Canterbury Passenger Rail Workshop 4

CHAT Club

27 May 2019

This forum brought to you by CHAT Club

*CHAT = **C**anterbury **H**ousing **A**nd **T**ransport*

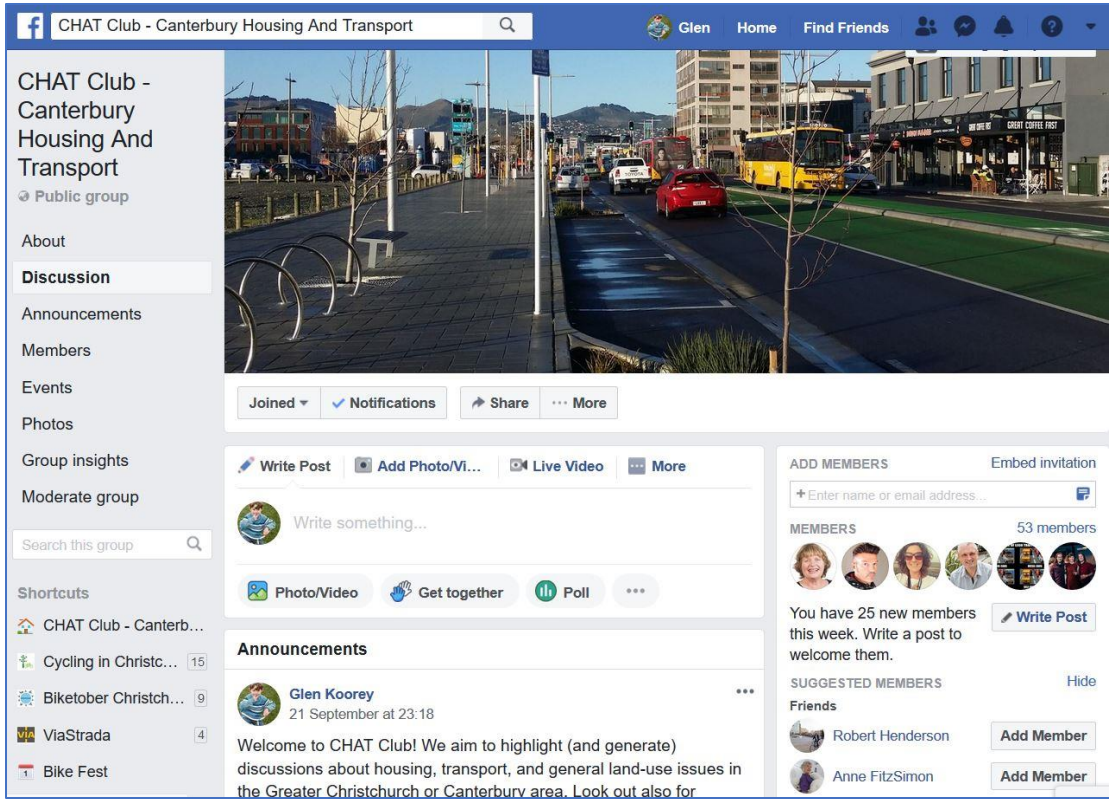
- Discussions about housing, transport & general land-use in Greater Christchurch
- Facebook discussion group:

fb.com/groups/2482293058864 31/

- Websites:

talkingtransport.com

medium.com/@brendon_harre



Workshop invites

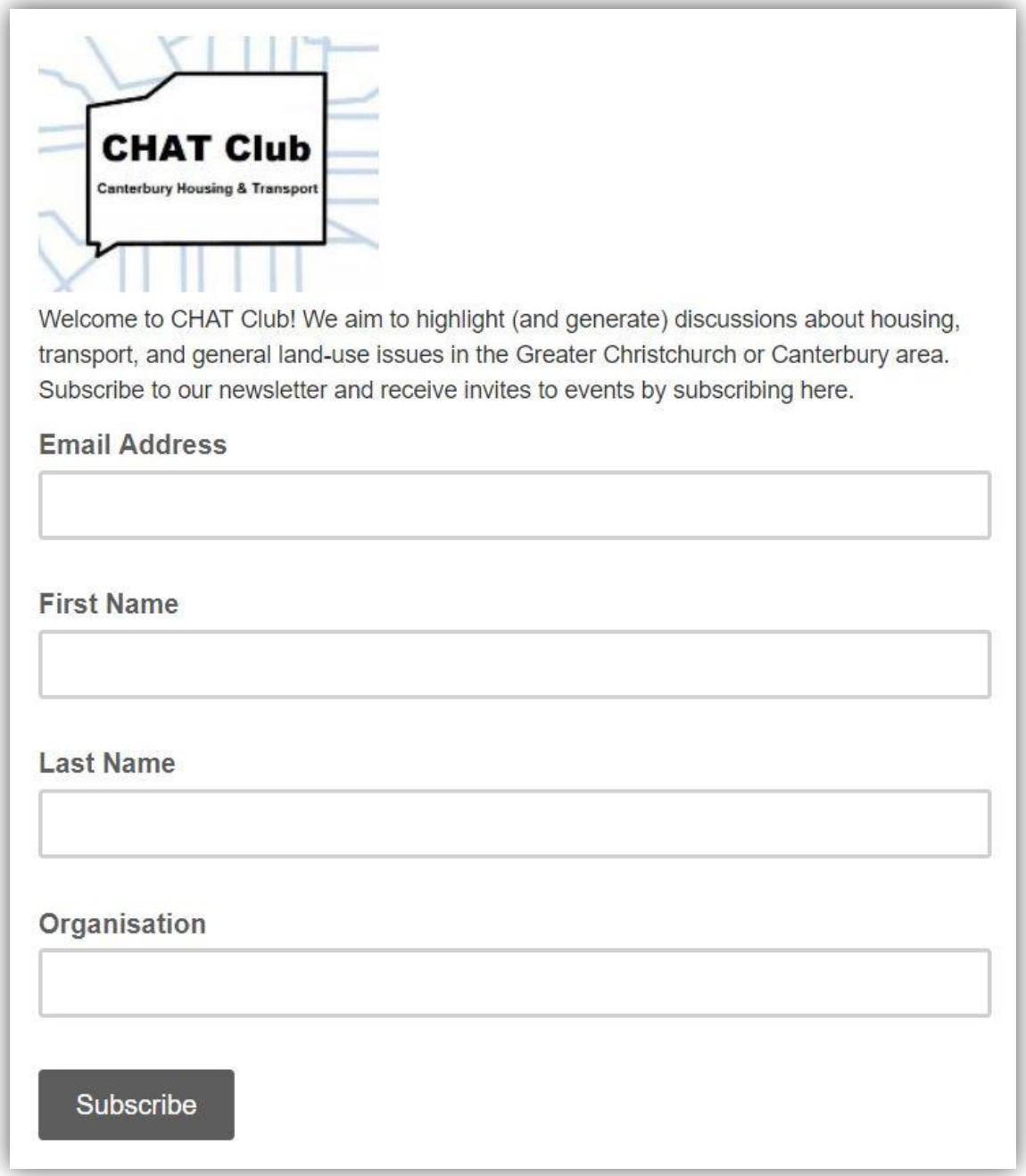
- Sign up to receive email invites

  http://eepurl.com/go5klr

- You may give a little

  givealittle.co.nz/cause/chat-club#

givealittle from the Spark Foundation



Housekeeping

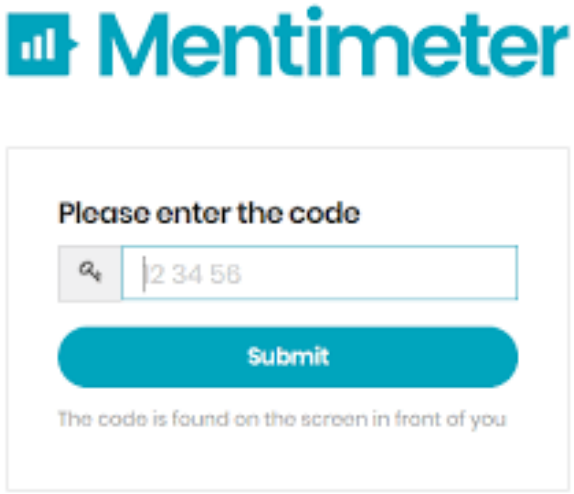
Programme for tonight (6.00 – 7.30)

- Recap – Roadmap
- Bus vs rail presentation (cost, perception, flexibility) – Glen
- Six options developed from your contributions – Axel
- Evaluation – Glen
  - Explain how we evaluate
  - Run through example
  - Group work
- Wrap-up / next steps – Axel

Menti exercise: What do you think of tonight?

