale not being big enough to deliver savings based on the typical \$300M threshold makes the public-private partnership model unlikely to be cost-effective.

The smaller packages such as the Peacocke urban upgrade, the east-west arterial, local road upgrades and water/wastewater packages are lower risk, provide fewer opportunities for innovation and are likely to be phased to match development and can be delivered in stages. This means that the more advanced procurement models are less likely to contribute to value for money, budget certainty and are likely to limit the contractor supply market.

Table 5 summarises the conclusions from the more detailed assessment in Appendix C for the major Wairere Drive Ext'n, Waikato River Bridge, and pump station package.

	ADVANTAGES	DISADVANTAGES
Traditional LS, MV, Cost Plus	<p>Landmark structure, traditional model will allow design concepts to be debated and agreed.</p> <p>Allows matching pump and control systems to increase resilience.</p> <p>Cost certainty – after award</p> <p>Faster - Detailed design can be completed while land negotiation and consents continue.</p>	<p>Relies on designers for innovation</p> <p>Risk of variations for unforeseen conditions</p>
Design and Build	<p>Maximises opportunity for innovation.</p>	<p>Increases risk of higher whole of life costs and scope/quality concerns</p> <p>High bid costs can be disincentive.</p> <p>Slow delivery</p>
ECI	<p>Potential for interaction with contractor to provide design-dependent implementation methodology savings</p>	<p>Early commitment to contractor increases risk to value for money and certainty</p> <p>High bid costs can be disincentive.</p>
Alliance	<p>Maximises opportunity for innovation.</p> <p>Too small to make money</p>	<p>Alliance is best suited for a cost reimbursable contract.</p> <p>Delays in procurement consents.</p>

**Table 5: River Bridge and Wastewater Evaluation**

Accordingly, the traditional delivery model is the preferred approach for this project.

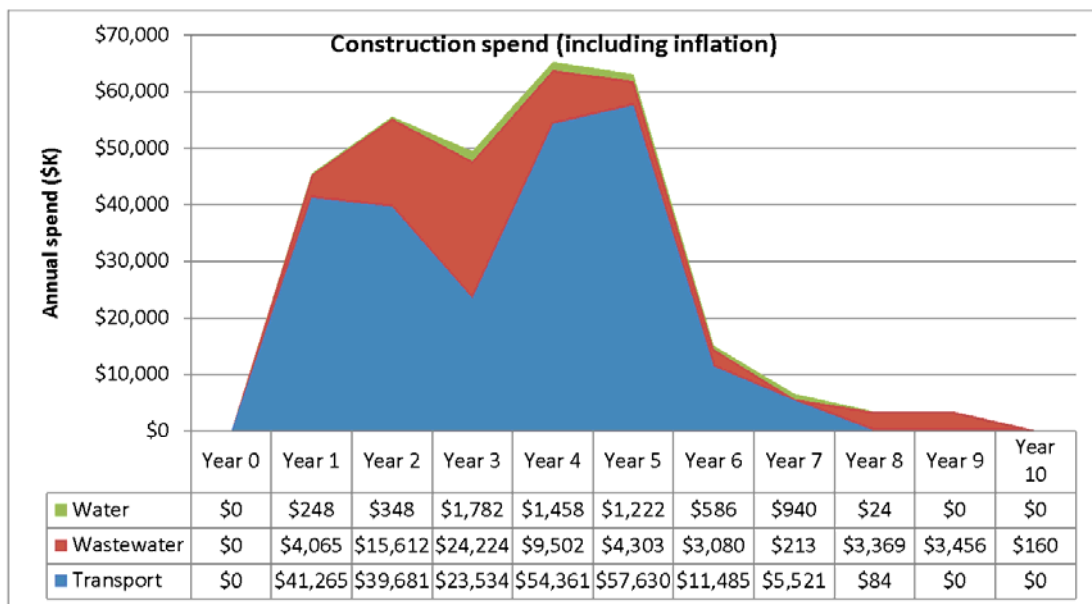
The bridge requires particular consideration. It is a key landmark structure and HCC needs to be able to make decisions that influence urban design and aesthetics.



## 11. DELIVERY MODEL ASSESSMENT - CONSTRUCTION

Having selected a traditional approach based on design and project documentation being prepared prior to tendering, options for traditional tendering, early contractor involvement and alliancing remain for the implementation phase. Although it would be desirable for early contractor involvement for pipeline and bridge work, the risk to value for money and design control mean that some form of measure and value/price quality combination is likely. There may be options for cost plus aesthetic/performance enhancements to be incorporated as an option for the river bridge and pump station.

More refined physical works procurement decisions will follow once professional services advisors are available.



**Figure 17: Construction Spend Profiles**

The initial spend is mainly in the Cobham Drive interchange, and the large year 3 and 4 spend is the river bridge and pump station.

Transport is the dominant spend area. There are a number of small – medium size contractors in the area that suit contracts less than \$10M. Roading contractors are generally capable of taking on wastewater with max pipe size 300mm, shallower than 4m deep, without difficulty and can subcontract local pump stations.

Providing for flexibility to overlap with subdivision development scale should maximising the supply market for other works. There is likely to be an advantage in terms of phasing flexibility, supply and price competition for the smaller, simpler components.

## 12. DELIVERY MODEL ASSESSMENT – PROFESSIONAL SERVICES

### 12.1. Panel approach preferred – Price/Quality

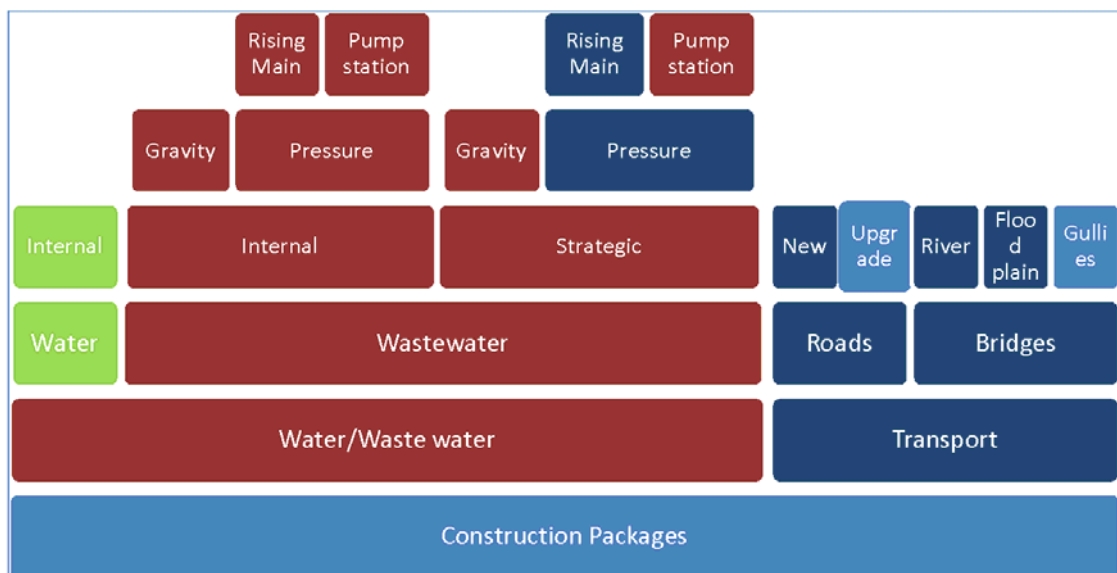
Professional services are required for a wide range of services, consistent with HCC's typical service requirements and available through the PSP frameworks (Refer Attachment E for skills matrices).

In broad terms, the technical disciplines are considered as waters (wastewater and fresh water) and transport. Stormwater is likely to be across both but unlikely to be a significant design driver away from key gully areas.

The proposed approach is to use the PSP framework to select an initial advisor for transport and an initial advisor for water and wastewater to prepare project documentation (background, scope, instructions for tendering and bases for payment).

The initial advice is likely to be direct award based on existing engagements and previous knowledge.

The subsequent professional services are likely to be a price/quality tender based on team and methodology as the non-price attributes.



**Figure 18: Design Components (key gateway interactions dark blue)**

### 12.2. Design Interaction/Coordination

There will be critical interactions between designs relating in particular to the strategic wastewater rising main and its crossing of Wairere Drive and the Waikato River bridge and approaches. For example, fast-tracking elements of road mean that stormwater consents or water design will need to be completed for roads.

It will be necessary either to require early completion of critical tasks (e.g. void/pipe sizes/loadings/fixings/expansion limits, etc.) or novate wastewater design services for incorporation in the bridge design processes.

### 12.3. Shared inputs

Other specialist skills will be required. These are likely to include:

- = Survey – topographical and legal
- = Land – valuation, purchase, entry, etc.
- = Ecological
- = Archaeological/heritage
- = Cultural/Social
- = Geotechnical engineering
- = Consents and Assessments of Environmental Effects

There are likely to be significant efficiencies available from sourcing these on an area wide basis similar to construction packages, or for the Peacocke area as a whole.

