

Memorandum

To: Te Pātukurea Spatial Plan Team
From: Craig Richards (Beca)
Subject: Hybrid Scenario Transport Inputs

Date: 5 February 2025
Our Ref: 4281692-533828970-368

1 Introduction

This memo describes transport planning inputs to Te Pātukurea, the Kerikeri Waipapa Spatial Plan, Hybrid Scenario appraisal. These inputs include defining potential upgrades to main roads, intersections, walking/cycling and public transport to support access and movement under the preferred future land use scenario (Hybrid Scenario) and will be included in the draft spatial plan. High level indicative cost ranges for the assumed transport upgrades are also provided.

The purpose of this work is to provide an early indication of potential transport upgrades and costs required over the long term (30 years) to support the Spatial Plan.

This analysis follows a high-level method suitable for the Spatial Planning stage. Further, more detailed, studies will be necessary in future stages, e.g. Structure Planning, Plan Change, Consenting and Business Case, etc over time.

Traffic modelling of the Hybrid Scenario has not been undertaken at this stage. Far North District Council (FNDC) has developed a traffic model for the Kerikeri / Waipapa area and findings from the base modelling report has informed this analysis. Once the future spatial allocation of homes and jobs is more certain following the Spatial Plan adoption then traffic modelling of the preferred long-term scenario will be appropriate to inform future projects.

A meeting was held with the New Zealand Transport Agency Waka Kotahi (NZTA) to inform the spatial plan development. NZTA emphasised their support for Council taking a long-term planning approach for new infrastructure and existing funding constraints. NZTA has no significant planned projects for the Kerikeri / Waipapa section of the State Highway 10 corridor at this time. NZTA is not opposed to new intersections on State Highway 10 if there is a demonstrated need, but would prefer that existing intersections are utilised / upgraded and consolidated where possible (we support this objective).

2 Hybrid Scenario

Key inputs used to inform the transport analysis for the Hybrid Scenario are from the Te Pātukurea Distribution of Growth Table summarised below.

Table 1: Distribution of Future Growth

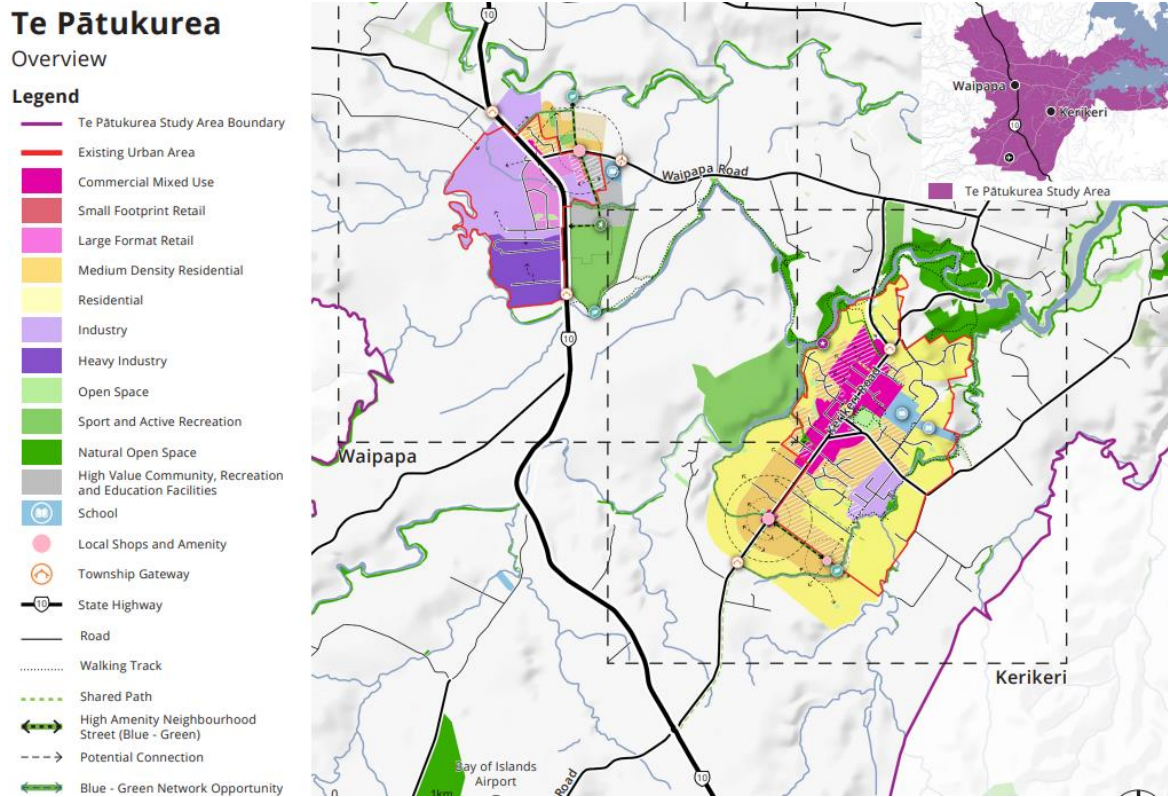
Land Use	Kerikeri	Waipapa	Rural
Households	3658	797	235
Retail / Commercial	13.9ha	7.4ha	-
Industrial	1.4ha	3.3ha	-

Growth in Kerikeri and Waipapa will be a combination of Brownfield (infill) and Greenfield.

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The location of additional growth is provided in the maps produced by Boffa Miskell and copied below.

Figure 1: Spatial Distribution of Growth (Boffa Miskell)



3 Transport Assumptions and Infrastructure Requirements

3.1 Assumptions

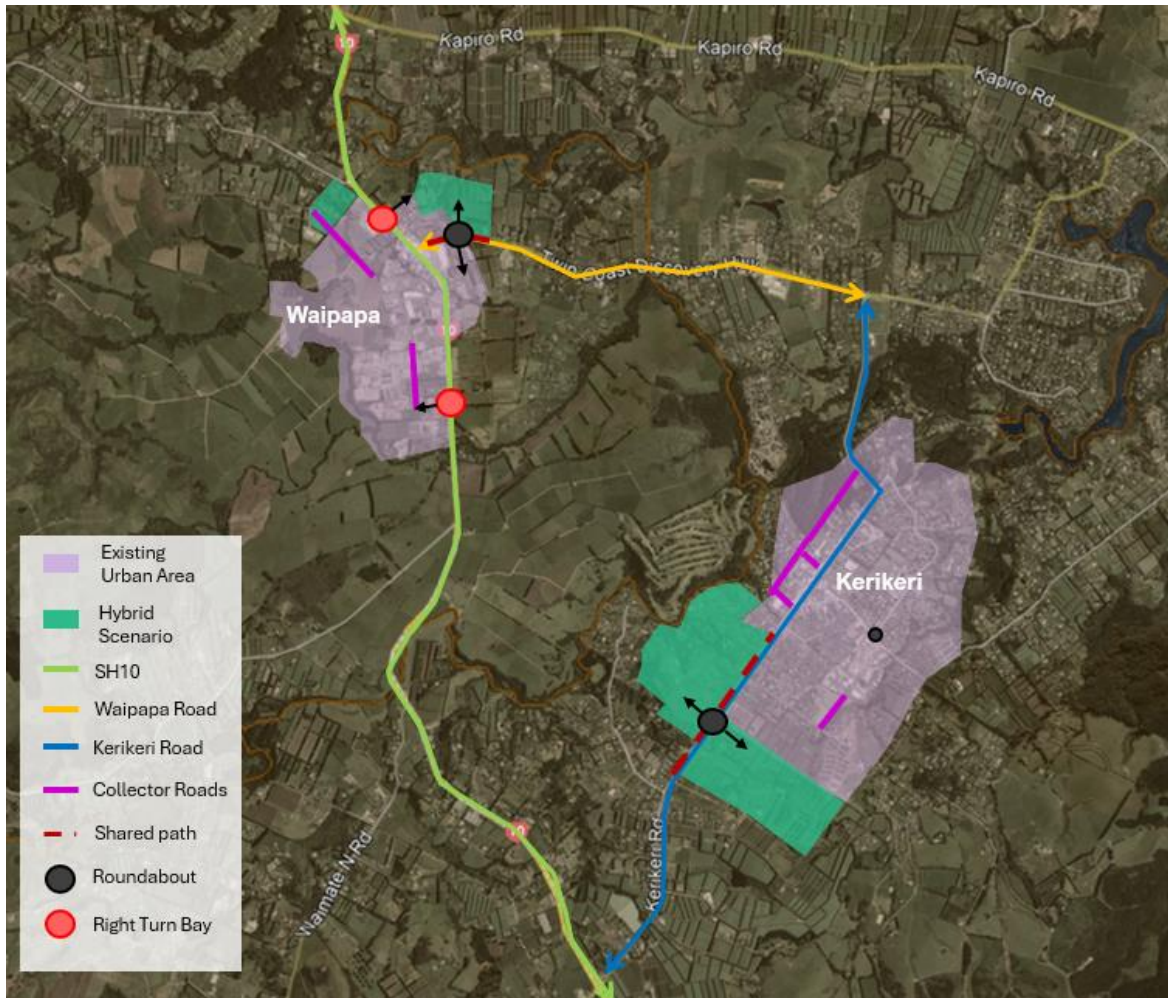
The Kerikeri CBD bypass and Hone Heke roundabout upgrade are assumed to be necessary in the base scenario. The cost for these upgrades is included in the Hybrid Scenario indicative cost range described in this memo. The cost of the CBD bypass was provided by FNDC.

3.2 Transport Infrastructure

A basic diagram of the presumed main transport infrastructure / upgrades required for the Hybrid Scenario is shown in Figure 2.

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Figure 2: Assumed Significant Transport Upgrades



Key transport infrastructure and services assumed to support the anticipated growth areas includes (as shown in Figure 2):

- Kerikeri Bypass, Hone Heke Roundabout and Hall Road connection
- New roundabout Waipapa Road
- Shared path Waipapa Road
- 2 X right turn bay intersections Waipapa SH10
- Road extensions Waipapa
- New roundabout Kerikeri
- Shared path Kerikeri Road
- Public transport service (bus) and bus stops Kerikeri and Waipapa.