Use your smartphone to give us some feedback throughout the evening

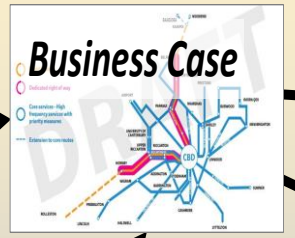
(you can wait until the end to do this survey)



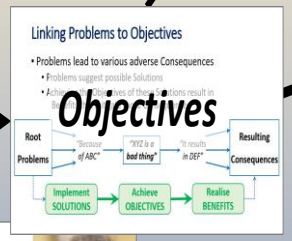
- Go to www.menti.com
- Enter code number: **90 86 03**
- Write some comments (up to 250 characters)
  - What did you learn? What did you like?
  - What didn't we cover? What do you disagree with? etc, etc
- Click "Submit" *(You can submit more than one comment)*

Recap: Roadmap… the Endgame

Transport



Bus v Rail



Options

Evaluation

Governance

A PLAN! (and how to do it…)

Funding

Land Use

Bus vs Rail

Glen Koorey

Transport Engineer/Planner

“Why are you focusing on rail”?

- We’ve called these events “Passenger Rail workshops”
  - In truth, it was partly to grab your attention…
- But is rail the right/best solution?
  - Are we ignoring better options using buses?
- Back in February we briefly touched on the different modes
  - Want to explore their relative merits a bit more now

Recap: Some definitions

Heavy Rail (HRT)

- Trains using dedicated rail corridors

Light Rail (LRT, “trams”, “streetcars”)

- Trains using on-street railways and maybe dedicated corridors too

Bus Rapid Transit (BRT)

- Buses using dedicated corridors or priority lanes

Comparison:
Construction Cost

Heavy Rail - LOW

- Rail corridors already exist N/SW/SE of Chch
- Some double-tracking or passing loops may be required

Light Rail - HIGH

- New on-street corridors need to be constructed
- Considerable cost (and disruption) to form new ROWs

Bus Rapid Transit - MEDIUM

- Dedicated corridors or priority lanes need to be built
- Cost vary - will depend on relative level of separation

Comparison:
Flexibility

Heavy Rail - LOW

- Can't really change existing rail corridors easily

Light Rail - MEDIUM

- New LRT can be located where most useful
- Can't really change existing rail corridors easily

Bus Rapid Transit - MEDIUM

- Buses can easily be re-routed if necessary
  - Although that defeats the purpose of dedicated corridors…
- Can BRT corridors be converted to LRT later?

Comparison:
Land Use Impact

Heavy Rail - HIGH

- More likely to encourage large-scale surrounding development

Light Rail - HIGH

- More likely to encourage large-scale surrounding development

Bus Rapid Transit - LOW

- Less likely to encourage large-scale surrounding development

Comparison: Station/Stop Spacings

Heavy Rail - LOW

- Typically 2km+
  - Reasonable distance required for acceleration/deceleration

Light Rail - MEDIUM

- Typically 1km+

Bus Rapid Transit - HIGH

- Typically 800m+
  - Limits usefulness of “express” services?

Comparison:
Public Appeal

Heavy Rail - MEDIUM

- Can depend somewhat on train style

Light Rail - HIGH

- Modern trams often seen as “better”

Bus Rapid Transit – LOW

- Some bias against “buses” based on past experience

Comparison:
Operating Costs (& Fares)

Heavy Rail - HIGH

- Additional train/station staff needed?

Light Rail - HIGH

- Similar costs to heavy rail?

Bus Rapid Transit - LOW

- Existing bus services relatively cheap
- Would we pay more for premium service?

Comparison Summary

	Heavy Rail	Light Rail	Bus Rapid Transit
Construction Cost	$	$ $ $	$ $
Flexibility			
Land Use Impact			
Station/Stop Spacings			
Public Appeal			
Operating Costs	$ $ $	$ $ $	$

Take-away thoughts

- There is no fixed answer when it comes to various factors
  - Depends a lot on the relative quality of what you build
- Shouldn't get too hung up about which mode(s) to use
  - So long as they provide priority corridors and frequent services
  - But do rail-based options have better perceived appeal?

Keep these thoughts in mind when you do your evaluations later!

Six options

Axel Wilke

Transport Engineer/Planner

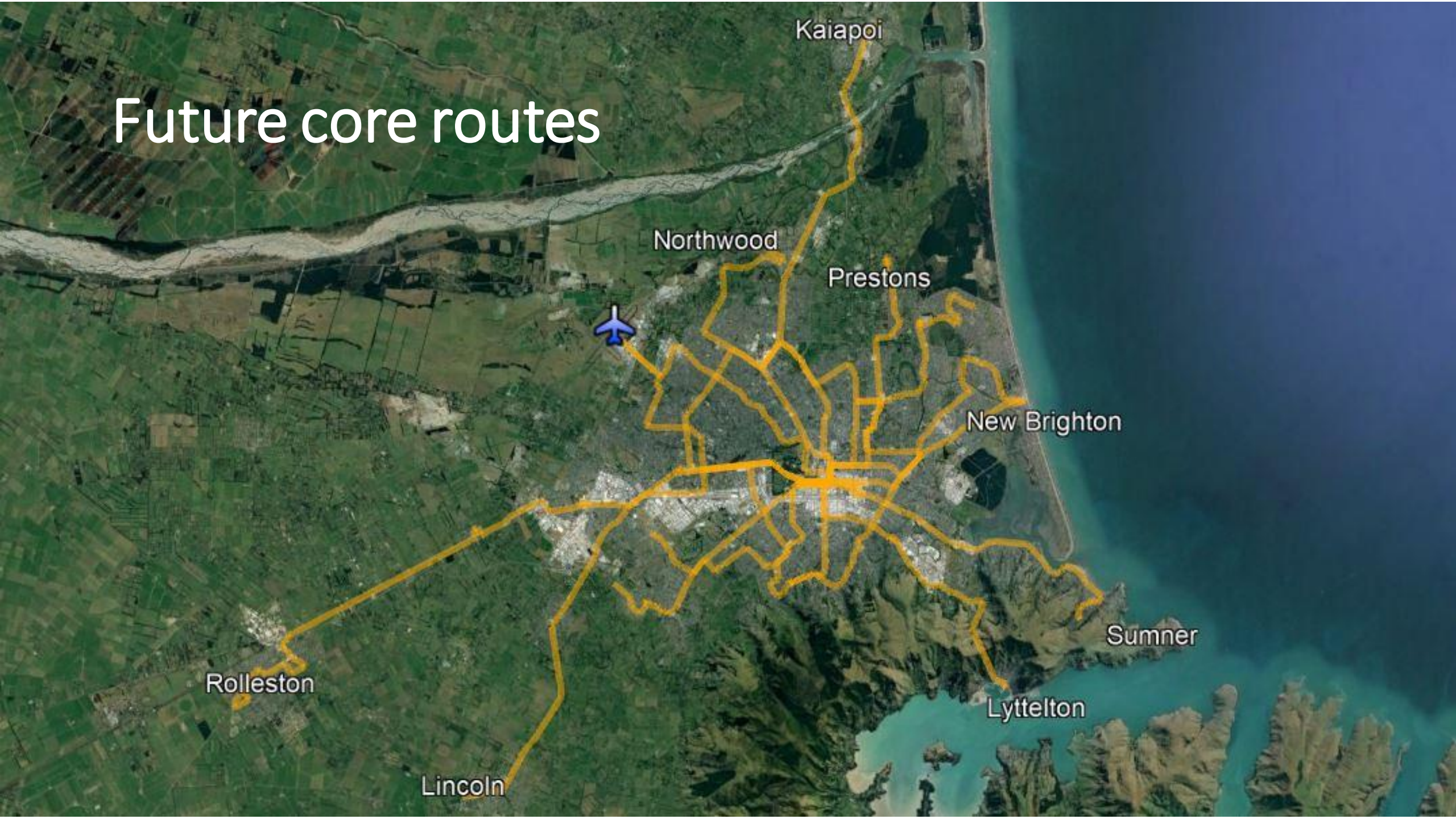
Background

- Bus network will always support any rapid transit solution
- Currently have 5 core routes
  - Orbiter (circular; **10** min headway)
  - Blue line (PMH to Rangiora; **15** min)
  - Yellow line (New Brighton to Rolleston; **15** min)
  - Orange line (Halswell to Queenspark; **15** min)
  - Purple line (Airport to Sumner; **15** min)
- All ex core routes proposed to go to 10 min headway