The PSP framework provides an excellent opportunity to avoid duplication in specialist inputs because it provides for novation within all engagements, so for example, an ecological specialist can be instructed to complete investigation or monitoring to support a range of projects in an area, for different consultants.

### 12.4. Gardens Bridge Urban Design/Aesthetics

The bridge requires particular consideration. It is a landmark structure and HCC needs to be able to make decisions that influence the urban design outcomes and aesthetics. A two stage process is proposed.

Stage 1: Principal Aesthetic Factors – these are the key cost influences

- a. Superstructure type and shape
- b. Pier placement and shape
- c. Abutment placement and design

Stage 2: Secondary Aesthetic Design Factors – minor cost influences

- a. Railing details
- b. Surface colours and textures
- c. Architectural embellishments
- d. Lighting



**Figure 19: Tied Arch and Cable Stayed Concepts**

Stage 1 should confirm the preferred superstructure form based on examples and “silhouette” levels of information and a “willingness to pay” for enhancements. Since the consent requires no piers in the river, the superstructure options are limited (see Figure 19 below).

The current estimates are based on the lowest cost structural form structurally suited to the span, being a tied arch, at a cost of around \$40M. Other options are likely to be more expensive, including a variable depth box girder (+\$4M), extradosed box girder (+\$10M) and cable stayed (+\$10M) forms.

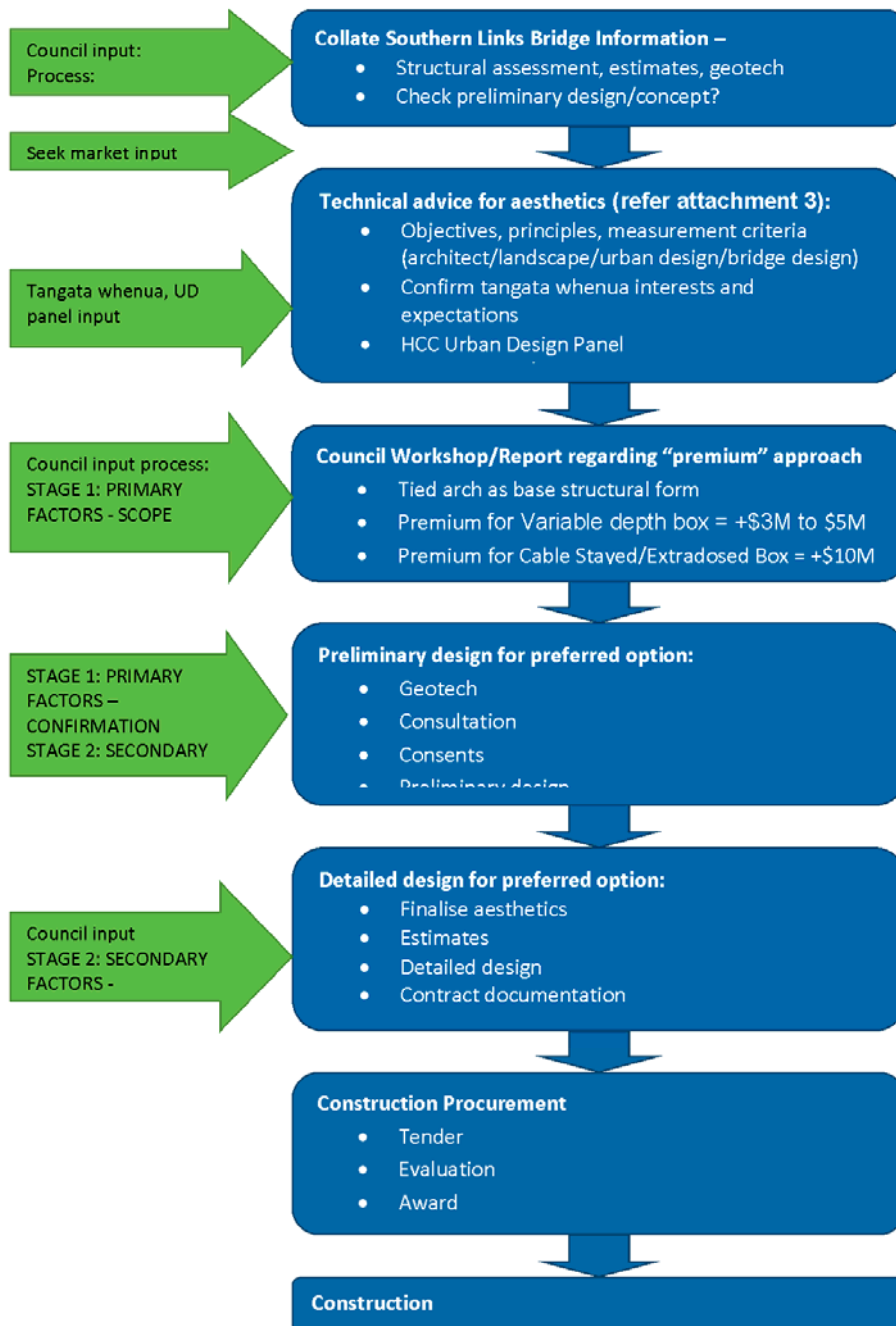


Figure 20: Suggested Process for Bridge

### 13. NEXT STEPS

#### 13.1. Desirable Activities for Acceleration

It would be desirable to be in a position to hit the ground running on 1 July 2018. The following activities would be useful early:

- = Approval for HIF approach
- = Team establishment and recruitment
- = Land acquisition preparation
- = Consents and authorities applications
- = Pump station designation
- = Professional services tender documentation
- = Industry liaison
- = Developer liaison

#### 13.2. 100 day plan – HIF Team Formed and Professional Services and Land Acquisition

Within approximately 3 months, the project should be under way, with consultants in place for design and land acquisition commenced:

- = Complete HIF core team
- = Main Professional services appointments
- = Detailed procurement plans
- = Finalise consents
- = Approvals for construction procurement approaches
- = Finalise bridge aesthetic considerations
- = Commence land acquisition
- = Complete consents and authorities engagement/hearings

#### 13.3. 1000 day plan – Interim Development and Gateway Infrastructure Construction

Within approximately three years, physical works should be under way:

- = Bridge, Pump Station, rising main - tendered, awarded, and commenced.
- = Interim development under way
- = Main development agreed and funded.

#### 13.4. First Steps

The steps are as follows:

- = Confirm approvals to proceed (desirably with advance opportunities), delegations and restrictions
- = Form HIF team
- = Appoint land, transport and waters professional services advisors.
- = Require land
- = Prepare RFT's for main professional services contracts
- = Engage with construction market, developers and utilities
- = Establish governance coordination group.



## APPENDICES

### Appendix A: Detailed infrastructure lists

Refer Figures 3 - 5 for Infrastructure ID numbers

**Hamilton City Council - Housing Infrastructure Fund  
Package costs**

Strategic Infrastructure Element	Description/ HCC ref.	Work Phase	Total No Inflation	Total With Inflation	5% Percentile	95% Percentile
Fairere Drive/ Robbham Drive Overbridge	2A Strategic	Procure design consultant	0.00	0.00	0.00	0.00
		Investigation and Reporting	0.00	0.00	0.00	0.00
		Land procurement	0.00	0.00	0.00	0.00
		Design and Project Documentation	0.00	0.00	0.00	0.00
		Consenting/designation	0.00	0.00	0.00	0.00
		Construction	20000.00	20800.00		
			20000	20800		

13 Intersection	1B Strategic Dixon/Ohaupo RAB LTCCP 0676.1	Procure design consultant	0.00	0.00	0.00	0.00
		Investigation and Reporting	265.00	275.60	261.82	385.84
		Land procurement	365.00	379.60	360.62	531.44
		Design and Project Documentation	445.00	462.80	439.66	647.92
		Consenting/designation	0.00	0.00	0.00	0.00
		MSQA	255.00	276.87	263.03	387.62
		Construction	3183.00	3455.97	3283.18	4838.36
		Defects period supervision	66.00	74.81	71.07	104.74
	RAB to Shaw Wetland LTCCP 3123.1	Investigation and Reporting	378.00	393.12	373.46	550.37
		Land procurement	1830.00	1945.07	1847.82	2723.10
		Design and Project Documentation	434.00	471.22	447.66	659.71
		Consenting/designation	0.00	0.00	0.00	0.00
		MSQA	257.00	291.32	276.75	407.85
	1B Strategic LTP WTR/2124.1	Construction	3206.00	3634.11	3452.40	5087.75
		Defects period supervision	66.00	76.46	72.64	107.04
		Procure design consultant	0.00	0.00	-	-
		Investigation and Reporting	81.56	84.83	80.6	118.8
		Design and Project Documentation	108.75	118.08	112.2	165.3
		MSQA	32.63	36.98	35.1	51.8
		Construction	543.75	616.36	585.5	862.9
		Defects period supervision	18.75	21.72	20.6	30.4
			11535.44	12614.91	11984.17	17660.88