Local roads within new growth areas are not included in this analysis. We anticipate local roads would be constructed by land developers and vested to Council.

3.3 Risks

There are several risks that will need to be considered further and assessed via traffic modelling / detailed analysis in future:

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- The capacity of the Heritage Bypass. Traffic modelling of the base scenario indicates traffic volumes on the Bypass will remain within capacity, over the longer term capacity of this route could become an issue if traffic between Kerikeri and Waipapa continues to increase.
- Capacity of the SH10 / Waipapa Road roundabout. Traffic modelling indicates this roundabout may become congested in future. Provision of road connections in Waipapa may alleviate traffic volumes using the roundabout, the effectiveness of this will need further analysis / modelling.
- Higher car use and more growth in surrounding areas may lead to more traffic in Kerikeri / Waipapa. This could mean the local network becomes congested. Future traffic modelling work can investigate this.

3.4 Staging

At this time it is envisioned that residential growth will proceed in Kerikeri ahead of Waipapa. Details of staging is to be confirmed. Staging of growth will have a direct influence on the timing of infrastructure cost / investment as transport infrastructure will only be required as new growth areas develop. Additionally it may be possible to stage some transport upgrades, i.e. a basic intersection initially and a roundabout in the longer term. This level of detail should be considered in future studies.

It is anticipated that investment in new transport infrastructure to support the spatial plan will be low in the short term (0-3 years) with mainly planning and design / funding applications proceeding during this period. Higher capital investment will be necessary in the medium / long term when greenfield growth areas progress. Timing for the Kerikeri CBD bypass is an uncertainty and this may be required in the medium term (4-10 years). Traffic modelling will inform more detailed staging decisions.

4 Anticipated Cost Range and Assumptions

The high-level indicative cost range for transport infrastructure is \$77M to \$103M. Escalation and GST is excluded.

Uncertainty in the cost estimate includes the final form of infrastructure, utilities / service changes, market conditions and construction contingencies to cover unforeseen items during construction. We have included an appropriate contingency allowance to provide a best estimate of the cost to completion for the most likely option.

The estimated costs included in this report are high-level, indicative assessments which have been developed solely for the purpose of comparing and evaluating the option.

The estimate range is an indication of the degree to which the final cost outcome for a given project will vary from the estimated cost – it is not an additional Contingency.

This estimate is based on pre-concept stage information. The estimate is deemed to be a Class 5 estimate in terms of the AACE Cost Estimate Classification System guidelines.

This cost range includes the key infrastructure listed in Section 2.3. Bus services are not included in the cost estimate. The cost of running buses will need to be considered in a more detailed public transport study.

These estimates are based on pre-concepts and should not be used for budgeting purposes.

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5 Future Transport Assessments

The transport assessment completed to date provides a high-level indication of potential transport upgrades and costs to enable the preferred Spatial Plan scenario. In future more detailed analysis will be necessary to confirm and advance planning to deliver transport system upgrades over time. This should consider:

- Transport modelling utilising the preferred land use scenario and considering wider network trips
- Early concept design of key infrastructure to identify any constraints and opportunities and improve cost estimate accuracy
- Public transport feasibility / business case
- Planning for future funding requests such as RLTP, NLTP, Business Case processes so that infrastructure delivery can align with growth timeframes.

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Te Pātukurea Kerikeri-Waipapa Spatial Plan

Scenario Comparison

Transport

18/10/2024

Scope and Assumptions

This report provides a high-level review of the spatial plan scenarios in regard to Transport requirements. The purpose is to inform scenario comparison (differentiators).

More detailed analysis and costing will be undertaken at the preferred scenario stage.

Assumptions:

- Growth assumptions have been taken from the Spatial Plan work to date
- Committed upgrades include Kerikeri Rd bypass, Hall Rd connection and Hone Heke roundabout
- Local roads within growth areas will be developer funded and delivered (and vested to Council).
- Intersections with existing Collector / Arterial Roads are included, however these may also be developer funded (uncertain)
- State Highway upgrades are excluded (100% NZTA funded)

Uncertainty in the cost estimate includes market conditions and construction contingencies to cover unforeseen items during construction. We have included an appropriate contingency allowance to provide a best estimate of the cost to completion for the most likely option.

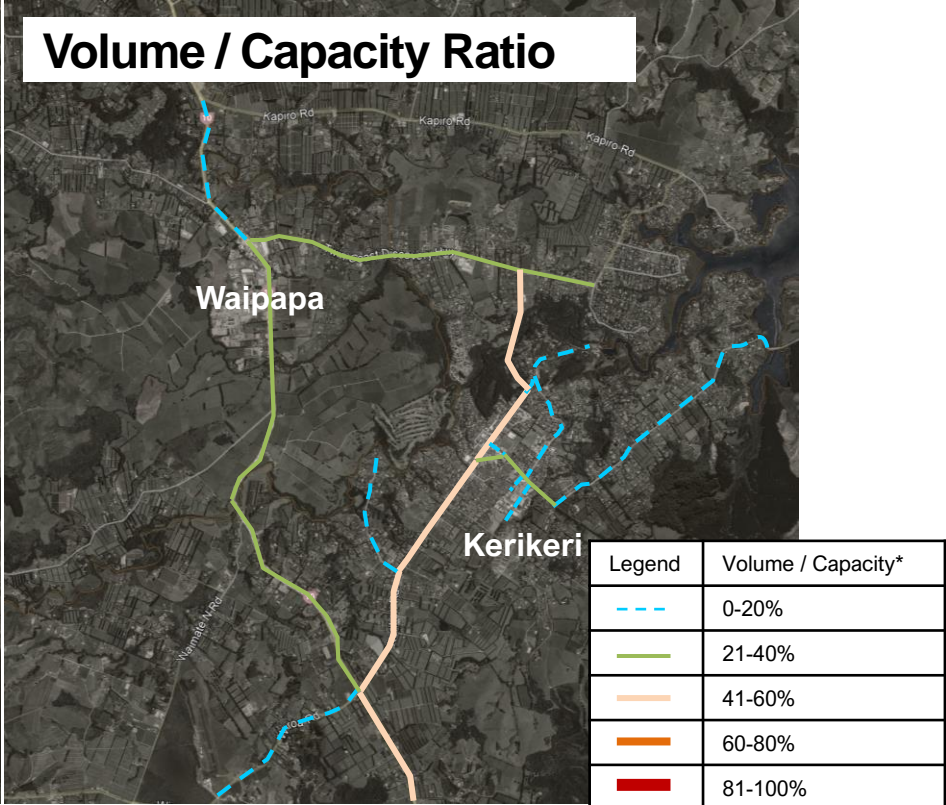
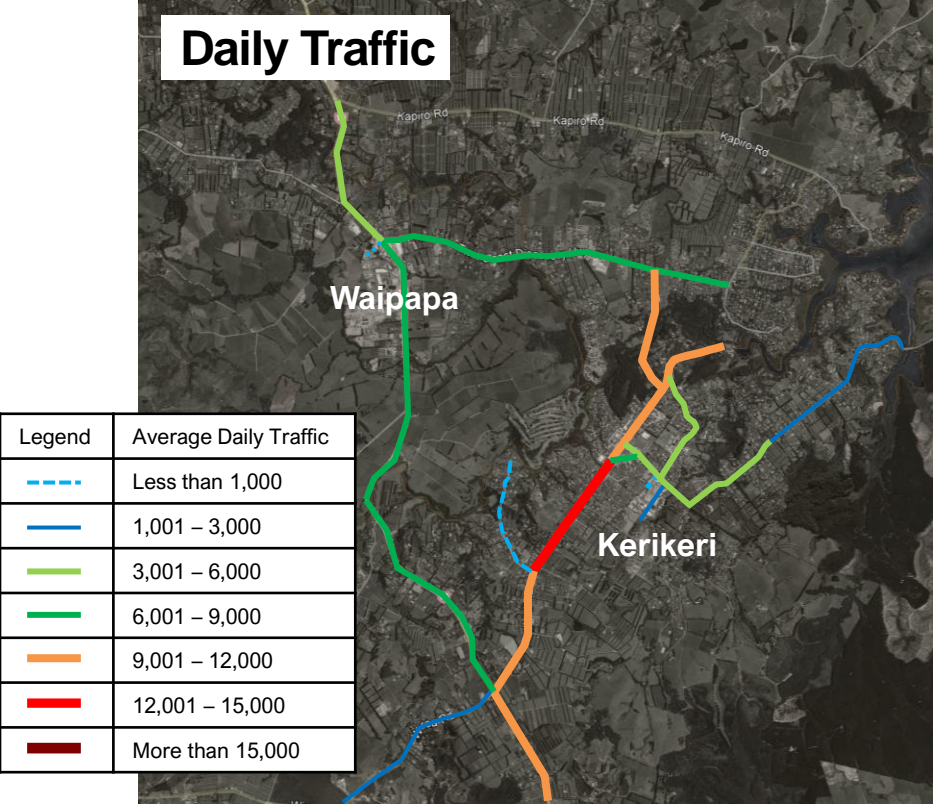
These estimates are based on concepts and should not be used for budgeting purposes.

The following optioneering cost estimates have been prepared for Far North District Council for the Te Pātukurea Kerikeri-Waipapa Spatial Plan Scenario Comparison Transport. The estimated costs included in this report are high-level, indicative assessments which have been developed solely for the purpose of comparing and evaluating the options.