Existing core routes

Future core routes

Future core routes

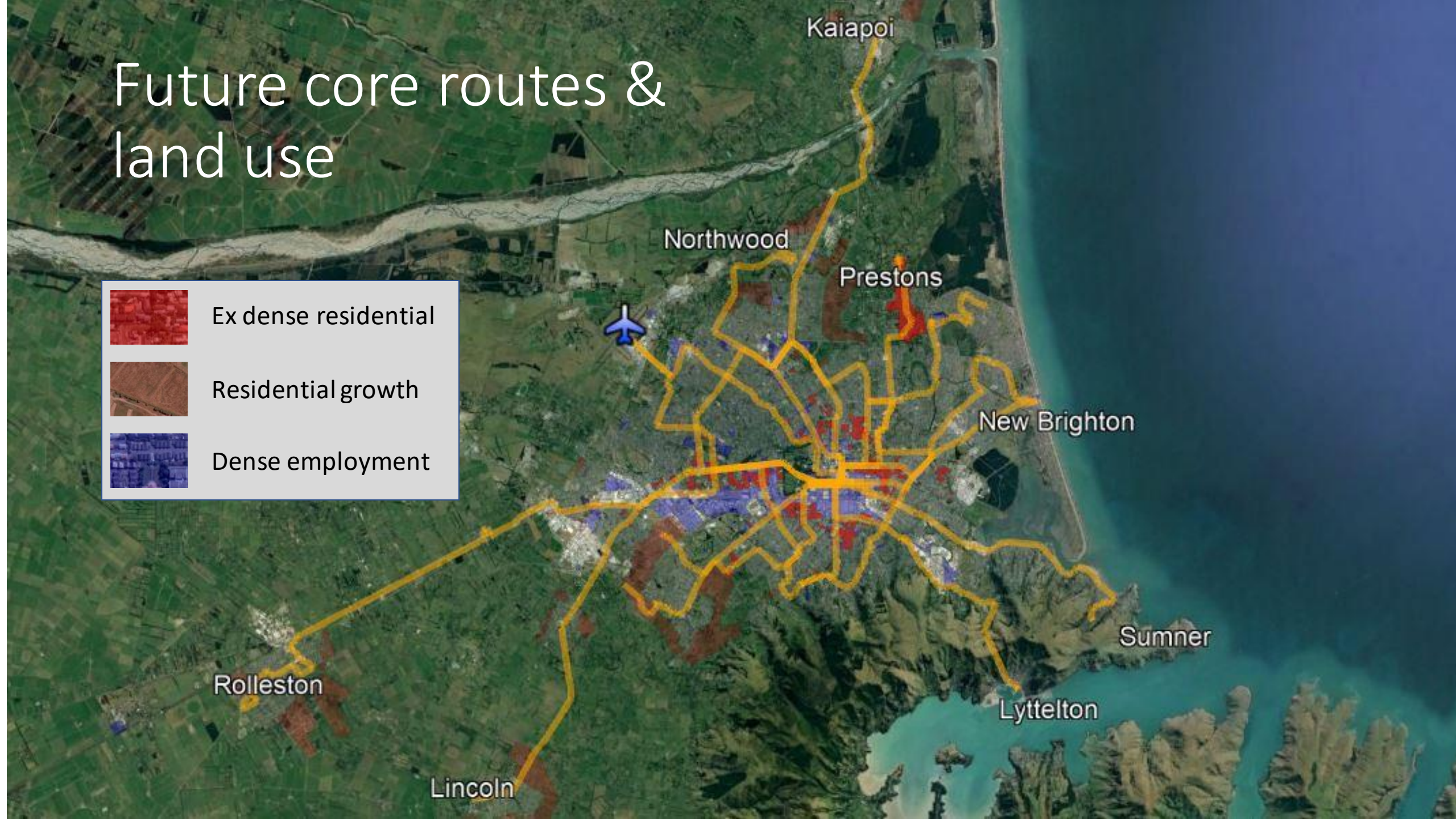


Ex dense residential

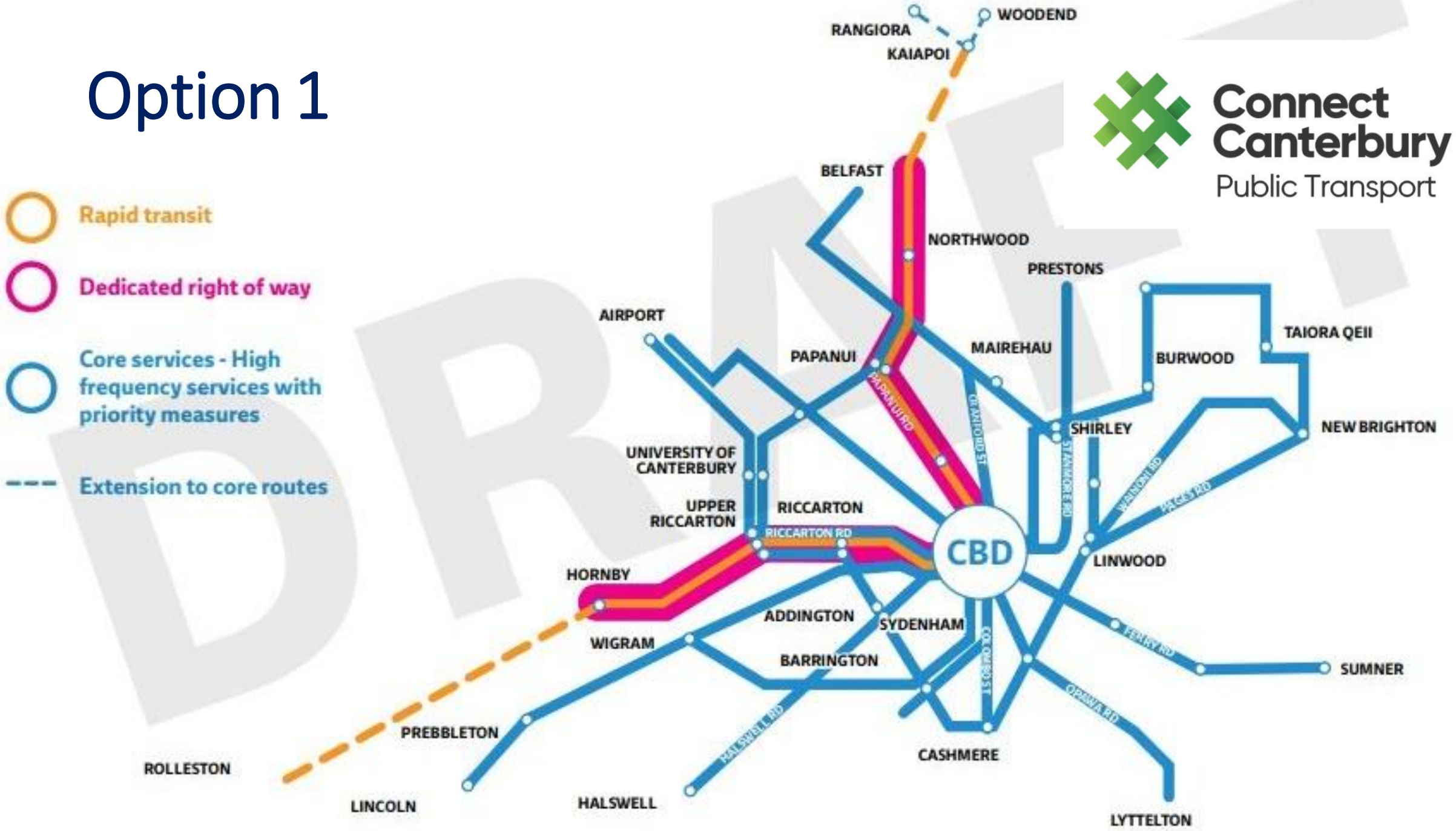
Residential growth areas (“Our Space”)