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**Hamilton City Council - Housing Infrastructure Fund  
Package costs**

Strategic Infrastructure element	Description/ HCC ref.	Work Phase	Total No Inflation	Total With Inflation	5% Percentile	95% Percentile
West-west arterial	2B Strategic Shaw wetland to N-S arterial LTCCP 3123.2	Procure design consultant	0.00	0.00	-	-
		Investigation and Reporting	435.00	493.09	468.4	690.3
		Land procurement	2019.00	2338.95	2,222.0	3,274.5
		Design and Project Documentation	518.00	600.09	570.1	840.1
		Consenting/designation	0.00	0.00	-	-
		MSQA	283.00	335.39	318.6	469.5
		Construction	3526.00	4178.72	3,969.8	5,850.2
		Defects period supervision	66.00	80.09	76.1	112.1
		Investigation and Reporting	518.00	587.17	557.8	822.0
		Land procurement	1774.00	2055.13	1,952.4	2,877.2
	2B Strategic N-S arterial to collector LTCCP 3210.1	Design and Project Documentation	1052.00	1218.71	1,157.8	1,706.2
		Consenting/designation	0.00	0.00	-	-
		MSQA	560.00	671.63	638.0	940.3
		Construction	6996.00	8390.56	7,971.0	11,746.8
		Defects period supervision	66.00	82.02	77.9	114.8
		Investigation and Reporting	324.00	375.34	356.6	525.5
		Land procurement	2552.00	3097.00	2,942.2	4,335.8
		Design and Project Documentation	652.00	791.24	751.7	1,107.7
		Consenting/designation	0.00	0.00	-	-
		MSQA	320.00	397.66	377.8	556.7
	2B Strategic Arterial to Peacocks LTCCP 3210.2	Construction	3991.00	4959.55	4,711.6	6,943.4
		Defects period supervision	66.00	84.07	79.9	117.7
		Investigation and Reporting	91.41	103.61	98.4	145.1
		Design and Project Documentation	121.88	141.19	134.1	197.7
		MSQA	36.56	43.33	41.2	60.7
		Construction	609.38	722.18	686.1	1,011.1
		Defects period supervision	18.75	22.75	21.6	31.9
		Investigation and Reporting	43.31	50.18	47.7	70.2
		Design and Project Documentation	57.75	68.44	65.0	95.8
		MSQA	17.33	21.02	20.0	29.4
	2A LTP WTR/ 2124.2	Construction	288.75	350.42	332.9	490.6
		Defects period supervision	18.75	23.30	22.1	32.6
		Investigation and Reporting	104.34	123.66	117.5	173.1
		Design and Project Documentation	139.13	168.84	160.4	236.4
	2A LTP WTR/ 2124.3	MSQA	41.74	51.87	49.3	72.6
		Construction	695.63	864.44	821.2	1,210.2
		Defects period supervision	18.75	23.88	22.7	33.4
		Investigation and Reporting	4.22	5.12	4.9	7.2
	2A LTP WTR/ 2125.1	Design and Project Documentation	5.63	6.83	6.5	9.6
		MSQA	1.69	2.05	1.9	2.9
		Construction	28.13	34.13	32.4	47.8
		Defects period supervision	7.50	9.10	8.6	12.7
	2B WW/W2-4	Investigation and Reporting	27.90	33.86	32.2	47.4
		Design and Project Documentation	41.85	50.79	48.2	71.1
		MSQA	11.16	13.54	12.9	19.0
		Construction	139.50	169.29	160.8	237.0
	2B WW/W2-5	Defects period supervision	9.38	11.38	10.8	15.9
		Investigation and Reporting	18.97	23.02	21.9	32.2
		Design and Project Documentation	25.29	30.69	29.2	43.0
		MSQA	7.59	9.21	8.7	12.9
	2B WW/W2-16	Construction	126.45	153.45	145.8	214.8
		Defects period supervision	7.50	9.10	8.6	12.7
			28484.17	34077.08	32373.23	47707.92

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**Hamilton City Council - Housing Infrastructure Fund  
Package costs**

Strategic Infrastructure element	Description/ HCC ref.	Work Phase	Total No Inflation	Total With Inflation	5% Percentile	95% Percentile
Wairere Drive Extension and Waikato River Bridge	2A Strategic	Procure design consultant	0.00	0.00	-	-
		Investigation and Reporting	510.00	530.40	503.9	742.6
	Wairere Ext , NS	Land procurement	3277.00	3483.06	3,308.9	4,876.3
		Design and Project Documentation	751.00	815.41	774.6	1,141.6
	Arterial to Peacocks	Consenting/designation	0.00	0.00	-	-
		MSQA	272.00	308.32	292.9	431.6
	LTCCP 3212.1	Construction	3399.00	3852.88	3,660.2	5,394.0
		Defects period supervision	66.00	76.46	72.6	107.0
	2A Strategic	Investigation and Reporting	2624.00	2728.96	2,592.5	3,820.5
		Land procurement	9949.00	10574.59	10,045.9	14,804.4
	Waikato River Bridge	Design and Project Documentation	7061.00	7835.22	7,443.5	10,969.3
		Consenting/designation	0.00	0.00	-	-
	MSQA	MSQA	5488.00	6430.80	6,109.3	9,003.1
		Construction	68599.00	80383.87	76,364.7	112,537.4
	LTCCP 3212.2	Defects period supervision	66.00	80.09	76.1	112.1
	Citywide strategic stage 1	Procure design consultant	0.00	0.00	-	-
		Investigation and Reporting	1894.00	2013.09	1,912.4	2,818.3
	Consenting/designation	Consenting/designation	392.00	416.65	395.8	583.3
		Land procurement	1950.00	2072.62	1,969.0	2,901.7
	Design and Project Documentation	Design and Project Documentation	4721.00	5138.44	4,881.5	7,193.8
		MSQA	1810.00	2039.12	1,937.2	2,854.8
	Construction	Construction	26129.00	29401.02	27,931.0	41,161.4
		Defects period supervision	522.00	610.64	580.1	854.9
	2A Strategic	Procure design consultant	0.00	0.00	-	-
		Investigation and Reporting	302.00	314.08	298.4	439.7
	Northern local upgrade	Design and Project Documentation	304.00	330.07	313.6	462.1
		Consenting/designation	0.00	0.00	-	-
	MSQA	MSQA	154.00	174.56	165.8	244.4
		Construction	1922.00	2178.65	2,069.7	3,050.1
	LTCCP 0704.3	Defects period supervision	54.00	62.56	59.4	87.6
		Investigation and Reporting	461.00	479.44	455.5	671.2
	2A Strategic	Land procurement	1514.00	1609.20	1,528.7	2,252.9
		Design and Project Documentation	738.00	801.29	761.2	1,121.8
	Peacocks Rd Nth	Consenting/designation	0.00	0.00	-	-
		MSQA	467.00	535.18	508.4	749.3
	LTCCP 0704.4	Construction	5837.00	6689.22	6,354.8	9,364.9
		Defects period supervision	66.00	78.22	74.3	109.5
	2A Strategic	Investigation and Reporting	66.00	68.64	65.2	96.1
		Land procurement	418.00	453.85	431.2	635.4
	Eastern collector	Design and Project Documentation	84.00	91.20	86.6	127.7
		Consenting/designation	0.00	0.00	-	-
	MSQA	MSQA	42.00	47.61	45.2	66.7
		Construction	519.00	588.30	558.9	823.6
	LTCCP 3209.1	Defects period supervision	54.00	62.56	59.4	87.6
	2A Strategic	Investigation and Reporting	138.00	143.52	136.3	200.9
		Land procurement	0.00	0.00	-	-
	Nth collector	Design and Project Documentation	188.00	204.12	193.9	285.8
		Consenting/designation	0.00	0.00	-	-
	MSQA	MSQA	100.00	113.35	107.7	158.7
		Construction	1239.00	1404.45	1,334.2	1,966.2
	LTCCP 1303.1	Defects period supervision	54.00	62.56	59.4	87.6