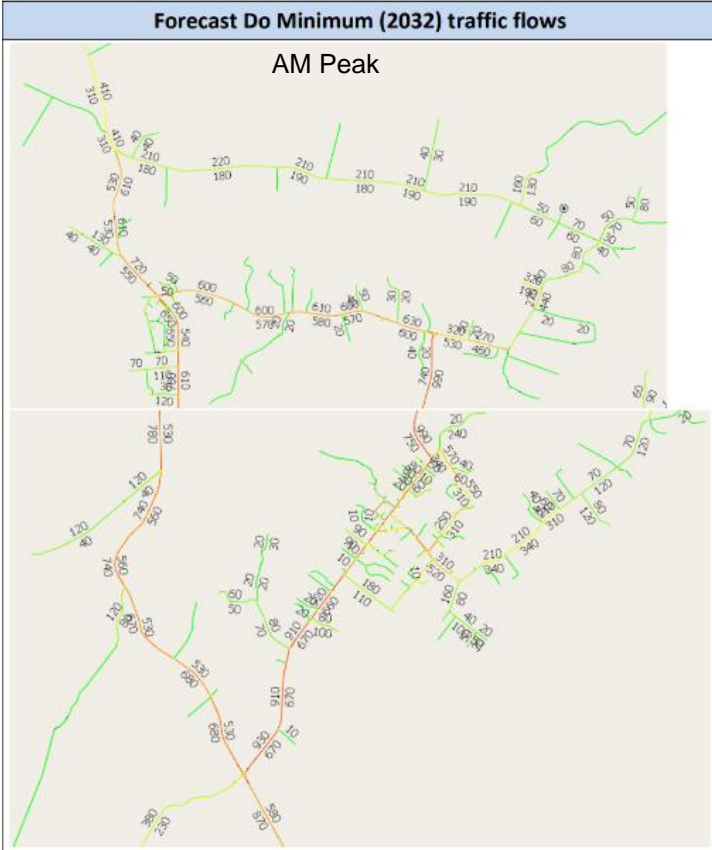
* Kerikeri Transport Model, Forecast Model Development Report, Flow, 2024

Transport Context

Existing Traffic Volumes



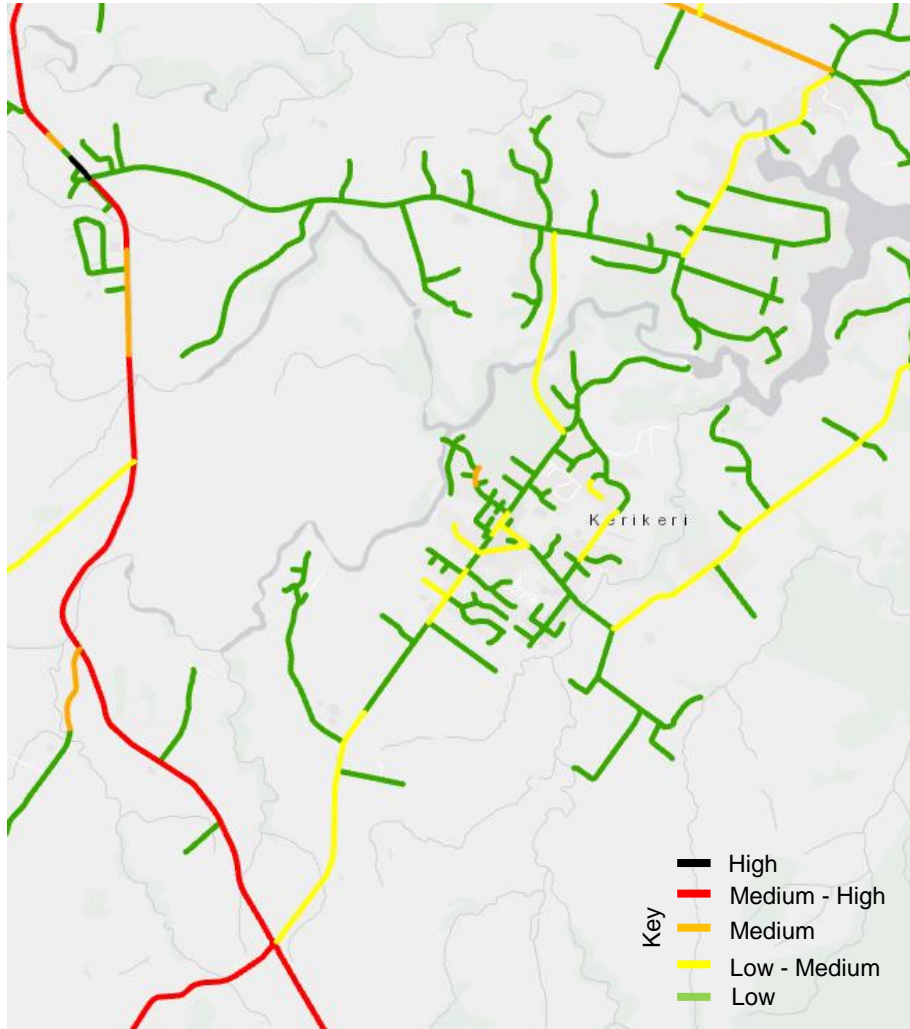
Projected Traffic Volumes (10yrs)



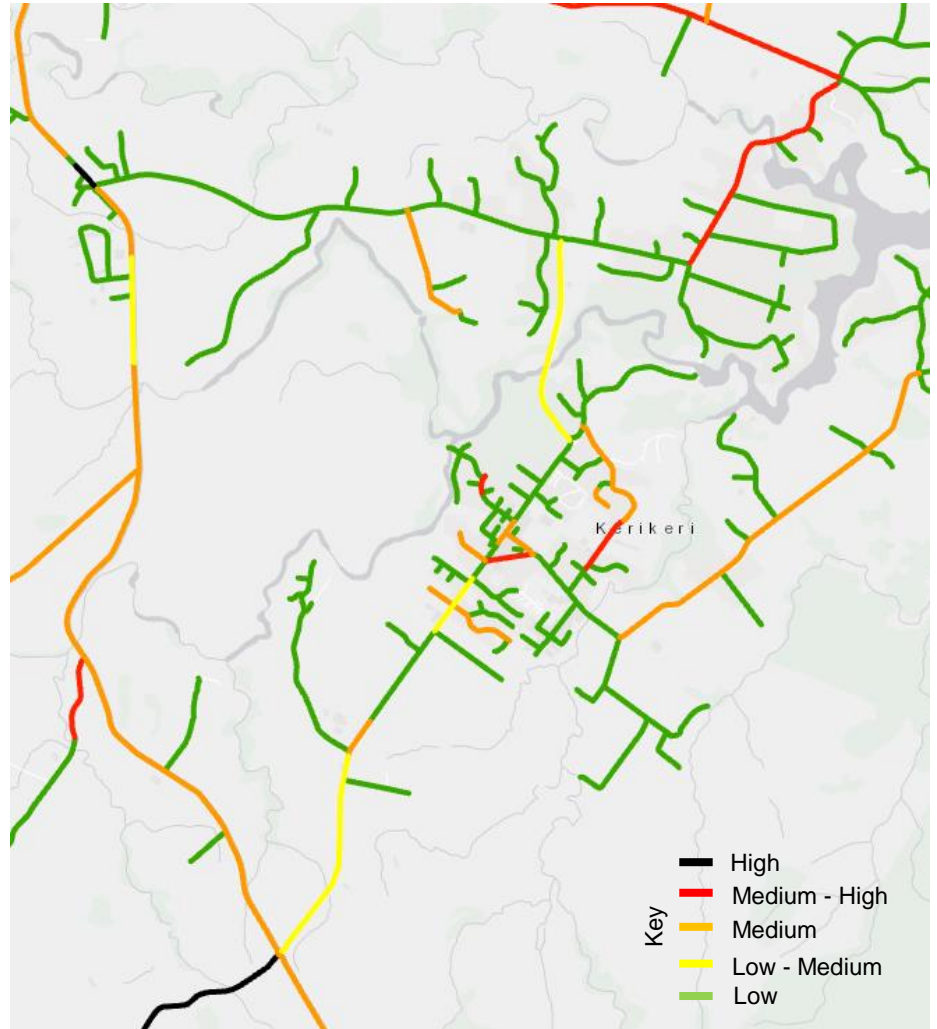
Traffic modelling* indicates the network is within capacity for the next 10 years but some links are approaching capacity

Road Safety

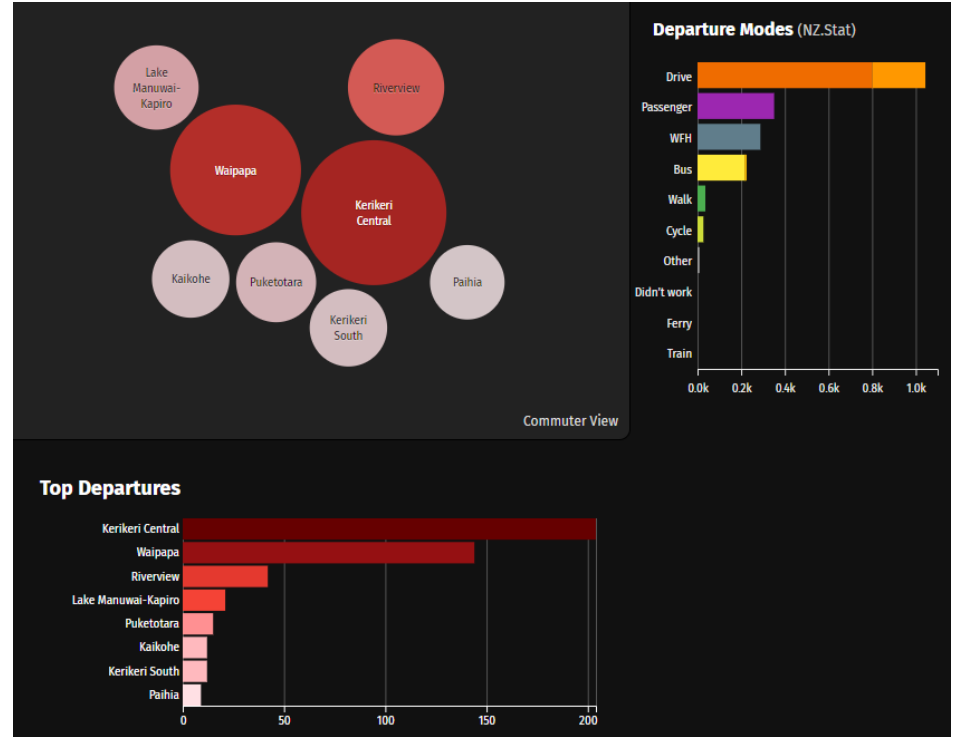
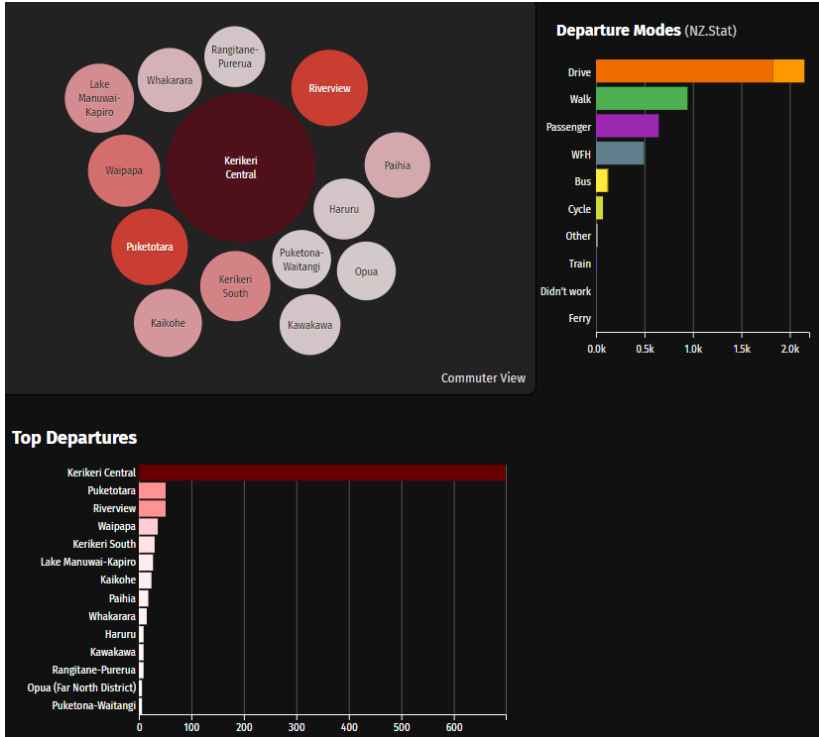
Collective Risk