Dense employment areas

Future core routes & land use



Option 1



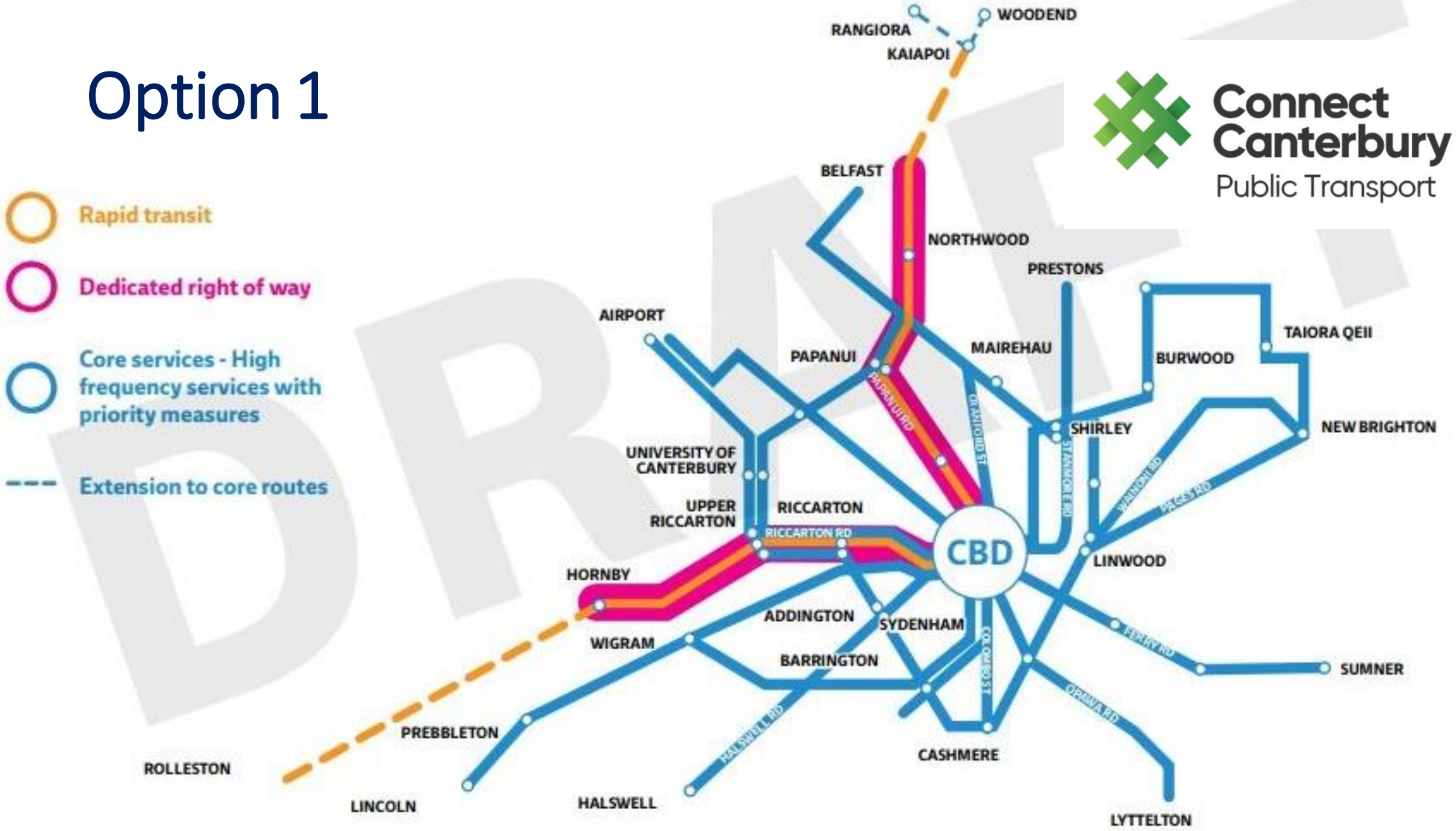
Connect Canterbury
Public Transport

Option 1: Connect Canterbury

- Connect Canterbury proposal
  - Greater Christchurch Public Transport Joint Committee
  - ECan, NZTA, territorial local authorities
- We assume this means Bus Rapid Transit (BRT)
  - As opposed to rail
  - The report says that the committee is “mode-agnostic”
- Diagram shows priority corridor to Belfast and Hornby
  - That is, not beyond the city boundary
  - Rail does go beyond city boundary…