**Hamilton City Council - Housing Infrastructure Fund  
Package costs**

Strategic Infrastructure Element	Description/ HCC ref.	Work Phase	Total No Inflation	Total With Inflation	5% Percentile	95% Percentile
	2A Strategic WWW1-1	Procure design consultant	0.00	0.00	-	-
		Investigation and Reporting	0.00	0.00	-	-
		Design and Project Documentation	0.00	0.00	-	-
		MSQA	0.00	0.00	-	-
		Construction	0.00	0.00	-	-
		Defects period supervision	0.00	0.00	-	-
	2A Strategic WWW1-2	Investigation and Reporting	0.00	0.00	-	-
		Design and Project Documentation	0.00	0.00	-	-
		MSQA	0.00	0.00	-	-
		Construction	0.00	0.00	-	-
		Defects period supervision	0.00	0.00	-	-
		2A Strategic WWW1-3	Investigation and Reporting	0.00	0.00	-
	Design and Project Documentation		0.00	0.00	-	-
	MSQA		0.00	0.00	-	-
	Construction		0.00	0.00	-	-
	Defects period supervision		0.00	0.00	-	-
	2A Strategic WWW1-5a		Investigation and Reporting	210.94	219.38	208.4
		Design and Project Documentation	281.25	305.37	290.1	427.5
		MSQA	84.38	95.64	90.9	133.9
		Construction	1406.25	1594.03	1,514.3	2,231.6
		Defects period supervision	25.00	28.96	27.5	40.5
		2A Strategic WWW1-5b	Investigation and Reporting	210.94	219.38	208.4
	Design and Project Documentation		281.25	305.37	290.1	427.5
	MSQA		84.38	95.64	90.9	133.9
	Construction		1406.25	1594.03	1,514.3	2,231.6
	Defects period supervision		25.00	28.96	27.5	40.5
	2B Strategic WWW1 PS N3		Investigation and Reporting	22.50	24.43	23.2
		Land procurement	32.48	35.26	33.5	49.4
		Design and Project Documentation	24.38	26.47	25.1	37.1
		MSQA	24.78	26.90	25.6	37.7
		Construction	412.94	448.35	425.9	627.7
		Defects period supervision	8.63	9.36	8.9	13.1
	2B WWW1-1	Investigation and Reporting	38.03	43.10	40.9	60.3
		Design and Project Documentation	57.04	64.65	61.4	90.5
		MSQA	15.21	17.24	16.4	24.1
		Construction	190.13	215.51	204.7	301.7
		Defects period supervision	9.38	10.63	10.1	14.9
	2B WWW1-2	Investigation and Reporting	91.58	97.33	92.5	136.3
		Design and Project Documentation	61.05	69.20	65.7	96.9
		MSQA	18.32	21.22	20.2	29.7
		Construction	305.25	353.62	335.9	495.1
		Defects period supervision	25.00	29.63	28.1	41.5
	1B Strategic LTP WTR/ 2131.1	Investigation and Reporting	70.64	73.47	69.8	102.9
		Design and Project Documentation	94.19	102.27	97.2	143.2
		MSQA	28.26	32.03	30.4	44.8
		Construction	470.94	533.82	507.1	747.4
		Defects period supervision	18.75	21.72	20.6	30.4
	2B Strategic LTP WTR/ 2132.1	Investigation and Reporting	26.81	27.89	26.5	39.0
		Design and Project Documentation	35.75	38.82	36.9	54.3
		MSQA	10.73	12.16	11.5	17.0
		Construction	178.75	202.62	192.5	283.7
		Defects period supervision	18.75	21.72	20.6	30.4
	2B Strategic LTP WTR/ 2132.2	Investigation and Reporting	59.81	62.21	59.1	87.1
		Design and Project Documentation	79.75	90.40	85.9	126.6
		MSQA	23.93	27.72	26.3	38.8
		Construction	398.75	461.94	438.8	646.7
		Defects period supervision	18.75	22.22	21.1	31.1
			161087.83	182994.94	173845.19	256192.91



**Hamilton City Council - Housing Infrastructure Fund  
Package costs**

Strategic Infrastructure element	Description/ HCC ref.	Work Phase	Total	Total	5%	95%
	No Inflation		With Inflation	Percentile	Percentile	
Pacokkes Road Urban upgrade	2A Strategic RAB south LTCCP 0704.5	Procure design consultant	0.00	0.00	-	-
		Investigation and Reporting	399.00	433.22	411.6	606.5
		Land procurement	1002.00	1135.80	1,079.0	1,590.1
		Design and Project Documentation	457.00	529.42	503.0	741.2
		Consenting/designation	0.00	0.00	-	-
		MSQA	292.00	346.05	328.8	484.5
		Construction	3640.00	4313.82	4,098.1	6,039.4
		Defects period supervision	66.00	80.09	76.1	112.1
	2A Strategic Intersection with E-W LTCCP 0704.6	Investigation and Reporting	280.00	304.01	288.8	425.6
		Land procurement	948.00	1074.59	1,020.9	1,504.4
		Design and Project Documentation	291.00	337.12	320.3	472.0
		Consenting/designation	0.00	0.00	-	-
		MSQA	170.00	206.30	196.0	288.8
		Construction	2114.00	2565.46	2,437.2	3,591.6
		Defects period supervision	66.00	82.02	77.9	114.8
		2A LTP WTR/ 2132.3	Investigation and Reporting	81.98	89.02	84.6
	Design and Project Documentation		109.31	123.91	117.7	173.5
	MSQA		32.79	37.99	36.1	53.2
	Construction		546.56	633.18	601.5	886.4
	2A LTP WTR/ 2132.4	Defects period supervision	18.75	22.22	21.1	31.1
		Investigation and Reporting	26.30	29.81	28.3	41.7
		Design and Project Documentation	35.06	40.62	38.6	56.9
		MSQA	10.52	12.47	11.8	17.5
		Construction	175.31	207.77	197.4	290.9
		Defects period supervision	18.75	22.75	21.6	31.9
		10780.34	12627.64	11996.26	17678.70	

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**Hamilton City Council - Housing Infrastructure Fund  
Package costs**

Strategic Infrastructure element	Description/ HCC ref.	Work Phase	Total	Total	5%	95%
	No Inflation		With Inflation	Percentile	Percentile	
North-south arterial land		Procure design consultant	0.00	0.00	-	-
	2B Strategic land LTCCP 3200.2	Investigation and Reporting	879.00	914.16	868.5	1,279.8
		Land procurement	6714.00	7136.18	6,779.4	9,990.6
	2B Strategic land LTCCP 3200.3	Investigation and Reporting	690.00	717.60	681.7	1,004.6
		Land procurement	4579.00	4971.70	4,723.1	6,960.4
	2B Strategic land LTCCP 3200.4	Investigation and Reporting	404.00	420.16	399.2	588.2
		Land procurement	4145.00	4500.48	4,275.5	6,300.7
	2B Strategic land LTCCP 3200.5	Investigation and Reporting	509.00	529.36	502.9	741.1
		Land procurement	5616.00	6097.63	5,792.7	8,536.7
	2A Strategic WWW1-6	Investigation and Reporting	193.20	200.93	190.9	281.3
		Design and Project Documentation	289.80	314.65	298.9	440.5
		MSQA	77.28	87.60	83.2	122.6
	N-S arterial	Construction	966.00	1094.99	1,040.2	1,533.0
		Defects period supervision	31.25	36.20	34.4	50.7
	2A Strategic WWW1-7	Investigation and Reporting	75.00	78.00	74.1	109.2
		Design and Project Documentation	100.00	108.58	103.1	152.0
		MSQA	30.00	34.01	32.3	47.6
	N-S arterial	Construction	500.00	566.77	538.4	793.5
		Defects period supervision	25.00	28.96	27.5	40.5
	2B Strategic WWW2-10	Investigation and Reporting	69.71	75.69	71.9	106.0
		Design and Project Documentation	92.95	105.36	100.1	147.5
		MSQA	27.89	32.30	30.7	45.2
	N-S arterial	Construction	464.75	538.40	511.5	753.8
		Defects period supervision	25.00	29.63	28.1	41.5
	2B Strategic WWW2 PS N11	Investigation and Reporting	75.00	81.43	77.4	114.0
		Land procurement	64.40	71.12	67.6	99.6
		Design and Project Documentation	81.25	92.10	87.5	128.9
		MSQA	74.00	85.72	81.4	120.0
		Construction	1233.30	1428.75	1,357.3	2,000.2
	2B WWW2 PS N10	Defects period supervision	28.75	34.07	32.4	47.7
		Investigation and Reporting	75.00	85.02	80.8	119.0
		Land procurement	64.38	74.58	70.8	104.4
		Design and Project Documentation	81.25	94.13	89.4	131.8
		MSQA	52.54	62.27	59.2	87.2
	2B Strategic WWW2-9	Construction	875.72	1037.83	985.9	1,453.0
		Defects period supervision	28.75	34.89	33.1	48.8
		Investigation and Reporting	123.30	139.76	132.8	195.7
		Design and Project Documentation	184.95	214.26	203.5	300.0
		MSQA	49.32	58.45	55.5	81.8
	N-S arterial	Construction	616.50	730.62	694.1	1,022.9
		Defects period supervision	31.25	37.92	36.0	53.1
	2B WWW2-7	Investigation and Reporting	149.10	169.01	160.6	236.6
		Design and Project Documentation	223.65	259.09	246.1	362.7
		MSQA	59.64	70.68	67.1	99.0
		Construction	745.50	883.50	839.3	1,236.9
	2B WWW2 PS N9	Defects period supervision	31.25	37.92	36.0	53.1
		Investigation and Reporting	75.00	86.89	82.5	121.6
		Land procurement	61.00	72.29	68.7	101.2
		Design and Project Documentation	81.25	96.29	91.5	134.8
		MSQA	49.79	60.42	57.4	84.6
	2B WWW2-6	Construction	829.82	1007.03	956.7	1,409.8
		Defects period supervision	28.75	35.73	33.9	50.0
		Investigation and Reporting	29.01	32.88	31.2	46.0
		Design and Project Documentation	38.68	44.80	42.6	62.7
		MSQA	11.60	13.75	13.1	19.3
	2B WWW2-11	Construction	193.38	229.17	217.7	320.8
		Defects period supervision	25.00	30.34	28.8	42.5
		Investigation and Reporting	25.43	29.46	28.0	41.2
		Design and Project Documentation	33.91	40.18	38.2	56.3
		MSQA	10.17	12.34	11.7	17.3
	NS arterial	Construction	169.53	205.74	195.4	288.0
		Defects period supervision	25.00	31.07	29.5	43.5
			33139.93	36430.84	34609.30	51003.18