Personal Risk



Traffic Movements



Origin / Destination data from the 2018 Census shows high flows between Waipapa and Kerikeri and high internalisation within Kerikeri. Travel is predominantly by private vehicle.

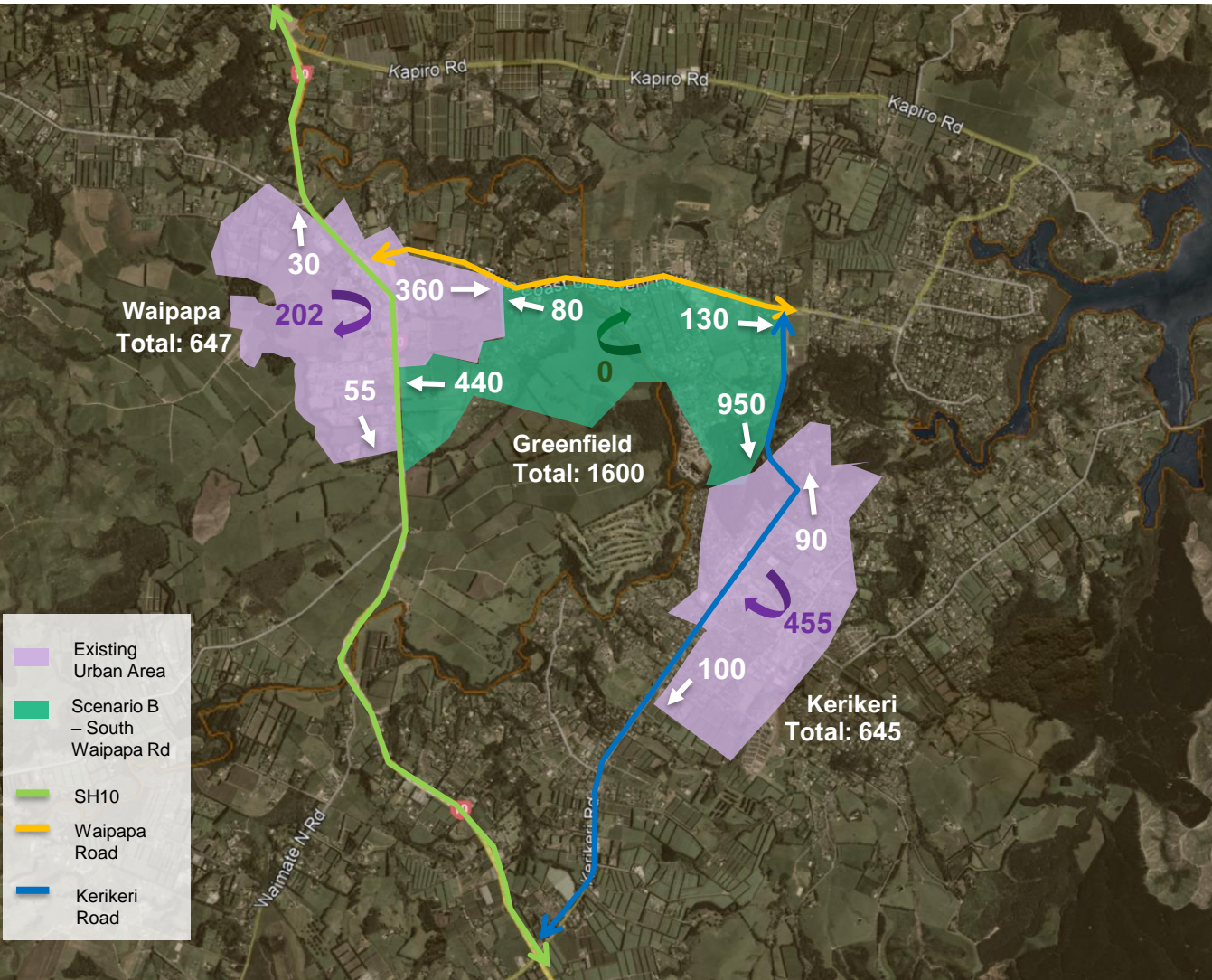
Analysis of Growth Options

Vehicle Trip Generation (residential peak hour trips)

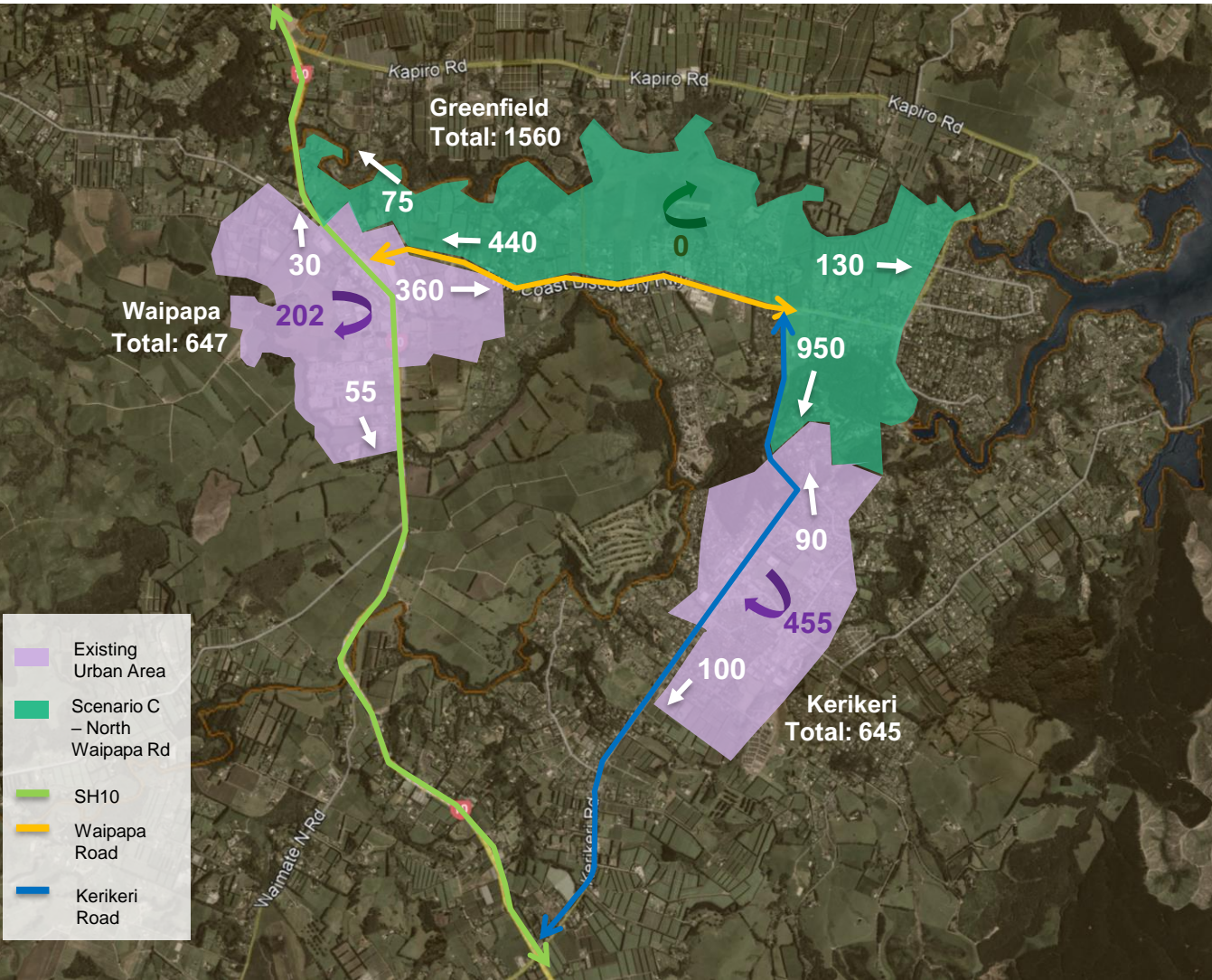
Existing population	14,000	
Projected population in 30 years	20,000 high growth projection	
Projected additional housing	4,690 conservative / high assumption	
Residential trip rates - peak hour	0.5	Urban areas (less car use, smaller hh, older populations)
	0.85	Greenfield areas
	1	Rural
Residential trip generation		
Scenario B	3,150	
Scenario C	3,150	
Scenario D	3,050	
Scenario E	3,050	
Scenario F	3,050	

Scenarios D – F have slightly lower trip generation due to higher brownfield development