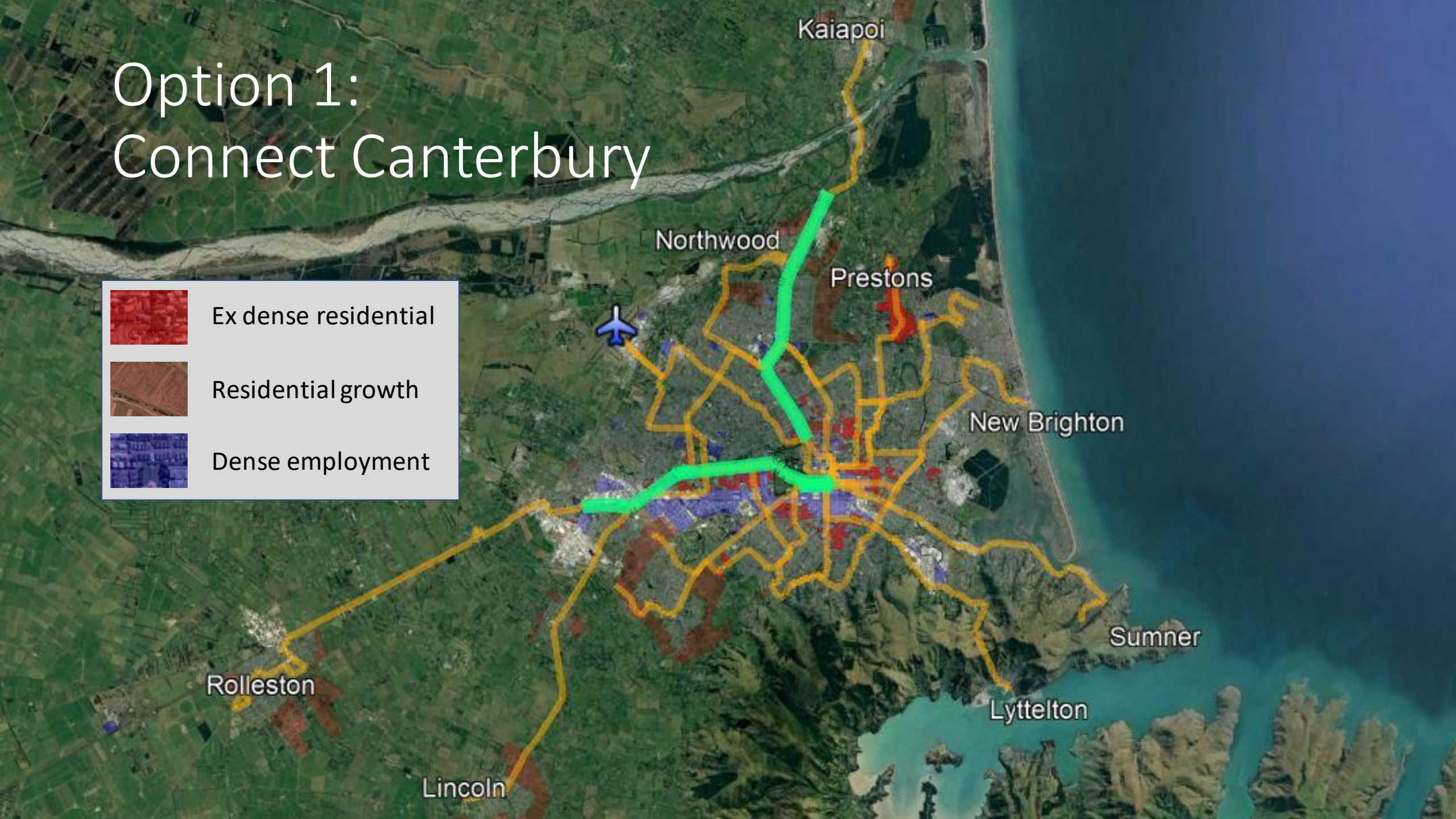
Connect Canterbury
Public Transport

Option 1



Connect Canterbury
Public Transport

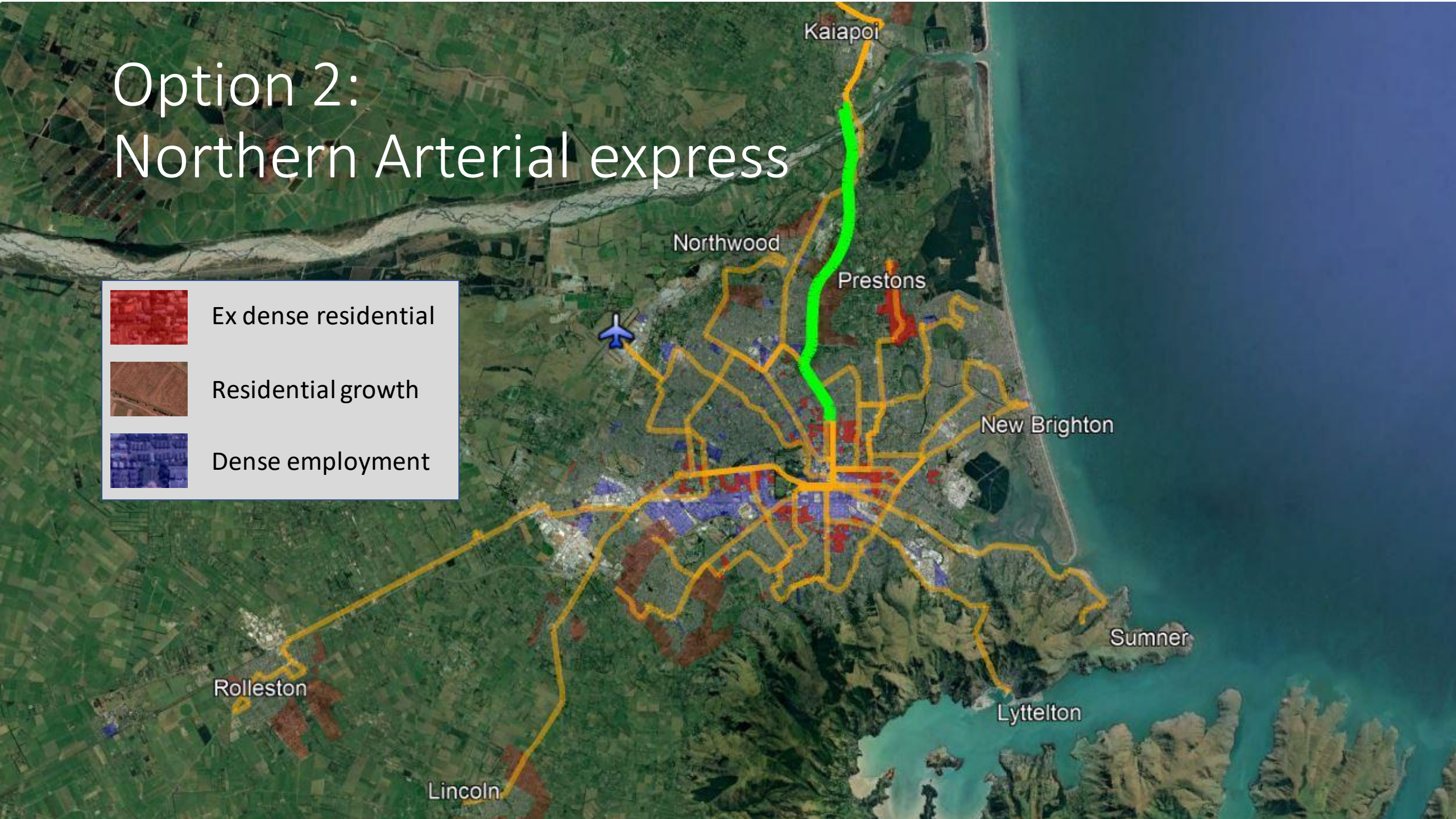
Option 1: Connect Canterbury



Option 2: Express buses on Northern Arterial

- Proposal developed for St Albans Residents' Association
  - Use outside lanes on Northern Arterial as permanent bus lanes
  - Bus lanes down to Edgeware Road; reach city via Manchester St
  - Extend core service to Rangiora via Kaiapoi
- Northern Arterial to open mid-2020
  - Interim decision expected tomorrow
- Large residential growth area adjacent to corridor

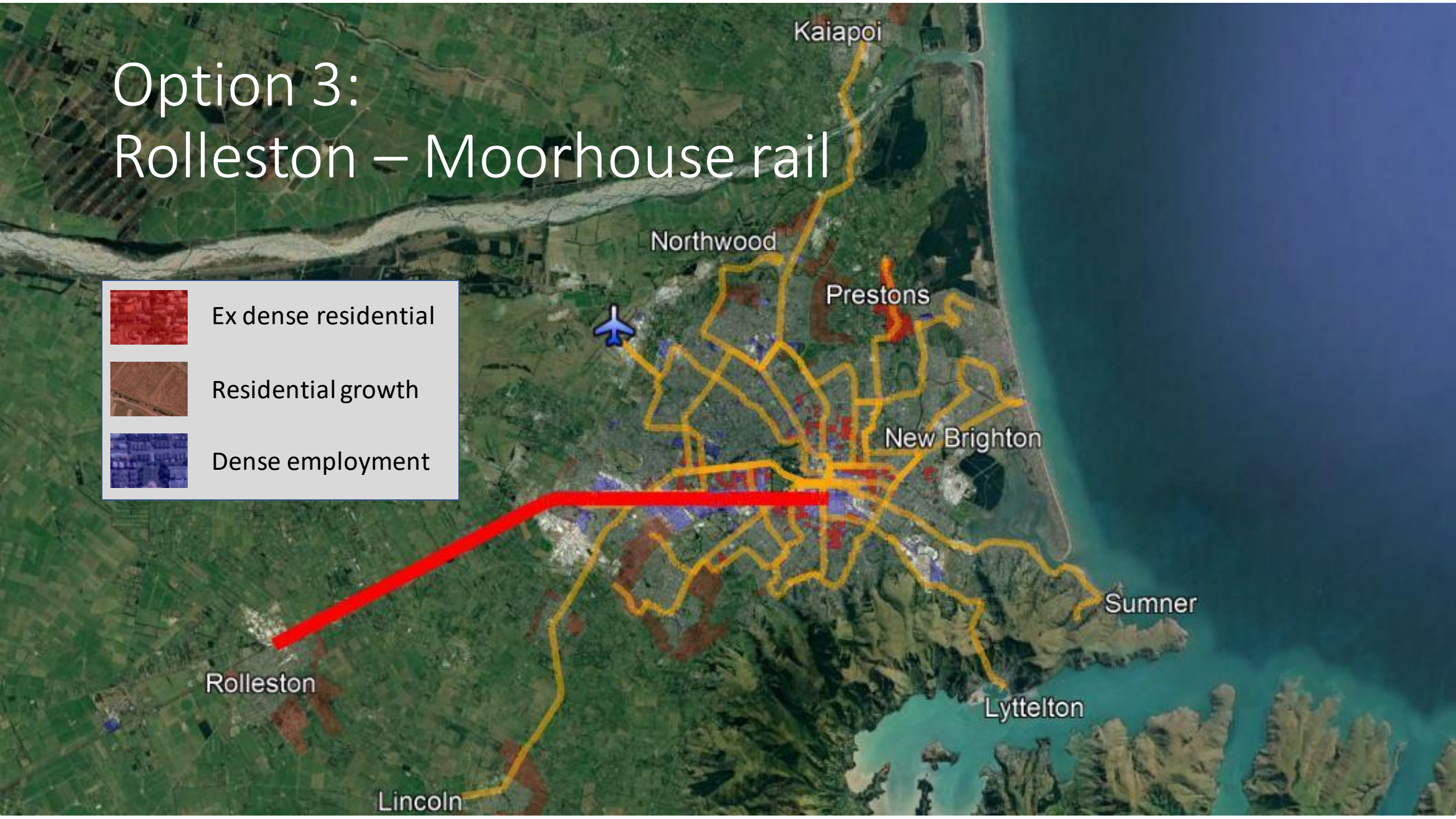
Option 2:
Northern Arterial express



Option 3: Rolleston – Moorhouse rail

- Use existing heavy rail corridor
  - Rolleston – Moorhouse Ave
- Termini at
  - Rolleston
  - Colombo Street (transfer to buses)
  - Plus intermittent stations
- If tram-trains chosen, could extend line into central city
  - Via Manchester St or Madras St to stadium and bus station