**Hamilton City Council - Housing Infrastructure Fund  
Package costs**

Strategic Infrastructure element	Description/ HCC ref.	Work Phase	Total No Inflation	Total With Inflation	5% Percentile	95% Percentile
Wastewater Strategic Storage and Pressure Main	Citywide strategic stage 2 Storage/PS and Rising mains	Procure design consultant	0.00	0.00	-	-
		Investigation and Reporting	238.00	269.78	256.3	377.7
		Consenting/designation	108.00	114.75	109.0	160.6
		Design and Project Documentation	1018.00	1238.84	1,176.9	1,734.4
		MSQA	340.00	438.71	416.8	614.2
		Construction	4949.30	6386.13	6,066.8	8,940.6
		Defects period supervision	119.00	159.72	151.7	223.6
			6772.30	8607.92	8177.52	12051.09
			271800	308153	272986	402295

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**Hamilton City Council - Housing Infrastructure Fund  
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Strategic Infrastructure Element	Total uninflated	Total inflated	Inflated costs per Year										Percentile	
			1	2	3	4	5	6	7	8	9	10	5th	95th
Wairere Drive/Cobham Drive Overbridge	20000	20800	20800	0	0	0	0	0	0	0	0	0	19760	29120
SH3 Intersection	11535	12615	85	118	653	22	0	0	0	0	0	0	11984	17661
East-west arterial	28484	34077	0	0	1184	6780	9949	9678	6379	108	0	0	32373	47708
Wairere Drive Extension and Waikato River Bridge	161088	182995	15822	29604	38632	53911	44946	80	0	0	0	0	173845	256193
Peacockes Road Urban Upgrade	10780	12628	0	826	2364	1578	4902	2875	82	0	0	0	11996	17679
North-south arterial land	33140	36431	6351	19838	2436	2954	3359	1427	67	0	0	0	34609	51003
Wastewater Strategic Storage and Pressure Main Stage 2	6772	8608	57	58	270	0	0	1092	147	3369	3456	160	8178	12051
	271800	308153											292746	431415

Appendix B: Detailed programme and spend breakdown by time.

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**Appendix C: Package Assessments – Assessment of Procurement Methods for Packages against Procurement Objectives**

(5 point scale: ✓✓, ✓, -, x, xx)

OBJECTIVE	EVALUATION CRITERIA	
Deal with Complexity and uncertainty	The level of complexity relates to structural and technical complexity: Structural: the number of varied components and the interdependence. Technical: the extent to which untested or new technical issues need to be addressed in delivering the activity. Uncertainty is present when it is impossible to exactly describe the existing state or future outcome, or assess the probability of a future outcome occurring.	Structures 10-30m and moderate/low risk pump/storage combinations = neutral complexity
Appropriate Scale	Will contract size have an impact on the type of supplier or groups of suppliers sought to deliver the activity?	- = \$10-\$20M
Design control	The extent to which the procurement option provides certainty in the output to allow for consistency across engagements/projects and HCC to achieve the urban design, amenity and aesthetic outcomes it seeks.	✓✓ = complete xx = little control
Flexibility to change scope	The extent to which the procurement option offers flexibility for cost-effective scope change during the process.	✓✓ = complete xx = little flexibility
Opportunity for innovation	The extent to which the procurement option maximises the opportunity for design, construction and financing innovation.	✓✓ = complete xx = limited
Value for money to HCC	The extent to which the procurement option offers value for money to HCC, considering: market tension/competitive tendering/ whole of life costs minimising project development and tendering costs for both HCC and Contractors	= good value - typical PQM xx = higher costs
Budget certainty	The extent to which the option reduces the risk of cost over-runs during both design and construction phases.	
Supplier market: Contractor/ Consultant availability and interest	The extent to which the procurement option will attract a high level of market interest during both the design and construction phases. The following should be taken into account: project size versus market capacity success of the procurement model for other projects in the region. Minimising the risk that high tendering costs could potentially be unrecoverable.	✓✓ = high interest - typical PQM xx = low interest
Timing and urgency/ delivery	Does the expected timeframe for project delivery meet HCC requirements?	✓✓ = complete xx = limited
Effective risk management	The extent to which the procurement option reduces risks and allocates risk to the party best able to manage them. The extent to which the procurement model reduces HCC's risk profile.	✓✓ = complete xx = limited
Performance/ quality/ durability	The extent to which the procurement option increases the probability of a high quality/durable product with high "whole of life" performance. interest during both the design and construction phases. The following should be taken into account: success of the procurement model for other projects in the region. Have quality projects been delivered or has the procurement model led to perceived loss of quality?	✓✓ = complete (e.g. specify pumps and specialists) xx = limited

Package 2: a. Transport Components (need to discuss weightings and application)

OBJECTIVE	RATING	WEIGHTING	COMMENT	TRADITIONAL LS	TRADITIONAL M&V	TRADITIONAL COST PLUS	DESIGN AND CONSTRUCT	ECI	ALLIANCE	REASONS FOR PREFERENCE/OPTIONS DISCARDED
Deal with Complexity and uncertainty	Moderate	6%	Large river span	✓ ✓	✓ ✓	✓ ✓	✓	✓	✓	HCC aesthetic interaction for bridge hard to match other than traditional
Appropriate for Scale	Moderate	6%	\$113M (moderate - large)	✓ ✓	✓	✓	✓✓	✓ ✓	✓✓	All cope with scale
Design control	High	10%	Landmark structure	✓ ✓	✓ ✓	✓ ✓	-	✓ ✓	✓	Traditional model allows design concepts to be debated and agreed.
Flexibility to change scope	Moderate	6%	Consent framework likely to limit scope or delay if changes	-	✓	✓	-	✓ ✓	✓✓	Traditional model allows early consent application
Opportunity for innovation	Moderate	6%	No piers in river – Relies on design innovation.	-	-	-	✓	✓	✓✓	Opportunities mainly limited to construction methodology
Value for money	High	10%		✓ ✓	✓	✓	✓	✓	-	Certainty from traditional Risk, but with greater opportunity for saving from DC/ECI/Alliance
Budget certainty	Very high	17%		✓ ✓	✓	x	✓✓	✓ ✓	-	Certainty from traditional Risk, but with greater opportunity for saving from DC/ECI/Alliance
Supplier market:	Moderate	6%	Few major players - Should attract a high level of interest.	✓ ✓	✓ ✓	✓ ✓	✓	✓	x	Contractor design role makes D&C potential unattractive to market
Timing and urgency/ delivery	High	10%	Development of specimen design to tender = 1 year lost	✓	✓	✓	xx	x x	✓✓	Traditional allows acceleration in a range of activities (consents, enabling, etc.)
Effective risk management	Moderate	6%	Few risks not understood	✓	✓	✓	x	x	-	
Performance/ quality/durability	Very High	17%	Landmark structure	✓ ✓	✓ ✓	✓ ✓	x	x	✓✓	
Score				16	15	13	8	12	12	Traditional or ECI/Alliance-Both require traditional start for scope
Preference Ranking				1	2	3	6	4	4	Traditional- details to sort (e.g. bridge extra)

Package 2: b. Wastewater Components (need to discuss weightings and application)