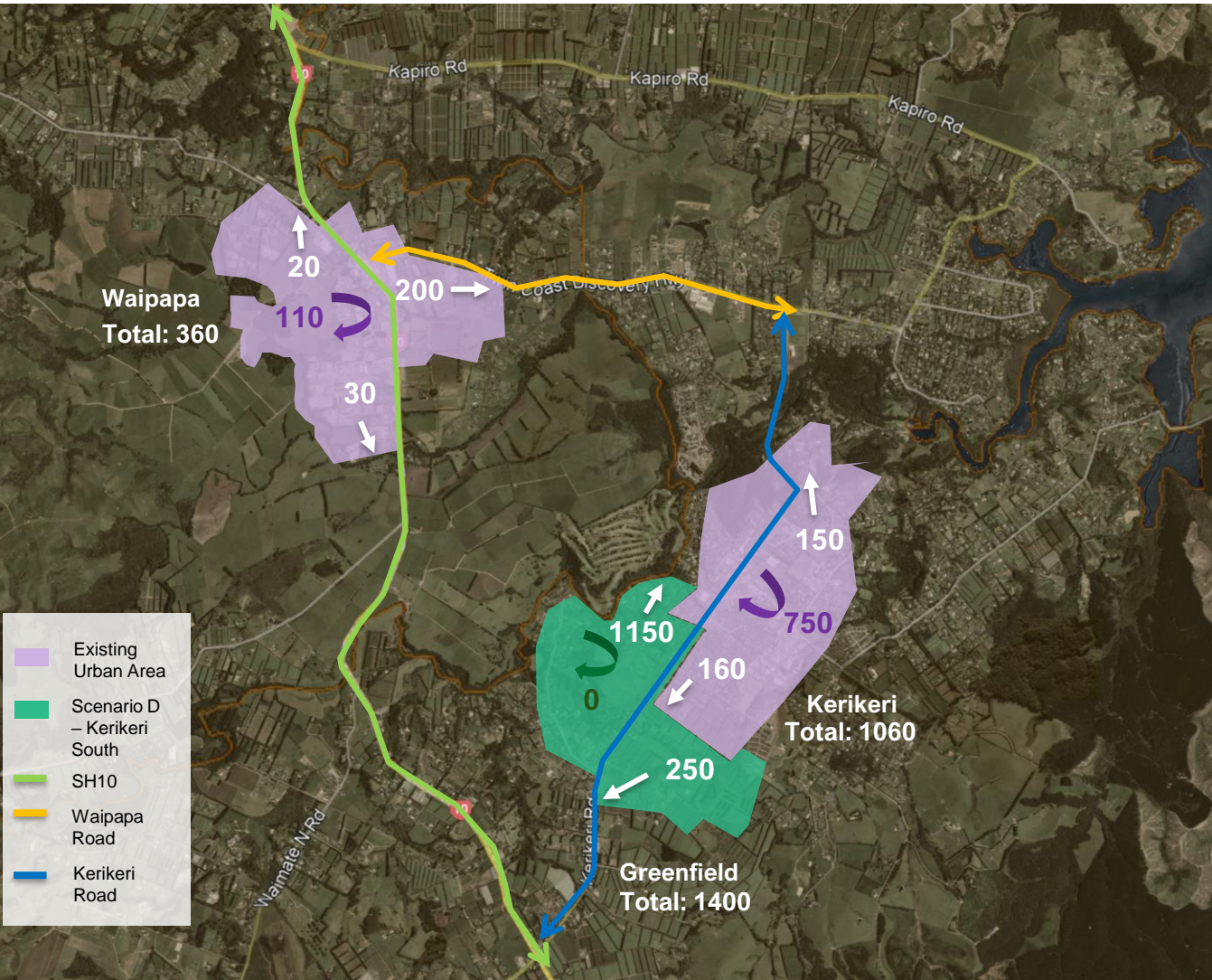
Trip Generation (AM peak hour): Scenario B – South Waipapa Road Expansion



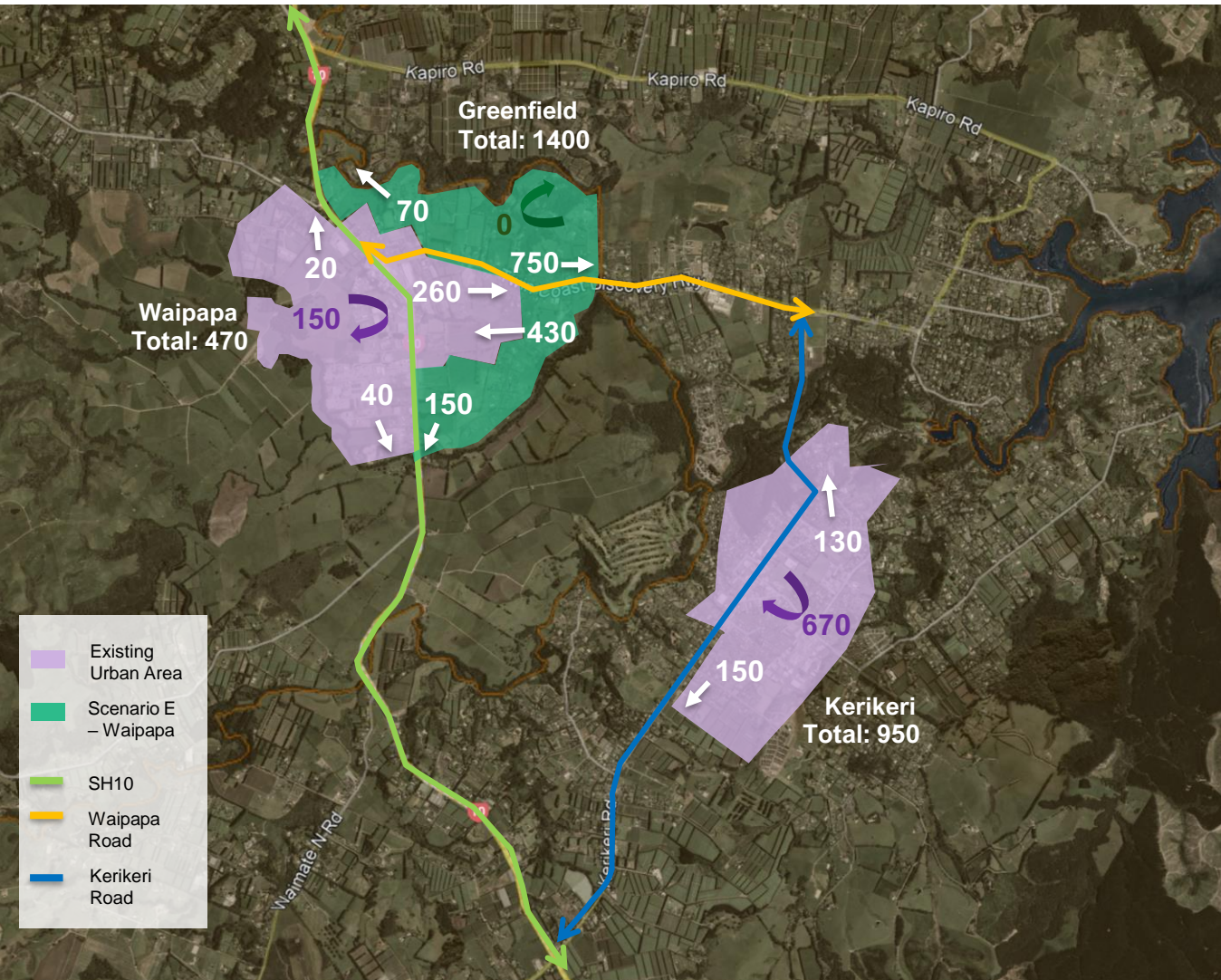
Trip Generation (AM peak hour): Scenario C – North Waipapa Road Expansion



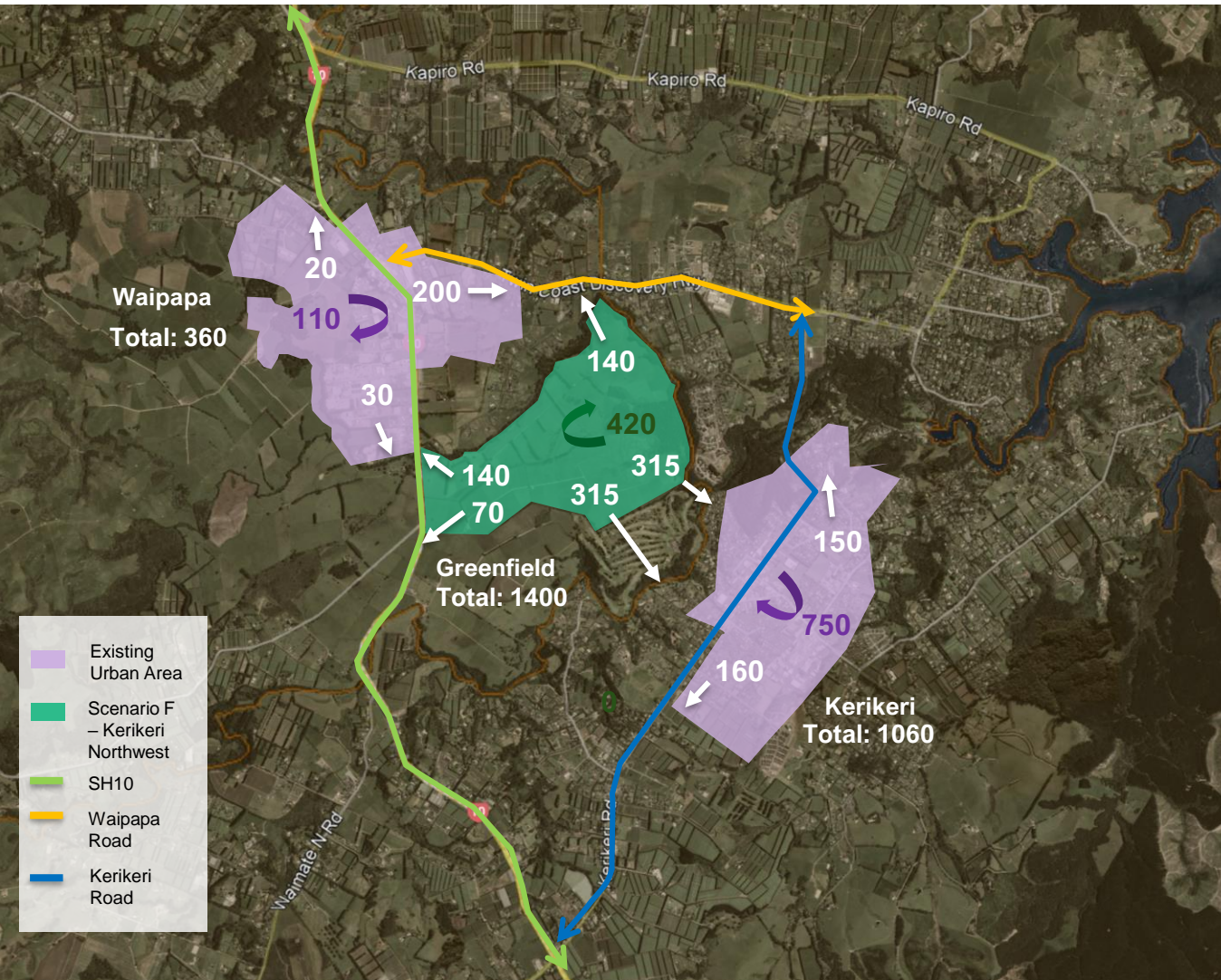
Trip Generation (AM peak hour): Scenario D – Kerikeri South Focused Expansion