Option 3:
Rolleston – Moorhouse rail



Option 4: Rangiora to Addington rail

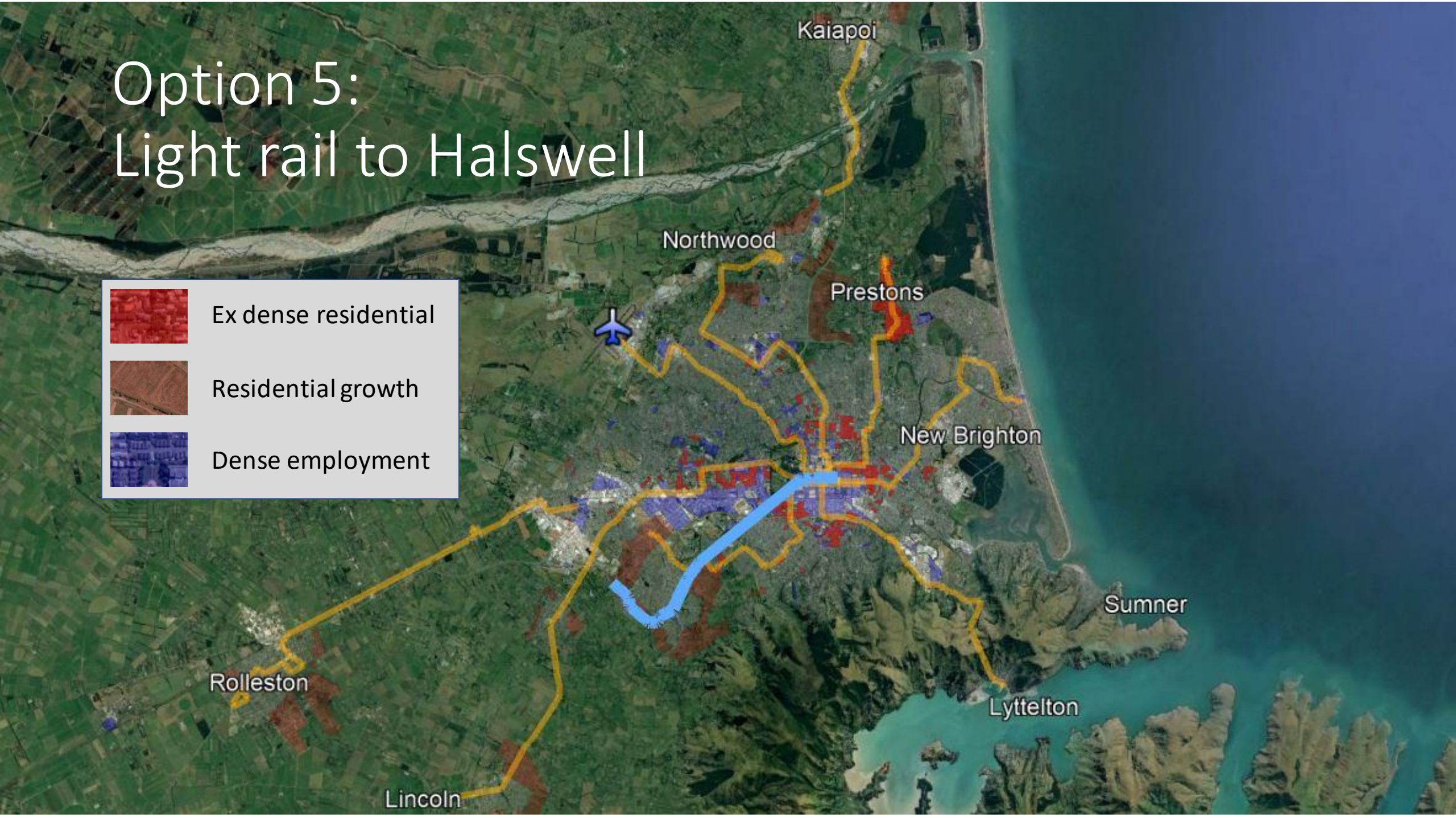
- Use existing heavy rail corridor
  - Rangiora – Kaiapoi – Addington
  - Main transfer to city centre at Riccarton Road station
- Termini at
  - Rangiora
  - Addington
- If tram trains chosen, could divert line into central city
  - Via Riccarton Ave & bus station to proposed stadium
- Could extend line further north (Amberley)

Option 4: Rangiora-Addington rail

Option 5: Light rail to Halswell

- Light rail from stadium via hospital / Addington to Halswell
  - Via Halswell Road
  - Could go via Henderson Basin instead (high density housing)
- Light rail system
- If tram-train chosen, could be combined with opt's 3 & 4 & 6
- Could be extended to Prebbleton or Lincoln