OBJECTIVE	RATING	WEIGHTING	COMMENT	TRADITIONAL LS	TRADITIONAL M&V	TRADITIONAL COST PLUS	DESIGN AND CONSTRUCT	ECI	ALLIANCE	REASONS FOR PREFERENCE/OPTIONS DISCARDED
Deal with Complexity and uncertainty	Moderate	6%	HCC likely to specify pup and telemetry supplier to match	✓ ✓	✓ ✓	✓ ✓	✓ ✓	✓ ✓	✓ ✓	HCC risk profile, demand uncertainty, interaction with operational matters HCC
Appropriate for Scale	Moderate	6%	\$43M (moderate)	✓ ✓	✓ ✓	✓ ✓	x x	- -	✓ ✓	All cope with scale (bit small for DC)
Design control	High	10%	HCC want clear control – high environmental/operational risks	✓ ✓	✓ ✓	✓ ✓	x x	✓ ✓	✓ ✓	Traditional model allows design concepts to be debated and agreed.
Flexibility to change scope	Moderate	6%	Consent framework likely to limit scope or delay if changes	- -	✓ ✓	✓ ✓	- -	✓ ✓	✓ ✓	Traditional model allows early consent application
Opportunity for innovation	Moderate	6%	More optimization based on operational characteristics and risks of Cambridge	- -	- -	- -	✓ ✓	✓ ✓	✓ ✓	Opportunities mainly limited to construction methodology
Value for money	High	10%		✓ ✓	✓ ✓	✓ ✓	x x	x x	- -	Certainty from traditional Need to have HCC optimise capital v's operational costs
Budget certainty	Very high	17%		✓ ✓	✓ ✓	x x	✓ ✓	✓ ✓	- -	Certainty from traditional
Supplier market:	Moderate	6%	Few major players – crossover skill set – risk area?	✓ ✓	✓ ✓	✓ ✓	✓ ✓	✓ ✓	x x	Contractor design role makes D&C potentially unattractive to market
Timing and urgency/ delivery	High	10%	Development of specimen design to tender = 1 year lost	✓ ✓	✓ ✓	✓ ✓	x x	x x	✓ ✓	Traditional allows acceleration in a range of activities (consents, enabling, etc.)
Effective risk management	Moderate	6%	Few risks not understood	✓ ✓	✓ ✓	✓ ✓	x x	x x	- -	HCC need to control risks
Performance/ quality/durability	Very High	17%	Landmark structure	✓ ✓	✓ ✓	✓ ✓	x x	x x	✓ ✓	HCC likely to specify pup and telemetry supplier to match
Score				16	15	13	-1	2	9	Traditional clear winner
Preference Ranking				1	2	3	6	5	4	Traditional- details to sort (nominated supply)
Combined score for Wastewater and Transport				32	30	26	7	17	16	Traditional clear preference

Preference Ranking				1	2	3	6	4	5	Traditional
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Wairere Drive extension and Waikato River Bridge Additional Comments

EVALUATION CRITERIA	TRADITIONAL	DISCUSSION	DESIGN AND BUILD	DISCUSSION	ALLIANCE	DISCUSSION	PPP	DISCUSSION
Design control	✓✓	Landmark structure, traditional model will allow design concepts to be debated and agreed.	-		-			
Efficient Risk Management	✓		✓		✓			
Opportunity for innovation	✓		✓✓	Maximises opportunity for innovation.	✓✓	Maximises opportunity for innovation.		
Value for money	✓✓		✓✓		x	Alliance is best suited for a cost reimbursable contract.		
Budget Certainty	-		-		x			
Market Interest	✓✓	Should attract a high level of interest.	✓	High bid costs can be disincentive.	-	High bid costs can be disincentive.	xx	Unlikely to be any market interest – too small, no money to be made.
Flexibility to change scope	✓✓		-		✓			
Timely Delivery	✓	Detailed design can be completed while land negotiation continues.	✓✓	Contractor is responsible for programme.	-			
Performance/ quality/ durability	✓✓	A robust design and specification is most likely.	-	Risk of quality being compromised to save costs.				
	1		2		3			Option discarded

Wastewater strategic storage and pressure main to Far East interceptor – Additional Comments


EVALUATION CRITERIA	TRADITIONAL	DISCUSSION	DESIGN AND BUILD	DISCUSSION	ALLIANCE	DISCUSSION	PPP	DISCUSSION
Design control	✓✓	The design is reliant on many factors that are not yet finalised, such as roading/stormwater layout, locations for structures etc.	-	Will need to be well scoped before going out to tender.	-	Will need to be well scoped before going out to tender.		
Efficient Risk Management	✓		✓✓		✓			
Opportunity for innovation	✓	Relies on design innovation.	✓✓	Maximises opportunity for innovation.	✓✓	Maximises opportunity for innovation.		
Value for money	✓✓		✓✓		x	Alliance is best suited for a cost reimbursable contract.		
Budget Certainty	-		-		x			
Market Interest	✓✓	Should attract a high level of interest.	✓	High bid costs can be disincentive.	-	High bid costs can be disincentive.	xx	Unlikely to be any market interest – too small, no money to be made.
Flexibility to change scope	✓✓		-		✓			
Timely Delivery	✓	Design can be finalised while designations for pump station location are sought/ landowner approvals.	✓✓	Contractor is responsible for programme.	-			
Performance/quality/durability	✓✓	A robust design and specification is most likely.	-	Risk of quality being compromised to save costs.				
	1		2		3			Option discarded



## Item 10

## Attachment 4

Package 4: a. SH3 Roundabout and EW Link to Shaw Wetland – Design commenced – Traditional Expected.

										
OBJECTIVE	RATING	WEIGHTING	COMMENT	TRADITIONAL LS	TRADITIONAL M&V	TRADITIONAL COST PLUS	DESIGN AND CONSTRUCT	ECI	ALLIANCE	REASONS FOR PREFERENCE/OPTIONS DISCARDED
Deal with Complexity and uncertainty	Moderate	6%	Straight	✓	✓	✓	✓✓			
Appropriate for Scale	Moderate	6%		✓	✓	✓	x			
Design control	Moderate	10%		✓	✓	✓	✓✓			
Flexibility to change scope	Moderate	6%		✓	✓	✓	✓✓			
Opportunity for innovation	Moderate	6%		✓	✓	✓	✓✓			
Value for money	High	10%		✓	✓	-	-			
Budget certainty	Moderate	6%		✓	✓	-	-			
Supplier market:	Moderate	6%		✓	✓	✓	✓			
Timing and urgency/ delivery	High	10%		✓	✓	✓	✓			
Effective risk management	Moderate	6%		✓	✓	x	x			
Performance/ quality/durability	Moderate	6%		✓	✓	✓	✓✓			
Score				16	15	13	8	12	12	
Preference Ranking				1	2	3	6	4	4	Traditional- (some could be through developer)

#### Appendix D: Bridge Procurement – Consideration of Aesthetics.

Suggestions for Aesthetic Criteria for Councillor Consideration:

A two stage process is proposed. Figure 20 overleaf demonstrate the reason for preferring traditional in terms of design control and programme. Early contractor involvement remains an option.

Stage 1 should confirm the preferred superstructure form based on examples and silhouette levels of information and a “willingness to pay” for enhancements. Since the consent requires no piers in the river, the superstructure options are limited (see Figure 19 below).

2. Principal Aesthetic Factors – these are the key cost influences

- a. Superstructure type and shape
- b. Pier placement and shape
- c. Abutment placement and design



**Figure 21: Structurally and Economically Feasible Superstructure Forms**

3. Secondary Aesthetic Design Factors – minor cost influences

- a. Railing details
- b. Surface colours and textures
- c. Architectural embellishments
- d. Lighting

There is a wide range of guidance available including NZTA’s bridge manual and urban design guidance, and HCC’s urban design panel. These refer to other sources. Sample instructions for aesthetics (NSW) (mainly primary factors) follow:

*“The following bridge aesthetic aspects shall be considered in design:*

- = All structures must present smooth, clean lines and bridges shall have a minimum structural depth consistent with their spans and method of construction.*
- = The design of bridges shall address the slenderness aspects of the structure and consider the effects of the parapets and all other elements of the structure in the determination of the apparent visual slenderness. Dominant horizontal lines shall be smooth and continuous.*
- = Bridge proportions shall represent spanning and supporting requirements, and shall respond to the context of the individual bridge localities.*
- = Length of spans shall be maximised where practical, within the context of the necessary bridge length.*