Trip Generation (AM peak hour): Scenario E – Waipapa Focused Expansion

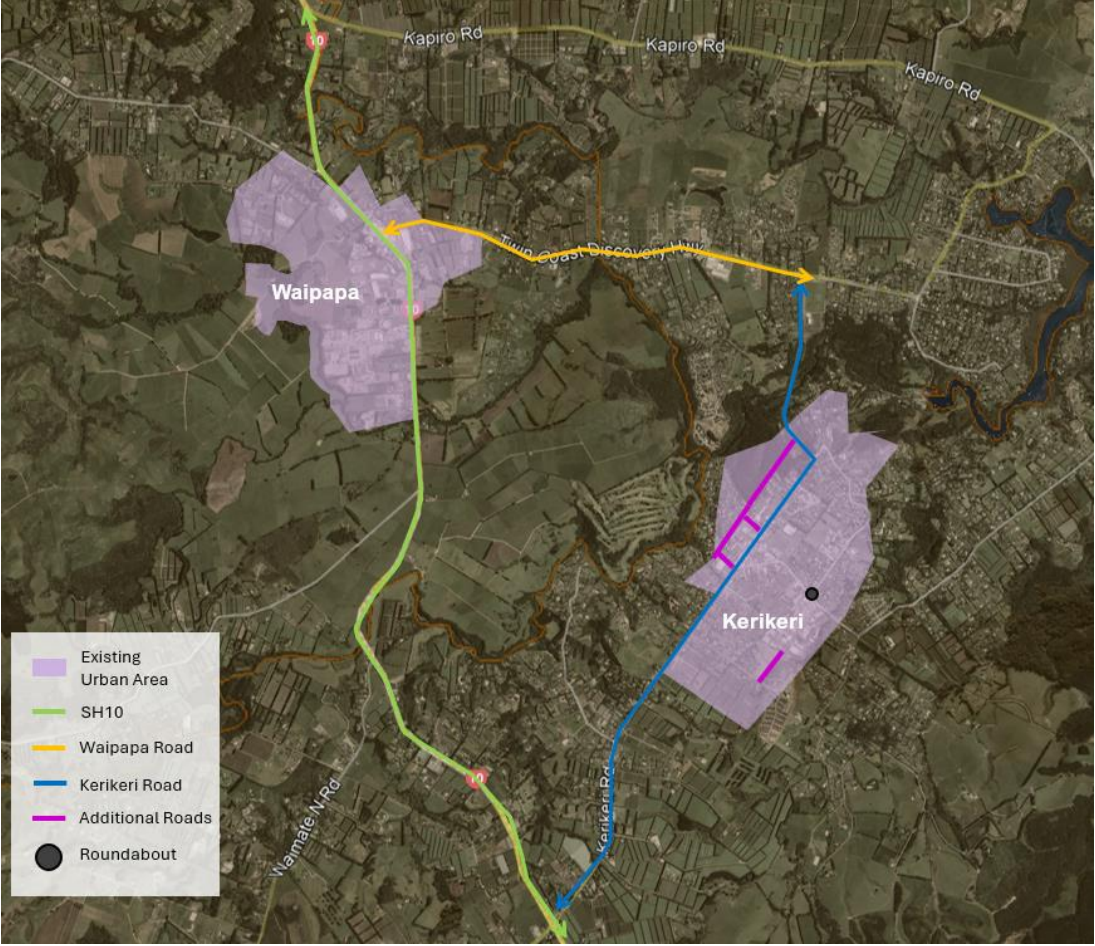


Trip Generation (AM peak hour): Scenario F – Kerikeri Northwest Expansion



Potential Transport Upgrades

Scenario A – Proposed District Plan Implementation



Do Minimum Transport Upgrades

1. Kerikeri Road Bypass
2. Hone Heke Road roundabout
3. Hall Road – Mill Lane connection

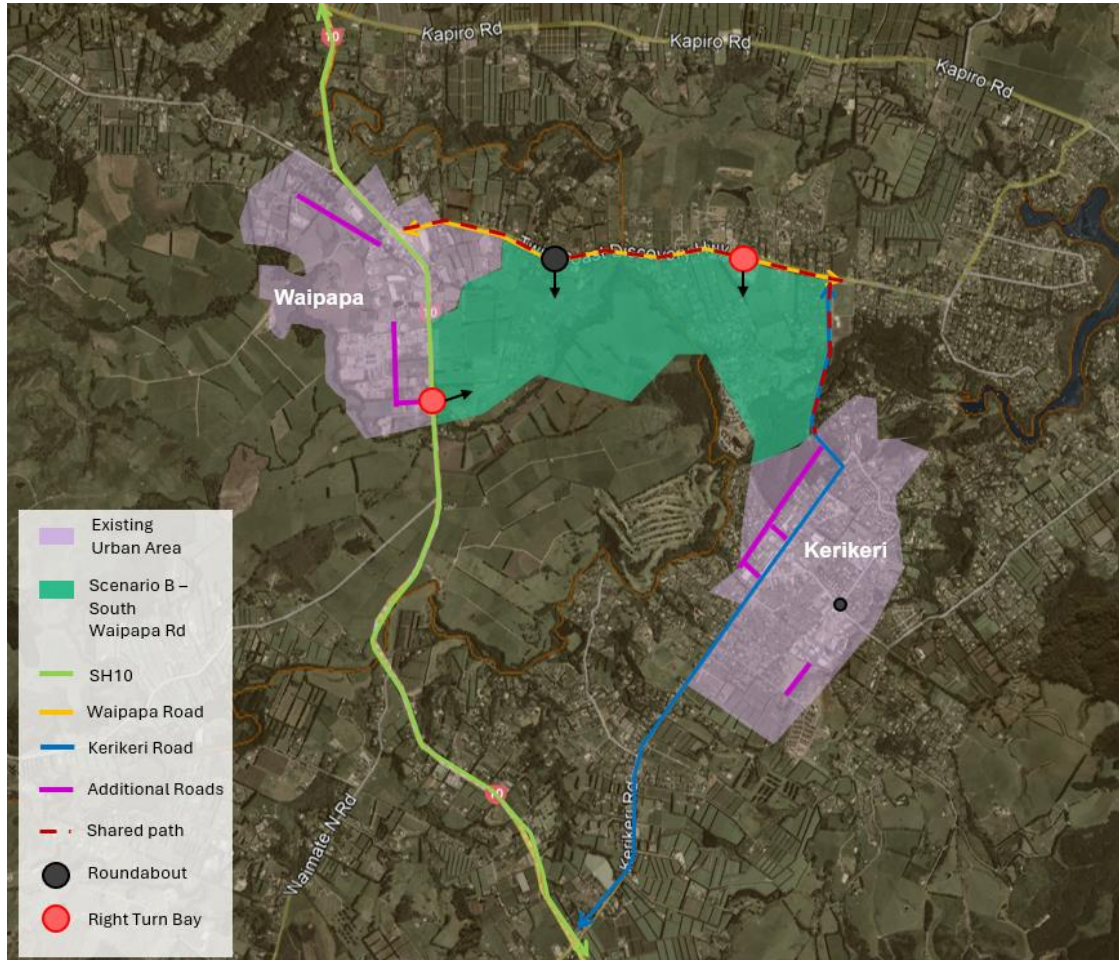
Unknown / High uncertainty with dispersed growth

Cost order of magnitude: \$32M-\$43M (plus unknown upgrades due to dispersed growth) High cost

Timeframe:

- Medium term: 10 - 20 years

Scenario B – South Waipapa Road Expansion



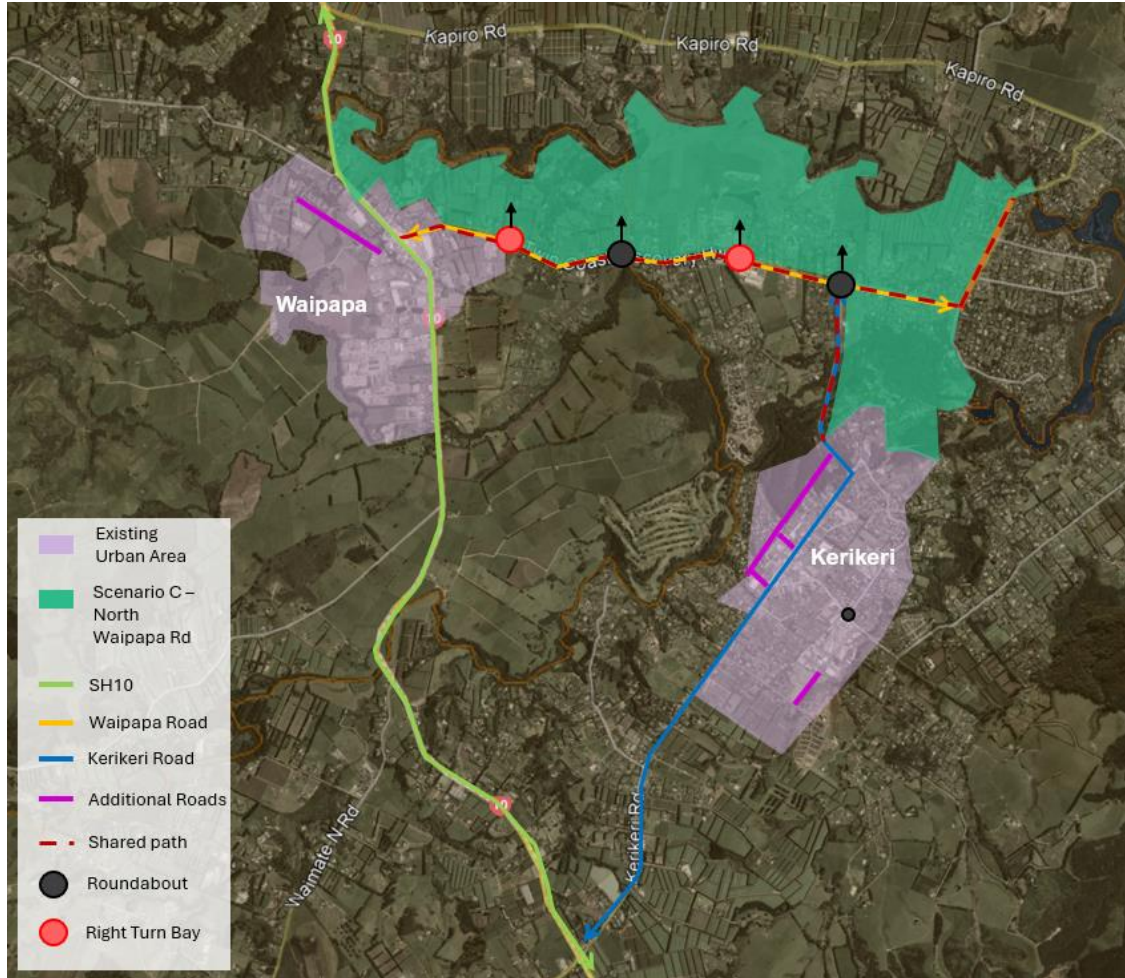
Major Transport Upgrades

1. Waipapa collector road
2. Intersections as shown
3. Path upgrade Waipapa Road
4. Bus service (not costed)
5. Bus stops
6. Pedestrian crossings
7. Street lighting
8. Speed limit review

Cost order of magnitude: \$45M-\$55M + Do Min

Risk – capacity of Heritage Bypass, cost to widen road and bridge circa \$80M-\$100M

Scenario C – North Waipapa Road Expansion



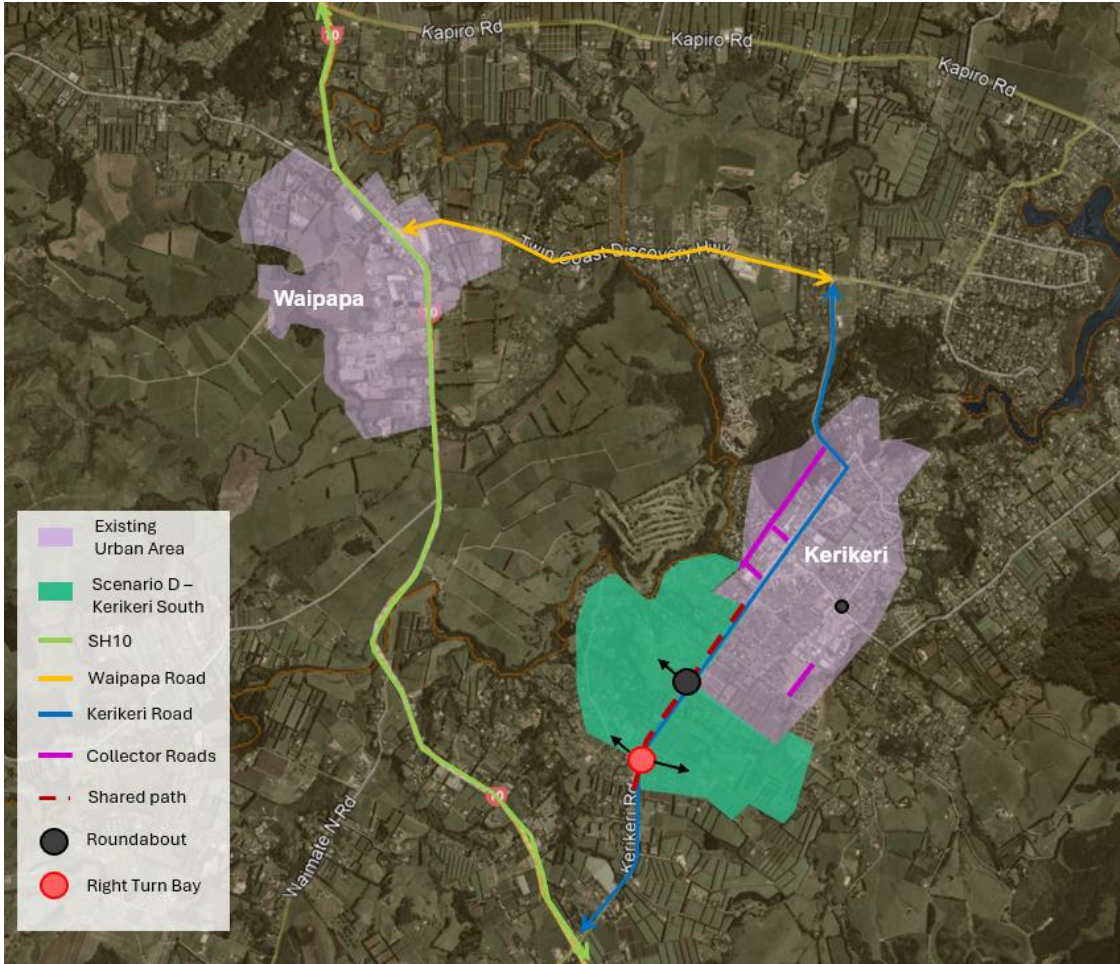
Major Transport Upgrades

1. Waipapa roading
2. Intersections as shown
3. Public Transport service
4. Bus stops
5. Pedestrian crossings
6. Path upgrade Waipapa Road
7. Street lighting
8. Speed limit review

Cost order of magnitude: \$45M-\$55M + Do Min

Risks – capacity of Heritage Bypass, cost to widen road and bridge circa \$80M-\$100M.
Capacity of SH1 intersection