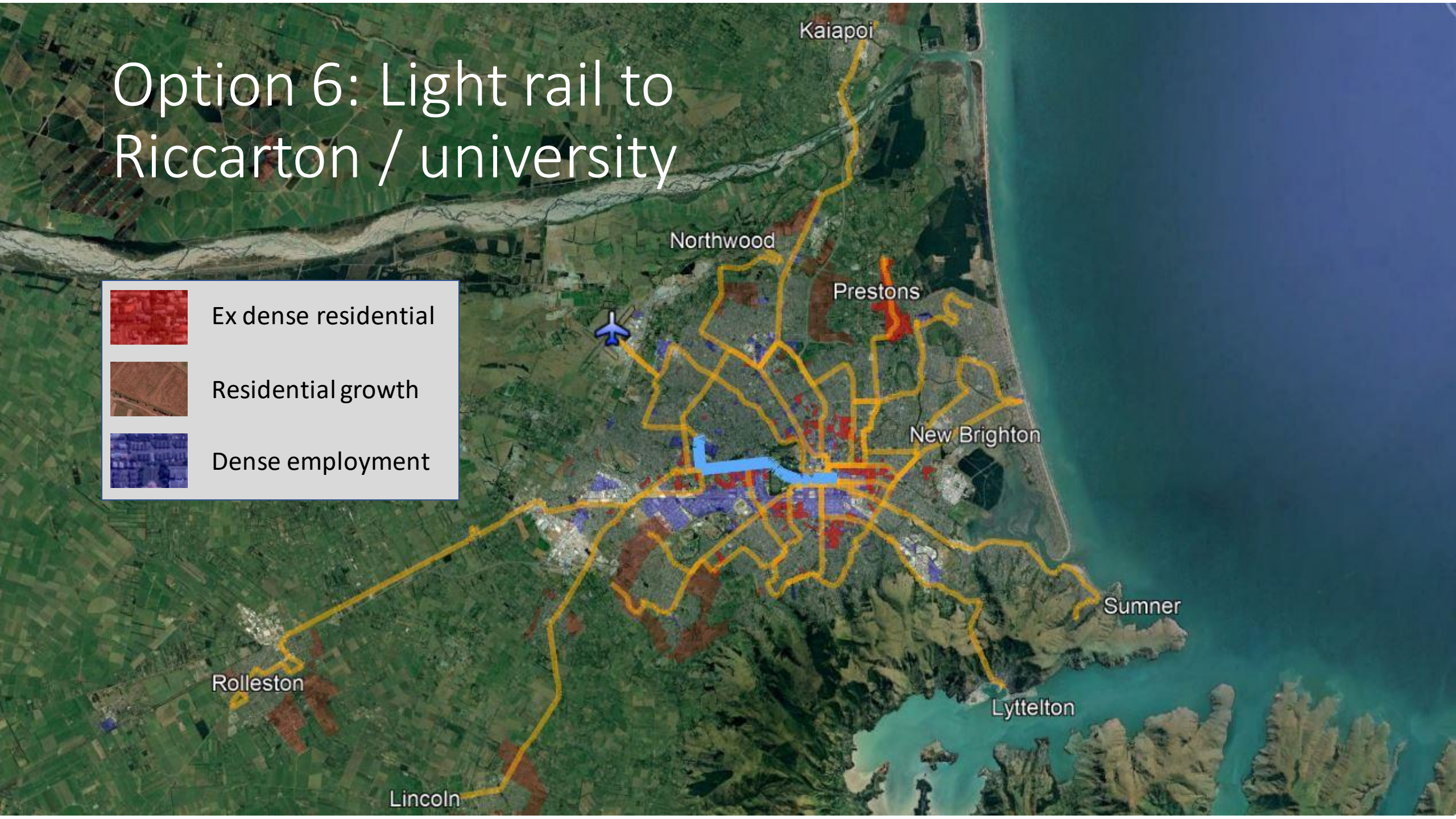
Option 5:
Light rail to Halswell

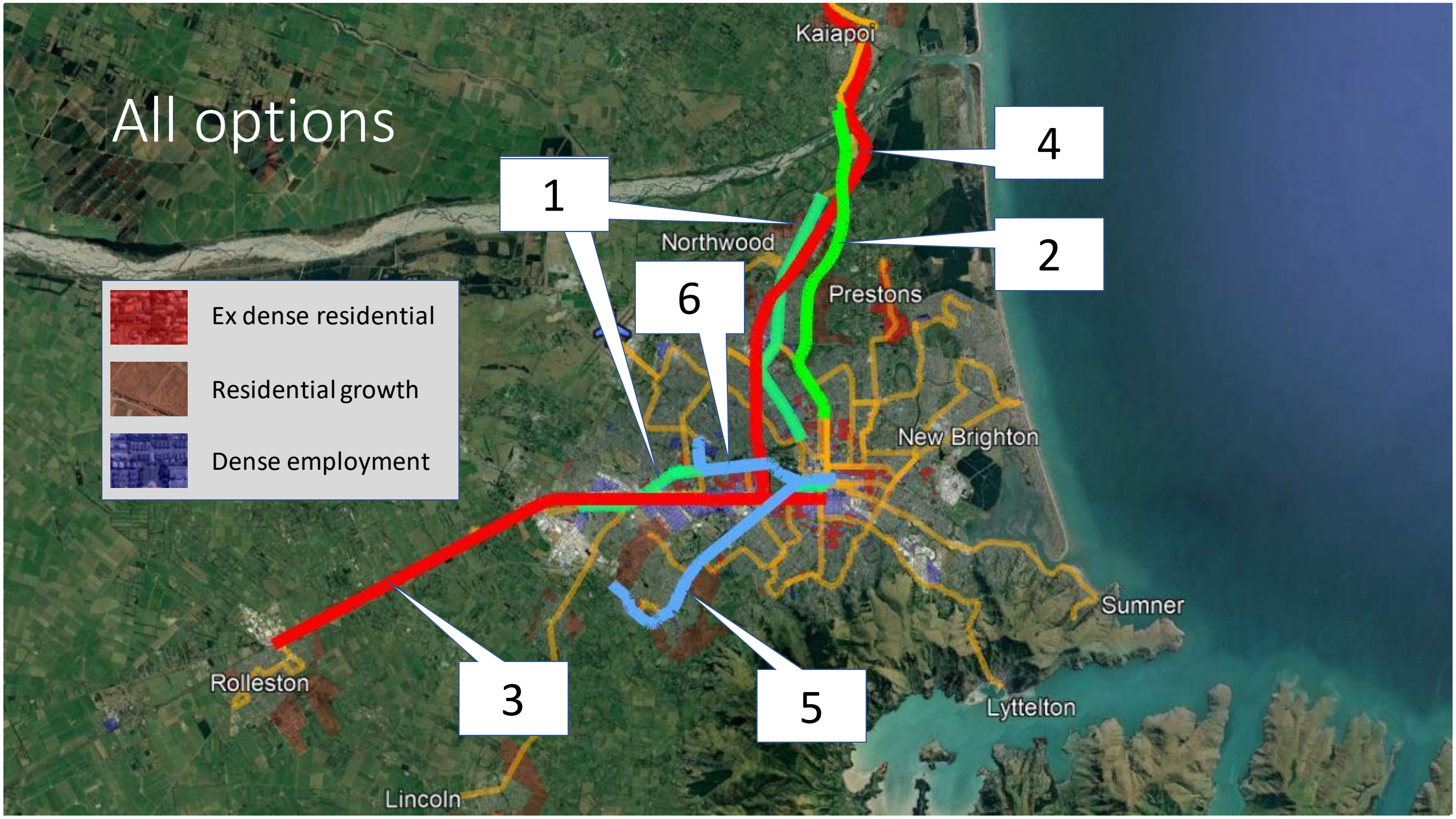


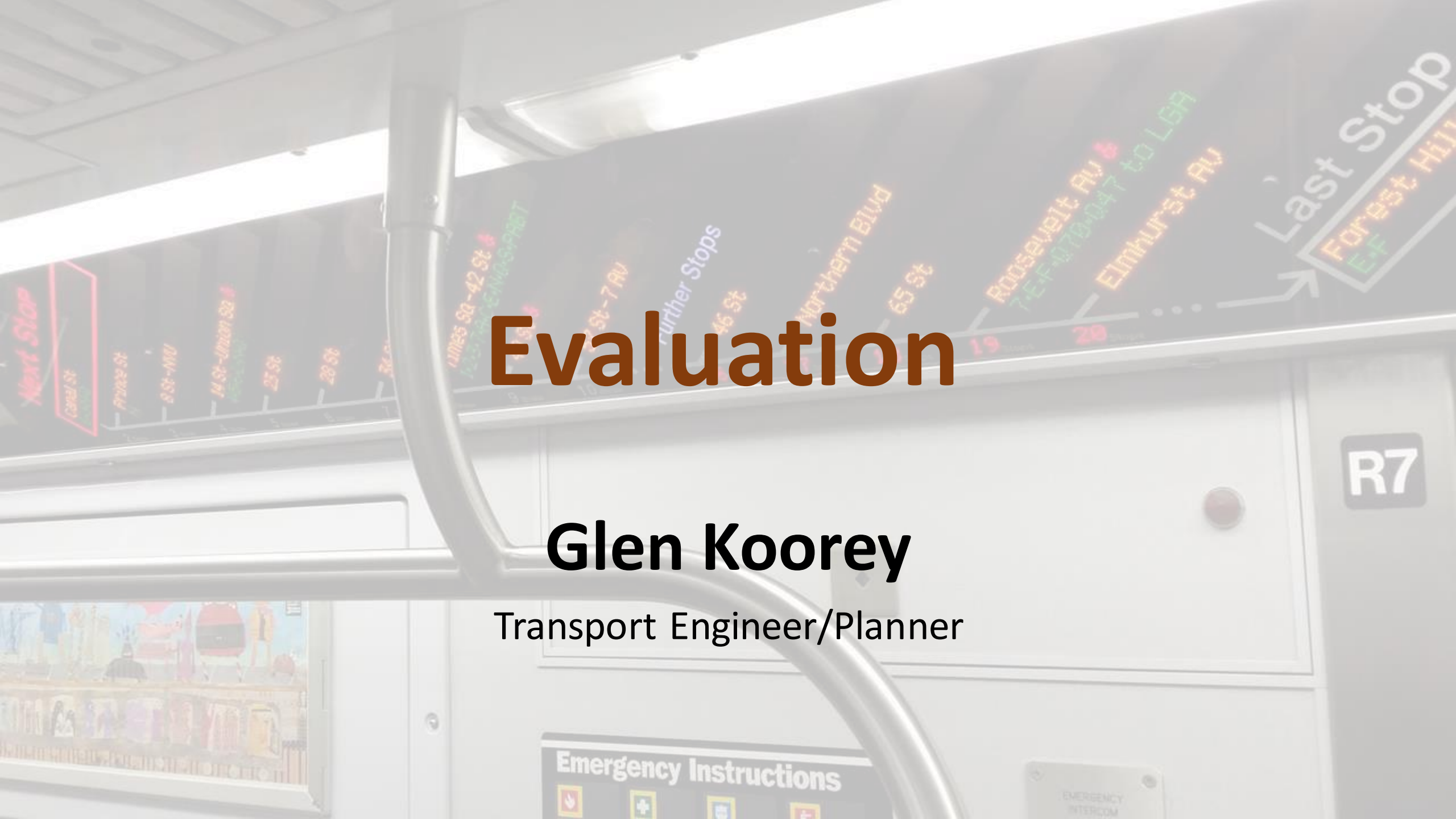
Option 6: Light rail to university

- Light rail from stadium to Riccarton & university
  - Via hospital
- Light rail system
- If tram-train chosen, could be combined with options 3 to 5
- Could be extended to Burnside and Airport
- Relatively short line
  - Not much density beyond university
  - Extend south to Sydenham?

Option 6: Light rail to Riccarton / university




All options
Ex dense residential
Residential growth
Dense employment
1
2
3
4
5
6
Kaiapoi
Northwood
Prestons
New Brighton
Sumner
Lyttelton
Rolleston
Lincoln



Evaluation

Glen Koorey

Transport Engineer/Planner

Decision-Making about Options

- Having generated some Options we now need to evaluate their **relative merits**
- Easier to evaluate ***quantitative*** attributes

  e.g. Costs, $Benefits, Maximum Capacity, Frequency

  - A lot of work done to place **$**values on attributes

  How to combine attribute quantities with differing units?

  How to also incorporate more intangible (qualitative) attributes into the process?