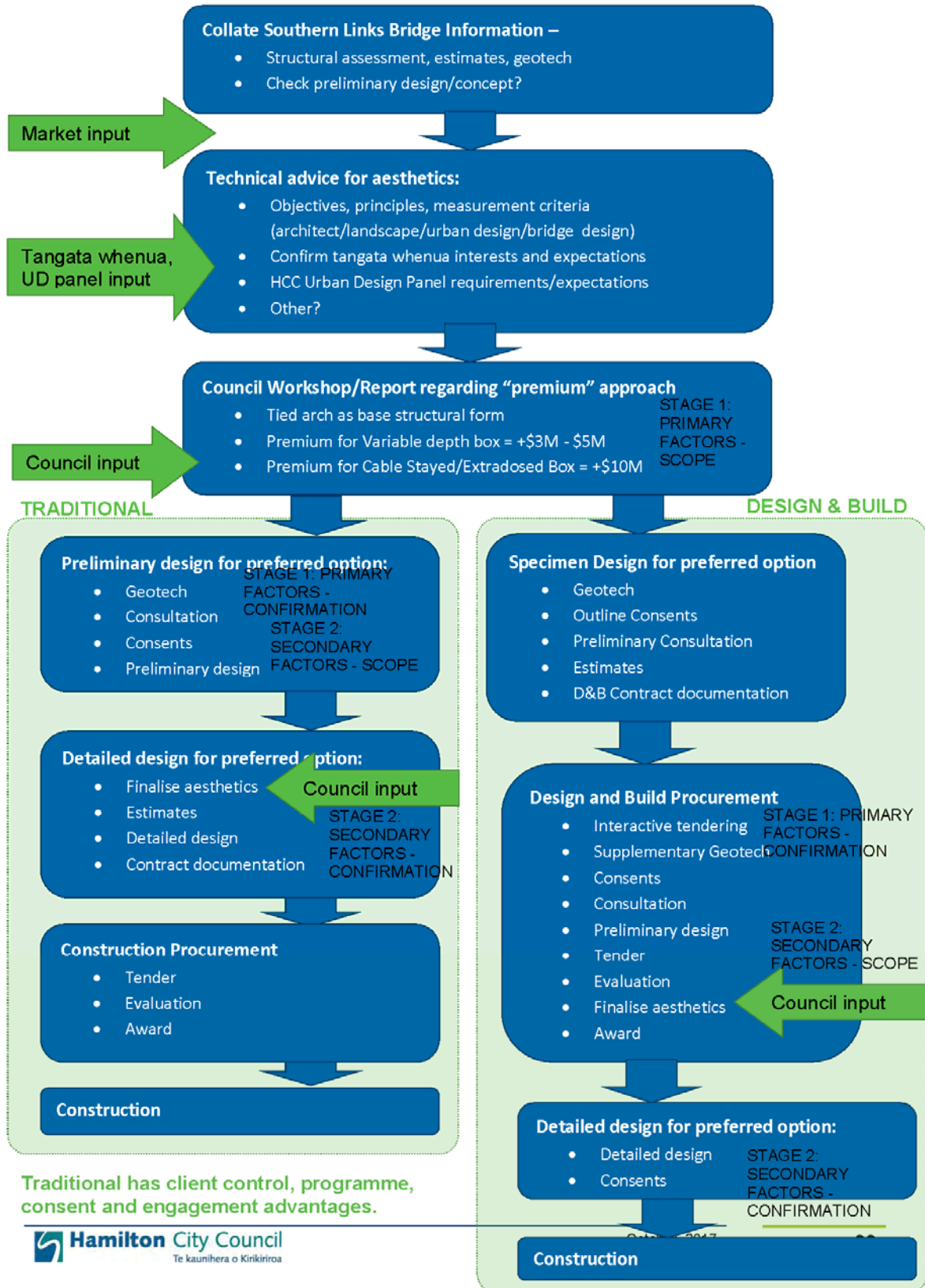
Attachment 4

- = Bridge structural elements such as piers, headstocks (including leading edges), sill beams and abutments shall be aesthetically integrated.
- = The bridge deck, kerb and barriers shall extend beyond the deck units by a minimum of 100 mm with 19 x 19 mm triangular drip groove to prevent water staining of the units and for aesthetics.
- = Columns with only two lines of symmetry (that is rectangular or elliptical) must have the longest edge transverse to the deck structure.
- = All superstructure elements must follow design vertical and horizontal profiles.
- = Spill-through abutments shall have a batter slope no steeper than 1:1.5.
- = On all exposed concrete surfaces on structures: • the finishes and colour must be uniform, and • tie holes must be aligned in a uniform pattern, and subsequently filled with mortar to achieve a smooth uniform coloured finish.
- = All structures must be of uniform colour and surface finish. Repair of defects and patching must match the appearance of the remainder of the surface.
- = Roads and Maritime Services (RMS) Bridge Aesthetics: Design Guidelines to Improve the Appearance of Bridges in NSW shall be used as a guide to the basic minimum aesthetics standards."

The Southern Links Landscape Assessment in the NOR is included as Attachment 2

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Attachment 1: Waikato Rover Bridge: Dealing with Aesthetics: Traditional or D&B (or cost plus)?





## Attachment 2: Extracts from Southern Links Urban and Landscape Design Framework

### 5.3.1 Hamilton Garden Bridge (5B)

Hamilton Garden Bridge provides a new link across the Waikato River adjacent to Hamilton Gardens and connects residential areas to the north and the south of the river. This bridge is a significant structure and requires an appropriate high level of aesthetic design.

The bridge is approximately 300m long and 10m above the river. The experience of the bridge will be quite dramatic. The bridge itself will be hidden from the surrounding except for the pylon that will reveal gradually from the approach roads and the river, due to its location and road geometry.

#### OPPORTUNITIES

- » To identify this important Waikato crossing by appropriate form and scale that better defines the functionality of this route and responds to the location, setting and surrounding context;
- » To ensure a form that avoids piers within the river bed;
- » To encourage more pedestrian and cycle use of this new bridge by significantly improving the amenity of the bridge. This increases access between communities and the river; and
- » To integrate the bridge as a part of the city's network that links open space and walk / cycle trails on both sides of the river.



HAMILTON GARDEN BRIDGE LOCATION



HAMILTON GARDEN BRIDGE LOCATION



INDICATIVE ARCH BRIDGE FORM



INDICATIVE BRIDGE FORM (VIEW FROM RIVER SHORELINE)

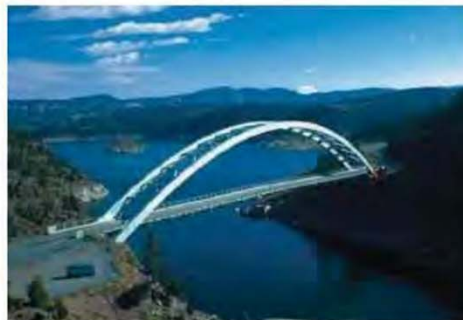
#### KEY OUTCOMES

- » A slender and elegant bridge that complement its setting rather than detract from the serene river environment. A shallow deck and minimal vertical support to maintain views beneath the bridge deck up and down the river;
- » Ensure no piers are placed in the main river channel with due consideration to cultural, ecological and visual aspects;
- » The design should reinforce the rich history and culture of the region and assist in building an identity for the bridge. All bridge elements should be fully integrated;
- » Take account of the views from key vantage points on land and water to determine the final location of bridge pylon / pier support;
- » Provide a creative underside treatment of the bridge to provide interest to the walking / cycling experience and offset the dominance of the bridge structure at the southern end; and
- » There will be considerable extent of ramps to enable cycle and disabled access from the bridge to the river trail along the river shore. The design needs to take into consideration CPTED principles to provide good pedestrian sightlines and avoid entrapment spots.

#### DESIGN INTENT:

Melding together the aesthetic, functional and buildability factors, the design suggests an extradosed form of bridge wherein the support pylon provides a balance to the steep sided northern edge of the river. The extradosed is preferred over Cable-Stay for the following reasons:

- » A scale that reflects the surrounding residential yet provides a strong identity to the bridge; and
- » A bridge form that responds to the land and the river and creates a strong sense of place.



INDICATIVE EXAMPLE OF AN ARCH BRIDGE FORM



INDICATIVE EXAMPLE OF AN ARCH BRIDGE FORM



INDICATIVE DESIGN/ART INTERVENTIONS INTEGRATED INTO STRUCTURE

Appendix E: HCC Transport PSP and LASS Other Discipline Skills Matrices

LASS Professional Services Panel																	
Membership of Panel by Skill Area	Discipline 1:			Discipline 2:			Discipline 3:		Discipline 4:			Discipline 5:					
	Building Services			Three Waters			Flood Hazard Management		Urban Design			Planning					
	Architecture	Structural Engineering Building Services (HVAC etc)	Fire Engineering Energy Management Quantity Surveying	Water Treatment and Reticulation Stormwater Reticulation and Wastewater Reticulation and Solid Waste	Process Engineering Asset Valuation	Land Drainage and River Management Flood Hazard Mapping and Monitoring	Structural Audits	Landscape and Visual Analysis Streetscape and Public Domain CPTED	Master planning and Built Form Specialised Turf Services	Urban and Regional Planning Resource Consent Planning Retail Distribution and Economic Modelling	Heritage and Archaeological Arbiculture Assessment/Advice						
<b>NOTE:</b>  Blue shading indicates the consultancy scored in the highest ranked respondents for that Skill Area  Green shading indicates the Consultancy's availability within the Skill Area, because they are preferred in other Skill Area's under that discipline.																	
AECOM																	
Align Limited																	
Paua Ltd																	
Arbolab Consultancy Ltd																	
Archifact Architecture and Conservation Ltd																	
Babbage Consultants Ltd																	
BCD Group Ltd																	
Beca Limited																	
Bloxam Burnett Olliver																	
Boffa Miskell Ltd																	
CHM2Becca																	
de Lisle Jenkins Architects Ltd																	
Mitchell Daysh																	
Ergo Consulting Ltd																	
GHD Ltd																	
Gray Matter Ltd																	
Harrison Grierson Consultants Ltd																	
Holmes Consulting Group LP																	
Jacobs SKM (Sinclair Knight Merz Ltd)																	
Jewkes Boyd Cost Management																	
Latitude Planning																	
Mansergh Graham Lanscape Architects																	
Mott McDonald New Zealand Ltd																	
MWH New Zealand Ltd																	
NZ Energy Solutions																	
Opus International Consultants																	
Planz Consultants Ltd																	
Property Economics																	
Recreational Services																	
Richard Knott																	
Rider Levett Bucknall Auckland Ltd																	
Simmons & Assoc. Ltd																	
Tonkin & Taylor Ltd																	
Urbanisplus Ltd																	