Scenario D – Kerikeri South Focused Expansion

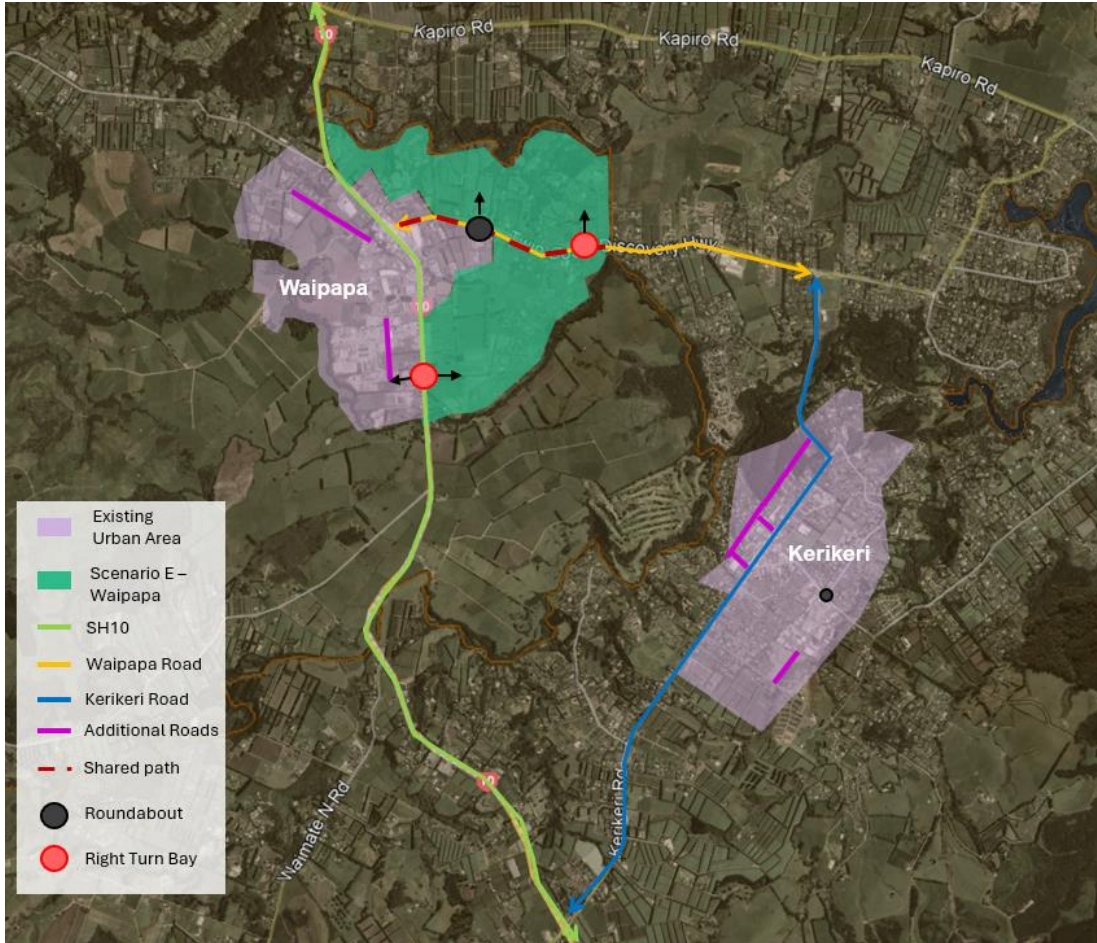


Major Transport Upgrades

1. Kerikeri collector road
2. New intersections as shown
3. Pedestrian crossings
4. Kerikeri Road shared path

Cost order of magnitude: \$15M
- \$21M + Do Min

Scenario E – Waipapa Focused Expansion



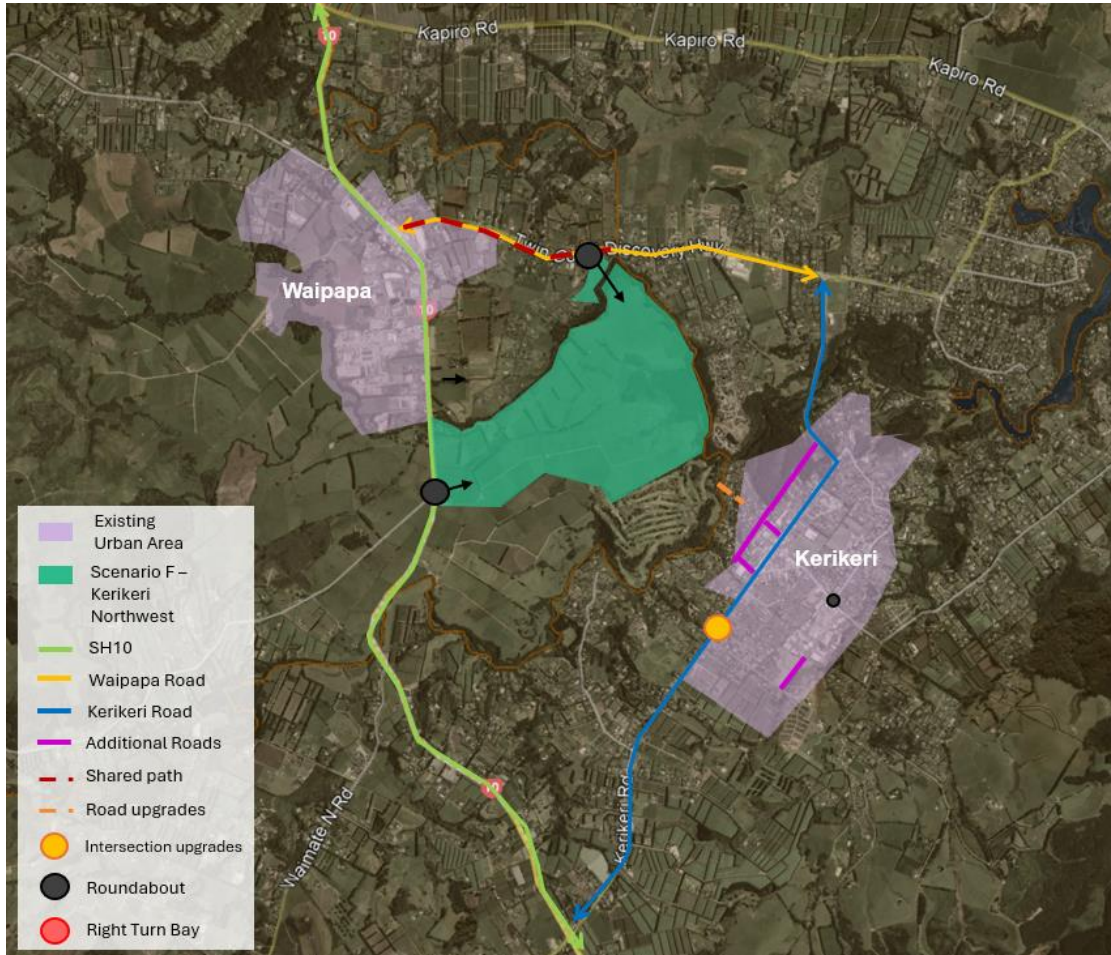
Major Transport Upgrades

1. Waipapa collector road
2. New intersections as shown
3. Public transport service
4. Bus stops
5. Pedestrian crossings

Cost order of magnitude: \$40M
- \$50M + Do Min

Risks – capacity of Heritage Bypass, cost to widen road and bridge circa \$80M-\$100M.
Capacity of SH10 intersection

Scenario F – Kerikeri Northwest Expansion



Major Transport Upgrades

1. New intersections as shown
2. Potential upgrade to Golf View Road
3. Potential upgrade to Aranga Road / Kerikeri Road
4. Public transport service
5. Bus stops

Cost order of magnitude: \$24M - \$31M + Do Min

Risks – existing Golf View Rd bridge will need upgrading and 2 x new bridges (assumed to be developer funded, if not costs will be higher)

Design and Construction Challenges

General challenges

- Unknown ground conditions and services, unknown capacity of stormwater network
- Flood prone areas
- Limited road corridor space

SH10

- Power along west side of road
- Narrow shoulders, increase width closer to Waipapa centre
- No footpath prior to Skippers Lane
- Limited space to widen road without affecting roadside drainage
- If widening, would need to provide kerb & channel, stormwater present but capacity unknown
- Road widening may affect Skippers Lane operational / layout
- Verified HAIL site off Skippers Lane

SH10 / Waipapa Road Roundabout

- Limited space outside of roundabout, internal diameter of roundabout is large, may be able take some of this to create double lane RAB
- Safety issue with marked shoulders through roundabout, cyclists may think they have priority when riding in marked shoulders, riding on the far left are less likely to be seen.
- If cycle facilities provided on adjacent roads would like to see shared paths with cycle on/off ramps so cyclists can bypass roundabout

Waipapa Road - Twin Coast Discovery Highway (west to east)

- Power along south side of road
- Limited streetlighting
- Narrow cycle lanes
- Footpath only on northern side from SH10 to Lacebark Lane then changes to southern side - no formal crossing point where footpath changes side
- Limited space for widening road
- No SW main between Harmony Lane and Lacebark Lane
- Large trees are roadside hazards - unknown ownership

Waipapa Rd / Kerikeri Bypass roundabout

- No crossing point on western side of roundabout
- May need to take space from sports field and vegetated areas for improvements
- Large amount of vegetation on south-west corner

Kerikeri Heritage Bypass (north to south)

- Heavy vegetation along west side and east side once south of Kerikeri sports complex
- No overhead power along route
- Footpath on east side of road only
- Two-lane bridge over Waipapakaurā River (Kerikeri River) with path on east side only
- Steep hills down to bridge

Kerikeri Road

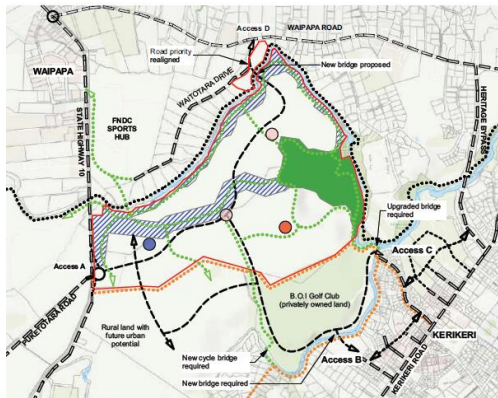
- Power on east side
- Narrow footpaths on both sides for urban area
- On-street parking, no cycle lanes
- Roundabouts have narrow crossing points on all approaches
- Lack of other formal crossing points

Cobham Road / Hone Heke Road intersection

- Property boundary restrictions, unlikely to fit standard size roundabout or could purchase property
- Business accesses on western side

Rough Order Costs for Kerikeri North West Roding Options

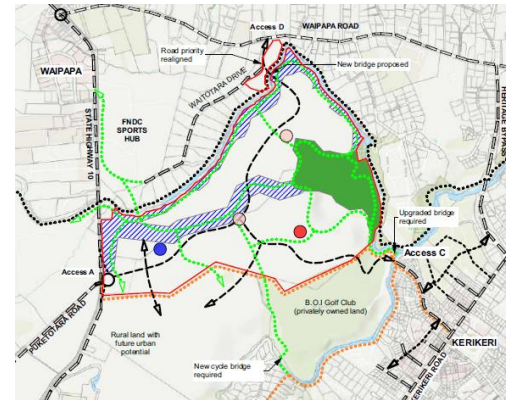
Four roading options are presented in the structure plan. The rough order cost ranges below are for internal roading and bridges in each option.



Option 1

Approx 7km roading, roundabout, 2 x new bridge, 1 x upgrade bridge.

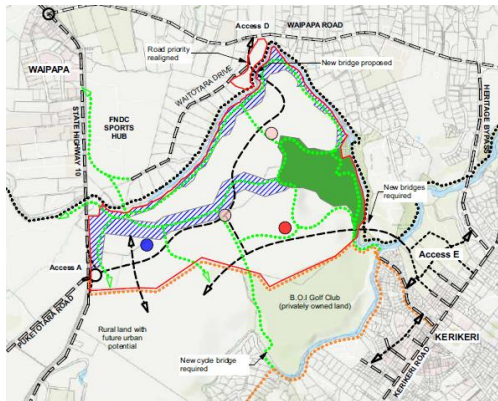
\$215M - \$280M



Option 2

Approx 5km roading, roundabout, 1 x new bridge, 1 x upgrade bridge.

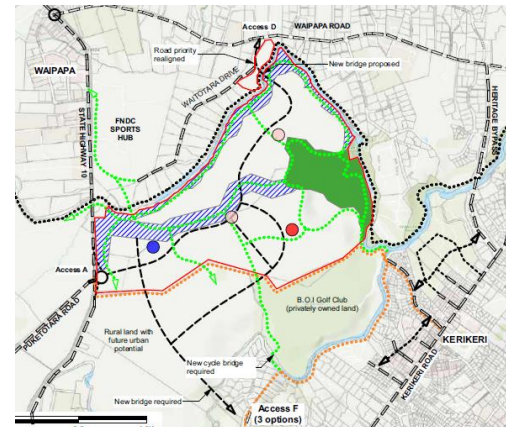
\$135M - \$175M



Option 3

Approx 5.5km roading, roundabout, 3 x new bridge.

\$215M - \$280M



Option 4

Approx 6km roading, roundabout, 2 x new bridge.

\$170M - \$220M

Summary and Next Steps

- Scenarios that focus growth in existing urban areas (D and E) generate fewer and shorter vehicle trips than greenfield scenarios B and C
- This translates to lower emissions, more active travel choice
- Costs of intensification scenarios (D, E, F) are lower, and lower risk
- Capacity of Heritage Bypass a key risk that will need further work
- Scenario F has some uncertainty around bridge upgrade costs (developer vs council)
- More detailed analysis of trips and network effects, upgrades and costing is proposed to be undertaken at the preferred scenario stage.