Multi-Criteria Assessment (MCA)

- Some Attributes can't be quantified
  - Need to assess them *qualitatively*
  - Have to somehow compare all criteria together
- One suggested approach
  1. Identify all **criteria/objectives** to be assessed
  2. Develop a rating **system** e.g. **++** / **+** / **=** / **–** / **––**
  3. Assign a **rating** to each criteria item
  4. Apply any **weightings** to ratings *(optional)*
  5. Determine **relative** "scores"

Do the overall ratings reflect your "gut feel"?

Simple MCA: House Buying

Criteria	House 1	House 2
Square Feet	2000	1800
# Bedrooms	4	3
# Bathrooms	1 1/2	3
Lot Size	1/4	1/2
Location	10	15
Condition	Ex	Good
TOTAL	4	2

Example: Lichfield St 2-Way Traffic

	Objective	Option 1 - Basic 2-Way	Option 2 - Bus Priority	Option 3 - Pedestrian / Cyclist Priority	Option 4 - Option 2 with St Asaph 2-Way	Option 5 - Partial 2-Way
1	Safe and convenient pedestrian access along & across Lichfield Street	N	N	L	N	N
2	Improved pedestrian environment	L	L	M	L	L
3	Maintain exisitng level of service for pedestrians on alternative roads	L	L	L	L	L
4	Integration with Avon River project for cyclists / pedestrians	L	L	L	L	M
5	Safe & Convenient cycle access along / across Lichfield Street	L	L	L	L	L
6	Improved bicycle / public transport connections	L	L	L	L	L
7	Slower Vehicle Speeds on Lichfield Street	H	H	H	H	H
8	Better access for public transport	M	H	H	H	H
9	Reduce bus exchange / ca					
10	Improved routing opportur					
11	Improved access to public					
12	Simple, convenient routes					
13	Good access for goods ve					
14	Less Congestion for motor					
15	Maintain current level of ve					
16	Maintain exisitng level of service for motor vehicles on alternative roads	L	L	L	N	N
17	Integration with city traffic network	L	L	L	M	H
18	Improve landscape to facilititate business	M	M	M	M	M
19	Accommodate Emergen					
20	Enhance the heritage va					

Summary of Appraisal by Impact:						
	H	1	2	2	3	4
	M	7	6	8	6	4
	L	10	10	9	8	9
	N	2	2	1	3	3
Overall Score:		7	8	11	9	9

Key		Score
Option has a **High** positive impact on achieving this objective	H	2
Option has a **Medium** positive impact on achieving this objective	M	1
Option has a **Low** positive or negative impact on achieving this objective	L	0
Option has a signifficant **Negtive** impact on achieving this objective	N	-1

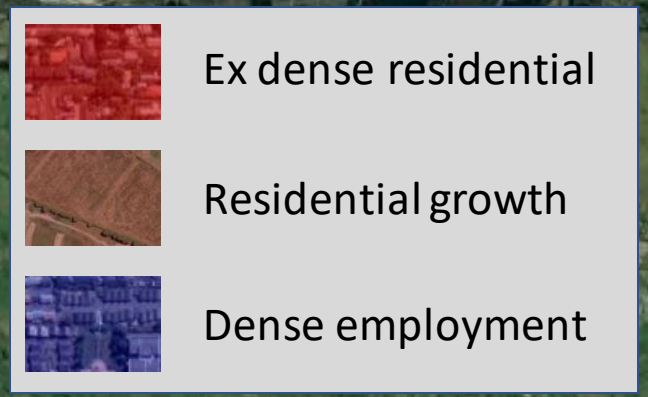
Recap: Suggested Objectives

From your previous feedback:

1. More reliable travel times *(regardless of travel mode)*
2. Lower-cost housing/transport to access key destinations
   (for productivity, social exchange, wellbeing, etc)
3. Better perception/experience of public trpt *(frequency, comfort)*
4. Improved wellbeing for society *(safety, health, severance, etc)*
5. Improved environmental outcomes *(CO_2, pollutants, biodiversity)*
6. Better/more efficient use of space *(for land use & transport)*

Recall: Weighting of Objectives

MCA Example: Option 1



Kaiapoi
Northwood
Prestons
New B
Sumner
Rolleston
Lyttelton
Lincoln

CHAT Club – Canterbury Housing and Transport

Workshop at Tūranga, 27 May 2019

Assessment of Rapid Transit Options against Key Objectives

In your table groups, review the six Options presented in this workshop and consider how well you think each one will achieve the six different Objectives presented at the last workshop.

*(For each Objective, the most important thing is the **relative** scores between the different Options)*

Using your scores and the previously determined weightings, we will calculate the overall "score" for each Option, and present these at the next workshop.

Objectives being assessed:

1. More reliable travel times (regardless of travel mode)
2. Lower-cost housing/transport to access key destinations (for productivity, wellbeing, etc)
3. Better perception/experience of public transport (frequency, comfort, cost, etc)
4. Improved wellbeing for society (safety, health, severance, etc)
5. Improved environmental outcomes (CO_2, pollutants, biodiversity, etc)
6. Better/more efficient use of space (for land use & transport)

- **Score** each Option against each Objective according to this 5-tier scale:

√√	**Highly contributes** to achieving the desired Objective.
√	**Somewhat contributes** to achieving the desired Objective.
-	**Little effect** on desired Objective.
X	**Somewhat detracts** from achieving the desired Objective.
XX	**Significantly detracts** from achieving the desired Objective.

Objectives	Relative weighting	Option scores *(see options overleaf)*					
		Opt.1	Opt.2	Opt.3	Opt.4	Opt.5	Opt.6
1.More reliable travel times	10%						
2.Lower-cost housing/transport	20%						
3.Better perception/experience of PT	10%						
4.Improved wellbeing for society	20%						
5.Improved environmental outcomes	20%						
6.Better/more efficient use of space	20%						

Which option would you recommend? _____

(please leave these completed handouts on your table for us to collect at the end)

Feedback to:
Axel Wilke axel@viastrada.nz
Brendon Harre b.harre@hotmail.co.uk
Chris Morahan chrismorahan@hotmail.com
Glen Koorey glen@viastrada.nz

Now it's your turn!
(~30 minutes)

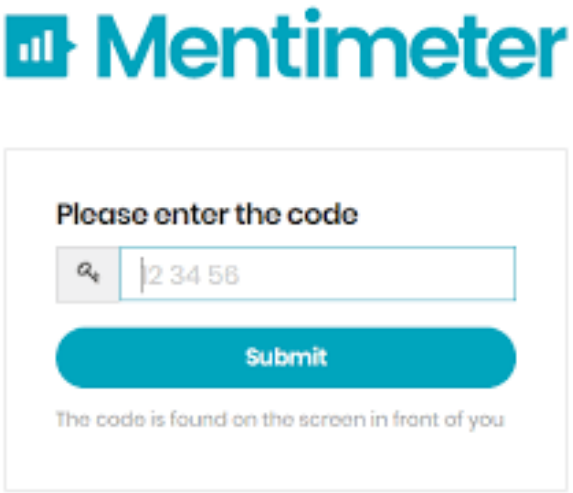
- In your table groups, review the remaining five Options presented in this workshop
  - How well do you think each one will achieve the given Objectives?
  - Score each Option on your form against the six Objectives

  *(For each Objective, the most important thing is the **relative** scores between the different Options)*

- Later: We'll calculate the overall "score" for each Option, and present these at the next workshop

Menti exercise: What did you think of tonight?

Use your smartphone to give us some feedback



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  (You can submit more than one comment if you wish)
- Click "Submit"

  (you can wait until the end to do this survey)

Follow up

- We will collate your workshop contributions
  - Collect your worksheets
  - Menti survey feedback
- Report back via
  - Talking Transport: www.talkingtransport.com
  - CHAT Club Facebook page: fb.com/groups/2482293058864 31/ (CHAT Club – Canterbury Housing and Transport)

Next workshop

- Monday, 1 **July** 2019
- 6:00 to 7:30 pm
- Activity Space (next to TSB Space on level 1) at Tūranga
- Key theme: *How do we make this happen in Canterbury?*

Talking Transport: www.talkingtransport.com
CHAT Club Facebook page: fb.com/groups/2482293058864 31/

Thank you!

- Don't forget to complete your final Menti survey (feedback)
  - Go to www.menti.com
  - Enter code number: **90 86 03**

See you next time!

givealittle.co.nz/cause/chat-club#

givealittle from the Spark Foundation