HCC Professional Services Panel										
Membership of Panel by Skill Area	Discipline 6: Roading and Transportation					Discipline 7: Parking	Discipline 8: Support Services			
	Road Asset Management	Traffic Engineering	Transportation Planning	Bridge Design	Road Design	Specialist services	Parking modelling and analysis	Geotechnical	Land Surveying	Environmental Engineering
<b>NOTE:</b> Blue shading indicates the consultancy scored in the highest ranked respondents for that Skill Area Green shading indicates the Consultancy's availability within the Skill Area, because they are preferred in other Skill Area's under that discipline.										
Abley Transportation Consultants										
AECOM										
Align Surveyors and Landform Surveys Limited										
Beca Limited										
Bloxam Burnett Olliver										
GHD Limited										
Gray Matter Limited										
Holmes Consulting Group										
Micon Engineering (1995) Ltd										
Morphum Environmental Limited										
MRCagney										
MWH New Zealand Ltd										
Odyssey Energy (2009) Limited										
Opus International Consultants										
Tonkin & Taylor Ltd										
Traffic Design Group Ltd										
Waikato Roading Services Ltd										

## Appendix N Programme

### Relevance:

Section 7: Commercial Case  
Section 8: Management Case

- Detailed programme showing implementation sequences and timing
- Informs spend profile, market assessments, packaging and procurement decisions



Work Phase	Underway	Yr1	Yr2	Yr3	Yr4	Yr5	6	7	8	9	10
<b>DESIGN</b>											
<b>Procure consultant</b>											
Transport - Wairere Drive/Cobham Drive Overbridge											
Transport - SH3 Intersection and east-west arterial											
Property - all property											
Transport - Wairere Drive extension and Waikato River Bridge											
Three waters - strategic wastewater											
Three waters - internal water											
Three waters - internal wastewater											
Transport - N-S arterial											
Transport - Peacockes Upgrade											
Transport - East-west arterial											
<b>Wairere Drive/Cobham Drive Overbridge</b>											
Investigation and Reporting											
Land procurement											
Design and Project Documentation											
Consenting/designation											
Construction -Wairere Drive/Cobham Drive overbridge											
<b>SH3 Intersection and water</b>											
Investigation and Reporting											
Land procurement											
Design and Project Documentation											
Consenting/designation											
Construction - Transport											
<b>Wairere Drive Extension, Waikato River Bridge, water, wastewater</b>											
Investigation and Reporting											
Land procurement											
Design and Project Documentation											
Consenting/designation											
Construction											
<b>North-south arterial land</b>											
Procure design consultant											
Investigation and Reporting											
Land procurement											
<b>North-south wastewater, Stages 1 to 5</b>											
Investigation and Reporting											
Design and Project Documentation											
Land procurement											
Construction											
<b>Peacockes Rd Upgrade</b>											
Investigation and Reporting											
Land procurement											
Design and Project Documentation											
Consenting/designation											
Construction											
<b>East-west arterial, transportation, water and wastewater Stages 1 and 2</b>											
Investigation and Reporting											
Land procurement											
Design and Project Documentation											
Consenting/designation											
Construction											
<b>Strategic wastewater Stage 2</b>											
Investigation and Reporting											
Consenting/designation											
Design and Project Documentation											
Construction											

**Legend**

Procure consultant	
Investigation and reporting	
Land procurement	
Design and Project Documentation	
Consenting/designation	
Construction	

## Appendix O

### Management Structure Chart

**Relevance:**

Section 8: Management Case

- Organisation/management structures for:
  - Organisational concept
  - Governance framework
  - Management Structures:
    - Initiation (Year 0)
    - Pre-implementation – e.g. design and procurement (years 0-2)
    - Implementation – Gateway Infrastructure (Years 2-5)

After the gateway infrastructure is in place, implementation management will transfer to HCC's business as usual capital programme management operations
- Used as the basis for implementation resource planning and control system development

Housing  
Infrastructure

DRAFT

## Management Structure: Draft 2 (No HCC Approval)

Overview: Conceptual  
Governance: Steering, Governance, Assurance  
Year -1 - 0: Initiation  
Year 0 - 2: Pre-implementation  
Year 1 – 5: Gateway Projects Implementation  
Year 6 – 10: Development Implementation

DRAFT

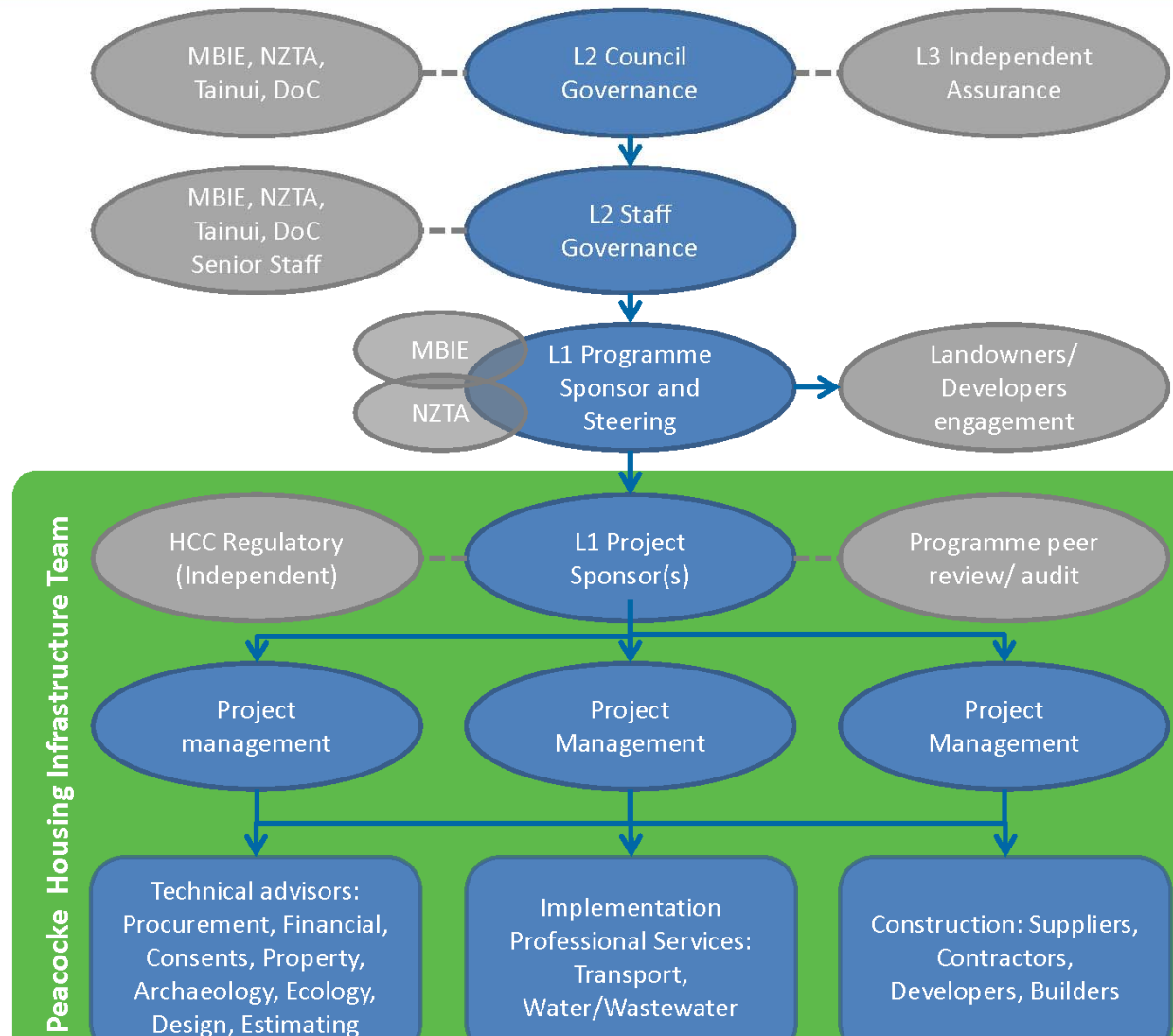
# Organisational Concept

Housing  
Infrastructure



## General approach

- 3 levels of assurance (L1 management, L2 governance, L3 independence)
- Multi-level engagement with key stakeholders
- Joint steering group (MBIE, NZTA, HCC)
- Dedicated regulatory team (master planning, consents, building)
- Dedicated Peacocke Housing Infrastructure implementation team



Attachment 4

Item 10

